

HW6.R

tamtam

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```
library(FactoMineR)
library(dplyr)

##
## Attaching package: 'dplyr'

## The following objects are masked from 'package:stats':
##
##   filter, lag

## The following objects are masked from 'package:base':
##
##   intersect, setdiff, setequal, union

library(tidyverse)

## — Attaching packages ————— tidyverse
1.3.0 —

## ✓ ggplot2 3.3.3      ✓ purrr  0.3.4
## ✓ tibble  3.0.6      ✓ stringr 1.4.0
## ✓ tidyr   1.1.2      ✓ forcats 0.5.1
## ✓ readr   1.4.0

## — Conflicts —————
tidyverse_conflicts() —
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()    masks stats::lag()

library(tidyr)
library(caret)

## Loading required package: lattice

##
## Attaching package: 'caret'

## The following object is masked from 'package:purrr':
##
##   lift

library(rpart)
library(rpart.plot)
library(rattle)
```

```

## Loading required package: bitops

## Rattle: A free graphical interface for data science with R.
## Version 5.4.0 Copyright (c) 2006-2020 Togaware Pty Ltd.
## Type 'rattle()' to shake, rattle, and roll your data.

library(ggplot2)
library(ggthemes)
#library(Factoshiny)

setwd("~/Downloads/digit-recognizer")
filename <- "train.csv"
DigitTotalDF <- read.csv(filename, header = TRUE, stringsAsFactors = TRUE)
DigitTotalDF$label<-as.factor(DigitTotalDF$label)
dim(DigitTotalDF)

## [1] 42000    785

colnames<- names(DigitTotalDF)
names(DigitTotalDF)<- sub("pixel","",colnames)

pixels_gathered <- DigitTotalDF %>%
  mutate(instance = row_number()) %>%
  gather(pixel, value, -label, -instance) %>%
  tidyr::extract(pixel, "pixel", "(\\d+)", convert = TRUE) %>%
  mutate(pixel = pixel - 2,
         x = pixel %% 28,
         y = 28 - pixel %/% 28)

pixel_summary <- pixels_gathered %>%
  group_by(x, y, label) %>%
  summarize(mean_value = mean(value)) %>%
  ungroup()

## `summarise()` has grouped output by 'x', 'y'. You can override using the
## `.groups` argument.

pixels_joined <- pixels_gathered %>%
  inner_join(pixel_summary, by = c("label", "x", "y"))

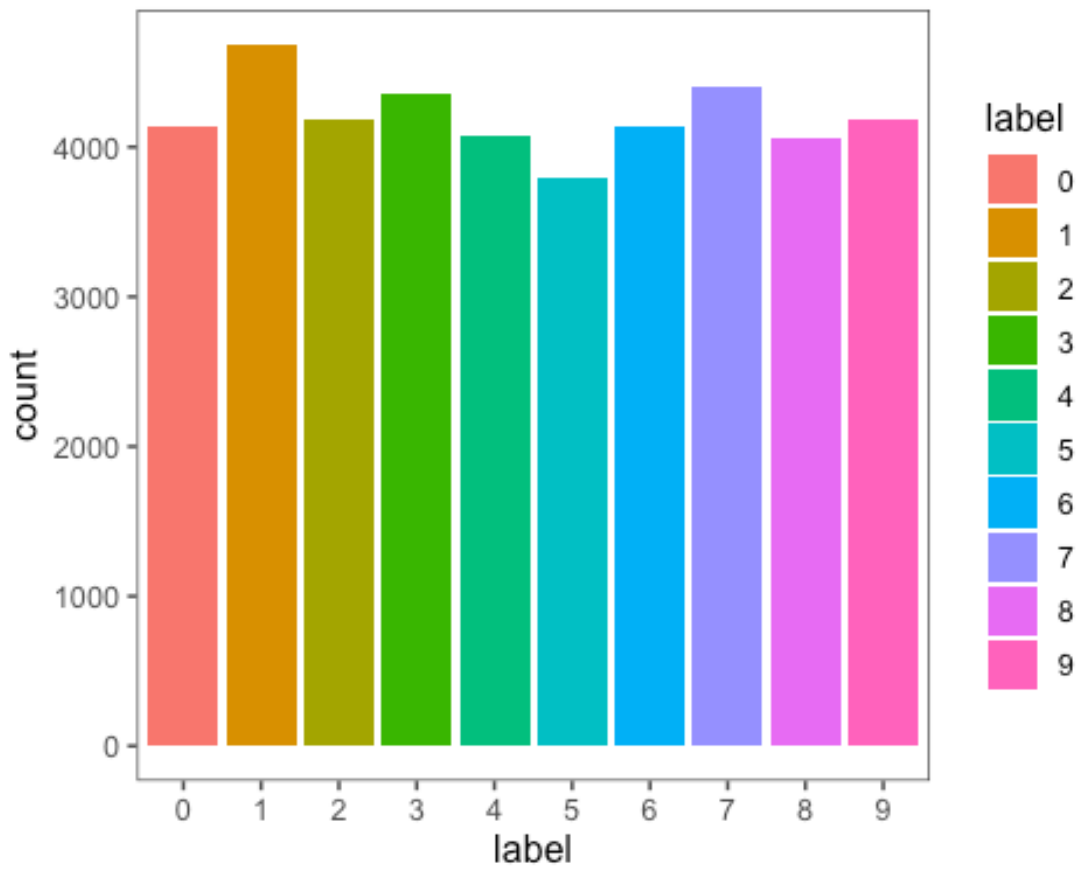
image_distances <- pixels_joined %>%
  group_by(label, instance) %>%
  summarize(euclidean_distance = sqrt(mean((value - mean_value) ^ 2)))

## `summarise()` has grouped output by 'label'. You can override using the
## `.groups` argument.

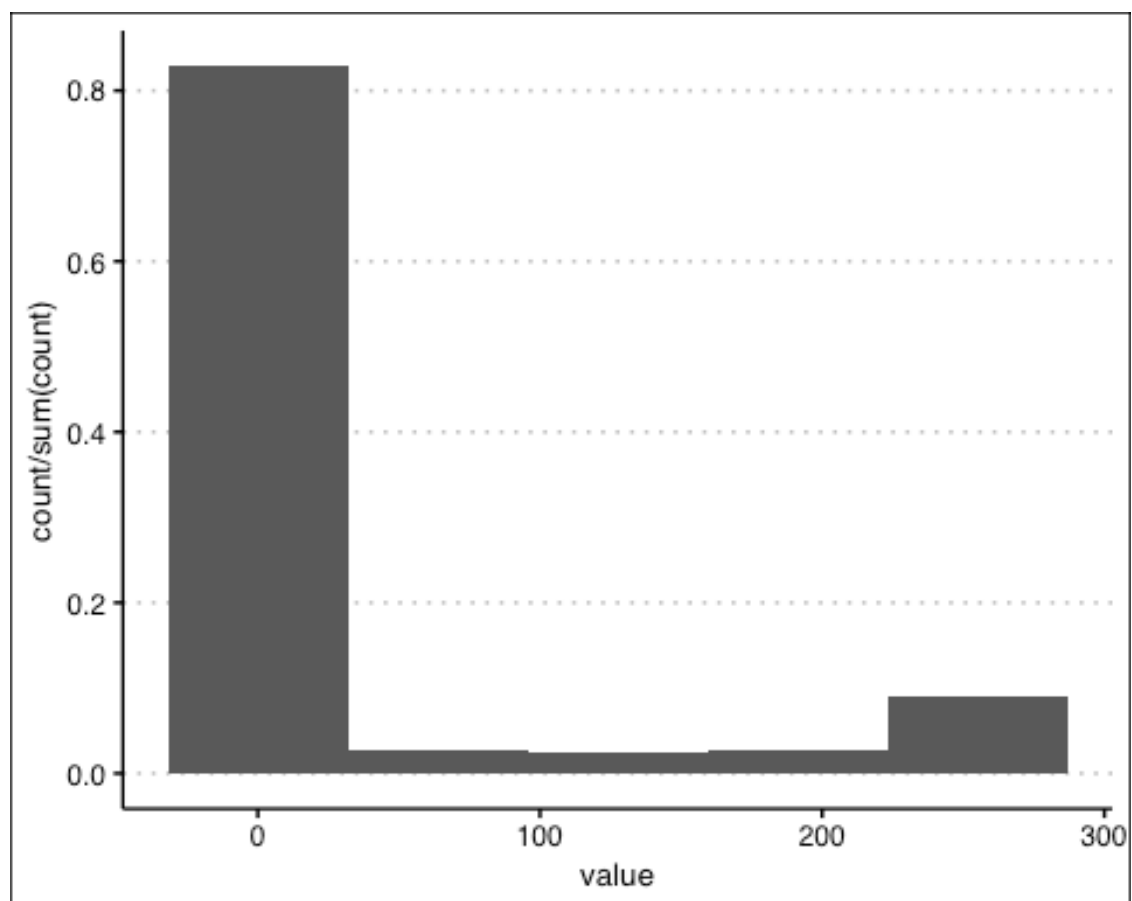
#EDA

ggplot(DigitTotalDF,aes(x=label,fill=label)) + geom_bar() + theme_few()

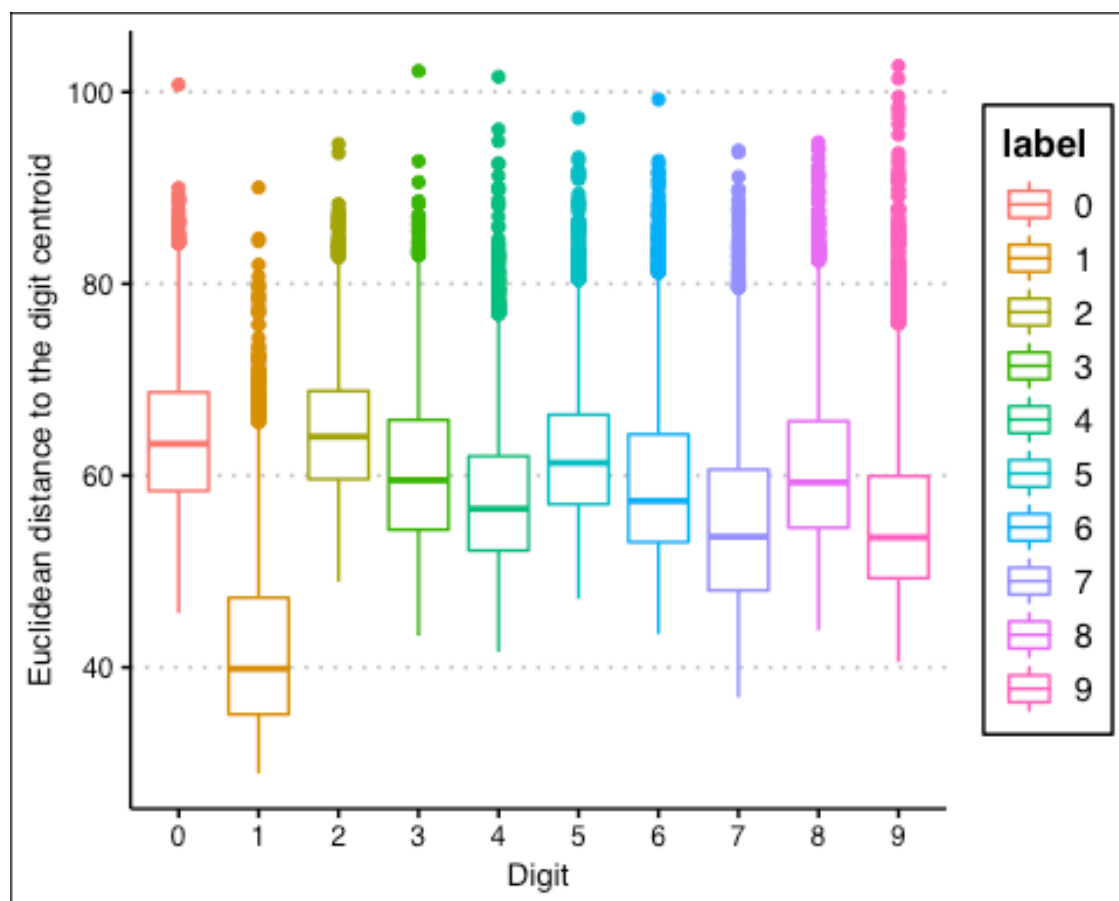
```



```
#Pixel by color , percent  
ggplot(pixels_gathered, aes(value))  
+geom_histogram(aes(y=..count../sum(..count..)),bins=5) + theme_clean()
```



```
ggplot(image_distances, aes(factor(label), euclidean_distance, color=label)) +  
  geom_boxplot() +  
  labs(x = "Digit",  
       y = "Euclidean distance to the digit centroid") + theme_clean()
```



```
# Training
set.seed(1024)

library(doParallel)

## Loading required package: foreach
##
## Attaching package: 'foreach'
## The following objects are masked from 'package:purrr':
##
##   accumulate, when
## Loading required package: iterators
## Loading required package: parallel

cl <- makePSOCKcluster(6)
registerDoParallel(cl)

plotConfusionMatrix<- function(predicted,actual){
  table<-(table(Predicted=predicted, TrueDigits=actual))
  print(table)
```

```

cf<-confusionMatrix(table)
print(cf$overall)
table <- table / rowSums(table)
confusion_matrix <- as.data.frame(table)
plot<-ggplot(data = confusion_matrix,
             aes(x = Predicted,y = TrueDigits)) +
  geom_tile(aes(fill = Freq)) +
  #geom_text(aes(Label = sprintf("%.2f", (Freq/sum(Freq)*100))), vjust = 1)
+
  geom_text(aes(label = scales::percent(Freq,accuracy = 2.2))) +
  scale_fill_gradient(low = "white",
                     high = "purple",
                     trans = "log") + theme_gdocs()

print(plot)
return(cf)
}

```

#Tree Model

```

plotTree<-function(treeModel){
  #summary(treeModel)
  #fancyRpartPlot(treeModel,type=1)
  plot(treeModel)
  #plot number of splits
  rsq.rpart(treeModel)
  plotcp(treeModel)
  #printcp(ptree)
  #confusion matrix to find correct and incorrect predictions
}

```

#Tree models

```

trainIndex <- createDataPartition(DigitTotalDF$label, p = .6, list = FALSE,
times = 1)
trainDF <- DigitTotalDF[ trainIndex,]
testDF  <- DigitTotalDF[-trainIndex,]

predictTreeModel<-function(tree_model){
  summary(tree_model)
  plotTree(tree_model)
  predicted_tree= predict(tree_model, testDF, type="class")
  plotConfusionMatrix(predicted_tree,testDF$label)
  return(tree_model)
}

tree_model_1<-rpart(label ~., data = trainDF, method="class",

```

```

control=rpart.control(cp=0))
predictTreeModel(tree_model_1)

## Call:
## rpart(formula = label ~ ., data = trainDF, method = "class",
##       control = rpart.control(cp = 0))
##      n= 25205
##
##           CP nsplit rel error      xerror      xstd
##  1  9.779405e-02      0 1.0000000 1.0000000 0.002231625
##  2  8.256676e-02      1 0.9022059 0.9030097 0.002823465
##  3  8.020005e-02      2 0.8196392 0.8482183 0.003054854
##  4  5.956953e-02      3 0.7394391 0.7278289 0.003388807
##  5  5.193355e-02      4 0.6798696 0.6604001 0.003490960
##  6  4.572653e-02      5 0.6279361 0.6191391 0.003526886
##  7  4.505671e-02      6 0.5822095 0.5833705 0.003542340
##  8  2.545325e-02      7 0.5371528 0.5345628 0.003540265
##  9  2.138966e-02      8 0.5116996 0.5111190 0.003529761
## 10  1.866571e-02      9 0.4903099 0.4936144 0.003517858
## 11  1.576315e-02     10 0.4716442 0.4810217 0.003507127
## 12  1.549522e-02     11 0.4558810 0.4674466 0.003493505
## 13  1.330714e-02     12 0.4403858 0.4515942 0.003474869
## 14  1.107439e-02     13 0.4270787 0.4339109 0.003450553
## 15  8.350451e-03     14 0.4160043 0.4205144 0.003429611
## 16  6.966152e-03     15 0.4076538 0.4154684 0.003421149
## 17  6.117710e-03     16 0.4006877 0.4035009 0.003399810
## 18  4.822720e-03     17 0.3945700 0.3914888 0.003376564
## 19  4.778066e-03     18 0.3897473 0.3746986 0.003340930
## 20  4.733411e-03     19 0.3849692 0.3711262 0.003332866
## 21  4.688756e-03     21 0.3755024 0.3691614 0.003328358
## 22  4.644101e-03     22 0.3708136 0.3680004 0.003325669
## 23  4.420827e-03     23 0.3661695 0.3646066 0.003317706
## 24  4.286863e-03     24 0.3617487 0.3567920 0.003298769
## 25  3.929624e-03     25 0.3574618 0.3528624 0.003288927
## 26  3.795660e-03     26 0.3535322 0.3471019 0.003274107
## 27  3.751005e-03     29 0.3421452 0.3459409 0.003271064
## 28  3.483076e-03     30 0.3383942 0.3418326 0.003260139
## 29  3.393766e-03     31 0.3349111 0.3366080 0.003245895
## 30  3.349111e-03     32 0.3315174 0.3364741 0.003245524
## 31  3.304457e-03     33 0.3281683 0.3364741 0.003245524
## 32  2.857908e-03     34 0.3248638 0.3317406 0.003232267
## 33  2.835581e-03     37 0.3162901 0.3221845 0.003204489
## 34  2.634634e-03     39 0.3106189 0.3170492 0.003188992
## 35  2.589979e-03     40 0.3079843 0.3131196 0.003176860
## 36  2.545325e-03     41 0.3053943 0.3105296 0.003168733
## 37  2.500670e-03     42 0.3028490 0.3097705 0.003166331
## 38  2.456015e-03     43 0.3003483 0.3084755 0.003162213
## 39  2.389033e-03     44 0.2978923 0.3073145 0.003158498
## 40  2.366705e-03     46 0.2931142 0.3045012 0.003149408
## 41  2.277396e-03     47 0.2907475 0.3038314 0.003147225

```

## 42	2.054122e-03	52	0.2793159	0.2940073	0.003114378
## 43	2.009467e-03	53	0.2772618	0.2853889	0.003084253
## 44	1.830848e-03	59	0.2652050	0.2832009	0.003076405
## 45	1.696883e-03	60	0.2633741	0.2771278	0.003054191
## 46	1.674556e-03	62	0.2599804	0.2739573	0.003042339
## 47	1.629901e-03	64	0.2566312	0.2722604	0.003035923
## 48	1.607573e-03	66	0.2533714	0.2693579	0.003024828
## 49	1.473609e-03	69	0.2485487	0.2670358	0.003015843
## 50	1.406627e-03	70	0.2470751	0.2623024	0.002997223
## 51	1.384299e-03	72	0.2442619	0.2600697	0.002988297
## 52	1.294990e-03	76	0.2387247	0.2567652	0.002974915
## 53	1.250335e-03	77	0.2374297	0.2543092	0.002964835
## 54	1.161025e-03	79	0.2349290	0.2522997	0.002956502
## 55	1.116370e-03	81	0.2326069	0.2499330	0.002946587
## 56	1.094043e-03	83	0.2303742	0.2493079	0.002943950
## 57	1.071716e-03	86	0.2268911	0.2477896	0.002937514
## 58	1.027061e-03	88	0.2247477	0.2476110	0.002936754
## 59	9.824060e-04	90	0.2226936	0.2449317	0.002925275
## 60	9.377512e-04	91	0.2217112	0.2422077	0.002913459
## 61	8.930964e-04	98	0.2151469	0.2384567	0.002896943
## 62	8.707690e-04	100	0.2133607	0.2363580	0.002887576
## 63	8.484415e-04	102	0.2116192	0.2352416	0.002882556
## 64	8.037867e-04	105	0.2090739	0.2309547	0.002863039
## 65	7.591319e-04	111	0.2042511	0.2269358	0.002844387
## 66	7.368045e-04	116	0.2004555	0.2259534	0.002839775
## 67	7.144771e-04	118	0.1989819	0.2241672	0.002831335
## 68	6.698223e-04	124	0.1946950	0.2210860	0.002816611
## 69	6.251675e-04	131	0.1893811	0.2196571	0.002809711
## 70	5.805126e-04	136	0.1862552	0.2153702	0.002788733
## 71	5.358578e-04	147	0.1798696	0.2114852	0.002769358
## 72	4.912030e-04	151	0.1777262	0.2069304	0.002746191
## 73	4.688756e-04	159	0.1737966	0.2034027	0.002727905
## 74	4.465482e-04	161	0.1728588	0.2015718	0.002718294
## 75	4.242208e-04	177	0.1656247	0.1976422	0.002697385
## 76	4.018934e-04	183	0.1625882	0.1964365	0.002690892
## 77	3.795660e-04	197	0.1569617	0.1927302	0.002670696
## 78	3.572385e-04	202	0.1550415	0.1917031	0.002665037
## 79	3.349111e-04	216	0.1500402	0.1877289	0.002642873
## 80	3.125837e-04	218	0.1493704	0.1873270	0.002640608
## 81	2.976988e-04	240	0.1424489	0.1863892	0.002635307
## 82	2.902563e-04	246	0.1406627	0.1829508	0.002615661
## 83	2.679289e-04	250	0.1395017	0.1824149	0.002612570
## 84	2.456015e-04	270	0.1341431	0.1811646	0.002605326
## 85	2.344378e-04	286	0.1301688	0.1793338	0.002594640
## 86	2.232741e-04	290	0.1292310	0.1791551	0.002593592
## 87	2.083892e-04	320	0.1225328	0.1785746	0.002590181
## 88	2.009467e-04	323	0.1219077	0.1785746	0.002590181
## 89	1.786193e-04	325	0.1215058	0.1766991	0.002579093
## 90	1.562919e-04	376	0.1122622	0.1764312	0.002577501
## 91	1.488494e-04	380	0.1116370	0.1764758	0.002577766


```

## 92 1.339645e-04 383 0.1111905 0.1766545 0.002578828
## 93 1.116370e-04 415 0.1069036 0.1767438 0.002579358
## 94 8.930964e-05 424 0.1058319 0.1767884 0.002579623
## 95 7.442470e-05 460 0.1026168 0.1774136 0.002583329
## 96 6.698223e-05 463 0.1023935 0.1770564 0.002581213
## 97 4.465482e-05 465 0.1022595 0.1773243 0.002582800
## 98 3.721235e-05 501 0.1006520 0.1783960 0.002589129
## 99 2.232741e-05 507 0.1004287 0.1785746 0.002590181
## 100 1.116370e-05 513 0.1002947 0.1788872 0.002592019
## 101 0.000000e+00 517 0.1002501 0.1789319 0.002592281
##
## Variable importance
## 489 517 490 350 461 347 435 514 211 434 462 597 542 378 323 516 351 210
515 543
## 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1
## 319 486 270 432 346 212 322 541 487 271 596 626 238 598 239 408 407 348
431 568
## 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1
## 570 485 349 375 436 262 298 433 155 463 657 243 458 299 297 156 234 320
656 658
## 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1
## 354 154 324 272 353 325 269 240 207 459 488 430 569 296 157 235 206 317
377 381
## 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1
## 404 290 376
## 1 1 1
##
## Node number 1: 25205 observations, complexity param=0.09779405
## predicted class=1 expected loss=0.8884745 P(node) =1
## class counts: 2480 2811 2507 2611 2444 2277 2483 2641 2438
2513
## probabilities: 0.098 0.112 0.099 0.104 0.097 0.090 0.099 0.105 0.097
0.100
## left son=2 (9068 obs) right son=3 (16137 obs)
## Primary splits:
## 350 < 120.5 to the right, improve=1009.8860, (0 missing)
## 409 < 0.5 to the left, improve= 999.1138, (0 missing)
## 461 < 1.5 to the left, improve= 990.1707, (0 missing)
## 378 < 131.5 to the right, improve= 964.9390, (0 missing)
## 433 < 0.5 to the left, improve= 956.4358, (0 missing)
## Surrogate splits:
## 351 < 192.5 to the right, agree=0.864, adj=0.621, (0 split)
## 378 < 237.5 to the right, agree=0.860, adj=0.610, (0 split)
## 323 < 118.5 to the right, agree=0.845, adj=0.570, (0 split)
## 322 < 40.5 to the right, agree=0.845, adj=0.570, (0 split)
## 349 < 63.5 to the right, agree=0.844, adj=0.567, (0 split)

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##
## Node number 2: 9068 observations,    complexity param=0.08020005
## predicted class=1 expected loss=0.7144905 P(node) =0.3597699
## class counts:   194  2589   485  2113   239   968   512   229  1200
539
## probabilities: 0.021 0.286 0.053 0.233 0.026 0.107 0.056 0.025 0.132
0.059
## left son=4 (4400 obs) right son=5 (4668 obs)
## Primary splits:
##      489 < 44.5 to the right, improve=1014.6630, (0 missing)
##      517 < 28.5 to the right, improve= 931.7002, (0 missing)
##      375 < 0.5  to the left,  improve= 930.7003, (0 missing)
##      461 < 65.5 to the right, improve= 882.2089, (0 missing)
##      462 < 96.5 to the right, improve= 869.9859, (0 missing)
## Surrogate splits:
##      517 < 32.5 to the right, agree=0.904, adj=0.802, (0 split)
##      461 < 124.5 to the right, agree=0.895, adj=0.785, (0 split)
##      490 < 32.5 to the right, agree=0.868, adj=0.728, (0 split)
##      462 < 96.5 to the right, agree=0.867, adj=0.726, (0 split)
##      516 < 16.5 to the right, agree=0.844, adj=0.679, (0 split)
##
## Node number 3: 16137 observations,    complexity param=0.08256676
## predicted class=7 expected loss=0.8505298 P(node) =0.6402301
## class counts:   2286   222  2022   498  2205  1309  1971  2412  1238
1974
## probabilities: 0.142 0.014 0.125 0.031 0.137 0.081 0.122 0.149 0.077
0.122
## left son=6 (4294 obs) right son=7 (11843 obs)
## Primary splits:
##      435 < 0.5  to the left,  improve=997.0246, (0 missing)
##      436 < 0.5  to the left,  improve=993.5928, (0 missing)
##      569 < 0.5  to the right, improve=985.1319, (0 missing)
##      568 < 0.5  to the right, improve=981.9576, (0 missing)
##      408 < 0.5  to the left,  improve=973.5181, (0 missing)
## Surrogate splits:
##      436 < 0.5  to the left,  agree=0.892, adj=0.594, (0 split)
##      408 < 0.5  to the left,  agree=0.890, adj=0.588, (0 split)
##      434 < 0.5  to the left,  agree=0.888, adj=0.578, (0 split)
##      463 < 0.5  to the left,  agree=0.883, adj=0.559, (0 split)
##      407 < 0.5  to the left,  agree=0.879, adj=0.545, (0 split)
##
## Node number 4: 4400 observations,    complexity param=0.01866571
## predicted class=1 expected loss=0.4475 P(node) =0.1745685
## class counts:    28  2431   337   159   112   105   277   119   674
158
## probabilities: 0.006 0.552 0.077 0.036 0.025 0.024 0.063 0.027 0.153
0.036
## left son=8 (3250 obs) right son=9 (1150 obs)
## Primary splits:
##      234 < 0.5  to the left,  improve=534.2896, (0 missing)

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##      521 < 0.5   to the left,   improve=526.6306, (0 missing)
##      319 < 0.5   to the left,   improve=524.5641, (0 missing)
##      262 < 0.5   to the left,   improve=524.1744, (0 missing)
##      550 < 0.5   to the left,   improve=523.3399, (0 missing)
## Surrogate splits:
##      206 < 0.5   to the left,   agree=0.934, adj=0.747, (0 split)
##      262 < 1.5   to the left,   agree=0.930, adj=0.732, (0 split)
##      235 < 132.5 to the left,   agree=0.930, adj=0.731, (0 split)
##      207 < 48.5  to the left,   agree=0.925, adj=0.715, (0 split)
##      233 < 1.5   to the left,   agree=0.922, adj=0.700, (0 split)
##
## Node number 5: 4668 observations,   complexity param=0.01549522
## predicted class=3 expected loss=0.5814053 P(node) =0.1852013
## class counts:  166  158  148  1954  127  863  235  110  526
381
## probabilities: 0.036 0.034 0.032 0.419 0.027 0.185 0.050 0.024 0.113
0.082
## left son=10 (3675 obs) right son=11 (993 obs)
## Primary splits:
##      486 < 76.5  to the left,   improve=339.3307, (0 missing)
##      290 < 34.5  to the left,   improve=326.0021, (0 missing)
##      487 < 11.5  to the left,   improve=315.4504, (0 missing)
##      317 < 33.5  to the left,   improve=282.8250, (0 missing)
##      291 < 10.5  to the left,   improve=281.4892, (0 missing)
## Surrogate splits:
##      487 < 11.5  to the left,   agree=0.941, adj=0.722, (0 split)
##      514 < 141.5 to the left,   agree=0.922, adj=0.631, (0 split)
##      485 < 101.5 to the left,   agree=0.911, adj=0.581, (0 split)
##      459 < 201.5 to the left,   agree=0.910, adj=0.577, (0 split)
##      458 < 202.5 to the left,   agree=0.908, adj=0.569, (0 split)
##
## Node number 6: 4294 observations,   complexity param=0.02138966
## predicted class=0 expected loss=0.4825338 P(node) =0.170363
## class counts:  2222   17  282  130  166  368  229  664   37
179
## probabilities: 0.517 0.004 0.066 0.030 0.039 0.086 0.053 0.155 0.009
0.042
## left son=12 (2737 obs) right son=13 (1557 obs)
## Primary splits:
##      597 < 1.5   to the right,  improve=603.7671, (0 missing)
##      598 < 2.5   to the right,  improve=574.3586, (0 missing)
##      568 < 0.5   to the right,  improve=537.4804, (0 missing)
##      626 < 3.5   to the right,  improve=524.5488, (0 missing)
##      511 < 2.5   to the right,  improve=521.8409, (0 missing)
## Surrogate splits:
##      598 < 7.5   to the right,  agree=0.930, adj=0.808, (0 split)
##      596 < 0.5   to the right,  agree=0.905, adj=0.739, (0 split)
##      568 < 0.5   to the right,  agree=0.898, adj=0.720, (0 split)
##      626 < 6.5   to the right,  agree=0.895, adj=0.712, (0 split)
##      569 < 1.5   to the right,  agree=0.887, adj=0.689, (0 split)

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##
## Node number 7: 11843 observations,    complexity param=0.05956953
## predicted class=4 expected loss=0.8278308 P(node) =0.4698671
## class counts:    64    205    1740    368    2039    941    1742    1748    1201
1795
## probabilities: 0.005 0.017 0.147 0.031 0.172 0.079 0.147 0.148 0.101
0.152
## left son=14 (5226 obs) right son=15 (6617 obs)
## Primary splits:
##      542 < 1.5   to the right, improve=822.1865, (0 missing)
##      570 < 1.5   to the right, improve=766.1911, (0 missing)
##      127 < 0.5   to the right, improve=760.7062, (0 missing)
##      569 < 0.5   to the right, improve=752.4553, (0 missing)
##      541 < 0.5   to the right, improve=750.0038, (0 missing)
## Surrogate splits:
##      541 < 0.5   to the right, agree=0.895, adj=0.762, (0 split)
##      543 < 48.5  to the right, agree=0.893, adj=0.757, (0 split)
##      570 < 20.5  to the right, agree=0.880, adj=0.729, (0 split)
##      515 < 31.5  to the right, agree=0.854, adj=0.670, (0 split)
##      514 < 1.5   to the right, agree=0.852, adj=0.666, (0 split)
##
## Node number 8: 3250 observations,    complexity param=0.002277396
## predicted class=1 expected loss=0.2649231 P(node) =0.1289427
## class counts:    18    2389    157    56    76    91    158    24    214
67
## probabilities: 0.006 0.735 0.048 0.017 0.023 0.028 0.049 0.007 0.066
0.021
## left son=16 (2607 obs) right son=17 (643 obs)
## Primary splits:
##      347 < 1.5   to the left,  improve=298.0289, (0 missing)
##      402 < 8      to the left,  improve=281.7995, (0 missing)
##      375 < 48.5  to the left,  improve=280.9152, (0 missing)
##      374 < 0.5   to the left,  improve=277.2342, (0 missing)
##      457 < 1.5   to the left,  improve=273.9629, (0 missing)
## Surrogate splits:
##      375 < 29.5  to the left,  agree=0.943, adj=0.712, (0 split)
##      319 < 0.5   to the left,  agree=0.942, adj=0.709, (0 split)
##      348 < 170.5 to the left,  agree=0.930, adj=0.645, (0 split)
##      374 < 0.5   to the left,  agree=0.925, adj=0.621, (0 split)
##      346 < 1      to the left,  agree=0.923, adj=0.610, (0 split)
##
## Node number 9: 1150 observations,    complexity param=0.004733411
## predicted class=8 expected loss=0.6 P(node) =0.04562587
## class counts:    10    42    180    103    36    14    119    95    460
91
## probabilities: 0.009 0.037 0.157 0.090 0.031 0.012 0.103 0.083 0.400
0.079
## left son=18 (434 obs) right son=19 (716 obs)
## Primary splits:
##      658 < 13.5  to the left,  improve=111.38900, (0 missing)

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##      657 < 1.5   to the left,   improve=108.81070, (0 missing)
##      659 < 1     to the left,   improve=108.67210, (0 missing)
##      656 < 4     to the left,   improve= 97.54418, (0 missing)
##      319 < 6.5   to the left,   improve= 79.81577, (0 missing)
## Surrogate splits:
##      659 < 1     to the left,   agree=0.916, adj=0.776, (0 split)
##      657 < 5     to the left,   agree=0.910, adj=0.763, (0 split)
##      630 < 66.5  to the left,   agree=0.860, adj=0.629, (0 split)
##      631 < 5     to the left,   agree=0.846, adj=0.592, (0 split)
##      656 < 1.5   to the left,   agree=0.819, adj=0.521, (0 split)
##
## Node number 10: 3675 observations,   complexity param=0.01330714
## predicted class=3 expected loss=0.4862585 P(node) =0.1458044
## class counts:  101  138   22 1888  113  810   35  109  113
346
## probabilities: 0.027 0.038 0.006 0.514 0.031 0.220 0.010 0.030 0.031
0.094
## left son=20 (2318 obs) right son=21 (1357 obs)
## Primary splits:
##      290 < 42.5  to the left,   improve=347.9199, (0 missing)
##      317 < 33.5  to the left,   improve=327.6350, (0 missing)
##      296 < 12.5  to the right,  improve=303.0004, (0 missing)
##      289 < 5.5   to the left,   improve=302.9559, (0 missing)
##      318 < 51.5  to the left,   improve=279.4329, (0 missing)
## Surrogate splits:
##      289 < 11.5  to the left,   agree=0.875, adj=0.660, (0 split)
##      318 < 138.5 to the left,   agree=0.863, adj=0.629, (0 split)
##      291 < 38.5  to the left,   agree=0.861, adj=0.623, (0 split)
##      317 < 68.5  to the left,   agree=0.858, adj=0.615, (0 split)
##      262 < 68    to the left,   agree=0.850, adj=0.593, (0 split)
##
## Node number 11: 993 observations,   complexity param=0.006966152
## predicted class=8 expected loss=0.5840886 P(node) =0.03939695
## class counts:   65   20  126   66   14   53  200   1  413
35
## probabilities: 0.065 0.020 0.127 0.066 0.014 0.053 0.201 0.001 0.416
0.035
## left son=22 (423 obs) right son=23 (570 obs)
## Primary splits:
##      657 < 5.5   to the left,   improve=140.94030, (0 missing)
##      656 < 1     to the left,   improve=138.99620, (0 missing)
##      658 < 0.5   to the left,   improve=123.86500, (0 missing)
##      655 < 14    to the left,   improve=122.38120, (0 missing)
##      654 < 0.5   to the left,   improve= 90.32948, (0 missing)
## Surrogate splits:
##      656 < 1     to the left,   agree=0.957, adj=0.898, (0 split)
##      658 < 0.5   to the left,   agree=0.934, adj=0.844, (0 split)
##      655 < 0.5   to the left,   agree=0.900, adj=0.766, (0 split)
##      659 < 0.5   to the left,   agree=0.845, adj=0.636, (0 split)
##      654 < 0.5   to the left,   agree=0.830, adj=0.600, (0 split)

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##
## Node number 12: 2737 observations,    complexity param=0.004644101
## predicted class=0 expected loss=0.2499087 P(node) =0.1085896
## class counts:  2053      6    230    85      5    220    83    16    30
9
## probabilities: 0.750 0.002 0.084 0.031 0.002 0.080 0.030 0.006 0.011
0.003
## left son=24 (2295 obs) right son=25 (442 obs)
## Primary splits:
##      489 < 0.5   to the left,  improve=243.9992, (0 missing)
##      461 < 0.5   to the left,  improve=224.9709, (0 missing)
##      488 < 2.5   to the left,  improve=222.8567, (0 missing)
##      372 < 0.5   to the right, improve=215.5484, (0 missing)
##      400 < 3.5   to the right, improve=215.4347, (0 missing)
## Surrogate splits:
##      490 < 33.5  to the left,  agree=0.955, adj=0.724, (0 split)
##      488 < 0.5   to the left,  agree=0.950, adj=0.688, (0 split)
##      517 < 140.5 to the left,  agree=0.936, adj=0.606, (0 split)
##      462 < 1.5   to the left,  agree=0.932, adj=0.581, (0 split)
##      461 < 0.5   to the left,  agree=0.931, adj=0.570, (0 split)
##
## Node number 13: 1557 observations,    complexity param=0.004778066
## predicted class=7 expected loss=0.583815 P(node) =0.06177346
## class counts:  169    11    52    45    161    148    146    648    7
170
## probabilities: 0.109 0.007 0.033 0.029 0.103 0.095 0.094 0.416 0.004
0.109
## left son=26 (603 obs) right son=27 (954 obs)
## Primary splits:
##      486 < 0.5   to the right, improve=171.6117, (0 missing)
##      458 < 0.5   to the right, improve=170.5544, (0 missing)
##      487 < 0.5   to the right, improve=170.2561, (0 missing)
##      515 < 1     to the right, improve=162.3623, (0 missing)
##      459 < 1     to the right, improve=157.7163, (0 missing)
## Surrogate splits:
##      487 < 0.5   to the right, agree=0.920, adj=0.793, (0 split)
##      485 < 1     to the right, agree=0.903, adj=0.750, (0 split)
##      514 < 0.5   to the right, agree=0.903, adj=0.750, (0 split)
##      515 < 2.5   to the right, agree=0.900, adj=0.743, (0 split)
##      458 < 0.5   to the right, agree=0.891, adj=0.718, (0 split)
##
## Node number 14: 5226 observations,    complexity param=0.04505671
## predicted class=6 expected loss=0.6928817 P(node) =0.2073398
## class counts:   49   131  1467   40   271   235  1605   284   948
196
## probabilities: 0.009 0.025 0.281 0.008 0.052 0.045 0.307 0.054 0.181
0.038
## left son=28 (2838 obs) right son=29 (2388 obs)
## Primary splits:
##      271 < 0.5   to the right, improve=604.5449, (0 missing)

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##      270 < 0.5   to the right, improve=599.7244, (0 missing)
##      243 < 0.5   to the right, improve=593.0277, (0 missing)
##      347 < 0.5   to the left,  improve=575.8547, (0 missing)
##      242 < 0.5   to the right, improve=568.0370, (0 missing)
## Surrogate splits:
##      243 < 0.5   to the right, agree=0.910, adj=0.803, (0 split)
##      299 < 0.5   to the right, agree=0.906, adj=0.794, (0 split)
##      270 < 0.5   to the right, agree=0.857, adj=0.686, (0 split)
##      298 < 3.5   to the right, agree=0.854, adj=0.680, (0 split)
##      272 < 0.5   to the right, agree=0.853, adj=0.678, (0 split)
##
## Node number 15: 6617 observations,      complexity param=0.05193355
## predicted class=4 expected loss=0.7328094 P(node) =0.2625273
## class counts:      15      74      273      328      1768      706      137      1464      253
1599
## probabilities: 0.002 0.011 0.041 0.050 0.267 0.107 0.021 0.221 0.038
0.242
## left son=30 (4489 obs) right son=31 (2128 obs)
## Primary splits:
##      432 < 0.5   to the right, improve=696.1747, (0 missing)
##      431 < 0.5   to the right, improve=662.3729, (0 missing)
##      433 < 2.5   to the right, improve=658.4506, (0 missing)
##      430 < 0.5   to the right, improve=646.2347, (0 missing)
##      239 < 0.5   to the left,  improve=617.7026, (0 missing)
## Surrogate splits:
##      431 < 0.5   to the right, agree=0.935, adj=0.798, (0 split)
##      433 < 29.5   to the right, agree=0.922, adj=0.758, (0 split)
##      430 < 0.5   to the right, agree=0.864, adj=0.577, (0 split)
##      434 < 80.5   to the right, agree=0.823, adj=0.451, (0 split)
##      460 < 0.5   to the right, agree=0.821, adj=0.444, (0 split)
##
## Node number 16: 2607 observations,      complexity param=0.002277396
## predicted class=1 expected loss=0.1258151 P(node) =0.1034319
## class counts:      1      2279      123      20      14      24      30      9      100
7
## probabilities: 0.000 0.874 0.047 0.008 0.005 0.009 0.012 0.003 0.038
0.003
## left son=32 (2456 obs) right son=33 (151 obs)
## Primary splits:
##      550 < 0.5   to the left,  improve=155.3068, (0 missing)
##      580 < 0.5   to the left,  improve=151.2452, (0 missing)
##      551 < 6.5   to the left,  improve=149.7522, (0 missing)
##      579 < 1.5   to the left,  improve=147.4893, (0 missing)
##      149 < 5     to the left,  improve=146.3479, (0 missing)
## Surrogate splits:
##      551 < 0.5   to the left,  agree=0.986, adj=0.755, (0 split)
##      578 < 44    to the left,  agree=0.979, adj=0.642, (0 split)
##      549 < 160   to the left,  agree=0.979, adj=0.636, (0 split)
##      522 < 2.5   to the left,  agree=0.978, adj=0.623, (0 split)
##      552 < 6     to the left,  agree=0.977, adj=0.609, (0 split)

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##
## Node number 17: 643 observations,    complexity param=0.002277396
## predicted class=6 expected loss=0.8009331 P(node) =0.02551081
## class counts:    17    110    34    36    62    67    128    15    114
60
## probabilities: 0.026 0.171 0.053 0.056 0.096 0.104 0.199 0.023 0.177
0.093
## left son=34 (564 obs) right son=35 (79 obs)
## Primary splits:
##      103 < 1.5 to the left, improve=49.62266, (0 missing)
##      102 < 4.5 to the left, improve=45.81023, (0 missing)
##      657 < 1.5 to the left, improve=44.98221, (0 missing)
##      467 < 2.5 to the right, improve=44.65403, (0 missing)
##      522 < 37 to the left, improve=43.85053, (0 missing)
## Surrogate splits:
##      104 < 5.5 to the left, agree=0.955, adj=0.633, (0 split)
##      102 < 11.5 to the left, agree=0.953, adj=0.620, (0 split)
##      131 < 213.5 to the left, agree=0.941, adj=0.519, (0 split)
##      130 < 227.5 to the left, agree=0.935, adj=0.468, (0 split)
##      132 < 228 to the left, agree=0.922, adj=0.367, (0 split)
##
## Node number 18: 434 observations,    complexity param=0.004286863
## predicted class=2 expected loss=0.6705069 P(node) =0.01721881
## class counts:    5    19    143    15    13    6    114    28    37
54
## probabilities: 0.012 0.044 0.329 0.035 0.030 0.014 0.263 0.065 0.085
0.124
## left son=36 (228 obs) right son=37 (206 obs)
## Primary splits:
##      345 < 18 to the left, improve=60.79050, (0 missing)
##      384 < 7.5 to the left, improve=48.60646, (0 missing)
##      373 < 32.5 to the left, improve=47.71478, (0 missing)
##      318 < 36.5 to the left, improve=46.92627, (0 missing)
##      317 < 8.5 to the left, improve=46.85354, (0 missing)
## Surrogate splits:
##      317 < 18.5 to the left, agree=0.924, adj=0.840, (0 split)
##      373 < 21 to the left, agree=0.924, adj=0.840, (0 split)
##      344 < 0.5 to the left, agree=0.901, adj=0.791, (0 split)
##      346 < 11.5 to the left, agree=0.878, adj=0.743, (0 split)
##      372 < 0.5 to the left, agree=0.869, adj=0.723, (0 split)
##
## Node number 19: 716 observations,    complexity param=0.001094043
## predicted class=8 expected loss=0.4092179 P(node) =0.02840706
## class counts:    5    23    37    88    23    8    5    67    423
37
## probabilities: 0.007 0.032 0.052 0.123 0.032 0.011 0.007 0.094 0.591
0.052
## left son=38 (218 obs) right son=39 (498 obs)
## Primary splits:
##      319 < 2 to the left, improve=57.35732, (0 missing)

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##      543 < 10.5  to the left,  improve=55.94126, (0 missing)
##      515 < 66.5  to the left,  improve=54.57325, (0 missing)
##      516 < 50    to the left,  improve=50.41320, (0 missing)
##      318 < 1.5   to the left,  improve=46.75767, (0 missing)
## Surrogate splits:
##      318 < 0.5   to the left,  agree=0.873, adj=0.583, (0 split)
##      320 < 0.5   to the left,  agree=0.865, adj=0.555, (0 split)
##      347 < 7     to the left,  agree=0.856, adj=0.528, (0 split)
##      291 < 79    to the left,  agree=0.855, adj=0.523, (0 split)
##      290 < 2     to the left,  agree=0.837, adj=0.463, (0 split)
##
## Node number 20: 2318 observations,      complexity param=0.002009467
## predicted class=3 expected loss=0.2868852 P(node) =0.09196588
## class counts:    34   132   19  1653   36   277   19   30   53
65
## probabilities: 0.015 0.057 0.008 0.713 0.016 0.119 0.008 0.013 0.023
0.028
## left son=40 (1626 obs) right son=41 (692 obs)
## Primary splits:
##      179 < 1.5   to the right, improve=136.4540, (0 missing)
##      296 < 12.5  to the right, improve=131.9266, (0 missing)
##      655 < 3.5   to the right, improve=131.1460, (0 missing)
##      152 < 0.5   to the right, improve=130.7408, (0 missing)
##      490 < 104.5 to the right, improve=128.5077, (0 missing)
## Surrogate splits:
##      180 < 9.5   to the right, agree=0.910, adj=0.698, (0 split)
##      178 < 0.5   to the right, agree=0.902, adj=0.672, (0 split)
##      151 < 0.5   to the right, agree=0.837, adj=0.455, (0 split)
##      181 < 17.5  to the right, agree=0.830, adj=0.432, (0 split)
##      207 < 0.5   to the right, agree=0.825, adj=0.415, (0 split)
##
## Node number 21: 1357 observations,      complexity param=0.008350451
## predicted class=5 expected loss=0.6072218 P(node) =0.05383852
## class counts:    67    6    3   235   77   533   16   79   60
281
## probabilities: 0.049 0.004 0.002 0.173 0.057 0.393 0.012 0.058 0.044
0.207
## left son=42 (836 obs) right son=43 (521 obs)
## Primary splits:
##      626 < 10.5  to the right, improve=148.5743, (0 missing)
##      297 < 13.5  to the left,  improve=148.4859, (0 missing)
##      625 < 0.5   to the right, improve=140.2124, (0 missing)
##      296 < 10.5  to the left,  improve=134.0005, (0 missing)
##      627 < 1     to the right, improve=130.5689, (0 missing)
## Surrogate splits:
##      625 < 0.5   to the right, agree=0.935, adj=0.831, (0 split)
##      627 < 34.5  to the right, agree=0.931, adj=0.821, (0 split)
##      598 < 1     to the right, agree=0.887, adj=0.704, (0 split)
##      597 < 1     to the right, agree=0.878, adj=0.683, (0 split)
##      654 < 0.5   to the right, agree=0.866, adj=0.651, (0 split)

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##
## Node number 22: 423 observations,    complexity param=0.002456015
## predicted class=6 expected loss=0.5626478 P(node) =0.01678238
## class counts:    13    20    98    15    14    23    185    0    29
26
## probabilities: 0.031 0.047 0.232 0.035 0.033 0.054 0.437 0.000 0.069
0.061
## left son=44 (173 obs) right son=45 (250 obs)
## Primary splits:
## 270 < 51.5 to the right, improve=48.04790, (0 missing)
## 242 < 2.5 to the right, improve=48.02302, (0 missing)
## 269 < 129.5 to the right, improve=46.32373, (0 missing)
## 243 < 28.5 to the right, improve=39.71868, (0 missing)
## 241 < 63.5 to the right, improve=39.07740, (0 missing)
## Surrogate splits:
## 297 < 149 to the right, agree=0.898, adj=0.751, (0 split)
## 271 < 1.5 to the right, agree=0.884, adj=0.717, (0 split)
## 269 < 152.5 to the right, agree=0.882, adj=0.711, (0 split)
## 243 < 4.5 to the right, agree=0.879, adj=0.705, (0 split)
## 242 < 83 to the right, agree=0.877, adj=0.699, (0 split)
##
## Node number 23: 570 observations,    complexity param=0.001027061
## predicted class=8 expected loss=0.3263158 P(node) =0.02261456
## class counts:    52    0    28    51    0    30    15    1    384
9
## probabilities: 0.091 0.000 0.049 0.089 0.000 0.053 0.026 0.002 0.674
0.016
## left son=46 (97 obs) right son=47 (473 obs)
## Primary splits:
## 407 < 1.5 to the left, improve=41.25076, (0 missing)
## 412 < 57.5 to the right, improve=40.94860, (0 missing)
## 435 < 44.5 to the left, improve=40.48067, (0 missing)
## 436 < 7 to the left, improve=39.70404, (0 missing)
## 440 < 51 to the right, improve=37.08431, (0 missing)
## Surrogate splits:
## 406 < 59 to the left, agree=0.921, adj=0.536, (0 split)
## 379 < 106.5 to the left, agree=0.907, adj=0.454, (0 split)
## 378 < 118 to the left, agree=0.902, adj=0.423, (0 split)
## 405 < 39.5 to the left, agree=0.870, adj=0.237, (0 split)
## 351 < 39.5 to the left, agree=0.858, adj=0.165, (0 split)
##
## Node number 24: 2295 observations,    complexity param=0.001384299
## predicted class=0 expected loss=0.1389978 P(node) =0.09105336
## class counts: 1976    1    49    75    2    121    47    12    6
6
## probabilities: 0.861 0.000 0.021 0.033 0.001 0.053 0.020 0.005 0.003
0.003
## left son=48 (2072 obs) right son=49 (223 obs)
## Primary splits:
## 380 < 1.5 to the left, improve=136.9082, (0 missing)

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##      351 < 5.5   to the left,   improve=120.5561, (0 missing)
##      379 < 1.5   to the left,   improve=111.7483, (0 missing)
##      352 < 5.5   to the left,   improve=107.7130, (0 missing)
##      378 < 46.5  to the left,   improve=106.0854, (0 missing)
## Surrogate splits:
##      379 < 0.5   to the left,   agree=0.959, adj=0.574, (0 split)
##      352 < 122.5 to the left,   agree=0.953, adj=0.511, (0 split)
##      381 < 181.5 to the left,   agree=0.953, adj=0.511, (0 split)
##      408 < 24.5  to the left,   agree=0.952, adj=0.507, (0 split)
##      407 < 4     to the left,   agree=0.949, adj=0.471, (0 split)
##
## Node number 25: 442 observations,      complexity param=0.003483076
## predicted class=2 expected loss=0.5904977 P(node) =0.0175362
## class counts:   77     5   181    10     3    99    36     4    24
##
## probabilities: 0.174 0.011 0.410 0.023 0.007 0.224 0.081 0.009 0.054
0.007
## left son=50 (218 obs) right son=51 (224 obs)
## Primary splits:
##      347 < 2.5   to the left,   improve=82.75933, (0 missing)
##      319 < 2     to the left,   improve=82.43492, (0 missing)
##      320 < 1     to the left,   improve=78.95617, (0 missing)
##      374 < 4.5   to the left,   improve=77.95075, (0 missing)
##      346 < 5.5   to the left,   improve=73.21611, (0 missing)
## Surrogate splits:
##      319 < 10.5  to the left,   agree=0.930, adj=0.858, (0 split)
##      320 < 14.5  to the left,   agree=0.928, adj=0.853, (0 split)
##      375 < 1     to the left,   agree=0.912, adj=0.821, (0 split)
##      348 < 1     to the left,   agree=0.907, adj=0.812, (0 split)
##      346 < 5.5   to the left,   agree=0.882, adj=0.761, (0 split)
##
## Node number 26: 603 observations,      complexity param=0.004733411
## predicted class=6 expected loss=0.7794362 P(node) =0.02392382
## class counts:   108     1    44    11   125    60   133    26     5
90
## probabilities: 0.179 0.002 0.073 0.018 0.207 0.100 0.221 0.043 0.008
0.149
## left son=52 (309 obs) right son=53 (294 obs)
## Primary splits:
##      572 < 5.5   to the right,  improve=60.75282, (0 missing)
##      571 < 94.5  to the right,  improve=60.30347, (0 missing)
##      600 < 21.5  to the right,  improve=54.55946, (0 missing)
##      99 < 1.5    to the left,   improve=54.37963, (0 missing)
##      298 < 1.5   to the right,  improve=50.66128, (0 missing)
## Surrogate splits:
##      571 < 0.5   to the right,  agree=0.927, adj=0.850, (0 split)
##      573 < 22    to the right,  agree=0.894, adj=0.782, (0 split)
##      543 < 148   to the right,  agree=0.856, adj=0.704, (0 split)
##      600 < 19    to the right,  agree=0.846, adj=0.684, (0 split)
##      601 < 13.5  to the right,  agree=0.839, adj=0.670, (0 split)

```

```

##
## Node number 27: 954 observations,    complexity param=0.00250067
## predicted class=7 expected loss=0.3480084 P(node) =0.03784963
## class counts:    61    10    8    34    36    88    13    622    2
80
## probabilities: 0.064 0.010 0.008 0.036 0.038 0.092 0.014 0.652 0.002
0.084
## left son=54 (208 obs) right son=55 (746 obs)
## Primary splits:
## 404 < 1 to the right, improve=127.8033, (0 missing)
## 403 < 4 to the right, improve=126.7987, (0 missing)
## 432 < 2 to the right, improve=117.4801, (0 missing)
## 405 < 3 to the right, improve=115.9155, (0 missing)
## 376 < 0.5 to the right, improve=106.3250, (0 missing)
## Surrogate splits:
## 405 < 3 to the right, agree=0.954, adj=0.788, (0 split)
## 403 < 45 to the right, agree=0.953, adj=0.784, (0 split)
## 377 < 1.5 to the right, agree=0.939, adj=0.721, (0 split)
## 376 < 5.5 to the right, agree=0.935, adj=0.702, (0 split)
## 406 < 1 to the right, agree=0.922, adj=0.644, (0 split)
##
## Node number 28: 2838 observations,    complexity param=0.02545325
## predicted class=2 expected loss=0.6169838 P(node) =0.1125967
## class counts:    41   102  1087    28   217   131    78   249   742
163
## probabilities: 0.014 0.036 0.383 0.010 0.076 0.046 0.027 0.088 0.261
0.057
## left son=56 (1644 obs) right son=57 (1194 obs)
## Primary splits:
## 347 < 1.5 to the left, improve=389.0371, (0 missing)
## 127 < 1.5 to the right, improve=367.2948, (0 missing)
## 126 < 0.5 to the right, improve=359.3462, (0 missing)
## 684 < 0.5 to the left, improve=345.3252, (0 missing)
## 319 < 1.5 to the left, improve=335.1514, (0 missing)
## Surrogate splits:
## 348 < 0.5 to the left, agree=0.898, adj=0.757, (0 split)
## 319 < 10.5 to the left, agree=0.894, adj=0.748, (0 split)
## 346 < 7.5 to the left, agree=0.893, adj=0.745, (0 split)
## 375 < 0.5 to the left, agree=0.880, adj=0.714, (0 split)
## 320 < 0.5 to the left, agree=0.857, adj=0.660, (0 split)
##
## Node number 29: 2388 observations,    complexity param=0.01107439
## predicted class=6 expected loss=0.3605528 P(node) =0.09474311
## class counts:    8    29   380   12    54   104  1527   35   206
33
## probabilities: 0.003 0.012 0.159 0.005 0.023 0.044 0.639 0.015 0.086
0.014
## left son=58 (447 obs) right son=59 (1941 obs)
## Primary splits:
## 297 < 53.5 to the right, improve=306.1271, (0 missing)

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##      296 < 66.5  to the right, improve=303.9832, (0 missing)
##      269 < 15.5  to the right, improve=285.7534, (0 missing)
##      324 < 96.5  to the right, improve=271.0391, (0 missing)
##      241 < 53.5  to the right, improve=215.7059, (0 missing)
## Surrogate splits:
##      269 < 82    to the right, agree=0.953, adj=0.749, (0 split)
##      296 < 61    to the right, agree=0.951, adj=0.740, (0 split)
##      324 < 113.5 to the right, agree=0.948, adj=0.723, (0 split)
##      325 < 141.5 to the right, agree=0.934, adj=0.647, (0 split)
##      270 < 0.5   to the right, agree=0.918, adj=0.562, (0 split)
##
## Node number 30: 4489 observations,      complexity param=0.04572653
## predicted class=4 expected loss=0.6437959 P(node) =0.1780996
## class counts:      7      8    201    259  1599    587   100   132   217
1379
## probabilities: 0.002 0.002 0.045 0.058 0.356 0.131 0.022 0.029 0.048
0.307
## left son=60 (1830 obs) right son=61 (2659 obs)
## Primary splits:
##      211 < 31.5  to the left,  improve=645.5260, (0 missing)
##      210 < 4.5   to the left,  improve=585.5882, (0 missing)
##      238 < 5.5   to the left,  improve=521.4250, (0 missing)
##      239 < 0.5   to the left,  improve=517.7189, (0 missing)
##      212 < 10.5  to the left,  improve=496.3398, (0 missing)
## Surrogate splits:
##      210 < 0.5   to the left,  agree=0.892, adj=0.734, (0 split)
##      212 < 10.5  to the left,  agree=0.887, adj=0.723, (0 split)
##      239 < 0.5   to the left,  agree=0.871, adj=0.683, (0 split)
##      238 < 1.5   to the left,  agree=0.841, adj=0.609, (0 split)
##      240 < 0.5   to the left,  agree=0.798, adj=0.505, (0 split)
##
## Node number 31: 2128 observations,      complexity param=0.00611771
## predicted class=7 expected loss=0.3740602 P(node) =0.08442769
## class counts:      8     66    72    69   169   119    37  1332    36
220
## probabilities: 0.004 0.031 0.034 0.032 0.079 0.056 0.017 0.626 0.017
0.103
## left son=62 (1766 obs) right son=63 (362 obs)
## Primary splits:
##      487 < 75.5  to the left,  improve=227.9958, (0 missing)
##      486 < 63.5  to the left,  improve=223.1893, (0 missing)
##      458 < 47.5  to the left,  improve=211.7383, (0 missing)
##      488 < 105.5 to the right, improve=209.6276, (0 missing)
##      459 < 1     to the left,  improve=205.0181, (0 missing)
## Surrogate splits:
##      486 < 40    to the left,  agree=0.992, adj=0.950, (0 split)
##      459 < 1     to the left,  agree=0.981, adj=0.887, (0 split)
##      488 < 162   to the left,  agree=0.971, adj=0.831, (0 split)
##      458 < 26.5  to the left,  agree=0.971, adj=0.829, (0 split)
##      485 < 0.5   to the left,  agree=0.961, adj=0.771, (0 split)

```

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##
## Node number 32: 2456 observations,    complexity param=0.001384299
## predicted class=1 expected loss=0.0769544 P(node) =0.09744098
## class counts:    0 2267    31    12    10    24    8    8    90
6
## probabilities: 0.000 0.923 0.013 0.005 0.004 0.010 0.003 0.003 0.037
0.002
## left son=64 (2312 obs) right son=65 (144 obs)
## Primary splits:
##      300 < 21.5 to the left, improve=78.16071, (0 missing)
##      355 < 32.5 to the left, improve=76.54136, (0 missing)
##      484 < 5.5  to the left, improve=75.24698, (0 missing)
##      301 < 2.5  to the left, improve=74.91437, (0 missing)
##      511 < 6.5  to the left, improve=72.98386, (0 missing)
## Surrogate splits:
##      327 < 81   to the left, agree=0.982, adj=0.694, (0 split)
##      299 < 192  to the left, agree=0.981, adj=0.681, (0 split)
##      272 < 98.5 to the left, agree=0.980, adj=0.667, (0 split)
##      273 < 1    to the left, agree=0.979, adj=0.639, (0 split)
##      301 < 5.5  to the left, agree=0.975, adj=0.569, (0 split)
##
## Node number 33: 151 observations,    complexity param=0.0005805126
## predicted class=2 expected loss=0.3907285 P(node) =0.005990875
## class counts:    1 12 92 8 4 0 22 1 10
1
## probabilities: 0.007 0.079 0.609 0.053 0.026 0.000 0.146 0.007 0.066
0.007
## left son=66 (108 obs) right son=67 (43 obs)
## Primary splits:
##      152 < 12   to the right, improve=18.06109, (0 missing)
##      153 < 10.5 to the right, improve=17.30327, (0 missing)
##      154 < 12.5 to the right, improve=17.30274, (0 missing)
##      125 < 20.5 to the right, improve=17.24011, (0 missing)
##      386 < 43   to the left, improve=16.81243, (0 missing)
## Surrogate splits:
##      153 < 20   to the right, agree=0.954, adj=0.837, (0 split)
##      154 < 12.5 to the right, agree=0.914, adj=0.698, (0 split)
##      180 < 5    to the right, agree=0.894, adj=0.628, (0 split)
##      125 < 6    to the right, agree=0.881, adj=0.581, (0 split)
##      151 < 5    to the right, agree=0.881, adj=0.581, (0 split)
##
## Node number 34: 564 observations,    complexity param=0.002277396
## predicted class=8 expected loss=0.7996454 P(node) =0.02237651
## class counts:    16 109 33 33 61 66 58 15 113
60
## probabilities: 0.028 0.193 0.059 0.059 0.108 0.117 0.103 0.027 0.200
0.106
## left son=68 (286 obs) right son=69 (278 obs)
## Primary splits:
##      657 < 1.5  to the left, improve=30.51536, (0 missing)

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##      374 < 37.5  to the left,  improve=28.44060, (0 missing)
##      294 < 190   to the right, improve=27.20103, (0 missing)
##      322 < 245.5 to the right, improve=26.74014, (0 missing)
##      658 < 0.5   to the left,  improve=26.27535, (0 missing)
## Surrogate splits:
##      658 < 0.5   to the left,  agree=0.888, adj=0.773, (0 split)
##      629 < 108.5 to the left,  agree=0.872, adj=0.741, (0 split)
##      656 < 10.5   to the left,  agree=0.860, adj=0.716, (0 split)
##      630 < 4      to the left,  agree=0.826, adj=0.647, (0 split)
##      685 < 1      to the left,  agree=0.766, adj=0.525, (0 split)
##
## Node number 35: 79 observations,      complexity param=4.465482e-05
## predicted class=6 expected loss=0.1139241 P(node) =0.003134299
## class counts:      1      1      1      3      1      1      70      0      1
##
## probabilities: 0.013 0.013 0.013 0.038 0.013 0.013 0.886 0.000 0.013
0.000
## left son=70 (7 obs) right son=71 (72 obs)
## Primary splits:
##      271 < 74.5   to the right, improve=5.237191, (0 missing)
##      297 < 191.5  to the right, improve=5.237191, (0 missing)
##      298 < 142.5  to the right, improve=5.237191, (0 missing)
##      623 < 36.5   to the right, improve=5.237191, (0 missing)
##      458 < 100.5  to the left,  improve=4.953824, (0 missing)
## Surrogate splits:
##      298 < 142.5  to the right, agree=1.000, adj=1.000, (0 split)
##      244 < 112     to the right, agree=0.987, adj=0.857, (0 split)
##      270 < 217.5  to the right, agree=0.987, adj=0.857, (0 split)
##      272 < 11      to the right, agree=0.987, adj=0.857, (0 split)
##      243 < 247     to the right, agree=0.975, adj=0.714, (0 split)
##
## Node number 36: 228 observations,      complexity param=0.0004242208
## predicted class=2 expected loss=0.4122807 P(node) =0.009045824
## class counts:      0      17      134      15      1      1      9      21      20
10
## probabilities: 0.000 0.075 0.588 0.066 0.004 0.004 0.039 0.092 0.088
0.044
## left son=72 (142 obs) right son=73 (86 obs)
## Primary splits:
##      541 < 1.5    to the right, improve=29.54094, (0 missing)
##      514 < 218.5  to the right, improve=27.51901, (0 missing)
##      515 < 26      to the right, improve=26.83889, (0 missing)
##      513 < 61.5   to the right, improve=25.40063, (0 missing)
##      542 < 4.5    to the right, improve=24.69672, (0 missing)
## Surrogate splits:
##      513 < 8       to the right, agree=0.925, adj=0.802, (0 split)
##      542 < 115.5  to the right, agree=0.925, adj=0.802, (0 split)
##      540 < 0.5     to the right, agree=0.904, adj=0.744, (0 split)
##      514 < 165.5  to the right, agree=0.895, adj=0.721, (0 split)
##      569 < 3       to the right, agree=0.882, adj=0.686, (0 split)

```

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##
## Node number 37: 206 observations,    complexity param=0.001696883
## predicted class=6 expected loss=0.4902913 P(node) =0.008172982
## class counts:      5      2      9      0     12      5     105      7     17
44
## probabilities: 0.024 0.010 0.044 0.000 0.058 0.024 0.510 0.034 0.083
0.214
## left son=74 (144 obs) right son=75 (62 obs)
## Primary splits:
##      575 < 51.5 to the right, improve=38.30019, (0 missing)
##      576 < 149  to the right, improve=34.00853, (0 missing)
##      574 < 201  to the right, improve=33.23562, (0 missing)
##      603 < 94.5 to the right, improve=33.02369, (0 missing)
##      602 < 58   to the right, improve=32.25226, (0 missing)
## Surrogate splits:
##      574 < 201  to the right, agree=0.913, adj=0.710, (0 split)
##      603 < 2.5  to the right, agree=0.898, adj=0.661, (0 split)
##      576 < 1    to the right, agree=0.888, adj=0.629, (0 split)
##      602 < 33.5 to the right, agree=0.879, adj=0.597, (0 split)
##      547 < 74.5 to the right, agree=0.864, adj=0.548, (0 split)
##
## Node number 38: 218 observations,    complexity param=0.001094043
## predicted class=3 expected loss=0.706422 P(node) =0.008649078
## class counts:      1      9     34     64      5      1      3     44     50
7
## probabilities: 0.005 0.041 0.156 0.294 0.023 0.005 0.014 0.202 0.229
0.032
## left son=76 (162 obs) right son=77 (56 obs)
## Primary splits:
##      344 < 24   to the left, improve=24.57021, (0 missing)
##      345 < 8    to the left, improve=23.04704, (0 missing)
##      373 < 85.5 to the left, improve=23.00540, (0 missing)
##      544 < 57.5 to the left, improve=21.22790, (0 missing)
##      543 < 138  to the left, improve=20.97228, (0 missing)
## Surrogate splits:
##      345 < 8    to the left, agree=0.954, adj=0.821, (0 split)
##      316 < 36.5 to the left, agree=0.950, adj=0.804, (0 split)
##      372 < 0.5  to the left, agree=0.945, adj=0.786, (0 split)
##      317 < 52.5 to the left, agree=0.936, adj=0.750, (0 split)
##      373 < 85.5 to the left, agree=0.936, adj=0.750, (0 split)
##
## Node number 39: 498 observations,    complexity param=0.000379566
## predicted class=8 expected loss=0.251004 P(node) =0.01975798
## class counts:      4     14      3     24     18      7      2     23     373
30
## probabilities: 0.008 0.028 0.006 0.048 0.036 0.014 0.004 0.046 0.749
0.060
## left son=78 (124 obs) right son=79 (374 obs)
## Primary splits:
##      543 < 9.5  to the left, improve=31.25450, (0 missing)

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##      515 < 13      to the left,  improve=29.28271, (0 missing)
##      518 < 248.5 to the right, improve=27.08767, (0 missing)
##      155 < 4.5    to the left,  improve=27.00839, (0 missing)
##      516 < 46.5   to the left,  improve=25.72759, (0 missing)
##      Surrogate splits:
##      515 < 13      to the left,  agree=0.918, adj=0.669, (0 split)
##      571 < 6       to the left,  agree=0.892, adj=0.565, (0 split)
##      516 < 45.5   to the left,  agree=0.853, adj=0.411, (0 split)
##      488 < 88.5   to the left,  agree=0.851, adj=0.403, (0 split)
##      487 < 1      to the left,  agree=0.833, adj=0.331, (0 split)
##
## Node number 40: 1626 observations,      complexity param=0.002009467
## predicted class=3 expected loss=0.1439114 P(node) =0.06451101
## class counts:      3      41      13 1392      5 105      2      7      31
27
## probabilities: 0.002 0.025 0.008 0.856 0.003 0.065 0.001 0.004 0.019
0.017
## left son=80 (1502 obs) right son=81 (124 obs)
## Primary splits:
##      315 < 84.5   to the left,  improve=101.33530, (0 missing)
##      316 < 163.5  to the left,  improve= 93.73302, (0 missing)
##      288 < 120    to the left,  improve= 87.80485, (0 missing)
##      343 < 129    to the left,  improve= 83.76342, (0 missing)
##      296 < 2.5    to the right, improve= 75.56257, (0 missing)
##      Surrogate splits:
##      343 < 129    to the left,  agree=0.972, adj=0.637, (0 split)
##      316 < 72.5   to the left,  agree=0.972, adj=0.629, (0 split)
##      287 < 151.5  to the left,  agree=0.971, adj=0.621, (0 split)
##      314 < 3.5    to the left,  agree=0.967, adj=0.573, (0 split)
##      342 < 31.5   to the left,  agree=0.964, adj=0.532, (0 split)
##
## Node number 41: 692 observations,      complexity param=0.002009467
## predicted class=3 expected loss=0.6228324 P(node) =0.02745487
## class counts:      31      91      6 261      31 172      17      23      22
38
## probabilities: 0.045 0.132 0.009 0.377 0.045 0.249 0.025 0.033 0.032
0.055
## left son=82 (417 obs) right son=83 (275 obs)
## Primary splits:
##      626 < 19.5   to the right, improve=58.69160, (0 missing)
##      627 < 36.5   to the right, improve=57.79988, (0 missing)
##      628 < 23     to the left,  improve=56.53345, (0 missing)
##      625 < 1.5    to the right, improve=56.23608, (0 missing)
##      490 < 127.5  to the right, improve=53.88951, (0 missing)
##      Surrogate splits:
##      627 < 13.5   to the right, agree=0.952, adj=0.880, (0 split)
##      625 < 1.5    to the right, agree=0.945, adj=0.862, (0 split)
##      628 < 3      to the right, agree=0.910, adj=0.775, (0 split)
##      624 < 0.5    to the right, agree=0.871, adj=0.676, (0 split)
##      598 < 1      to the right, agree=0.835, adj=0.585, (0 split)

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##
## Node number 42: 836 observations,    complexity param=0.003393766
## predicted class=5 expected loss=0.430622 P(node) =0.03316802
## class counts:    59    1    1  198    1  476    9    5    49
37
## probabilities: 0.071 0.001 0.001 0.237 0.001 0.569 0.011 0.006 0.059
0.044
## left son=84 (324 obs) right son=85 (512 obs)
## Primary splits:
## 297 < 29.5 to the right, improve=94.16206, (0 missing)
## 298 < 0.5 to the right, improve=89.46983, (0 missing)
## 296 < 54.5 to the right, improve=89.39417, (0 missing)
## 269 < 0.5 to the right, improve=76.41152, (0 missing)
## 270 < 9.5 to the right, improve=73.21487, (0 missing)
## Surrogate splits:
## 298 < 0.5 to the right, agree=0.916, adj=0.784, (0 split)
## 296 < 111.5 to the right, agree=0.879, adj=0.688, (0 split)
## 270 < 85 to the right, agree=0.854, adj=0.623, (0 split)
## 269 < 191.5 to the right, agree=0.848, adj=0.608, (0 split)
## 325 < 210 to the right, agree=0.842, adj=0.593, (0 split)
##
## Node number 43: 521 observations,    complexity param=0.002389033
## predicted class=9 expected loss=0.5316699 P(node) =0.0206705
## class counts:    8    5    2  37  76  57  7  74  11
244
## probabilities: 0.015 0.010 0.004 0.071 0.146 0.109 0.013 0.142 0.021
0.468
## left son=86 (164 obs) right son=87 (357 obs)
## Primary splits:
## 210 < 1 to the left, improve=63.94359, (0 missing)
## 211 < 1.5 to the left, improve=56.21769, (0 missing)
## 209 < 18.5 to the left, improve=53.53197, (0 missing)
## 321 < 234 to the right, improve=45.42103, (0 missing)
## 238 < 9.5 to the left, improve=42.78869, (0 missing)
## Surrogate splits:
## 211 < 1.5 to the left, agree=0.933, adj=0.787, (0 split)
## 209 < 18.5 to the left, agree=0.925, adj=0.762, (0 split)
## 238 < 1 to the left, agree=0.850, adj=0.524, (0 split)
## 237 < 1 to the left, agree=0.839, adj=0.488, (0 split)
## 212 < 1 to the left, agree=0.829, adj=0.457, (0 split)
##
## Node number 44: 173 observations,    complexity param=0.0004465482
## predicted class=2 expected loss=0.6011561 P(node) =0.006863718
## class counts:    9  15  69  8  9  7  14  0  23
19
## probabilities: 0.052 0.087 0.399 0.046 0.052 0.040 0.081 0.000 0.133
0.110
## left son=88 (73 obs) right son=89 (100 obs)
## Primary splits:
## 126 < 10 to the right, improve=21.98748, (0 missing)

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##      154 < 11.5  to the right, improve=21.90812, (0 missing)
##      156 < 5.5   to the right, improve=21.04590, (0 missing)
##      155 < 59.5  to the right, improve=20.71615, (0 missing)
##      573 < 94.5  to the right, improve=20.26070, (0 missing)
## Surrogate splits:
##      125 < 5.5   to the right, agree=0.942, adj=0.863, (0 split)
##      127 < 6.5   to the right, agree=0.936, adj=0.849, (0 split)
##      153 < 24    to the right, agree=0.908, adj=0.781, (0 split)
##      154 < 129.5 to the right, agree=0.908, adj=0.781, (0 split)
##      128 < 5     to the right, agree=0.896, adj=0.753, (0 split)
##
## Node number 45: 250 observations,      complexity param=0.0003349111
## predicted class=6 expected loss=0.316 P(node) =0.009918667
## class counts:      4      5      29      7      5      16      171      0      6
7
## probabilities: 0.016 0.020 0.116 0.028 0.020 0.064 0.684 0.000 0.024
0.028
## left son=90 (41 obs) right son=91 (209 obs)
## Primary splits:
##      601 < 36.5  to the left,  improve=19.64868, (0 missing)
##      295 < 174   to the right, improve=19.07010, (0 missing)
##      380 < 25    to the left,  improve=17.06546, (0 missing)
##      381 < 1     to the left,  improve=16.91467, (0 missing)
##      600 < 2.5   to the left,  improve=16.78673, (0 missing)
## Surrogate splits:
##      600 < 2.5   to the left,  agree=0.980, adj=0.878, (0 split)
##      602 < 0.5   to the left,  agree=0.956, adj=0.732, (0 split)
##      599 < 2     to the left,  agree=0.944, adj=0.659, (0 split)
##      573 < 1.5   to the left,  agree=0.920, adj=0.512, (0 split)
##      572 < 1.5   to the left,  agree=0.916, adj=0.488, (0 split)
##
## Node number 46: 97 observations,      complexity param=0.0005805126
## predicted class=0 expected loss=0.5463918 P(node) =0.003848443
## class counts:      44      0      8      6      0      15      3      0      21
0
## probabilities: 0.454 0.000 0.082 0.062 0.000 0.155 0.031 0.000 0.216
0.000
## left son=92 (41 obs) right son=93 (56 obs)
## Primary splits:
##      329 < 11    to the right, improve=18.37385, (0 missing)
##      328 < 120.5 to the right, improve=18.09793, (0 missing)
##      301 < 18.5  to the right, improve=17.28437, (0 missing)
##      300 < 67    to the right, improve=17.01085, (0 missing)
##      266 < 240.5 to the right, improve=16.89891, (0 missing)
## Surrogate splits:
##      301 < 26    to the right, agree=0.938, adj=0.854, (0 split)
##      357 < 8.5   to the right, agree=0.938, adj=0.854, (0 split)
##      300 < 67    to the right, agree=0.928, adj=0.829, (0 split)
##      328 < 85.5  to the right, agree=0.928, adj=0.829, (0 split)
##      356 < 232.5 to the right, agree=0.887, adj=0.732, (0 split)

```

```

##
## Node number 47: 473 observations,    complexity param=0.0004688756
## predicted class=8 expected loss=0.2325581 P(node) =0.01876612
## class counts:      8      0      20      45      0      15      12      1      363
9
## probabilities: 0.017 0.000 0.042 0.095 0.000 0.032 0.025 0.002 0.767
0.019
## left son=94 (43 obs) right son=95 (430 obs)
## Primary splits:
##      514 < 1      to the left, improve=18.95645, (0 missing)
##      439 < 250.5 to the right, improve=18.87687, (0 missing)
##      440 < 60     to the right, improve=17.81530, (0 missing)
##      541 < 1      to the left, improve=16.73971, (0 missing)
##      401 < 230.5 to the right, improve=15.72282, (0 missing)
## Surrogate splits:
##      712 < 169    to the right, agree=0.918, adj=0.093, (0 split)
##      507 < 32     to the right, agree=0.915, adj=0.070, (0 split)
##      509 < 28     to the right, agree=0.915, adj=0.070, (0 split)
##      535 < 12     to the right, agree=0.915, adj=0.070, (0 split)
##      537 < 118.5 to the right, agree=0.915, adj=0.070, (0 split)
##
## Node number 48: 2072 observations,    complexity param=0.0004242208
## predicted class=0 expected loss=0.06853282 P(node) =0.08220591
## class counts: 1930      0      32      31      1      44      21      10      1
2
## probabilities: 0.931 0.000 0.015 0.015 0.000 0.021 0.010 0.005 0.000
0.001
## left son=96 (1973 obs) right son=97 (99 obs)
## Primary splits:
##      324 < 172    to the left, improve=34.63603, (0 missing)
##      455 < 1      to the right, improve=31.48402, (0 missing)
##      323 < 147.5 to the left, improve=31.37636, (0 missing)
##      427 < 0.5    to the right, improve=30.52109, (0 missing)
##      428 < 0.5    to the right, improve=28.05817, (0 missing)
## Surrogate splits:
##      352 < 15.5   to the left, agree=0.977, adj=0.525, (0 split)
##      323 < 216.5 to the left, agree=0.971, adj=0.394, (0 split)
##      325 < 241    to the left, agree=0.967, adj=0.303, (0 split)
##      351 < 10     to the left, agree=0.965, adj=0.273, (0 split)
##      353 < 218.5 to the left, agree=0.959, adj=0.152, (0 split)
##
## Node number 49: 223 observations,    complexity param=0.001250335
## predicted class=5 expected loss=0.6547085 P(node) =0.008847451
## class counts:  46      1      17      44      1      77      26      2      5
4
## probabilities: 0.206 0.004 0.076 0.197 0.004 0.345 0.117 0.009 0.022
0.018
## left son=98 (84 obs) right son=99 (139 obs)
## Primary splits:
##      484 < 42     to the right, improve=22.09355, (0 missing)

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##      485 < 63      to the right, improve=21.30952, (0 missing)
##      513 < 105.5 to the right, improve=20.88248, (0 missing)
##      298 < 127    to the right, improve=20.27173, (0 missing)
##      456 < 13.5   to the right, improve=19.78078, (0 missing)
## Surrogate splits:
##      456 < 7.5     to the right, agree=0.928, adj=0.810, (0 split)
##      512 < 35      to the right, agree=0.892, adj=0.714, (0 split)
##      457 < 29.5    to the right, agree=0.843, adj=0.583, (0 split)
##      485 < 33.5    to the right, agree=0.839, adj=0.571, (0 split)
##      513 < 105.5 to the right, agree=0.834, adj=0.560, (0 split)
##
## Node number 50: 218 observations,      complexity param=0.0003125837
## predicted class=2 expected loss=0.2201835 P(node) =0.008649078
## class counts:      7      5    170      6      2    10      7      3      6
2
## probabilities: 0.032 0.023 0.780 0.028 0.009 0.046 0.032 0.014 0.028
0.009
## left son=100 (192 obs) right son=101 (26 obs)
## Primary splits:
##      344 < 154.5 to the left, improve=21.28125, (0 missing)
##      372 < 32     to the left, improve=20.41915, (0 missing)
##      345 < 33.5   to the left, improve=19.99551, (0 missing)
##      371 < 16     to the left, improve=19.79440, (0 missing)
##      465 < 5      to the right, improve=18.42076, (0 missing)
## Surrogate splits:
##      372 < 32     to the left, agree=0.982, adj=0.846, (0 split)
##      371 < 3      to the left, agree=0.972, adj=0.769, (0 split)
##      317 < 167.5 to the left, agree=0.968, adj=0.731, (0 split)
##      345 < 33.5   to the left, agree=0.968, adj=0.731, (0 split)
##      316 < 93.5   to the left, agree=0.959, adj=0.654, (0 split)
##
## Node number 51: 224 observations,      complexity param=0.002857908
## predicted class=5 expected loss=0.6026786 P(node) =0.008887126
## class counts:      70      0    11      4      1    89      29      1    18
1
## probabilities: 0.312 0.000 0.049 0.018 0.004 0.397 0.129 0.004 0.080
0.004
## left son=102 (73 obs) right son=103 (151 obs)
## Primary splits:
##      386 < 3.5     to the right, improve=52.64302, (0 missing)
##      358 < 6.5     to the right, improve=52.12740, (0 missing)
##      413 < 36      to the right, improve=51.92639, (0 missing)
##      357 < 26.5    to the right, improve=51.87439, (0 missing)
##      385 < 43      to the right, improve=51.27013, (0 missing)
## Surrogate splits:
##      358 < 13.5    to the right, agree=0.973, adj=0.918, (0 split)
##      385 < 108     to the right, agree=0.964, adj=0.890, (0 split)
##      413 < 36      to the right, agree=0.960, adj=0.877, (0 split)
##      414 < 6.5     to the right, agree=0.960, adj=0.877, (0 split)
##      441 < 19.5    to the right, agree=0.942, adj=0.822, (0 split)

```

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##
## Node number 52: 309 observations,    complexity param=0.00379566
## predicted class=6 expected loss=0.6019417 P(node) =0.01225947
## class counts:    99    1    30    6    9    19    123    3    3
16
## probabilities: 0.320 0.003 0.097 0.019 0.029 0.061 0.398 0.010 0.010
0.052
## left son=104 (151 obs) right son=105 (158 obs)
## Primary splits:
## 241 < 12 to the right, improve=62.80933, (0 missing)
## 270 < 2 to the right, improve=62.15147, (0 missing)
## 242 < 2 to the right, improve=59.06631, (0 missing)
## 269 < 1 to the right, improve=56.39711, (0 missing)
## 298 < 1.5 to the right, improve=55.86574, (0 missing)
## Surrogate splits:
## 269 < 1 to the right, agree=0.942, adj=0.881, (0 split)
## 242 < 2 to the right, agree=0.926, adj=0.848, (0 split)
## 270 < 2 to the right, agree=0.922, adj=0.841, (0 split)
## 240 < 0.5 to the right, agree=0.890, adj=0.775, (0 split)
## 298 < 1.5 to the right, agree=0.887, adj=0.768, (0 split)
##
## Node number 53: 294 observations,    complexity param=0.002009467
## predicted class=4 expected loss=0.6054422 P(node) =0.01166435
## class counts:    9    0    14    5    116    41    10    23    2
74
## probabilities: 0.031 0.000 0.048 0.017 0.395 0.139 0.034 0.078 0.007
0.252
## left son=106 (119 obs) right son=107 (175 obs)
## Primary splits:
## 211 < 8 to the left, improve=40.32227, (0 missing)
## 210 < 9 to the left, improve=40.02085, (0 missing)
## 238 < 1 to the left, improve=34.44240, (0 missing)
## 239 < 0.5 to the left, improve=31.73947, (0 missing)
## 465 < 34 to the left, improve=31.34210, (0 missing)
## Surrogate splits:
## 210 < 6.5 to the left, agree=0.895, adj=0.739, (0 split)
## 212 < 0.5 to the left, agree=0.881, adj=0.706, (0 split)
## 239 < 0.5 to the left, agree=0.874, adj=0.689, (0 split)
## 238 < 4 to the left, agree=0.850, adj=0.630, (0 split)
## 240 < 1 to the left, agree=0.844, adj=0.613, (0 split)
##
## Node number 54: 208 observations,    complexity param=0.002366705
## predicted class=9 expected loss=0.6875 P(node) =0.008252331
## class counts:    4    7    3    25    22    62    9    9    2
65
## probabilities: 0.019 0.034 0.014 0.120 0.106 0.298 0.043 0.043 0.010
0.312
## left son=108 (106 obs) right son=109 (102 obs)
## Primary splits:
## 354 < 26 to the left, improve=31.37672, (0 missing)

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##      353 < 22.5  to the left,  improve=28.44115, (0 missing)
##      355 < 2      to the left,  improve=24.04168, (0 missing)
##      465 < 80     to the left,  improve=23.43269, (0 missing)
##      382 < 35.5  to the left,  improve=21.14973, (0 missing)
## Surrogate splits:
##      353 < 22.5  to the left,  agree=0.909, adj=0.814, (0 split)
##      355 < 2      to the left,  agree=0.875, adj=0.745, (0 split)
##      326 < 2      to the left,  agree=0.870, adj=0.735, (0 split)
##      382 < 146   to the left,  agree=0.856, adj=0.706, (0 split)
##      465 < 80     to the left,  agree=0.817, adj=0.627, (0 split)
##
## Node number 55: 746 observations,      complexity param=0.002009467
## predicted class=7 expected loss=0.1782842 P(node) =0.0295973
## class counts:      57      3      5      9      14      26      4      613      0
15
## probabilities: 0.076 0.004 0.007 0.012 0.019 0.035 0.005 0.822 0.000
0.020
## left son=110 (68 obs) right son=111 (678 obs)
## Primary splits:
##      538 < 1      to the right, improve=75.36373, (0 missing)
##      510 < 10.5   to the right, improve=71.88152, (0 missing)
##      539 < 2      to the right, improve=68.65317, (0 missing)
##      623 < 3      to the right, improve=67.04377, (0 missing)
##      566 < 7      to the right, improve=66.62073, (0 missing)
## Surrogate splits:
##      510 < 121.5  to the right, agree=0.981, adj=0.794, (0 split)
##      566 < 1.5    to the right, agree=0.976, adj=0.735, (0 split)
##      567 < 1      to the right, agree=0.971, adj=0.676, (0 split)
##      539 < 56     to the right, agree=0.968, adj=0.647, (0 split)
##      537 < 2      to the right, agree=0.962, adj=0.588, (0 split)
##
## Node number 56: 1644 observations,      complexity param=0.003304457
## predicted class=2 expected loss=0.386253 P(node) =0.06522515
## class counts:      5      102      1009      23      65      12      50      193      94
91
## probabilities: 0.003 0.062 0.614 0.014 0.040 0.007 0.030 0.117 0.057
0.055
## left son=112 (1021 obs) right son=113 (623 obs)
## Primary splits:
##      155 < 1      to the right, improve=246.8804, (0 missing)
##      156 < 0.5    to the right, improve=246.5524, (0 missing)
##      154 < 0.5    to the right, improve=235.2572, (0 missing)
##      127 < 1.5    to the right, improve=212.1310, (0 missing)
##      157 < 2.5    to the right, improve=208.6518, (0 missing)
## Surrogate splits:
##      156 < 0.5    to the right, agree=0.969, adj=0.918, (0 split)
##      154 < 0.5    to the right, agree=0.956, adj=0.884, (0 split)
##      157 < 2.5    to the right, agree=0.917, adj=0.782, (0 split)
##      153 < 0.5    to the right, agree=0.901, adj=0.738, (0 split)
##      152 < 1      to the right, agree=0.826, adj=0.541, (0 split)

```

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##
## Node number 57: 1194 observations,    complexity param=0.00379566
## predicted class=8 expected loss=0.4572864 P(node) =0.04737155
## class counts:    36    0    78    5   152   119    28    56   648
72
## probabilities: 0.030 0.000 0.065 0.004 0.127 0.100 0.023 0.047 0.543
0.060
## left son=114 (485 obs) right son=115 (709 obs)
## Primary splits:
##      657 < 15    to the left, improve=192.8540, (0 missing)
##      656 < 22.5  to the left, improve=182.8277, (0 missing)
##      658 < 3.5   to the left, improve=168.9296, (0 missing)
##      655 < 20    to the left, improve=143.8821, (0 missing)
##      684 < 0.5   to the left, improve=142.4054, (0 missing)
## Surrogate splits:
##      658 < 0.5   to the left, agree=0.934, adj=0.837, (0 split)
##      656 < 59    to the left, agree=0.931, adj=0.831, (0 split)
##      630 < 7.5   to the left, agree=0.879, adj=0.703, (0 split)
##      629 < 4     to the left, agree=0.848, adj=0.627, (0 split)
##      631 < 0.5   to the left, agree=0.843, adj=0.612, (0 split)
##
## Node number 58: 447 observations,    complexity param=0.0009377512
## predicted class=2 expected loss=0.3959732 P(node) =0.01773458
## class counts:    5    26   270    4    34    1    22    31    37
17
## probabilities: 0.011 0.058 0.604 0.009 0.076 0.002 0.049 0.069 0.083
0.038
## left son=116 (344 obs) right son=117 (103 obs)
## Primary splits:
##      346 < 7.5   to the left, improve=47.61144, (0 missing)
##      347 < 0.5   to the left, improve=43.59109, (0 missing)
##      348 < 2     to the left, improve=38.53257, (0 missing)
##      124 < 3     to the right, improve=38.15032, (0 missing)
##      345 < 5.5   to the left, improve=37.90400, (0 missing)
## Surrogate splits:
##      347 < 0.5   to the left, agree=0.937, adj=0.728, (0 split)
##      318 < 24.5  to the left, agree=0.933, adj=0.709, (0 split)
##      345 < 2.5   to the left, agree=0.915, adj=0.631, (0 split)
##      374 < 4.5   to the left, agree=0.915, adj=0.631, (0 split)
##      319 < 41    to the left, agree=0.904, adj=0.583, (0 split)
##
## Node number 59: 1941 observations,    complexity param=0.004688756
## predicted class=6 expected loss=0.2246265 P(node) =0.07700853
## class counts:    3    3   110    8    20   103  1505    4   169
16
## probabilities: 0.002 0.002 0.057 0.004 0.010 0.053 0.775 0.002 0.087
0.008
## left son=118 (241 obs) right son=119 (1700 obs)
## Primary splits:
##      274 < 2.5   to the right, improve=208.2075, (0 missing)

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##      655 < 1.5   to the left,   improve=206.0021, (0 missing)
##      654 < 0.5   to the left,   improve=202.5597, (0 missing)
##      246 < 5.5   to the right,  improve=198.0558, (0 missing)
##      656 < 2     to the left,   improve=195.6095, (0 missing)
##      Surrogate splits:
##      273 < 3     to the right,  agree=0.982, adj=0.855, (0 split)
##      246 < 24    to the right,  agree=0.973, adj=0.780, (0 split)
##      301 < 137.5 to the right,  agree=0.965, adj=0.722, (0 split)
##      302 < 39    to the right,  agree=0.961, adj=0.689, (0 split)
##      245 < 14.5  to the right,  agree=0.958, adj=0.660, (0 split)
##
## Node number 60: 1830 observations,      complexity param=0.003751005
##   predicted class=4   expected loss=0.2836066   P(node) =0.07260464
##   class counts:      0      6   111   44  1311   123   68   44   56
67
##   probabilities: 0.000 0.003 0.061 0.024 0.716 0.067 0.037 0.024 0.031
0.037
##   left son=120 (221 obs) right son=121 (1609 obs)
##   Primary splits:
##      596 < 1.5   to the right,  improve=177.3933, (0 missing)
##      597 < 13    to the right,  improve=171.0007, (0 missing)
##      595 < 0.5   to the right,  improve=167.7112, (0 missing)
##      624 < 2.5   to the right,  improve=167.5858, (0 missing)
##      625 < 35    to the right,  improve=163.3194, (0 missing)
##   Surrogate splits:
##      597 < 44    to the right,  agree=0.981, adj=0.846, (0 split)
##      595 < 0.5   to the right,  agree=0.978, adj=0.819, (0 split)
##      624 < 0.5   to the right,  agree=0.973, adj=0.778, (0 split)
##      568 < 0.5   to the right,  agree=0.967, adj=0.729, (0 split)
##      567 < 15.5  to the right,  agree=0.964, adj=0.701, (0 split)
##
## Node number 61: 2659 observations,      complexity param=0.01576315
##   predicted class=9   expected loss=0.5065814   P(node) =0.1054949
##   class counts:      7      2   90   215   288   464   32   88   161
1312
##   probabilities: 0.003 0.001 0.034 0.081 0.108 0.175 0.012 0.033 0.061
0.493
##   left son=122 (808 obs) right son=123 (1851 obs)
##   Primary splits:
##      354 < 2.5   to the left,   improve=332.8322, (0 missing)
##      353 < 1.5   to the left,   improve=318.0870, (0 missing)
##      326 < 0.5   to the left,   improve=309.1417, (0 missing)
##      381 < 9.5   to the left,   improve=293.6687, (0 missing)
##      382 < 1.5   to the left,   improve=277.3368, (0 missing)
##   Surrogate splits:
##      326 < 0.5   to the left,  agree=0.920, adj=0.736, (0 split)
##      382 < 1.5   to the left,  agree=0.914, adj=0.715, (0 split)
##      381 < 91.5  to the left,  agree=0.896, adj=0.658, (0 split)
##      353 < 0.5   to the left,  agree=0.881, adj=0.608, (0 split)
##      327 < 1     to the left,  agree=0.837, adj=0.464, (0 split)

```

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##
## Node number 62: 1766 observations,    complexity param=0.00482272
## predicted class=7 expected loss=0.2587769 P(node) =0.07006546
## class counts:      7      65      53      68      34      118      21      1309      31
60
## probabilities: 0.004 0.037 0.030 0.039 0.019 0.067 0.012 0.741 0.018
0.034
## left son=124 (313 obs) right son=125 (1453 obs)
## Primary splits:
##      377 < 6.5   to the right, improve=248.0977, (0 missing)
##      405 < 23.5  to the right, improve=243.4815, (0 missing)
##      376 < 73.5  to the right, improve=211.9655, (0 missing)
##      378 < 100.5 to the right, improve=210.6609, (0 missing)
##      404 < 4     to the right, improve=196.8469, (0 missing)
## Surrogate splits:
##      405 < 39.5  to the right, agree=0.971, adj=0.834, (0 split)
##      376 < 73.5  to the right, agree=0.967, adj=0.815, (0 split)
##      404 < 2.5   to the right, agree=0.959, adj=0.767, (0 split)
##      378 < 157.5 to the right, agree=0.935, adj=0.636, (0 split)
##      406 < 202.5 to the right, agree=0.914, adj=0.514, (0 split)
##
## Node number 63: 362 observations,    complexity param=0.004420827
## predicted class=9 expected loss=0.558011 P(node) =0.01436223
## class counts:      1      1      19      1      135      1      16      23      5
160
## probabilities: 0.003 0.003 0.052 0.003 0.373 0.003 0.044 0.064 0.014
0.442
## left son=126 (144 obs) right son=127 (218 obs)
## Primary splits:
##      211 < 5.5   to the left,  improve=70.33103, (0 missing)
##      210 < 9     to the left,  improve=65.94942, (0 missing)
##      212 < 9.5   to the left,  improve=60.68276, (0 missing)
##      209 < 12.5  to the left,  improve=56.75568, (0 missing)
##      239 < 4.5   to the left,  improve=44.24857, (0 missing)
## Surrogate splits:
##      210 < 6.5   to the left,  agree=0.903, adj=0.757, (0 split)
##      212 < 9.5   to the left,  agree=0.890, adj=0.722, (0 split)
##      239 < 0.5   to the left,  agree=0.862, adj=0.653, (0 split)
##      209 < 11.5  to the left,  agree=0.859, adj=0.646, (0 split)
##      183 < 6     to the left,  agree=0.823, adj=0.556, (0 split)
##
## Node number 64: 2312 observations,    complexity param=0.0007144771
## predicted class=1 expected loss=0.04152249 P(node) =0.09172783
## class counts:      0      2216      30      7      7      10      8      8      24
2
## probabilities: 0.000 0.958 0.013 0.003 0.003 0.004 0.003 0.003 0.010
0.001
## left son=128 (2291 obs) right son=129 (21 obs)
## Primary splits:
##      608 < 6     to the left,  improve=30.93996, (0 missing)

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##      177 < 36.5 to the left, improve=30.91269, (0 missing)
##      607 < 114.5 to the left, improve=30.66493, (0 missing)
##      176 < 63.5 to the left, improve=28.78651, (0 missing)
##      609 < 21 to the left, improve=28.63209, (0 missing)
## Surrogate splits:
##      607 < 114.5 to the left, agree=0.999, adj=0.905, (0 split)
##      636 < 87.5 to the left, agree=0.999, adj=0.857, (0 split)
##      609 < 21 to the left, agree=0.998, adj=0.762, (0 split)
##      637 < 8.5 to the left, agree=0.998, adj=0.762, (0 split)
##      580 < 37 to the left, agree=0.997, adj=0.714, (0 split)
##
## Node number 65: 144 observations, complexity param=0.001384299
## predicted class=8 expected loss=0.5416667 P(node) =0.005713152
## class counts: 0 51 1 5 3 14 0 0 66
4
## probabilities: 0.000 0.354 0.007 0.035 0.021 0.097 0.000 0.000 0.458
0.028
## left son=130 (72 obs) right son=131 (72 obs)
## Primary splits:
##      265 < 1.5 to the left, improve=42.55556, (0 missing)
##      293 < 8 to the left, improve=41.14472, (0 missing)
##      183 < 27 to the left, improve=40.63166, (0 missing)
##      211 < 33.5 to the left, improve=40.50671, (0 missing)
##      266 < 2.5 to the left, improve=40.02092, (0 missing)
## Surrogate splits:
##      293 < 62 to the left, agree=0.965, adj=0.931, (0 split)
##      237 < 2 to the left, agree=0.938, adj=0.875, (0 split)
##      210 < 12 to the left, agree=0.903, adj=0.806, (0 split)
##      211 < 11.5 to the left, agree=0.903, adj=0.806, (0 split)
##      238 < 5.5 to the left, agree=0.903, adj=0.806, (0 split)
##
## Node number 66: 108 observations, complexity param=0.0003572385
## predicted class=2 expected loss=0.2314815 P(node) =0.004284864
## class counts: 0 11 83 5 1 0 0 0 8
0
## probabilities: 0.000 0.102 0.769 0.046 0.009 0.000 0.000 0.000 0.074
0.000
## left son=132 (91 obs) right son=133 (17 obs)
## Primary splits:
##      292 < 58.5 to the left, improve=15.51201, (0 missing)
##      321 < 246.5 to the left, improve=15.02522, (0 missing)
##      515 < 26.5 to the right, improve=14.98427, (0 missing)
##      543 < 24.5 to the right, improve=14.48043, (0 missing)
##      264 < 69 to the left, improve=14.32744, (0 missing)
## Surrogate splits:
##      320 < 21.5 to the left, agree=0.981, adj=0.882, (0 split)
##      321 < 243 to the left, agree=0.981, adj=0.882, (0 split)
##      264 < 69 to the left, agree=0.972, adj=0.824, (0 split)
##      293 < 171.5 to the left, agree=0.963, adj=0.765, (0 split)
##      236 < 217.5 to the left, agree=0.954, adj=0.706, (0 split)

```

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##
## Node number 67: 43 observations,    complexity param=0.0001786193
## predicted class=6 expected loss=0.4883721 P(node) =0.001706011
## class counts:    1    1    9    3    3    0    22    1    2
1
## probabilities: 0.023 0.023 0.209 0.070 0.070 0.000 0.512 0.023 0.047
0.023
## left son=134 (24 obs) right son=135 (19 obs)
## Primary splits:
##      212 < 22    to the right, improve=6.321603, (0 missing)
##      176 < 131.5 to the left,  improve=6.219615, (0 missing)
##      204 < 236.5 to the left,  improve=6.152366, (0 missing)
##      211 < 23.5  to the right, improve=6.013390, (0 missing)
##      232 < 8.5   to the left,  improve=5.575989, (0 missing)
## Surrogate splits:
##      120 < 5.5   to the left,  agree=0.930, adj=0.842, (0 split)
##      239 < 9.5   to the right, agree=0.930, adj=0.842, (0 split)
##      148 < 7     to the left,  agree=0.907, adj=0.789, (0 split)
##      176 < 8     to the left,  agree=0.907, adj=0.789, (0 split)
##      232 < 8.5   to the left,  agree=0.907, adj=0.789, (0 split)
##
## Node number 68: 286 observations,    complexity param=0.001406627
## predicted class=5 expected loss=0.8111888 P(node) =0.01134695
## class counts:    12    33    31    14    42    54    54    8    8
30
## probabilities: 0.042 0.115 0.108 0.049 0.147 0.189 0.189 0.028 0.028
0.105
## left son=136 (252 obs) right son=137 (34 obs)
## Primary splits:
##      276 < 44.5  to the left,  improve=21.85412, (0 missing)
##      574 < 233   to the right, improve=21.35074, (0 missing)
##      247 < 1     to the left,  improve=21.33641, (0 missing)
##      539 < 85.5  to the right, improve=20.30011, (0 missing)
##      275 < 23.5  to the left,  improve=20.14673, (0 missing)
## Surrogate splits:
##      275 < 209.5 to the left,  agree=0.965, adj=0.706, (0 split)
##      277 < 0.5   to the left,  agree=0.962, adj=0.676, (0 split)
##      248 < 120.5 to the left,  agree=0.955, adj=0.618, (0 split)
##      304 < 67.5  to the left,  agree=0.951, adj=0.588, (0 split)
##      249 < 17    to the left,  agree=0.941, adj=0.500, (0 split)
##
## Node number 69: 278 observations,    complexity param=0.002277396
## predicted class=8 expected loss=0.6223022 P(node) =0.01102956
## class counts:    4    76    2    19    19    12    4    7    105
30
## probabilities: 0.014 0.273 0.007 0.068 0.068 0.043 0.014 0.025 0.378
0.108
## left son=138 (134 obs) right son=139 (144 obs)
## Primary splits:
##      294 < 216   to the right, improve=37.22654, (0 missing)

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##      322 < 237   to the right, improve=33.89610, (0 missing)
##      295 < 249.5 to the right, improve=30.28190, (0 missing)
##      215 < 1     to the left,  improve=28.16814, (0 missing)
##      267 < 185.5 to the right, improve=27.96281, (0 missing)
## Surrogate splits:
##      267 < 174.5 to the right, agree=0.892, adj=0.776, (0 split)
##      266 < 245.5 to the right, agree=0.878, adj=0.746, (0 split)
##      322 < 237   to the right, agree=0.878, adj=0.746, (0 split)
##      295 < 249.5 to the right, agree=0.849, adj=0.687, (0 split)
##      239 < 248.5 to the right, agree=0.784, adj=0.552, (0 split)
##
## Node number 70: 7 observations
## predicted class=3 expected loss=0.7142857 P(node) =0.0002777227
## class counts:      1      0      1      2      1      0      1      0      1
0
## probabilities: 0.143 0.000 0.143 0.286 0.143 0.000 0.143 0.000 0.143
0.000
##
## Node number 71: 72 observations
## predicted class=6 expected loss=0.04166667 P(node) =0.002856576
## class counts:      0      1      0      1      0      1      69      0      0
0
## probabilities: 0.000 0.014 0.000 0.014 0.000 0.014 0.958 0.000 0.000
0.000
##
## Node number 72: 142 observations, complexity param=0.0003125837
## predicted class=2 expected loss=0.1619718 P(node) =0.005633803
## class counts:      0      0     119      2      0      1      6      2     11
1
## probabilities: 0.000 0.000 0.838 0.014 0.000 0.007 0.042 0.014 0.077
0.007
## left son=144 (122 obs) right son=145 (20 obs)
## Primary splits:
##      301 < 3.5   to the left, improve=16.25925, (0 missing)
##      274 < 1     to the left, improve=15.01724, (0 missing)
##      356 < 37    to the left, improve=13.89224, (0 missing)
##      302 < 12    to the left, improve=13.24347, (0 missing)
##      273 < 36.5  to the left, improve=12.83977, (0 missing)
## Surrogate splits:
##      329 < 17    to the left, agree=0.972, adj=0.80, (0 split)
##      273 < 36.5  to the left, agree=0.965, adj=0.75, (0 split)
##      300 < 117.5 to the left, agree=0.965, adj=0.75, (0 split)
##      302 < 12    to the left, agree=0.965, adj=0.75, (0 split)
##      328 < 149.5 to the left, agree=0.965, adj=0.75, (0 split)
##
## Node number 73: 86 observations, complexity param=0.0004242208
## predicted class=7 expected loss=0.7790698 P(node) =0.003412021
## class counts:      0     17     15     13      1      0      3     19      9
9
## probabilities: 0.000 0.198 0.174 0.151 0.012 0.000 0.035 0.221 0.105

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0.105
## left son=146 (57 obs) right son=147 (29 obs)
## Primary splits:
##      683 < 18   to the left,   improve=10.087930, (0 missing)
##      516 < 37.5 to the left,   improve= 9.245802, (0 missing)
##      684 < 36   to the left,   improve= 9.195264, (0 missing)
##      515 < 5.5  to the left,   improve= 9.040953, (0 missing)
##      488 < 168.5 to the left,   improve= 8.756569, (0 missing)
## Surrogate splits:
##      682 < 1.5  to the left,   agree=0.930, adj=0.793, (0 split)
##      684 < 4.5  to the left,   agree=0.907, adj=0.724, (0 split)
##      710 < 8    to the left,   agree=0.907, adj=0.724, (0 split)
##      711 < 12.5 to the left,   agree=0.907, adj=0.724, (0 split)
##      242 < 126  to the left,   agree=0.895, adj=0.690, (0 split)
##
## Node number 74: 144 observations,   complexity param=0.0002232741
## predicted class=6 expected loss=0.2708333 P(node) =0.005713152
## class counts:      5      2      3      0      3      5     105      5     10
6
## probabilities: 0.035 0.014 0.021 0.000 0.021 0.035 0.729 0.035 0.069
0.042
## left son=148 (112 obs) right son=149 (32 obs)
## Primary splits:
##      213 < 25.5 to the left,   improve=15.76587, (0 missing)
##      240 < 105  to the left,   improve=15.25453, (0 missing)
##      239 < 43   to the right,  improve=15.19769, (0 missing)
##      241 < 12   to the left,   improve=14.80026, (0 missing)
##      212 < 21.5 to the left,   improve=13.19373, (0 missing)
## Surrogate splits:
##      214 < 13   to the left,   agree=0.944, adj=0.750, (0 split)
##      186 < 2.5  to the left,   agree=0.938, adj=0.719, (0 split)
##      212 < 21.5 to the left,   agree=0.924, adj=0.656, (0 split)
##      185 < 51.5 to the left,   agree=0.917, adj=0.625, (0 split)
##      241 < 29   to the left,   agree=0.910, adj=0.594, (0 split)
##
## Node number 75: 62 observations,   complexity param=0.0002679289
## predicted class=9 expected loss=0.3870968 P(node) =0.002459829
## class counts:      0      0      6      0      9      0      0      2      7
38
## probabilities: 0.000 0.000 0.097 0.000 0.145 0.000 0.000 0.032 0.113
0.613
## left son=150 (19 obs) right son=151 (43 obs)
## Primary splits:
##      210 < 21.5 to the left,   improve=8.797607, (0 missing)
##      209 < 131.5 to the left,   improve=7.533531, (0 missing)
##      238 < 68.5  to the left,   improve=6.490469, (0 missing)
##      154 < 161.5 to the right,  improve=5.666443, (0 missing)
##      239 < 9.5  to the left,   improve=5.648694, (0 missing)
## Surrogate splits:
##      211 < 33.5 to the left,   agree=0.919, adj=0.737, (0 split)

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##      239 < 9.5   to the left,  agree=0.887, adj=0.632, (0 split)
##      209 < 2     to the left,  agree=0.871, adj=0.579, (0 split)
##      238 < 21    to the left,  agree=0.871, adj=0.579, (0 split)
##      182 < 4     to the left,  agree=0.839, adj=0.474, (0 split)
##
## Node number 76: 162 observations,      complexity param=0.001094043
##   predicted class=3   expected loss=0.617284   P(node) =0.006427296
##   class counts:      0      9      33      62      0      0      0      44      13
1
##   probabilities: 0.000 0.056 0.204 0.383 0.000 0.000 0.000 0.272 0.080
0.006
##   left son=152 (59 obs) right son=153 (103 obs)
##   Primary splits:
##       404 < 228   to the right, improve=25.18382, (0 missing)
##       376 < 65    to the right, improve=25.02485, (0 missing)
##       403 < 59.5  to the right, improve=22.72821, (0 missing)
##       578 < 20.5  to the right, improve=21.57795, (0 missing)
##       606 < 2     to the right, improve=21.43827, (0 missing)
##   Surrogate splits:
##       376 < 48    to the right, agree=0.932, adj=0.814, (0 split)
##       403 < 29    to the right, agree=0.932, adj=0.814, (0 split)
##       375 < 2.5   to the right, agree=0.926, adj=0.797, (0 split)
##       377 < 230.5 to the right, agree=0.889, adj=0.695, (0 split)
##       431 < 157.5 to the right, agree=0.870, adj=0.644, (0 split)
##
## Node number 77: 56 observations,      complexity param=0.0001786193
##   predicted class=8   expected loss=0.3392857   P(node) =0.002221781
##   class counts:      1      0      1      2      5      1      3      0      37
6
##   probabilities: 0.018 0.000 0.018 0.036 0.089 0.018 0.054 0.000 0.661
0.107
##   left son=154 (14 obs) right son=155 (42 obs)
##   Primary splits:
##       516 < 53    to the left,  improve=8.369048, (0 missing)
##       634 < 33.5  to the left,  improve=8.243088, (0 missing)
##       606 < 9     to the left,  improve=7.903571, (0 missing)
##       662 < 13    to the left,  improve=7.322161, (0 missing)
##       661 < 56    to the left,  improve=6.989683, (0 missing)
##   Surrogate splits:
##       544 < 2     to the left,  agree=0.964, adj=0.857, (0 split)
##       543 < 1.5   to the left,  agree=0.911, adj=0.643, (0 split)
##       488 < 84.5  to the left,  agree=0.875, adj=0.500, (0 split)
##       515 < 10    to the left,  agree=0.875, adj=0.500, (0 split)
##       433 < 192   to the left,  agree=0.857, adj=0.429, (0 split)
##
## Node number 78: 124 observations,      complexity param=0.000379566
##   predicted class=8   expected loss=0.6370968   P(node) =0.004919659
##   class counts:      1      13      1      16      7      2      0      12      45
27
##   probabilities: 0.008 0.105 0.008 0.129 0.056 0.016 0.000 0.097 0.363

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0.218
## left son=156 (80 obs) right son=157 (44 obs)
## Primary splits:
## 401 < 173 to the left, improve=11.080790, (0 missing)
## 180 < 115.5 to the right, improve=10.839260, (0 missing)
## 179 < 4.5 to the right, improve=10.102630, (0 missing)
## 207 < 207.5 to the right, improve= 9.505904, (0 missing)
## 713 < 26.5 to the left, improve= 9.334151, (0 missing)
## Surrogate splits:
## 400 < 1.5 to the left, agree=0.919, adj=0.773, (0 split)
## 402 < 248.5 to the left, agree=0.887, adj=0.682, (0 split)
## 373 < 178 to the left, agree=0.879, adj=0.659, (0 split)
## 428 < 9.5 to the left, agree=0.879, adj=0.659, (0 split)
## 429 < 17.5 to the left, agree=0.839, adj=0.545, (0 split)
##
## Node number 79: 374 observations, complexity param=0.0001786193
## predicted class=8 expected loss=0.1229947 P(node) =0.01483833
## class counts: 3 1 2 8 11 5 2 11 328
3
## probabilities: 0.008 0.003 0.005 0.021 0.029 0.013 0.005 0.029 0.877
0.008
## left son=158 (19 obs) right son=159 (355 obs)
## Primary splits:
## 470 < 156.5 to the right, improve=14.94440, (0 missing)
## 471 < 5.5 to the right, improve=14.26268, (0 missing)
## 440 < 65 to the right, improve=13.47169, (0 missing)
## 441 < 204.5 to the right, improve=13.26268, (0 missing)
## 469 < 54.5 to the right, improve=13.15042, (0 missing)
## Surrogate splits:
## 471 < 5.5 to the right, agree=0.997, adj=0.947, (0 split)
## 442 < 80 to the right, agree=0.989, adj=0.789, (0 split)
## 498 < 164 to the right, agree=0.989, adj=0.789, (0 split)
## 499 < 2 to the right, agree=0.989, adj=0.789, (0 split)
## 443 < 3.5 to the right, agree=0.984, adj=0.684, (0 split)
##
## Node number 80: 1502 observations, complexity param=0.0007368045
## predicted class=3 expected loss=0.08521971 P(node) =0.05959135
## class counts: 0 41 13 1374 0 39 0 7 23
5
## probabilities: 0.000 0.027 0.009 0.915 0.000 0.026 0.000 0.005 0.015
0.003
## left son=160 (64 obs) right son=161 (1438 obs)
## Primary splits:
## 490 < 139.5 to the right, improve=40.67295, (0 missing)
## 264 < 147.5 to the left, improve=39.08559, (0 missing)
## 491 < 251.5 to the right, improve=35.00766, (0 missing)
## 296 < 2.5 to the right, improve=33.06601, (0 missing)
## 519 < 248.5 to the right, improve=28.93667, (0 missing)
## Surrogate splits:
## 491 < 251.5 to the right, agree=0.971, adj=0.328, (0 split)

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##      518 < 204   to the right, agree=0.970, adj=0.297, (0 split)
##      519 < 252.5 to the right, agree=0.963, adj=0.141, (0 split)
##      462 < 240.5 to the right, agree=0.961, adj=0.078, (0 split)
##      489 < 17.5  to the right, agree=0.960, adj=0.062, (0 split)
##
## Node number 81: 124 observations,      complexity param=0.0005358578
##   predicted class=5   expected loss=0.4677419   P(node) =0.004919659
##   class counts:      3      0      0      18      5      66      2      0      8
22
##   probabilities: 0.024 0.000 0.000 0.145 0.040 0.532 0.016 0.000 0.065
0.177
##   left son=162 (78 obs) right son=163 (46 obs)
##   Primary splits:
##       296 < 54   to the left,   improve=18.35723, (0 missing)
##       297 < 8.5   to the left,   improve=13.84682, (0 missing)
##       295 < 190.5 to the left,   improve=13.33559, (0 missing)
##       493 < 1     to the left,   improve=13.15037, (0 missing)
##       269 < 0.5   to the left,   improve=13.05200, (0 missing)
##   Surrogate splits:
##       297 < 2     to the left,   agree=0.895, adj=0.717, (0 split)
##       295 < 36.5  to the left,   agree=0.863, adj=0.630, (0 split)
##       324 < 234   to the left,   agree=0.855, adj=0.609, (0 split)
##       269 < 0.5   to the left,   agree=0.847, adj=0.587, (0 split)
##       323 < 228.5 to the left,   agree=0.831, adj=0.543, (0 split)
##
## Node number 82: 417 observations,      complexity param=0.002009467
##   predicted class=3   expected loss=0.4364508   P(node) =0.01654434
##   class counts:      26      4      5      235      0      119      8      4      12
4
##   probabilities: 0.062 0.010 0.012 0.564 0.000 0.285 0.019 0.010 0.029
0.010
##   left son=164 (261 obs) right son=165 (156 obs)
##   Primary splits:
##       265 < 148   to the left,   improve=68.75340, (0 missing)
##       292 < 98.5  to the left,   improve=56.56522, (0 missing)
##       293 < 119   to the left,   improve=50.53075, (0 missing)
##       266 < 218   to the left,   improve=49.22403, (0 missing)
##       238 < 178.5 to the left,   improve=43.42265, (0 missing)
##   Surrogate splits:
##       264 < 17.5  to the left,   agree=0.873, adj=0.660, (0 split)
##       238 < 201.5 to the left,   agree=0.868, adj=0.647, (0 split)
##       292 < 124.5 to the left,   agree=0.859, adj=0.622, (0 split)
##       266 < 167   to the left,   agree=0.842, adj=0.577, (0 split)
##       237 < 83    to the left,   agree=0.825, adj=0.532, (0 split)
##
## Node number 83: 275 observations,      complexity param=0.001830848
##   predicted class=1   expected loss=0.6836364   P(node) =0.01091053
##   class counts:      5      87      1      26      31      53      9      19      10
34
##   probabilities: 0.018 0.316 0.004 0.095 0.113 0.193 0.033 0.069 0.036

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0.124
## left son=166 (104 obs) right son=167 (171 obs)
## Primary splits:
## 376 < 20 to the left, improve=41.76481, (0 missing)
## 462 < 138.5 to the right, improve=39.92496, (0 missing)
## 375 < 1 to the left, improve=39.04379, (0 missing)
## 154 < 2.5 to the right, improve=38.93607, (0 missing)
## 153 < 2.5 to the right, improve=38.78834, (0 missing)
## Surrogate splits:
## 375 < 1 to the left, agree=0.938, adj=0.837, (0 split)
## 348 < 7.5 to the left, agree=0.884, adj=0.692, (0 split)
## 403 < 1.5 to the left, agree=0.880, adj=0.683, (0 split)
## 374 < 2 to the left, agree=0.869, adj=0.654, (0 split)
## 404 < 2.5 to the left, agree=0.869, adj=0.654, (0 split)
##
## Node number 84: 324 observations, complexity param=0.001250335
## predicted class=3 expected loss=0.5524691 P(node) =0.01285459
## class counts: 33 1 1 145 0 69 3 5 38
29
## probabilities: 0.102 0.003 0.003 0.448 0.000 0.213 0.009 0.015 0.117
0.090
## left son=168 (32 obs) right son=169 (292 obs)
## Primary splits:
## 359 < 77 to the right, improve=30.59009, (0 missing)
## 330 < 172.5 to the right, improve=30.52172, (0 missing)
## 331 < 6 to the right, improve=29.98537, (0 missing)
## 427 < 214.5 to the right, improve=29.80651, (0 missing)
## 454 < 162.5 to the right, improve=29.57523, (0 missing)
## Surrogate splits:
## 330 < 186.5 to the right, agree=0.981, adj=0.813, (0 split)
## 358 < 237 to the right, agree=0.981, adj=0.813, (0 split)
## 387 < 64 to the right, agree=0.981, adj=0.813, (0 split)
## 331 < 79.5 to the right, agree=0.978, adj=0.781, (0 split)
## 360 < 7 to the right, agree=0.963, adj=0.625, (0 split)
##
## Node number 85: 512 observations, complexity param=0.001027061
## predicted class=5 expected loss=0.2050781 P(node) =0.02031343
## class counts: 26 0 0 53 1 407 6 0 11
8
## probabilities: 0.051 0.000 0.000 0.104 0.002 0.795 0.012 0.000 0.021
0.016
## left son=170 (39 obs) right son=171 (473 obs)
## Primary splits:
## 301 < 74 to the right, improve=39.51550, (0 missing)
## 330 < 1.5 to the right, improve=37.61420, (0 missing)
## 302 < 35 to the right, improve=36.12414, (0 missing)
## 329 < 2 to the right, improve=35.30698, (0 missing)
## 300 < 70.5 to the right, improve=34.88390, (0 missing)
## Surrogate splits:
## 329 < 14 to the right, agree=0.992, adj=0.897, (0 split)

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##      302 < 8      to the right, agree=0.986, adj=0.821, (0 split)
##      330 < 1.5    to the right, agree=0.984, adj=0.795, (0 split)
##      273 < 211.5 to the right, agree=0.980, adj=0.744, (0 split)
##      300 < 70.5  to the right, agree=0.975, adj=0.667, (0 split)
##
## Node number 86: 164 observations,      complexity param=0.002389033
##   predicted class=7   expected loss=0.6219512   P(node) =0.006506646
##   class counts:      4      3      0      9      58      11      4      62      3
10
##   probabilities: 0.024 0.018 0.000 0.055 0.354 0.067 0.024 0.378 0.018
0.061
##   left son=172 (85 obs) right son=173 (79 obs)
##   Primary splits:
##       321 < 202    to the left,   improve=40.30244, (0 missing)
##       322 < 200    to the left,   improve=37.31707, (0 missing)
##       405 < 6.5    to the right,  improve=36.44269, (0 missing)
##       378 < 201.5 to the right,  improve=35.36654, (0 missing)
##       404 < 59     to the right,  improve=33.65017, (0 missing)
##   Surrogate splits:
##       322 < 207.5 to the left,   agree=0.939, adj=0.873, (0 split)
##       320 < 214.5 to the left,   agree=0.902, adj=0.797, (0 split)
##       293 < 63.5  to the left,   agree=0.896, adj=0.785, (0 split)
##       294 < 99.5  to the left,   agree=0.872, adj=0.734, (0 split)
##       323 < 233.5 to the left,   agree=0.860, adj=0.709, (0 split)
##
## Node number 87: 357 observations,      complexity param=0.001071716
##   predicted class=9   expected loss=0.3445378   P(node) =0.01416386
##   class counts:      4      2      2      28      18      46      3      12      8
234
##   probabilities: 0.011 0.006 0.006 0.078 0.050 0.129 0.008 0.034 0.022
0.655
##   left son=174 (100 obs) right son=175 (257 obs)
##   Primary splits:
##       297 < 5.5    to the left,   improve=43.67962, (0 missing)
##       325 < 12.5   to the left,   improve=38.79364, (0 missing)
##       296 < 7.5    to the left,   improve=34.24751, (0 missing)
##       464 < 36     to the left,   improve=33.64649, (0 missing)
##       492 < 29     to the left,   improve=33.25300, (0 missing)
##   Surrogate splits:
##       269 < 2.5    to the left,   agree=0.908, adj=0.67, (0 split)
##       325 < 73.5   to the left,   agree=0.894, adj=0.62, (0 split)
##       296 < 7.5    to the left,   agree=0.863, adj=0.51, (0 split)
##       324 < 188.5  to the left,   agree=0.863, adj=0.51, (0 split)
##       298 < 3      to the left,   agree=0.818, adj=0.35, (0 split)
##
## Node number 88: 73 observations,      complexity param=0.0001786193
##   predicted class=2   expected loss=0.2191781   P(node) =0.002896251
##   class counts:      0      1      57      5      0      0      4      0      6
0
##   probabilities: 0.000 0.014 0.781 0.068 0.000 0.000 0.055 0.000 0.082

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0.000
## left son=176 (60 obs) right son=177 (13 obs)
## Primary splits:
## 466 < 39.5 to the left, improve=9.068247, (0 missing)
## 412 < 17.5 to the left, improve=8.709380, (0 missing)
## 440 < 124.5 to the left, improve=8.709380, (0 missing)
## 439 < 184.5 to the left, improve=8.646880, (0 missing)
## 411 < 12 to the left, improve=8.380669, (0 missing)
## Surrogate splits:
## 465 < 5 to the left, agree=0.959, adj=0.769, (0 split)
## 494 < 184.5 to the left, agree=0.959, adj=0.769, (0 split)
## 493 < 128 to the left, agree=0.945, adj=0.692, (0 split)
## 436 < 58 to the left, agree=0.932, adj=0.615, (0 split)
## 437 < 118 to the left, agree=0.932, adj=0.615, (0 split)
##
## Node number 89: 100 observations, complexity param=0.0004465482
## predicted class=9 expected loss=0.81 P(node) =0.003967467
## class counts: 9 14 12 3 9 7 10 0 17
19
## probabilities: 0.090 0.140 0.120 0.030 0.090 0.070 0.100 0.000 0.170
0.190
## left son=178 (83 obs) right son=179 (17 obs)
## Primary splits:
## 717 < 5 to the left, improve=13.162230, (0 missing)
## 572 < 25.5 to the right, improve= 9.874790, (0 missing)
## 573 < 12 to the right, improve= 9.765385, (0 missing)
## 600 < 5 to the right, improve= 9.620000, (0 missing)
## 541 < 20 to the right, improve= 9.477250, (0 missing)
## Surrogate splits:
## 716 < 2 to the left, agree=0.95, adj=0.706, (0 split)
## 689 < 166 to the left, agree=0.94, adj=0.647, (0 split)
## 688 < 164 to the left, agree=0.92, adj=0.529, (0 split)
## 718 < 3.5 to the left, agree=0.90, adj=0.412, (0 split)
## 745 < 1 to the left, agree=0.90, adj=0.412, (0 split)
##
## Node number 90: 41 observations, complexity param=0.0003125837
## predicted class=2 expected loss=0.7804878 P(node) =0.001626661
## class counts: 2 5 9 3 5 4 4 0 2
7
## probabilities: 0.049 0.122 0.220 0.073 0.122 0.098 0.098 0.000 0.049
0.171
## left son=180 (18 obs) right son=181 (23 obs)
## Primary splits:
## 380 < 19.5 to the left, improve=5.028161, (0 missing)
## 400 < 63.5 to the left, improve=4.392656, (0 missing)
## 352 < 43.5 to the left, improve=4.284634, (0 missing)
## 409 < 68.5 to the left, improve=4.035147, (0 missing)
## 408 < 125 to the left, improve=3.949634, (0 missing)
## Surrogate splits:
## 381 < 8 to the left, agree=0.902, adj=0.778, (0 split)

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##      408 < 14    to the left,  agree=0.878, adj=0.722, (0 split)
##      352 < 43.5  to the left,  agree=0.854, adj=0.667, (0 split)
##      409 < 21    to the left,  agree=0.854, adj=0.667, (0 split)
##      262 < 68.5  to the left,  agree=0.805, adj=0.556, (0 split)
##
## Node number 91: 209 observations,      complexity param=0.0003349111
##   predicted class=6  expected loss=0.2009569  P(node) =0.008292006
##   class counts:      2      0      20      4      0      12      167      0      4
##   0
##   probabilities: 0.010 0.000 0.096 0.019 0.000 0.057 0.799 0.000 0.019
##   0.000
##   left son=182 (16 obs) right son=183 (193 obs)
##   Primary splits:
##       584 < 8      to the right, improve=15.45373, (0 missing)
##       583 < 102.5  to the right, improve=13.91228, (0 missing)
##       582 < 26.5   to the right, improve=13.34968, (0 missing)
##       556 < 3.5    to the right, improve=13.25837, (0 missing)
##       581 < 81     to the right, improve=12.23165, (0 missing)
##   Surrogate splits:
##       583 < 120.5  to the right, agree=0.995, adj=0.937, (0 split)
##       556 < 51.5   to the right, agree=0.986, adj=0.813, (0 split)
##       555 < 149    to the right, agree=0.976, adj=0.687, (0 split)
##       557 < 11     to the right, agree=0.976, adj=0.687, (0 split)
##       611 < 35     to the right, agree=0.976, adj=0.687, (0 split)
##
## Node number 92: 41 observations
##   predicted class=0  expected loss=0.09756098  P(node) =0.001626661
##   class counts:      37      0      0      1      0      2      0      0      1
##   0
##   probabilities: 0.902 0.000 0.000 0.024 0.000 0.049 0.000 0.000 0.024
##   0.000
##
## Node number 93: 56 observations,      complexity param=0.0002083892
##   predicted class=8  expected loss=0.6428571  P(node) =0.002221781
##   class counts:      7      0      8      5      0      13      3      0      20
##   0
##   probabilities: 0.125 0.000 0.143 0.089 0.000 0.232 0.054 0.000 0.357
##   0.000
##   left son=186 (40 obs) right son=187 (16 obs)
##   Primary splits:
##       347 < 0.5    to the right, improve=5.114286, (0 missing)
##       431 < 11.5   to the left,  improve=5.062771, (0 missing)
##       269 < 10.5   to the right, improve=4.992063, (0 missing)
##       297 < 178    to the left,  improve=4.928571, (0 missing)
##       346 < 22.5   to the left,  improve=4.674179, (0 missing)
##   Surrogate splits:
##       320 < 14.5   to the right, agree=0.929, adj=0.750, (0 split)
##       319 < 5      to the right, agree=0.893, adj=0.625, (0 split)
##       348 < 110.5  to the right, agree=0.893, adj=0.625, (0 split)
##       318 < 6      to the right, agree=0.839, adj=0.438, (0 split)

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##      354 < 1      to the right, agree=0.839, adj=0.438, (0 split)
##
## Node number 94: 43 observations,      complexity param=0.0004688756
## predicted class=3 expected loss=0.4883721 P(node) =0.001706011
## class counts:      0      0      1      22      0      2      0      0      13
5
## probabilities: 0.000 0.000 0.023 0.512 0.000 0.047 0.000 0.000 0.302
0.116
## left son=188 (27 obs) right son=189 (16 obs)
## Primary splits:
##      512 < 70.5 to the left, improve=12.16258, (0 missing)
##      513 < 8.5  to the left, improve=12.16258, (0 missing)
##      539 < 195.5 to the left, improve=10.96037, (0 missing)
##      485 < 207.5 to the left, improve=10.87067, (0 missing)
##      511 < 67.5 to the left, improve=10.63056, (0 missing)
## Surrogate splits:
##      511 < 67.5 to the left, agree=0.977, adj=0.937, (0 split)
##      484 < 163.5 to the left, agree=0.953, adj=0.875, (0 split)
##      513 < 8.5  to the left, agree=0.953, adj=0.875, (0 split)
##      483 < 76   to the left, agree=0.930, adj=0.812, (0 split)
##      268 < 9.5  to the right, agree=0.907, adj=0.750, (0 split)
##
## Node number 95: 430 observations,      complexity param=0.0002344378
## predicted class=8 expected loss=0.1860465 P(node) =0.01706011
## class counts:      8      0      19      23      0      13      12      1      350
4
## probabilities: 0.019 0.000 0.044 0.053 0.000 0.030 0.028 0.002 0.814
0.009
## left son=190 (28 obs) right son=191 (402 obs)
## Primary splits:
##      432 < 1      to the left, improve=15.89285, (0 missing)
##      459 < 16.5 to the left, improve=15.80018, (0 missing)
##      435 < 44.5 to the left, improve=14.50146, (0 missing)
##      439 < 250.5 to the right, improve=13.62454, (0 missing)
##      436 < 7     to the left, improve=13.55462, (0 missing)
## Surrogate splits:
##      405 < 5      to the left, agree=0.967, adj=0.500, (0 split)
##      431 < 1      to the left, agree=0.956, adj=0.321, (0 split)
##      459 < 0.5    to the left, agree=0.956, adj=0.321, (0 split)
##      385 < 241    to the right, agree=0.944, adj=0.143, (0 split)
##      413 < 250    to the right, agree=0.944, adj=0.143, (0 split)
##
## Node number 96: 1973 observations,      complexity param=0.0001786193
## predicted class=0 expected loss=0.04460213 P(node) =0.07827812
## class counts: 1885      0      30      7      1      19      18      10      1
2
## probabilities: 0.955 0.000 0.015 0.004 0.001 0.010 0.009 0.005 0.001
0.001
## left son=192 (1955 obs) right son=193 (18 obs)
## Primary splits:

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##      463 < 80      to the left,  improve=14.57930, (0 missing)
##      707 < 3.5    to the left,  improve=13.36910, (0 missing)
##      708 < 43     to the left,  improve=13.36910, (0 missing)
##      427 < 0.5    to the right, improve=12.97644, (0 missing)
##      464 < 193    to the left,  improve=12.69634, (0 missing)
## Surrogate splits:
##      464 < 242    to the left,  agree=0.993, adj=0.278, (0 split)
##      491 < 239.5  to the left,  agree=0.993, adj=0.278, (0 split)
##      490 < 131.5  to the left,  agree=0.993, adj=0.222, (0 split)
##      707 < 39     to the left,  agree=0.993, adj=0.222, (0 split)
##      706 < 3.5    to the left,  agree=0.992, adj=0.167, (0 split)
##
## Node number 97: 99 observations,      complexity param=0.0004242208
## predicted class=0 expected loss=0.5454545 P(node) =0.003927792
## class counts:   45      0      2      24      0      25      3      0      0
## probabilities: 0.455 0.000 0.020 0.242 0.000 0.253 0.030 0.000 0.000
## left son=194 (42 obs) right son=195 (57 obs)
## Primary splits:
##      427 < 40      to the right, improve=25.47832, (0 missing)
##      455 < 3       to the right, improve=23.30820, (0 missing)
##      399 < 73.5    to the right, improve=23.26249, (0 missing)
##      428 < 103.5   to the right, improve=19.27411, (0 missing)
##      271 < 118     to the right, improve=18.54264, (0 missing)
## Surrogate splits:
##      399 < 65.5    to the right, agree=0.960, adj=0.905, (0 split)
##      455 < 51      to the right, agree=0.949, adj=0.881, (0 split)
##      426 < 1.5     to the right, agree=0.919, adj=0.810, (0 split)
##      454 < 6.5     to the right, agree=0.909, adj=0.786, (0 split)
##      371 < 21      to the right, agree=0.879, adj=0.714, (0 split)
##
## Node number 98: 84 observations,      complexity param=0.0008484415
## predicted class=0 expected loss=0.5357143 P(node) =0.003332672
## class counts:   39      0      6      2      1      11      22      0      2
## probabilities: 0.464 0.000 0.071 0.024 0.012 0.131 0.262 0.000 0.024
## left son=196 (45 obs) right son=197 (39 obs)
## Primary splits:
##      270 < 21.5    to the right, improve=18.41636, (0 missing)
##      378 < 41      to the left,  improve=16.00212, (0 missing)
##      269 < 72      to the right, improve=15.83202, (0 missing)
##      405 < 64      to the left,  improve=15.81935, (0 missing)
##      406 < 70      to the left,  improve=15.81935, (0 missing)
## Surrogate splits:
##      269 < 72      to the right, agree=0.881, adj=0.744, (0 split)
##      241 < 15.5    to the right, agree=0.869, adj=0.718, (0 split)
##      242 < 78      to the right, agree=0.857, adj=0.692, (0 split)
##      271 < 45.5    to the right, agree=0.857, adj=0.692, (0 split)

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##      298 < 37      to the right, agree=0.845, adj=0.667, (0 split)
##
## Node number 99: 139 observations,      complexity param=0.0007591319
## predicted class=5 expected loss=0.5251799 P(node) =0.005514779
## class counts:      7      1      11      42      0      66      4      2      3
3
## probabilities: 0.050 0.007 0.079 0.302 0.000 0.475 0.029 0.014 0.022
0.022
## left son=198 (65 obs) right son=199 (74 obs)
## Primary splits:
##      375 < 95      to the left, improve=12.76991, (0 missing)
##      346 < 2      to the left, improve=12.54354, (0 missing)
##      374 < 104     to the left, improve=11.65058, (0 missing)
##      402 < 4.5     to the left, improve=11.49828, (0 missing)
##      324 < 2.5     to the right, improve=11.04272, (0 missing)
## Surrogate splits:
##      376 < 11.5    to the left, agree=0.921, adj=0.831, (0 split)
##      374 < 19.5    to the left, agree=0.871, adj=0.723, (0 split)
##      402 < 4.5     to the left, agree=0.856, adj=0.692, (0 split)
##      403 < 35      to the left, agree=0.856, adj=0.692, (0 split)
##      377 < 2       to the left, agree=0.827, adj=0.631, (0 split)
##
## Node number 100: 192 observations,      complexity param=8.930964e-05
## predicted class=2 expected loss=0.1197917 P(node) =0.007617536
## class counts:      0      5      169      6      1      2      1      3      5
0
## probabilities: 0.000 0.026 0.880 0.031 0.005 0.010 0.005 0.016 0.026
0.000
## left son=200 (169 obs) right son=201 (23 obs)
## Primary splits:
##      520 < 34      to the right, improve=11.271360, (0 missing)
##      492 < 46.5    to the right, improve=10.474310, (0 missing)
##      406 < 15.5    to the left, improve= 9.946657, (0 missing)
##      493 < 115.5   to the right, improve= 9.783002, (0 missing)
##      379 < 1       to the left, improve= 9.014460, (0 missing)
## Surrogate splits:
##      406 < 15.5    to the left, agree=0.974, adj=0.783, (0 split)
##      492 < 5       to the right, agree=0.974, adj=0.783, (0 split)
##      379 < 1       to the left, agree=0.969, adj=0.739, (0 split)
##      378 < 12.5    to the left, agree=0.964, adj=0.696, (0 split)
##      466 < 1.5     to the right, agree=0.964, adj=0.696, (0 split)
##
## Node number 101: 26 observations,      complexity param=0.0003125837
## predicted class=5 expected loss=0.6923077 P(node) =0.001031541
## class counts:      7      0      1      0      1      8      6      0      1
2
## probabilities: 0.269 0.000 0.038 0.000 0.038 0.308 0.231 0.000 0.038
0.077
## left son=202 (17 obs) right son=203 (9 obs)
## Primary splits:

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##      512 < 14.5  to the right, improve=5.986928, (0 missing)
##      440 < 170.5 to the right, improve=5.947712, (0 missing)
##      540 < 19    to the right, improve=5.894737, (0 missing)
##      511 < 0.5   to the right, improve=5.869281, (0 missing)
##      412 < 185.5 to the right, improve=5.775000, (0 missing)
## Surrogate splits:
##      523 < 31    to the right, agree=0.962, adj=0.889, (0 split)
##      541 < 13.5  to the right, agree=0.962, adj=0.889, (0 split)
##      355 < 9.5   to the right, agree=0.923, adj=0.778, (0 split)
##      431 < 42.5  to the left,  agree=0.923, adj=0.778, (0 split)
##      495 < 3     to the right, agree=0.923, adj=0.778, (0 split)
##
## Node number 102: 73 observations,      complexity param=8.930964e-05
## predicted class=0 expected loss=0.1232877 P(node) =0.002896251
## class counts:      64      0      1      0      0      0      5      1      1
1
## probabilities: 0.877 0.000 0.014 0.000 0.000 0.000 0.068 0.014 0.014
0.014
## left son=204 (64 obs) right son=205 (9 obs)
## Primary splits:
##      243 < 2     to the right, improve=5.569540, (0 missing)
##      244 < 24    to the right, improve=4.883627, (0 missing)
##      214 < 18    to the right, improve=4.796181, (0 missing)
##      399 < 39.5  to the right, improve=4.439305, (0 missing)
##      245 < 19    to the right, improve=4.361206, (0 missing)
## Surrogate splits:
##      244 < 4.5   to the right, agree=0.945, adj=0.556, (0 split)
##      214 < 4     to the right, agree=0.932, adj=0.444, (0 split)
##      215 < 3.5   to the right, agree=0.932, adj=0.444, (0 split)
##      272 < 1.5   to the right, agree=0.932, adj=0.444, (0 split)
##      273 < 13.5  to the right, agree=0.932, adj=0.444, (0 split)
##
## Node number 103: 151 observations,      complexity param=0.0005805126
## predicted class=5 expected loss=0.410596 P(node) =0.005990875
## class counts:      6      0     10      4      1     89     24      0     17
0
## probabilities: 0.040 0.000 0.066 0.026 0.007 0.589 0.159 0.000 0.113
0.000
## left son=206 (64 obs) right son=207 (87 obs)
## Primary splits:
##      513 < 12.5  to the right, improve=26.85880, (0 missing)
##      157 < 47    to the left,  improve=22.88604, (0 missing)
##      156 < 74.5  to the left,  improve=21.54192, (0 missing)
##      514 < 3.5   to the left,  improve=21.01624, (0 missing)
##      131 < 89    to the left,  improve=20.69583, (0 missing)
## Surrogate splits:
##      514 < 3.5   to the right, agree=0.887, adj=0.734, (0 split)
##      485 < 108   to the right, agree=0.874, adj=0.703, (0 split)
##      541 < 46    to the right, agree=0.854, adj=0.656, (0 split)
##      512 < 55.5  to the right, agree=0.834, adj=0.609, (0 split)

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##      486 < 140.5 to the right, agree=0.828, adj=0.594, (0 split)
##
## Node number 104: 151 observations,      complexity param=0.0004018934
## predicted class=0 expected loss=0.4039735 P(node) =0.005990875
##   class counts:    90      0    16      3      3    14      5      3      2
15
##   probabilities: 0.596 0.000 0.106 0.020 0.020 0.093 0.033 0.020 0.013
0.099
## left son=208 (93 obs) right son=209 (58 obs)
## Primary splits:
##      518 < 102   to the left, improve=21.05911, (0 missing)
##      519 < 110.5 to the left, improve=15.24324, (0 missing)
##      571 < 118   to the right, improve=15.17687, (0 missing)
##      517 < 167.5 to the left, improve=15.05487, (0 missing)
##      489 < 46.5  to the left, improve=14.75032, (0 missing)
## Surrogate splits:
##      517 < 80    to the left, agree=0.901, adj=0.741, (0 split)
##      490 < 1     to the left, agree=0.894, adj=0.724, (0 split)
##      519 < 110.5 to the left, agree=0.894, adj=0.724, (0 split)
##      489 < 1.5   to the left, agree=0.848, adj=0.603, (0 split)
##      546 < 224.5 to the left, agree=0.834, adj=0.569, (0 split)
##
## Node number 105: 158 observations,      complexity param=0.0002679289
## predicted class=6 expected loss=0.2531646 P(node) =0.006268598
##   class counts:     9      1    14      3      6      5    118      0      1
1
##   probabilities: 0.057 0.006 0.089 0.019 0.038 0.032 0.747 0.000 0.006
0.006
## left son=210 (15 obs) right son=211 (143 obs)
## Primary splits:
##      215 < 15    to the right, improve=10.949600, (0 missing)
##      99 < 1.5    to the left, improve=10.621320, (0 missing)
##      244 < 5     to the right, improve=10.141330, (0 missing)
##      657 < 4.5   to the right, improve= 9.843735, (0 missing)
##      243 < 3     to the right, improve= 9.691958, (0 missing)
## Surrogate splits:
##      243 < 3     to the right, agree=0.994, adj=0.933, (0 split)
##      216 < 20.5  to the right, agree=0.981, adj=0.800, (0 split)
##      187 < 22.5  to the right, agree=0.968, adj=0.667, (0 split)
##      214 < 5     to the right, agree=0.968, adj=0.667, (0 split)
##      242 < 3     to the right, agree=0.968, adj=0.667, (0 split)
##
## Node number 106: 119 observations,      complexity param=0.0002679289
## predicted class=4 expected loss=0.2268908 P(node) =0.004721285
##   class counts:     2      0      6      0    92      3      5      6      0
5
##   probabilities: 0.017 0.000 0.050 0.000 0.773 0.025 0.042 0.050 0.000
0.042
## left son=212 (103 obs) right son=213 (16 obs)
## Primary splits:

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##      294 < 30.5  to the left,  improve=14.29289, (0 missing)
##      266 < 44.5  to the left,  improve=13.49975, (0 missing)
##      295 < 15    to the left,  improve=12.17027, (0 missing)
##      267 < 10.5  to the left,  improve=11.11692, (0 missing)
##      322 < 2.5   to the left,  improve=10.30024, (0 missing)
## Surrogate splits:
##      266 < 44.5  to the left,  agree=0.975, adj=0.812, (0 split)
##      295 < 15    to the left,  agree=0.958, adj=0.688, (0 split)
##      265 < 211   to the left,  agree=0.950, adj=0.625, (0 split)
##      267 < 10.5  to the left,  agree=0.950, adj=0.625, (0 split)
##      322 < 2.5   to the left,  agree=0.950, adj=0.625, (0 split)
##
## Node number 107: 175 observations,    complexity param=0.001473609
## predicted class=9 expected loss=0.6057143 P(node) =0.006943067
## class counts:      7      0      8      5      24      38      5      17      2
69
## probabilities: 0.040 0.000 0.046 0.029 0.137 0.217 0.029 0.097 0.011
0.394
## left son=214 (69 obs) right son=215 (106 obs)
## Primary splits:
##      465 < 104    to the left,  improve=27.01432, (0 missing)
##      466 < 0.5    to the left,  improve=25.30958, (0 missing)
##      437 < 11.5   to the left,  improve=25.03619, (0 missing)
##      438 < 16     to the left,  improve=24.84611, (0 missing)
##      218 < 1.5    to the right, improve=24.44695, (0 missing)
## Surrogate splits:
##      437 < 1      to the left,  agree=0.943, adj=0.855, (0 split)
##      464 < 10.5   to the left,  agree=0.903, adj=0.754, (0 split)
##      409 < 1      to the left,  agree=0.880, adj=0.696, (0 split)
##      438 < 52     to the left,  agree=0.880, adj=0.696, (0 split)
##      493 < 55.5   to the left,  agree=0.880, adj=0.696, (0 split)
##
## Node number 108: 106 observations,    complexity param=0.0002456015
## predicted class=5 expected loss=0.4433962 P(node) =0.004205515
## class counts:      2      7      0      17      2      59      9      2      2
6
## probabilities: 0.019 0.066 0.000 0.160 0.019 0.557 0.085 0.019 0.019
0.057
## left son=216 (53 obs) right son=217 (53 obs)
## Primary splits:
##      290 < 0.5    to the left,  improve=9.660377, (0 missing)
##      263 < 3.5    to the left,  improve=9.106793, (0 missing)
##      203 < 5      to the right, improve=8.230857, (0 missing)
##      205 < 12     to the right, improve=7.251435, (0 missing)
##      291 < 46     to the left,  improve=7.251267, (0 missing)
## Surrogate splits:
##      318 < 55     to the left,  agree=0.887, adj=0.774, (0 split)
##      263 < 28     to the left,  agree=0.830, adj=0.660, (0 split)
##      317 < 3      to the left,  agree=0.830, adj=0.660, (0 split)
##      262 < 17.5   to the left,  agree=0.821, adj=0.642, (0 split)

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##      289 < 13    to the left,  agree=0.811, adj=0.623, (0 split)
##
## Node number 109: 102 observations,    complexity param=0.0007144771
## predicted class=9 expected loss=0.4215686 P(node) =0.004046816
## class counts:      2      0      3      8      20      3      0      7      0
59
## probabilities: 0.020 0.000 0.029 0.078 0.196 0.029 0.000 0.069 0.000
0.578
## left son=218 (31 obs) right son=219 (71 obs)
## Primary splits:
##      239 < 1.5    to the left,  improve=18.23672, (0 missing)
##      238 < 17.5   to the left,  improve=17.47031, (0 missing)
##      210 < 2      to the left,  improve=16.29280, (0 missing)
##      211 < 4      to the left,  improve=15.30392, (0 missing)
##      237 < 69.5   to the left,  improve=14.14787, (0 missing)
## Surrogate splits:
##      238 < 2      to the left,  agree=0.941, adj=0.806, (0 split)
##      211 < 28.5   to the left,  agree=0.922, adj=0.742, (0 split)
##      240 < 3.5    to the left,  agree=0.922, adj=0.742, (0 split)
##      210 < 2      to the left,  agree=0.902, adj=0.677, (0 split)
##      237 < 8.5    to the left,  agree=0.892, adj=0.645, (0 split)
##
## Node number 110: 68 observations,    complexity param=0.0002679289
## predicted class=0 expected loss=0.2794118 P(node) =0.002697877
## class counts:     49      0      0      1      2      9      0      4      0
3
## probabilities: 0.721 0.000 0.000 0.015 0.029 0.132 0.000 0.059 0.000
0.044
## left son=220 (59 obs) right son=221 (9 obs)
## Primary splits:
##      323 < 203    to the left,  improve=8.749972, (0 missing)
##      353 < 45.5   to the left,  improve=8.666479, (0 missing)
##      322 < 102.5  to the left,  improve=8.395886, (0 missing)
##      237 < 24     to the right, improve=8.231900, (0 missing)
##      358 < 3.5    to the right, improve=7.987677, (0 missing)
## Surrogate splits:
##      322 < 197.5  to the left,  agree=0.971, adj=0.778, (0 split)
##      321 < 229    to the left,  agree=0.956, adj=0.667, (0 split)
##      352 < 59.5   to the left,  agree=0.956, adj=0.667, (0 split)
##      353 < 75     to the left,  agree=0.956, adj=0.667, (0 split)
##      324 < 232.5  to the left,  agree=0.941, adj=0.556, (0 split)
##
## Node number 111: 678 observations,    complexity param=0.0003572385
## predicted class=7 expected loss=0.1017699 P(node) =0.02689942
## class counts:      8      3      5      8      12      17      4      609      0
12
## probabilities: 0.012 0.004 0.007 0.012 0.018 0.025 0.006 0.898 0.000
0.018
## left son=222 (30 obs) right son=223 (648 obs)
## Primary splits:

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##      460 < 13    to the right, improve=27.51554, (0 missing)
##      488 < 2     to the right, improve=27.47981, (0 missing)
##      461 < 5.5   to the right, improve=26.12030, (0 missing)
##      432 < 13.5  to the right, improve=25.79541, (0 missing)
##      459 < 17.5  to the right, improve=25.38516, (0 missing)
## Surrogate splits:
##      459 < 33.5  to the right, agree=0.994, adj=0.867, (0 split)
##      461 < 5.5   to the right, agree=0.993, adj=0.833, (0 split)
##      431 < 75.5  to the right, agree=0.991, adj=0.800, (0 split)
##      432 < 13.5  to the right, agree=0.991, adj=0.800, (0 split)
##      433 < 1.5   to the right, agree=0.985, adj=0.667, (0 split)
##
## Node number 112: 1021 observations,    complexity param=0.0009377512
## predicted class=2 expected loss=0.1165524 P(node) =0.04050784
## class counts:      3      0  902    16      2      2      2    12    66
16
## probabilities: 0.003 0.000 0.883 0.016 0.002 0.002 0.002 0.012 0.065
0.016
## left son=224 (936 obs) right son=225 (85 obs)
## Primary splits:
##      344 < 82    to the left, improve=57.73321, (0 missing)
##      372 < 94.5  to the left, improve=57.50269, (0 missing)
##      373 < 134   to the left, improve=55.79061, (0 missing)
##      345 < 6.5   to the left, improve=54.35326, (0 missing)
##      343 < 27.5  to the left, improve=48.16892, (0 missing)
## Surrogate splits:
##      345 < 6.5   to the left, agree=0.976, adj=0.706, (0 split)
##      343 < 4.5   to the left, agree=0.975, adj=0.694, (0 split)
##      316 < 141   to the left, agree=0.966, adj=0.588, (0 split)
##      372 < 94.5  to the left, agree=0.966, adj=0.588, (0 split)
##      317 < 137   to the left, agree=0.955, adj=0.459, (0 split)
##
## Node number 113: 623 observations,    complexity param=0.002857908
## predicted class=7 expected loss=0.7094703 P(node) =0.02471732
## class counts:      2   102   107      7   63   10   48   181   28
75
## probabilities: 0.003 0.164 0.172 0.011 0.101 0.016 0.077 0.291 0.045
0.120
## left son=226 (487 obs) right son=227 (136 obs)
## Primary splits:
##      709 < 1.5   to the left, improve=80.54117, (0 missing)
##      708 < 0.5   to the left, improve=78.89815, (0 missing)
##      238 < 1     to the left, improve=74.85138, (0 missing)
##      237 < 1     to the left, improve=71.72020, (0 missing)
##      239 < 7.5   to the left, improve=70.12118, (0 missing)
## Surrogate splits:
##      708 < 0.5   to the left, agree=0.949, adj=0.765, (0 split)
##      681 < 204.5  to the left, agree=0.929, adj=0.676, (0 split)
##      710 < 8     to the left, agree=0.912, adj=0.596, (0 split)
##      680 < 92.5  to the left, agree=0.891, adj=0.500, (0 split)

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##      682 < 17.5  to the left,  agree=0.884, adj=0.471, (0 split)
##
## Node number 114: 485 observations,      complexity param=0.00379566
## predicted class=4 expected loss=0.7360825 P(node) =0.01924221
##   class counts:   19      0    73      0   128    96    19    48    49
53
##   probabilities: 0.039 0.000 0.151 0.000 0.264 0.198 0.039 0.099 0.101
0.109
## left son=228 (121 obs) right son=229 (364 obs)
## Primary splits:
##      354 < 1      to the left,  improve=68.34460, (0 missing)
##      353 < 10.5  to the left,  improve=55.12702, (0 missing)
##      382 < 0.5   to the right, improve=51.97462, (0 missing)
##      381 < 13.5  to the left,  improve=51.07833, (0 missing)
##      488 < 0.5   to the left,  improve=50.20387, (0 missing)
## Surrogate splits:
##      381 < 13.5  to the left,  agree=0.924, adj=0.694, (0 split)
##      353 < 2.5   to the left,  agree=0.920, adj=0.678, (0 split)
##      382 < 0.5   to the left,  agree=0.907, adj=0.628, (0 split)
##      326 < 16    to the left,  agree=0.905, adj=0.620, (0 split)
##      327 < 1     to the left,  agree=0.889, adj=0.554, (0 split)
##
## Node number 115: 709 observations,      complexity param=0.0004465482
## predicted class=8 expected loss=0.1551481 P(node) =0.02812934
##   class counts:   17      0     5     5    24    23     9     8   599
19
##   probabilities: 0.024 0.000 0.007 0.007 0.034 0.032 0.013 0.011 0.845
0.027
## left son=230 (74 obs) right son=231 (635 obs)
## Primary splits:
##      428 < 111.5 to the right, improve=43.00775, (0 missing)
##      456 < 224   to the right, improve=39.61953, (0 missing)
##      427 < 3     to the right, improve=39.06051, (0 missing)
##      400 < 57.5  to the right, improve=38.75969, (0 missing)
##      455 < 23.5  to the right, improve=35.15894, (0 missing)
## Surrogate splits:
##      456 < 204   to the right, agree=0.976, adj=0.770, (0 split)
##      427 < 9     to the right, agree=0.969, adj=0.703, (0 split)
##      455 < 9     to the right, agree=0.968, adj=0.689, (0 split)
##      429 < 247.5 to the right, agree=0.962, adj=0.635, (0 split)
##      400 < 164.5 to the right, agree=0.952, adj=0.541, (0 split)
##
## Node number 116: 344 observations,      complexity param=0.0008037867
## predicted class=2 expected loss=0.244186 P(node) =0.01364809
##   class counts:    3    25   260     4    10     0     3    27     6
6
##   probabilities: 0.009 0.073 0.756 0.012 0.029 0.000 0.009 0.078 0.017
0.017
## left son=232 (318 obs) right son=233 (26 obs)
## Primary splits:

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##      686 < 2.5   to the left,   improve=27.13588, (0 missing)
##      153 < 2     to the right,  improve=25.48856, (0 missing)
##      152 < 1     to the right,  improve=25.38425, (0 missing)
##      159 < 0.5   to the right,  improve=24.04874, (0 missing)
##      187 < 16.5  to the right,  improve=23.73987, (0 missing)
##      Surrogate splits:
##      687 < 7     to the left,   agree=0.983, adj=0.769, (0 split)
##      714 < 2.5   to the left,   agree=0.968, adj=0.577, (0 split)
##      659 < 165.5 to the left,   agree=0.962, adj=0.500, (0 split)
##      685 < 32    to the left,   agree=0.962, adj=0.500, (0 split)
##      688 < 9     to the left,   agree=0.959, adj=0.462, (0 split)
##
## Node number 117: 103 observations,   complexity param=0.0008930964
##   predicted class=8   expected loss=0.6990291   P(node) =0.004086491
##   class counts:      2      1      10      0      24      1      19      4      31
11
##   probabilities: 0.019 0.010 0.097 0.000 0.233 0.010 0.184 0.039 0.301
0.107
##   left son=234 (73 obs) right son=235 (30 obs)
##   Primary splits:
##      656 < 105   to the left,   improve=19.74875, (0 missing)
##      655 < 6.5   to the left,   improve=18.45919, (0 missing)
##      627 < 4     to the left,   improve=15.76298, (0 missing)
##      657 < 18    to the left,   improve=15.70104, (0 missing)
##      626 < 0.5   to the left,   improve=15.06336, (0 missing)
##   Surrogate splits:
##      655 < 123   to the left,   agree=0.971, adj=0.900, (0 split)
##      657 < 108.5 to the left,   agree=0.942, adj=0.800, (0 split)
##      627 < 183.5 to the left,   agree=0.913, adj=0.700, (0 split)
##      654 < 2     to the left,   agree=0.883, adj=0.600, (0 split)
##      628 < 140   to the left,   agree=0.874, adj=0.567, (0 split)
##
## Node number 118: 241 observations,   complexity param=0.002545325
##   predicted class=8   expected loss=0.5062241   P(node) =0.009561595
##   class counts:      3      1      78      3      15      1      14      2      119
5
##   probabilities: 0.012 0.004 0.324 0.012 0.062 0.004 0.058 0.008 0.494
0.021
##   left son=236 (127 obs) right son=237 (114 obs)
##   Primary splits:
##      655 < 30.5  to the left,   improve=54.95627, (0 missing)
##      654 < 6     to the left,   improve=52.10515, (0 missing)
##      537 < 131.5 to the right,  improve=50.14114, (0 missing)
##      656 < 6     to the left,   improve=49.56066, (0 missing)
##      509 < 3.5   to the right,  improve=48.44629, (0 missing)
##   Surrogate splits:
##      654 < 6     to the left,   agree=0.946, adj=0.886, (0 split)
##      656 < 1.5   to the left,   agree=0.942, adj=0.877, (0 split)
##      629 < 2     to the left,   agree=0.884, adj=0.754, (0 split)
##      628 < 1     to the left,   agree=0.880, adj=0.746, (0 split)

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##      627 < 86.5  to the left,  agree=0.867, adj=0.719, (0 split)
##
## Node number 119: 1700 observations,      complexity param=0.001696883
## predicted class=6 expected loss=0.1229412 P(node) =0.06744694
## class counts:      0      2      32      5      5      102      1491      2      50
11
## probabilities: 0.000 0.001 0.019 0.003 0.003 0.060 0.877 0.001 0.029
0.006
## left son=238 (1537 obs) right son=239 (163 obs)
## Primary splits:
##      658 < 1.5  to the left,  improve=113.14630, (0 missing)
##      657 < 6    to the left,  improve=110.56940, (0 missing)
##      656 < 11   to the left,  improve=107.75830, (0 missing)
##      655 < 1.5  to the right, improve=100.02240, (0 missing)
##      659 < 6.5  to the right, improve= 98.06006, (0 missing)
## Surrogate splits:
##      657 < 2.5  to the left,  agree=0.993, adj=0.926, (0 split)
##      659 < 3    to the left,  agree=0.985, adj=0.847, (0 split)
##      656 < 0.5  to the left,  agree=0.979, adj=0.785, (0 split)
##      660 < 3.5  to the left,  agree=0.971, adj=0.699, (0 split)
##      655 < 1.5  to the left,  agree=0.962, adj=0.607, (0 split)
##
## Node number 120: 221 observations,      complexity param=0.003349111
## predicted class=2 expected loss=0.60181 P(node) =0.008768102
## class counts:      0      0      88      24      4      81      2      0      22
0
## probabilities: 0.000 0.000 0.398 0.109 0.018 0.367 0.009 0.000 0.100
0.000
## left son=240 (109 obs) right son=241 (112 obs)
## Primary splits:
##      346 < 3    to the left,  improve=56.90477, (0 missing)
##      319 < 5    to the left,  improve=52.80342, (0 missing)
##      127 < 31.5 to the right, improve=49.12228, (0 missing)
##      347 < 9    to the left,  improve=48.68827, (0 missing)
##      157 < 2    to the right, improve=47.95154, (0 missing)
## Surrogate splits:
##      319 < 26   to the left,  agree=0.914, adj=0.826, (0 split)
##      347 < 9    to the left,  agree=0.905, adj=0.807, (0 split)
##      374 < 58   to the left,  agree=0.905, adj=0.807, (0 split)
##      318 < 1    to the left,  agree=0.882, adj=0.761, (0 split)
##      345 < 1.5  to the left,  agree=0.882, adj=0.761, (0 split)
##
## Node number 121: 1609 observations,      complexity param=0.001629901
## predicted class=4 expected loss=0.1876942 P(node) =0.06383654
## class counts:      0      6      23      20      1307      42      66      44      34
67
## probabilities: 0.000 0.004 0.014 0.012 0.812 0.026 0.041 0.027 0.021
0.042
## left son=242 (1469 obs) right son=243 (140 obs)
## Primary splits:

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##      267 < 139   to the left,  improve=86.21374, (0 missing)
##      98 < 3     to the left,  improve=81.05098, (0 missing)
##      97 < 1     to the left,  improve=69.20911, (0 missing)
##      266 < 173.5 to the left,  improve=69.13510, (0 missing)
##      400 < 6.5   to the right, improve=63.19168, (0 missing)
## Surrogate splits:
##      239 < 74.5  to the left,  agree=0.965, adj=0.600, (0 split)
##      266 < 191.5 to the left,  agree=0.959, adj=0.529, (0 split)
##      295 < 176.5 to the left,  agree=0.947, adj=0.386, (0 split)
##      294 < 132   to the left,  agree=0.937, adj=0.271, (0 split)
##      268 < 250.5 to the left,  agree=0.927, adj=0.164, (0 split)
##
## Node number 122: 808 observations,    complexity param=0.003929624
## predicted class=5 expected loss=0.4492574 P(node) =0.03205713
## class counts:      3      2      19      55      94      445      28      33      37
92
## probabilities: 0.004 0.002 0.024 0.068 0.116 0.551 0.035 0.041 0.046
0.114
## left son=244 (581 obs) right son=245 (227 obs)
## Primary splits:
##      352 < 55    to the left,  improve=128.5179, (0 missing)
##      324 < 30.5  to the left,  improve=120.9151, (0 missing)
##      351 < 42.5  to the left,  improve=107.8040, (0 missing)
##      353 < 1.5   to the left,  improve=105.0853, (0 missing)
##      325 < 1     to the left,  improve=103.3771, (0 missing)
## Surrogate splits:
##      324 < 129.5 to the left,  agree=0.972, adj=0.899, (0 split)
##      351 < 42.5  to the left,  agree=0.968, adj=0.885, (0 split)
##      353 < 1.5   to the left,  agree=0.955, adj=0.841, (0 split)
##      325 < 6.5   to the left,  agree=0.941, adj=0.789, (0 split)
##      323 < 0.5   to the left,  agree=0.906, adj=0.665, (0 split)
##
## Node number 123: 1851 observations,    complexity param=0.002835581
## predicted class=9 expected loss=0.3408968 P(node) =0.07343781
## class counts:      4      0      71      160      194      19      4      55      124
1220
## probabilities: 0.002 0.000 0.038 0.086 0.105 0.010 0.002 0.030 0.067
0.659
## left son=246 (406 obs) right son=247 (1445 obs)
## Primary splits:
##      156 < 0.5   to the right, improve=177.7674, (0 missing)
##      155 < 0.5   to the right, improve=172.9101, (0 missing)
##      154 < 1     to the right, improve=137.4916, (0 missing)
##      157 < 0.5   to the right, improve=135.3175, (0 missing)
##      623 < 1     to the right, improve=128.5714, (0 missing)
## Surrogate splits:
##      155 < 0.5   to the right, agree=0.960, adj=0.818, (0 split)
##      157 < 0.5   to the right, agree=0.949, adj=0.768, (0 split)
##      154 < 1     to the right, agree=0.910, adj=0.589, (0 split)
##      158 < 0.5   to the right, agree=0.900, adj=0.544, (0 split)

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##      153 < 0.5   to the right, agree=0.880, adj=0.451, (0 split)
##
## Node number 124: 313 observations,      complexity param=0.002054122
## predicted class=5 expected loss=0.629393 P(node) =0.01241817
##   class counts:      1      12      8      57      30      116      2      8      30
49
##   probabilities: 0.003 0.038 0.026 0.182 0.096 0.371 0.006 0.026 0.096
0.157
## left son=248 (175 obs) right son=249 (138 obs)
## Primary splits:
##      353 < 1      to the left, improve=47.76335, (0 missing)
##      352 < 12     to the left, improve=44.04212, (0 missing)
##      325 < 2.5    to the left, improve=34.45115, (0 missing)
##      381 < 141.5  to the left, improve=32.65698, (0 missing)
##      354 < 2.5    to the left, improve=31.10189, (0 missing)
## Surrogate splits:
##      352 < 18     to the left, agree=0.920, adj=0.819, (0 split)
##      325 < 23.5   to the left, agree=0.911, adj=0.797, (0 split)
##      354 < 2.5    to the left, agree=0.872, adj=0.710, (0 split)
##      326 < 0.5    to the left, agree=0.869, adj=0.703, (0 split)
##      381 < 79.5   to the left, agree=0.856, adj=0.674, (0 split)
##
## Node number 125: 1453 observations,      complexity param=0.001607573
## predicted class=7 expected loss=0.1046111 P(node) =0.05764729
##   class counts:      6      53      45      11      4      2      19      1301      1
11
##   probabilities: 0.004 0.036 0.031 0.008 0.003 0.001 0.013 0.895 0.001
0.008
## left son=250 (93 obs) right son=251 (1360 obs)
## Primary splits:
##      156 < 0.5    to the right, improve=93.49668, (0 missing)
##      155 < 3.5    to the right, improve=84.86421, (0 missing)
##      157 < 0.5    to the right, improve=83.35302, (0 missing)
##      154 < 7      to the right, improve=71.99319, (0 missing)
##      153 < 2      to the right, improve=65.40702, (0 missing)
## Surrogate splits:
##      155 < 3.5    to the right, agree=0.983, adj=0.742, (0 split)
##      157 < 0.5    to the right, agree=0.982, adj=0.720, (0 split)
##      154 < 10.5   to the right, agree=0.966, adj=0.473, (0 split)
##      128 < 6.5    to the right, agree=0.962, adj=0.409, (0 split)
##      158 < 1.5    to the right, agree=0.960, adj=0.376, (0 split)
##
## Node number 126: 144 observations,      complexity param=0.0004018934
## predicted class=4 expected loss=0.2638889 P(node) =0.005713152
##   class counts:      1      1      11      0      106      1      15      1      1
7
##   probabilities: 0.007 0.007 0.076 0.000 0.736 0.007 0.104 0.007 0.007
0.049
## left son=252 (132 obs) right son=253 (12 obs)
## Primary splits:

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##      95 < 6.5   to the left,  improve=12.98232, (0 missing)
##      96 < 2     to the left,  improve=12.87266, (0 missing)
##      97 < 4.5   to the right, improve=12.59550, (0 missing)
##     597 < 35.5  to the right, improve=11.90941, (0 missing)
##     567 < 164.5 to the right, improve=11.77222, (0 missing)
## Surrogate splits:
##      94 < 4     to the left,  agree=0.972, adj=0.667, (0 split)
##     122 < 64    to the left,  agree=0.972, adj=0.667, (0 split)
##      67 < 4     to the left,  agree=0.965, adj=0.583, (0 split)
##      96 < 36    to the left,  agree=0.965, adj=0.583, (0 split)
##     123 < 100.5 to the left,  agree=0.958, adj=0.500, (0 split)
##
## Node number 127: 218 observations,    complexity param=0.0003125837
## predicted class=9 expected loss=0.2981651 P(node) =0.008649078
## class counts:      0      0      8      1     29      0      1     22      4
153
## probabilities: 0.000 0.000 0.037 0.005 0.133 0.000 0.005 0.101 0.018
0.702
## left son=254 (50 obs) right son=255 (168 obs)
## Primary splits:
##     518 < 241.5 to the right, improve=14.56990, (0 missing)
##     235 < 3.5   to the left,  improve=14.16128, (0 missing)
##     155 < 1     to the right, improve=13.12314, (0 missing)
##     354 < 4     to the left,  improve=12.86037, (0 missing)
##     316 < 6     to the left,  improve=12.85993, (0 missing)
## Surrogate splits:
##     545 < 30    to the right, agree=0.927, adj=0.68, (0 split)
##     517 < 223.5 to the right, agree=0.899, adj=0.56, (0 split)
##     546 < 171.5 to the right, agree=0.862, adj=0.40, (0 split)
##     573 < 62.5  to the right, agree=0.862, adj=0.40, (0 split)
##     572 < 24.5  to the right, agree=0.858, adj=0.38, (0 split)
##
## Node number 128: 2291 observations,    complexity param=0.0001786193
## predicted class=1 expected loss=0.03360978 P(node) =0.09089466
## class counts:      0 2214     12      6      7     10      8      8     24
2
## probabilities: 0.000 0.966 0.005 0.003 0.003 0.004 0.003 0.003 0.010
0.001
## left son=256 (2260 obs) right son=257 (31 obs)
## Primary splits:
##     484 < 8     to the left,  improve=24.92766, (0 missing)
##     456 < 8     to the left,  improve=24.56170, (0 missing)
##     483 < 1     to the left,  improve=23.74161, (0 missing)
##     457 < 81    to the left,  improve=23.35611, (0 missing)
##     466 < 3     to the left,  improve=22.41290, (0 missing)
## Surrogate splits:
##     485 < 179   to the left,  agree=0.996, adj=0.677, (0 split)
##     512 < 113   to the left,  agree=0.996, adj=0.677, (0 split)
##     457 < 57    to the left,  agree=0.995, adj=0.645, (0 split)
##     456 < 8     to the left,  agree=0.994, adj=0.548, (0 split)

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##      483 < 1      to the left,  agree=0.993, adj=0.516, (0 split)
##
## Node number 129: 21 observations
##   predicted class=2  expected loss=0.1428571  P(node) =0.000833168
##   class counts:      0      2      18      1      0      0      0      0      0
##
##   probabilities: 0.000 0.095 0.857 0.048 0.000 0.000 0.000 0.000 0.000
0.000
##
## Node number 130: 72 observations,      complexity param=0.0005358578
##   predicted class=1  expected loss=0.2916667  P(node) =0.002856576
##   class counts:      0      51      1      2      1      13      0      0      4
##
##   probabilities: 0.000 0.708 0.014 0.028 0.014 0.181 0.000 0.000 0.056
0.000
##   left son=260 (55 obs) right son=261 (17 obs)
##   Primary splits:
##       487 < 145   to the right, improve=17.70351, (0 missing)
##       434 < 203.5 to the right, improve=17.37037, (0 missing)
##       242 < 182   to the right, improve=17.02758, (0 missing)
##       215 < 32    to the right, improve=16.82813, (0 missing)
##       597 < 27    to the right, improve=16.07407, (0 missing)
##   Surrogate splits:
##       242 < 160.5 to the right, agree=0.958, adj=0.824, (0 split)
##       460 < 225.5 to the right, agree=0.958, adj=0.824, (0 split)
##       488 < 221   to the right, agree=0.958, adj=0.824, (0 split)
##       244 < 126.5 to the right, agree=0.944, adj=0.765, (0 split)
##       243 < 44.5  to the right, agree=0.931, adj=0.706, (0 split)
##
## Node number 131: 72 observations
##   predicted class=8  expected loss=0.1388889  P(node) =0.002856576
##   class counts:      0      0      0      3      2      1      0      0      62
4
##   probabilities: 0.000 0.000 0.000 0.042 0.028 0.014 0.000 0.000 0.861
0.056
##
## Node number 132: 91 observations,      complexity param=0.0001339645
##   predicted class=2  expected loss=0.0989011  P(node) =0.003610395
##   class counts:      0      2      82      5      0      0      0      0      2
0
##   probabilities: 0.000 0.022 0.901 0.055 0.000 0.000 0.000 0.000 0.022
0.000
##   left son=264 (83 obs) right son=265 (8 obs)
##   Primary splits:
##       543 < 24.5  to the right, improve=6.665927, (0 missing)
##       515 < 112   to the right, improve=5.821327, (0 missing)
##       516 < 66.5  to the right, improve=5.641831, (0 missing)
##       655 < 215   to the left,  improve=5.120092, (0 missing)
##       542 < 61.5  to the right, improve=4.670330, (0 missing)
##   Surrogate splits:

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##      515 < 34      to the right, agree=0.956, adj=0.500, (0 split)
##      516 < 13.5    to the right, agree=0.956, adj=0.500, (0 split)
##      488 < 16      to the right, agree=0.945, adj=0.375, (0 split)
##      544 < 1.5     to the right, agree=0.945, adj=0.375, (0 split)
##      235 < 16.5    to the left,  agree=0.934, adj=0.250, (0 split)
##
## Node number 133: 17 observations
##   predicted class=1 expected loss=0.4705882 P(node) =0.0006744694
##   class counts:      0      9      1      0      1      0      0      0      6
0
##   probabilities: 0.000 0.529 0.059 0.000 0.059 0.000 0.000 0.000 0.353
0.000
##
## Node number 134: 24 observations,      complexity param=0.0001786193
##   predicted class=2 expected loss=0.6666667 P(node) =0.000952192
##   class counts:      1      1      8      3      3      0      5      1      2
0
##   probabilities: 0.042 0.042 0.333 0.125 0.125 0.000 0.208 0.042 0.083
0.000
##   left son=268 (13 obs) right son=269 (11 obs)
##   Primary splits:
##       349 < 206.5 to the left,  improve=4.564685, (0 missing)
##       546 < 99.5  to the right, improve=3.767483, (0 missing)
##       348 < 7      to the left,  improve=3.583333, (0 missing)
##       551 < 18.5   to the right, improve=3.459790, (0 missing)
##       376 < 75.5   to the left,  improve=3.421429, (0 missing)
##   Surrogate splits:
##       348 < 7      to the left,  agree=0.958, adj=0.909, (0 split)
##       600 < 121    to the left,  agree=0.917, adj=0.818, (0 split)
##       296 < 188.5  to the right, agree=0.875, adj=0.727, (0 split)
##       321 < 66     to the left,  agree=0.875, adj=0.727, (0 split)
##       376 < 75.5   to the left,  agree=0.875, adj=0.727, (0 split)
##
## Node number 135: 19 observations
##   predicted class=6 expected loss=0.1052632 P(node) =0.0007538187
##   class counts:      0      0      1      0      0      0      17      0      0
1
##   probabilities: 0.000 0.000 0.053 0.000 0.000 0.000 0.895 0.000 0.000
0.053
##
## Node number 136: 252 observations,      complexity param=0.001406627
##   predicted class=6 expected loss=0.7857143 P(node) =0.009998016
##   class counts:      12      33      31      14      40      24      54      8      6
30
##   probabilities: 0.048 0.131 0.123 0.056 0.159 0.095 0.214 0.032 0.024
0.119
##   left son=272 (93 obs) right son=273 (159 obs)
##   Primary splits:
##       574 < 233    to the right, improve=20.46787, (0 missing)
##       602 < 74.5   to the right, improve=18.99616, (0 missing)

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##      573 < 248.5 to the left, improve=17.63102, (0 missing)
##      601 < 127   to the left, improve=17.47485, (0 missing)
##      550 < 65.5  to the right, improve=16.87836, (0 missing)
## Surrogate splits:
##      602 < 52    to the right, agree=0.925, adj=0.796, (0 split)
##      575 < 145.5 to the right, agree=0.913, adj=0.763, (0 split)
##      603 < 1.5   to the right, agree=0.889, adj=0.699, (0 split)
##      576 < 19.5  to the right, agree=0.865, adj=0.634, (0 split)
##      573 < 250.5 to the right, agree=0.849, adj=0.591, (0 split)
##
## Node number 137: 34 observations
## predicted class=5 expected loss=0.1176471 P(node) =0.001348939
## class counts:      0      0      0      0      2      30      0      0      2
##
## probabilities: 0.000 0.000 0.000 0.000 0.059 0.882 0.000 0.000 0.059
0.000
##
## Node number 138: 134 observations, complexity param=0.0004018934
## predicted class=1 expected loss=0.4552239 P(node) =0.005316405
## class counts:      3      73      1      4      10      9      4      4      16
10
## probabilities: 0.022 0.545 0.007 0.030 0.075 0.067 0.030 0.030 0.119
0.075
## left son=276 (95 obs) right son=277 (39 obs)
## Primary splits:
##      429 < 10.5 to the left, improve=18.14786, (0 missing)
##      299 < 18   to the left, improve=17.89685, (0 missing)
##      271 < 27.5 to the left, improve=17.79153, (0 missing)
##      327 < 30.5 to the left, improve=17.44297, (0 missing)
##      430 < 2.5  to the left, improve=16.75559, (0 missing)
## Surrogate splits:
##      457 < 61    to the left, agree=0.963, adj=0.872, (0 split)
##      430 < 160.5 to the left, agree=0.933, adj=0.769, (0 split)
##      456 < 6.5   to the left, agree=0.933, adj=0.769, (0 split)
##      428 < 3     to the left, agree=0.925, adj=0.744, (0 split)
##      401 < 61.5  to the left, agree=0.910, adj=0.692, (0 split)
##
## Node number 139: 144 observations, complexity param=0.0008037867
## predicted class=8 expected loss=0.3819444 P(node) =0.005713152
## class counts:      1      3      1      15      9      3      0      3      89
20
## probabilities: 0.007 0.021 0.007 0.104 0.062 0.021 0.000 0.021 0.618
0.139
## left son=278 (124 obs) right son=279 (20 obs)
## Primary splits:
##      711 < 94.5 to the left, improve=22.83728, (0 missing)
##      712 < 2.5  to the left, improve=22.34791, (0 missing)
##      461 < 170.5 to the left, improve=21.84393, (0 missing)
##      488 < 15   to the right, improve=19.92244, (0 missing)
##      433 < 166  to the left, improve=19.58357, (0 missing)

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## Surrogate splits:
##      712 < 69.5  to the left,  agree=0.965, adj=0.75, (0 split)
##      710 < 7.5   to the left,  agree=0.958, adj=0.70, (0 split)
##      739 < 44.5  to the left,  agree=0.917, adj=0.40, (0 split)
##      740 < 28    to the left,  agree=0.910, adj=0.35, (0 split)
##      433 < 1.5   to the right, agree=0.903, adj=0.30, (0 split)
##
## Node number 144: 122 observations
##   predicted class=2  expected loss=0.04918033  P(node) =0.004840309
##   class counts:      0      0  116      1      0      1      1      2      1
##   0
##   probabilities: 0.000 0.000 0.951 0.008 0.000 0.008 0.008 0.016 0.008
##   0.000
##
## Node number 145: 20 observations,  complexity param=0.0002232741
##   predicted class=8  expected loss=0.5  P(node) =0.0007934934
##   class counts:      0      0      3      1      0      0      5      0      10
##   1
##   probabilities: 0.000 0.000 0.150 0.050 0.000 0.000 0.250 0.000 0.500
##   0.050
##   left son=290 (9 obs) right son=291 (11 obs)
##   Primary splits:
##       291 < 86      to the left,  improve=6.270707, (0 missing)
##       319 < 26      to the left,  improve=6.270707, (0 missing)
##       320 < 98      to the left,  improve=6.270707, (0 missing)
##       321 < 48      to the left,  improve=6.270707, (0 missing)
##       497 < 8       to the right, improve=6.270707, (0 missing)
##   Surrogate splits:
##       319 < 26      to the left,  agree=1, adj=1, (0 split)
##       320 < 98      to the left,  agree=1, adj=1, (0 split)
##       321 < 48      to the left,  agree=1, adj=1, (0 split)
##       497 < 8       to the right, agree=1, adj=1, (0 split)
##       525 < 20      to the right, agree=1, adj=1, (0 split)
##
## Node number 146: 57 observations,  complexity param=0.0004242208
##   predicted class=1  expected loss=0.7017544  P(node) =0.002261456
##   class counts:      0      17      15      10      0      0      3      2      8
##   2
##   probabilities: 0.000 0.298 0.263 0.175 0.000 0.000 0.053 0.035 0.140
##   0.035
##   left son=292 (21 obs) right son=293 (36 obs)
##   Primary splits:
##       459 < 5.5     to the left,  improve=11.076860, (0 missing)
##       515 < 1.5     to the left,  improve=10.451460, (0 missing)
##       487 < 0.5     to the left,  improve=10.305740, (0 missing)
##       488 < 158.5   to the left,  improve=10.213420, (0 missing)
##       233 < 23      to the left,  improve= 9.465748, (0 missing)
##   Surrogate splits:
##       460 < 126     to the left,  agree=0.947, adj=0.857, (0 split)
##       487 < 0.5     to the left,  agree=0.895, adj=0.714, (0 split)

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##      233 < 23      to the left,  agree=0.860, adj=0.619, (0 split)
##      458 < 1       to the left,  agree=0.860, adj=0.619, (0 split)
##      431 < 1       to the left,  agree=0.842, adj=0.571, (0 split)
##
## Node number 147: 29 observations,      complexity param=0.0002679289
## predicted class=7 expected loss=0.4137931 P(node) =0.001150565
## class counts:      0      0      0      3      1      0      0      17      1
7
## probabilities: 0.000 0.000 0.000 0.103 0.034 0.000 0.000 0.586 0.034
0.241
## left son=294 (17 obs) right son=295 (12 obs)
## Primary splits:
##      349 < 102.5 to the left,  improve=7.749831, (0 missing)
##      406 < 250.5 to the right, improve=7.298851, (0 missing)
##      319 < 8      to the left,  improve=7.112886, (0 missing)
##      434 < 230.5 to the right, improve=6.917898, (0 missing)
##      318 < 90     to the left,  improve=6.887595, (0 missing)
## Surrogate splits:
##      348 < 7      to the left,  agree=0.966, adj=0.917, (0 split)
##      406 < 250.5 to the right, agree=0.966, adj=0.917, (0 split)
##      434 < 250    to the right, agree=0.931, adj=0.833, (0 split)
##      461 < 250    to the right, agree=0.931, adj=0.833, (0 split)
##      488 < 142    to the right, agree=0.931, adj=0.833, (0 split)
##
## Node number 148: 112 observations,      complexity param=4.465482e-05
## predicted class=6 expected loss=0.1160714 P(node) =0.004443563
## class counts:      1      2      0      0      3      2      99      4      0
1
## probabilities: 0.009 0.018 0.000 0.000 0.027 0.018 0.884 0.036 0.000
0.009
## left son=296 (14 obs) right son=297 (98 obs)
## Primary splits:
##      266 < 154    to the right, improve=8.811224, (0 missing)
##      294 < 250.5 to the right, improve=8.651905, (0 missing)
##      514 < 2.5    to the left,  improve=7.072689, (0 missing)
##      485 < 17.5   to the left,  improve=6.534438, (0 missing)
##      293 < 244.5 to the right, improve=6.380592, (0 missing)
## Surrogate splits:
##      294 < 250.5 to the right, agree=0.982, adj=0.857, (0 split)
##      293 < 244.5 to the right, agree=0.973, adj=0.786, (0 split)
##      267 < 236    to the right, agree=0.955, adj=0.643, (0 split)
##      265 < 247    to the right, agree=0.938, adj=0.500, (0 split)
##      238 < 252.5 to the right, agree=0.929, adj=0.429, (0 split)
##
## Node number 149: 32 observations,      complexity param=0.0002232741
## predicted class=8 expected loss=0.6875 P(node) =0.001269589
## class counts:      4      0      3      0      0      3      6      1      10
5
## probabilities: 0.125 0.000 0.094 0.000 0.000 0.094 0.188 0.031 0.312
0.156

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## left son=298 (12 obs) right son=299 (20 obs)
## Primary splits:
## 442 < 27 to the right, improve=5.341667, (0 missing)
## 470 < 21 to the right, improve=5.341667, (0 missing)
## 483 < 19 to the right, improve=5.278922, (0 missing)
## 511 < 138 to the right, improve=5.278922, (0 missing)
## 469 < 183 to the right, improve=5.154352, (0 missing)
## Surrogate splits:
## 470 < 21 to the right, agree=1.000, adj=1.000, (0 split)
## 426 < 16.5 to the right, agree=0.969, adj=0.917, (0 split)
## 443 < 10.5 to the right, agree=0.969, adj=0.917, (0 split)
## 454 < 69 to the right, agree=0.969, adj=0.917, (0 split)
## 469 < 183 to the right, agree=0.969, adj=0.917, (0 split)
##
## Node number 150: 19 observations
## predicted class=4 expected loss=0.5263158 P(node) =0.0007538187
## class counts: 0 0 3 0 9 0 0 1 3
3
## probabilities: 0.000 0.000 0.158 0.000 0.474 0.000 0.000 0.053 0.158
0.158
##
## Node number 151: 43 observations
## predicted class=9 expected loss=0.1860465 P(node) =0.001706011
## class counts: 0 0 3 0 0 0 0 1 4
35
## probabilities: 0.000 0.000 0.070 0.000 0.000 0.000 0.000 0.023 0.093
0.814
##
## Node number 152: 59 observations, complexity param=0.0002232741
## predicted class=3 expected loss=0.1694915 P(node) =0.002340805
## class counts: 0 0 7 49 0 0 0 2 1
0
## probabilities: 0.000 0.000 0.119 0.831 0.000 0.000 0.000 0.034 0.017
0.000
## left son=304 (7 obs) right son=305 (52 obs)
## Primary splits:
## 527 < 25.5 to the right, improve=8.098622, (0 missing)
## 555 < 25 to the right, improve=8.098622, (0 missing)
## 514 < 214 to the right, improve=6.821203, (0 missing)
## 543 < 220.5 to the right, improve=6.821203, (0 missing)
## 515 < 233.5 to the right, improve=6.590588, (0 missing)
## Surrogate splits:
## 555 < 25 to the right, agree=1.000, adj=1.000, (0 split)
## 583 < 14 to the right, agree=0.983, adj=0.857, (0 split)
## 499 < 67 to the right, agree=0.966, adj=0.714, (0 split)
## 554 < 153.5 to the right, agree=0.966, adj=0.714, (0 split)
## 582 < 122 to the right, agree=0.966, adj=0.714, (0 split)
##
## Node number 153: 103 observations, complexity param=0.001071716
## predicted class=7 expected loss=0.592233 P(node) =0.004086491

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##      class counts:      0      9      26      13      0      0      0      42      12
1
##      probabilities: 0.000 0.087 0.252 0.126 0.000 0.000 0.000 0.408 0.117
0.010
##      left son=306 (47 obs) right son=307 (56 obs)
##      Primary splits:
##          153 < 121   to the right, improve=21.50764, (0 missing)
##          152 < 13    to the right, improve=20.69896, (0 missing)
##          154 < 2.5   to the right, improve=20.21410, (0 missing)
##          155 < 20    to the right, improve=18.46666, (0 missing)
##          151 < 0.5   to the right, improve=17.12519, (0 missing)
##      Surrogate splits:
##          152 < 35.5  to the right, agree=0.961, adj=0.915, (0 split)
##          154 < 117.5 to the right, agree=0.932, adj=0.851, (0 split)
##          155 < 38.5  to the right, agree=0.883, adj=0.745, (0 split)
##          151 < 0.5   to the right, agree=0.874, adj=0.723, (0 split)
##          238 < 148   to the left,  agree=0.854, adj=0.681, (0 split)
##
##      Node number 154: 14 observations
##      predicted class=9 expected loss=0.5714286 P(node) =0.0005554453
##      class counts:      0      0      0      1      5      0      0      0      2
6
##      probabilities: 0.000 0.000 0.000 0.071 0.357 0.000 0.000 0.000 0.143
0.429
##
##      Node number 155: 42 observations,      complexity param=4.465482e-05
##      predicted class=8 expected loss=0.1666667 P(node) =0.001666336
##      class counts:      1      0      1      1      0      1      3      0      35
0
##      probabilities: 0.024 0.000 0.024 0.024 0.000 0.024 0.071 0.000 0.833
0.000
##      left son=310 (7 obs) right son=311 (35 obs)
##      Primary splits:
##          356 < 118.5 to the right, improve=3.838095, (0 missing)
##          384 < 122   to the right, improve=3.838095, (0 missing)
##          383 < 91    to the right, improve=3.386310, (0 missing)
##          602 < 204.5 to the right, improve=3.386310, (0 missing)
##          374 < 24    to the left,  improve=3.266667, (0 missing)
##      Surrogate splits:
##          384 < 129.5 to the right, agree=0.976, adj=0.857, (0 split)
##          357 < 21    to the right, agree=0.952, adj=0.714, (0 split)
##          328 < 247.5 to the right, agree=0.929, adj=0.571, (0 split)
##          383 < 252.5 to the right, agree=0.929, adj=0.571, (0 split)
##          385 < 99.5  to the right, agree=0.929, adj=0.571, (0 split)
##
##      Node number 156: 80 observations,      complexity param=0.0002976988
##      predicted class=8 expected loss=0.4875 P(node) =0.003173973
##      class counts:      0      13      1      6      4      1      0      8      41
6
##      probabilities: 0.000 0.163 0.013 0.075 0.050 0.013 0.000 0.100 0.513

```

```

0.075
## left son=312 (35 obs) right son=313 (45 obs)
## Primary splits:
## 294 < 148.5 to the right, improve=8.124603, (0 missing)
## 298 < 9 to the left, improve=8.043407, (0 missing)
## 297 < 11.5 to the left, improve=7.834584, (0 missing)
## 213 < 15 to the left, improve=7.771429, (0 missing)
## 322 < 134.5 to the right, improve=7.548997, (0 missing)
## Surrogate splits:
## 322 < 184 to the right, agree=0.938, adj=0.857, (0 split)
## 293 < 176 to the right, agree=0.900, adj=0.771, (0 split)
## 266 < 233.5 to the right, agree=0.887, adj=0.743, (0 split)
## 185 < 20.5 to the left, agree=0.838, adj=0.629, (0 split)
## 295 < 241.5 to the right, agree=0.825, adj=0.600, (0 split)
##
## Node number 157: 44 observations, complexity param=0.000379566
## predicted class=9 expected loss=0.5227273 P(node) =0.001745685
## class counts: 1 0 0 10 3 1 0 4 4
21
## probabilities: 0.023 0.000 0.000 0.227 0.068 0.023 0.000 0.091 0.091
0.477
## left son=314 (18 obs) right son=315 (26 obs)
## Primary splits:
## 206 < 125 to the right, improve=9.240093, (0 missing)
## 318 < 153 to the left, improve=8.282828, (0 missing)
## 551 < 16.5 to the right, improve=7.761461, (0 missing)
## 627 < 221 to the right, improve=7.698701, (0 missing)
## 178 < 7 to the right, improve=7.584416, (0 missing)
## Surrogate splits:
## 178 < 7 to the right, agree=0.955, adj=0.889, (0 split)
## 205 < 11 to the right, agree=0.932, adj=0.833, (0 split)
## 207 < 207.5 to the right, agree=0.932, adj=0.833, (0 split)
## 179 < 4.5 to the right, agree=0.909, adj=0.778, (0 split)
## 634 < 17 to the right, agree=0.909, adj=0.778, (0 split)
##
## Node number 158: 19 observations
## predicted class=7 expected loss=0.6842105 P(node) =0.0007538187
## class counts: 2 0 1 4 1 3 0 6 2
0
## probabilities: 0.105 0.000 0.053 0.211 0.053 0.158 0.000 0.316 0.105
0.000
##
## Node number 159: 355 observations, complexity param=0.0001339645
## predicted class=8 expected loss=0.08169014 P(node) =0.01408451
## class counts: 1 1 1 4 10 2 2 5 326
3
## probabilities: 0.003 0.003 0.003 0.011 0.028 0.006 0.006 0.014 0.918
0.008
## left son=318 (7 obs) right son=319 (348 obs)
## Primary splits:

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##      461 < 43.5  to the left,  improve=7.981241, (0 missing)
##      573 < 252.5 to the right, improve=7.465913, (0 missing)
##      183 < 25    to the left,  improve=7.381929, (0 missing)
##      433 < 19.5  to the left,  improve=7.071051, (0 missing)
##      182 < 7.5   to the left,  improve=5.869188, (0 missing)
## Surrogate splits:
##      433 < 6.5   to the left,  agree=0.989, adj=0.429, (0 split)
##      369 < 39    to the right, agree=0.983, adj=0.143, (0 split)
##      406 < 2     to the left,  agree=0.983, adj=0.143, (0 split)
##
## Node number 160: 64 observations,    complexity param=0.0007368045
## predicted class=1 expected loss=0.484375 P(node) =0.002539179
## class counts:      0      33      3      20      0      1      0      5      2
##
## probabilities: 0.000 0.516 0.047 0.312 0.000 0.016 0.000 0.078 0.031
## 0.000
## left son=320 (39 obs) right son=321 (25 obs)
## Primary splits:
##      297 < 26.5  to the left,  improve=20.92705, (0 missing)
##      270 < 9     to the left,  improve=19.81591, (0 missing)
##      242 < 18.5  to the left,  improve=19.48048, (0 missing)
##      656 < 6.5   to the left,  improve=19.39167, (0 missing)
##      325 < 3     to the left,  improve=19.30833, (0 missing)
## Surrogate splits:
##      325 < 3     to the left,  agree=0.984, adj=0.96, (0 split)
##      324 < 174   to the left,  agree=0.969, adj=0.92, (0 split)
##      269 < 11    to the left,  agree=0.953, adj=0.88, (0 split)
##      184 < 2.5   to the left,  agree=0.938, adj=0.84, (0 split)
##      213 < 3     to the left,  agree=0.938, adj=0.84, (0 split)
##
## Node number 161: 1438 observations,    complexity param=0.0002456015
## predicted class=3 expected loss=0.05841446 P(node) =0.05705217
## class counts:      0      8      10 1354      0      38      0      2      21
## 5
## probabilities: 0.000 0.006 0.007 0.942 0.000 0.026 0.000 0.001 0.015
## 0.003
## left son=322 (1393 obs) right son=323 (45 obs)
## Primary splits:
##      264 < 244.5 to the left,  improve=20.42218, (0 missing)
##      296 < 1     to the right, improve=17.95148, (0 missing)
##      487 < 140.5 to the left,  improve=17.62124, (0 missing)
##      317 < 206   to the left,  improve=17.03519, (0 missing)
##      292 < 248.5 to the left,  improve=16.23283, (0 missing)
## Surrogate splits:
##      291 < 224   to the left,  agree=0.973, adj=0.133, (0 split)
##      263 < 251   to the left,  agree=0.971, adj=0.089, (0 split)
##      292 < 254.5 to the left,  agree=0.971, adj=0.067, (0 split)
##      265 < 254.5 to the left,  agree=0.970, adj=0.044, (0 split)
##      247 < 220.5 to the left,  agree=0.969, adj=0.022, (0 split)
##

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## Node number 162: 78 observations,    complexity param=4.465482e-05
##   predicted class=5   expected loss=0.2179487   P(node) =0.003094624
##   class counts:      1      0      0      3      4      61      0      0      4
5
##   probabilities: 0.013 0.000 0.000 0.038 0.051 0.782 0.000 0.000 0.051
0.064
##   left son=324 (62 obs) right son=325 (16 obs)
##   Primary splits:
##       300 < 6      to the left,   improve=7.859285, (0 missing)
##       547 < 15     to the left,   improve=7.030100, (0 missing)
##       492 < 100.5  to the left,   improve=6.972129, (0 missing)
##       299 < 13.5   to the left,   improve=6.699389, (0 missing)
##       520 < 4      to the right,  improve=6.567512, (0 missing)
##   Surrogate splits:
##       299 < 13.5   to the left,   agree=0.962, adj=0.813, (0 split)
##       301 < 4.5    to the left,   agree=0.936, adj=0.688, (0 split)
##       272 < 97.5   to the left,   agree=0.910, adj=0.562, (0 split)
##       302 < 2      to the left,   agree=0.910, adj=0.562, (0 split)
##       273 < 84     to the left,   agree=0.897, adj=0.500, (0 split)
##
## Node number 163: 46 observations,    complexity param=0.000491203
##   predicted class=9   expected loss=0.6304348   P(node) =0.001825035
##   class counts:      2      0      0      15      1      5      2      0      4
17
##   probabilities: 0.043 0.000 0.000 0.326 0.022 0.109 0.043 0.000 0.087
0.370
##   left son=326 (25 obs) right son=327 (21 obs)
##   Primary splits:
##       493 < 1      to the left,   improve=8.093416, (0 missing)
##       497 < 1      to the right,  improve=7.992977, (0 missing)
##       624 < 3.5    to the right,  improve=7.076765, (0 missing)
##       525 < 32.5   to the right,  improve=6.866115, (0 missing)
##       372 < 24.5   to the left,   improve=6.768542, (0 missing)
##   Surrogate splits:
##       465 < 14.5   to the left,   agree=0.891, adj=0.762, (0 split)
##       492 < 7.5    to the left,   agree=0.848, adj=0.667, (0 split)
##       494 < 168.5  to the left,   agree=0.848, adj=0.667, (0 split)
##       520 < 14.5   to the left,   agree=0.848, adj=0.667, (0 split)
##       437 < 115.5  to the left,   agree=0.826, adj=0.619, (0 split)
##
## Node number 164: 261 observations,    complexity param=0.000379566
##   predicted class=3   expected loss=0.1954023   P(node) =0.01035509
##   class counts:      7      4      5      210      0      23      3      3      5
1
##   probabilities: 0.027 0.015 0.019 0.805 0.000 0.088 0.011 0.011 0.019
0.004
##   left son=328 (202 obs) right son=329 (59 obs)
##   Primary splits:
##       155 < 3      to the right,  improve=20.26569, (0 missing)
##       154 < 1.5    to the right,  improve=17.63843, (0 missing)

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##      156 < 0.5   to the right, improve=17.55721, (0 missing)
##      275 < 55    to the left,  improve=16.22994, (0 missing)
##      220 < 4.5   to the left,  improve=15.23607, (0 missing)
## Surrogate splits:
##      156 < 7.5   to the right, agree=0.943, adj=0.746, (0 split)
##      154 < 1.5   to the right, agree=0.927, adj=0.678, (0 split)
##      157 < 3     to the right, agree=0.866, adj=0.407, (0 split)
##      184 < 14.5  to the right, agree=0.858, adj=0.373, (0 split)
##      219 < 3.5   to the left,  agree=0.839, adj=0.288, (0 split)
##
## Node number 165: 156 observations,      complexity param=0.0008037867
## predicted class=5 expected loss=0.3846154 P(node) =0.006189248
## class counts:      19      0      0      25      0      96      5      1      7
3
## probabilities: 0.122 0.000 0.000 0.160 0.000 0.615 0.032 0.006 0.045
0.019
## left son=330 (25 obs) right son=331 (131 obs)
## Primary splits:
##      456 < 235.5 to the right, improve=22.99540, (0 missing)
##      299 < 24    to the right, improve=22.37895, (0 missing)
##      457 < 132   to the right, improve=21.66617, (0 missing)
##      429 < 252.5 to the right, improve=20.38718, (0 missing)
##      328 < 56.5  to the right, improve=20.05636, (0 missing)
## Surrogate splits:
##      429 < 252.5 to the right, agree=0.968, adj=0.80, (0 split)
##      457 < 132   to the right, agree=0.962, adj=0.76, (0 split)
##      484 < 209.5 to the right, agree=0.949, adj=0.68, (0 split)
##      428 < 174   to the right, agree=0.936, adj=0.60, (0 split)
##      455 < 73    to the right, agree=0.929, adj=0.56, (0 split)
##
## Node number 166: 104 observations,      complexity param=0.0001786193
## predicted class=1 expected loss=0.2307692 P(node) =0.004126165
## class counts:      0      80      0      4      1      5      1      7      3
3
## probabilities: 0.000 0.769 0.000 0.038 0.010 0.048 0.010 0.067 0.029
0.029
## left son=332 (85 obs) right son=333 (19 obs)
## Primary splits:
##      462 < 85.5  to the right, improve=14.67072, (0 missing)
##      266 < 63.5  to the right, improve=14.49487, (0 missing)
##      325 < 4     to the left,  improve=13.46066, (0 missing)
##      294 < 73    to the right, improve=13.14803, (0 missing)
##      297 < 2     to the left,  improve=13.10839, (0 missing)
## Surrogate splits:
##      434 < 57    to the right, agree=0.952, adj=0.737, (0 split)
##      490 < 21    to the right, agree=0.933, adj=0.632, (0 split)
##      294 < 66    to the right, agree=0.923, adj=0.579, (0 split)
##      463 < 20    to the right, agree=0.923, adj=0.579, (0 split)
##      491 < 71.5  to the right, agree=0.913, adj=0.526, (0 split)
##

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## Node number 167: 171 observations,    complexity param=0.001161025
##   predicted class=5 expected loss=0.7192982 P(node) =0.006784368
##   class counts:      5      7      1      22      30      48      8      12      7
31
##   probabilities: 0.029 0.041 0.006 0.129 0.175 0.281 0.047 0.070 0.041
0.181
##   left son=334 (58 obs) right son=335 (113 obs)
##   Primary splits:
##       539 < 54.5 to the right, improve=25.08373, (0 missing)
##       570 < 79   to the right, improve=24.44883, (0 missing)
##       569 < 8    to the right, improve=23.88734, (0 missing)
##       540 < 57.5 to the right, improve=23.88416, (0 missing)
##       541 < 70   to the right, improve=23.88416, (0 missing)
##   Surrogate splits:
##       538 < 5.5  to the right, agree=0.977, adj=0.931, (0 split)
##       540 < 31   to the right, agree=0.953, adj=0.862, (0 split)
##       567 < 26.5 to the right, agree=0.953, adj=0.862, (0 split)
##       568 < 74.5 to the right, agree=0.953, adj=0.862, (0 split)
##       541 < 117.5 to the right, agree=0.936, adj=0.810, (0 split)
##
## Node number 168: 32 observations
##   predicted class=0 expected loss=0.125 P(node) =0.001269589
##   class counts:      28      0      0      0      0      0      1      2      1
0
##   probabilities: 0.875 0.000 0.000 0.000 0.000 0.000 0.031 0.062 0.031
0.000
##
## Node number 169: 292 observations,    complexity param=0.0007144771
##   predicted class=3 expected loss=0.5034247 P(node) =0.011585
##   class counts:      5      1      1      145      0      69      2      3      37
29
##   probabilities: 0.017 0.003 0.003 0.497 0.000 0.236 0.007 0.010 0.127
0.099
##   left son=338 (112 obs) right son=339 (180 obs)
##   Primary splits:
##       318 < 219.5 to the left, improve=21.19424, (0 missing)
##       346 < 156.5 to the left, improve=19.16912, (0 missing)
##       247 < 16.5  to the left, improve=19.12572, (0 missing)
##       345 < 124.5 to the left, improve=18.26027, (0 missing)
##       275 < 41    to the left, improve=16.79973, (0 missing)
##   Surrogate splits:
##       346 < 127.5 to the left, agree=0.877, adj=0.679, (0 split)
##       317 < 22.5  to the left, agree=0.863, adj=0.643, (0 split)
##       319 < 108   to the left, agree=0.856, adj=0.625, (0 split)
##       345 < 5     to the left, agree=0.846, adj=0.598, (0 split)
##       347 < 205   to the left, agree=0.822, adj=0.536, (0 split)
##
## Node number 170: 39 observations,    complexity param=0.0001786193
##   predicted class=0 expected loss=0.3846154 P(node) =0.001547312
##   class counts:      24      0      0      3      1      1      0      0      5

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5
## probabilities: 0.615 0.000 0.000 0.077 0.026 0.026 0.000 0.000 0.128
0.128
## left son=340 (23 obs) right son=341 (16 obs)
## Primary splits:
## 293 < 187 to the right, improve=10.541670, (0 missing)
## 381 < 28 to the left, improve=10.541670, (0 missing)
## 409 < 144 to the left, improve= 9.820513, (0 missing)
## 266 < 161.5 to the right, improve= 9.816667, (0 missing)
## 294 < 42.5 to the right, improve= 9.550000, (0 missing)
## Surrogate splits:
## 294 < 149 to the right, agree=0.949, adj=0.875, (0 split)
## 381 < 28 to the left, agree=0.949, adj=0.875, (0 split)
## 265 < 213 to the right, agree=0.923, adj=0.813, (0 split)
## 266 < 161.5 to the right, agree=0.923, adj=0.813, (0 split)
## 354 < 48 to the left, agree=0.923, adj=0.813, (0 split)
##
## Node number 171: 473 observations, complexity param=0.0007591319
## predicted class=5 expected loss=0.141649 P(node) =0.01876612
## class counts: 2 0 0 50 0 406 6 0 6
3
## probabilities: 0.004 0.000 0.000 0.106 0.000 0.858 0.013 0.000 0.013
0.006
## left son=342 (33 obs) right son=343 (440 obs)
## Primary splits:
## 295 < 219 to the right, improve=29.11258, (0 missing)
## 294 < 176.5 to the right, improve=24.87470, (0 missing)
## 186 < 2.5 to the left, improve=24.12164, (0 missing)
## 262 < 12.5 to the left, improve=23.88677, (0 missing)
## 187 < 1 to the left, improve=23.43563, (0 missing)
## Surrogate splits:
## 296 < 117.5 to the right, agree=0.960, adj=0.424, (0 split)
## 267 < 245.5 to the right, agree=0.958, adj=0.394, (0 split)
## 268 < 241 to the right, agree=0.953, adj=0.333, (0 split)
## 294 < 251.5 to the right, agree=0.949, adj=0.273, (0 split)
## 349 < 6 to the left, agree=0.934, adj=0.061, (0 split)
##
## Node number 172: 85 observations, complexity param=0.0001786193
## predicted class=4 expected loss=0.3176471 P(node) =0.003372347
## class counts: 0 0 0 4 58 7 4 3 1
8
## probabilities: 0.000 0.000 0.000 0.047 0.682 0.082 0.047 0.035 0.012
0.094
## left son=344 (70 obs) right son=345 (15 obs)
## Primary splits:
## 266 < 36 to the left, improve=9.104762, (0 missing)
## 405 < 10.5 to the right, improve=8.905141, (0 missing)
## 409 < 242 to the right, improve=8.366917, (0 missing)
## 238 < 13.5 to the left, improve=8.280590, (0 missing)
## 492 < 31 to the right, improve=8.164593, (0 missing)

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## Surrogate splits:
##      265 < 131   to the left,  agree=0.976, adj=0.867, (0 split)
##      238 < 4.5   to the left,  agree=0.965, adj=0.800, (0 split)
##      237 < 151.5 to the left,  agree=0.941, adj=0.667, (0 split)
##      293 < 30    to the left,  agree=0.929, adj=0.600, (0 split)
##      267 < 208   to the left,  agree=0.918, adj=0.533, (0 split)
##
## Node number 173: 79 observations,    complexity param=0.0001786193
## predicted class=7 expected loss=0.2531646 P(node) =0.003134299
## class counts:      4      3      0      5      0      4      0      59      2
##
## probabilities: 0.051 0.038 0.000 0.063 0.000 0.051 0.000 0.747 0.025
0.025
## left son=346 (12 obs) right son=347 (67 obs)
## Primary splits:
##      570 < 2      to the right, improve=10.616920, (0 missing)
##      571 < 64      to the right, improve=10.616920, (0 missing)
##      598 < 8        to the right, improve= 9.893048, (0 missing)
##      542 < 28.5     to the right, improve= 9.529412, (0 missing)
##      569 < 64      to the right, improve= 9.426087, (0 missing)
## Surrogate splits:
##      571 < 64      to the right, agree=1.000, adj=1.000, (0 split)
##      542 < 28.5     to the right, agree=0.987, adj=0.917, (0 split)
##      598 < 8        to the right, agree=0.987, adj=0.917, (0 split)
##      543 < 3        to the right, agree=0.975, adj=0.833, (0 split)
##      569 < 64      to the right, agree=0.975, adj=0.833, (0 split)
##
## Node number 174: 100 observations,    complexity param=0.0005805126
## predicted class=5 expected loss=0.56 P(node) =0.003967467
## class counts:      0      2      0      16      10      44      3      2      3
##
## probabilities: 0.000 0.020 0.000 0.160 0.100 0.440 0.030 0.020 0.030
0.200
## left son=348 (63 obs) right son=349 (37 obs)
## Primary splits:
##      295 < 99      to the left,  improve=13.37684, (0 missing)
##      491 < 144     to the left,  improve=11.90888, (0 missing)
##      186 < 5.5     to the right, improve=11.88813, (0 missing)
##      294 < 203.5   to the right, improve=11.38746, (0 missing)
##      296 < 3       to the left,  improve=11.22879, (0 missing)
## Surrogate splits:
##      296 < 3       to the left,  agree=0.94, adj=0.838, (0 split)
##      267 < 167.5   to the left,  agree=0.91, adj=0.757, (0 split)
##      294 < 127     to the left,  agree=0.90, adj=0.730, (0 split)
##      323 < 223     to the left,  agree=0.90, adj=0.730, (0 split)
##      266 < 231     to the left,  agree=0.80, adj=0.459, (0 split)
##
## Node number 175: 257 observations,    complexity param=0.0003572385
## predicted class=9 expected loss=0.1673152 P(node) =0.01019639
## class counts:      4      0      2      12      8      2      0      10      5

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214
## probabilities: 0.016 0.000 0.008 0.047 0.031 0.008 0.000 0.039 0.019
0.833
## left son=350 (10 obs) right son=351 (247 obs)
## Primary splits:
## 680 < 29 to the right, improve=13.31189, (0 missing)
## 681 < 106.5 to the right, improve=11.82432, (0 missing)
## 651 < 29.5 to the right, improve=11.66365, (0 missing)
## 653 < 4 to the right, improve=11.59529, (0 missing)
## 652 < 184.5 to the right, improve=11.51373, (0 missing)
## Surrogate splits:
## 681 < 106.5 to the right, agree=0.996, adj=0.9, (0 split)
## 651 < 36 to the right, agree=0.992, adj=0.8, (0 split)
## 679 < 0.5 to the right, agree=0.992, adj=0.8, (0 split)
## 652 < 218.5 to the right, agree=0.988, adj=0.7, (0 split)
## 682 < 243.5 to the right, agree=0.988, adj=0.7, (0 split)
##
## Node number 176: 60 observations
## predicted class=2 expected loss=0.08333333 P(node) =0.00238048
## class counts: 0 1 55 2 0 0 2 0 0
0
## probabilities: 0.000 0.017 0.917 0.033 0.000 0.000 0.033 0.000 0.000
0.000
##
## Node number 177: 13 observations
## predicted class=8 expected loss=0.5384615 P(node) =0.0005157707
## class counts: 0 0 2 3 0 0 2 0 6
0
## probabilities: 0.000 0.000 0.154 0.231 0.000 0.000 0.154 0.000 0.462
0.000
##
## Node number 178: 83 observations, complexity param=0.0004465482
## predicted class=8 expected loss=0.8072289 P(node) =0.003292997
## class counts: 9 14 12 3 9 7 10 0 16
3
## probabilities: 0.108 0.169 0.145 0.036 0.108 0.084 0.120 0.000 0.193
0.036
## left son=356 (39 obs) right son=357 (44 obs)
## Primary splits:
## 211 < 22.5 to the left, improve=8.254023, (0 missing)
## 572 < 25.5 to the left, improve=7.771388, (0 missing)
## 210 < 37.5 to the left, improve=7.755189, (0 missing)
## 457 < 14.5 to the left, improve=7.718914, (0 missing)
## 209 < 2 to the left, improve=7.624469, (0 missing)
## Surrogate splits:
## 210 < 37.5 to the left, agree=0.940, adj=0.872, (0 split)
## 237 < 20.5 to the left, agree=0.916, adj=0.821, (0 split)
## 238 < 91 to the left, agree=0.916, adj=0.821, (0 split)
## 209 < 0.5 to the left, agree=0.892, adj=0.769, (0 split)
## 183 < 5 to the left, agree=0.880, adj=0.744, (0 split)

```

```

##
## Node number 179: 17 observations
## predicted class=9 expected loss=0.05882353 P(node) =0.0006744694
## class counts:      0      0      0      0      0      0      0      0      1
16
## probabilities: 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.059
0.941
##
## Node number 180: 18 observations
## predicted class=2 expected loss=0.5 P(node) =0.000714144
## class counts:      1      5      9      0      0      2      1      0      0
0
## probabilities: 0.056 0.278 0.500 0.000 0.000 0.111 0.056 0.000 0.000
0.000
##
## Node number 181: 23 observations, complexity param=0.0001786193
## predicted class=9 expected loss=0.6956522 P(node) =0.0009125174
## class counts:      1      0      0      3      5      2      3      0      2
7
## probabilities: 0.043 0.000 0.000 0.130 0.217 0.087 0.130 0.000 0.087
0.304
## left son=362 (13 obs) right son=363 (10 obs)
## Primary splits:
## 428 < 201 to the left, improve=3.808696, (0 missing)
## 208 < 74.5 to the left, improve=3.701003, (0 missing)
## 319 < 94.5 to the right, improve=3.320817, (0 missing)
## 344 < 48.5 to the left, improve=3.305665, (0 missing)
## 347 < 112 to the right, improve=3.301003, (0 missing)
## Surrogate splits:
## 371 < 5.5 to the left, agree=0.957, adj=0.9, (0 split)
## 400 < 78 to the left, agree=0.957, adj=0.9, (0 split)
## 316 < 4.5 to the left, agree=0.913, adj=0.8, (0 split)
## 343 < 51 to the left, agree=0.913, adj=0.8, (0 split)
## 344 < 15.5 to the left, agree=0.913, adj=0.8, (0 split)
##
## Node number 182: 16 observations
## predicted class=2 expected loss=0.1875 P(node) =0.0006347947
## class counts:      0      0      13      0      0      0      3      0      0
0
## probabilities: 0.000 0.000 0.813 0.000 0.000 0.000 0.188 0.000 0.000
0.000
##
## Node number 183: 193 observations, complexity param=0.0002009467
## predicted class=6 expected loss=0.1502591 P(node) =0.007657211
## class counts:      2      0      7      4      0      12      164      0      4
0
## probabilities: 0.010 0.000 0.036 0.021 0.000 0.062 0.850 0.000 0.021
0.000
## left son=366 (21 obs) right son=367 (172 obs)
## Primary splits:

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##      431 < 1      to the left,  improve=9.612658, (0 missing)
##      430 < 9.5    to the left,  improve=8.260657, (0 missing)
##      245 < 23     to the right, improve=7.806778, (0 missing)
##      459 < 15     to the left,  improve=7.540244, (0 missing)
##      272 < 65     to the right, improve=7.168708, (0 missing)
## Surrogate splits:
##      404 < 3.5    to the left,  agree=0.964, adj=0.667, (0 split)
##      403 < 4.5    to the left,  agree=0.953, adj=0.571, (0 split)
##      459 < 4      to the left,  agree=0.943, adj=0.476, (0 split)
##      458 < 1.5    to the left,  agree=0.933, adj=0.381, (0 split)
##      376 < 1.5    to the left,  agree=0.922, adj=0.286, (0 split)
##
## Node number 186: 40 observations,      complexity param=0.0002083892
## predicted class=5 expected loss=0.675 P(node) =0.001586987
## class counts:      7      0      0      5      0      13      3      0      12
##
## probabilities: 0.175 0.000 0.000 0.125 0.000 0.325 0.075 0.000 0.300
## 0.000
## left son=372 (12 obs) right son=373 (28 obs)
## Primary splits:
##      351 < 190    to the left,  improve=4.528571, (0 missing)
##      379 < 16     to the left,  improve=4.407692, (0 missing)
##      297 < 178    to the left,  improve=3.880051, (0 missing)
##      431 < 27.5   to the left,  improve=3.766667, (0 missing)
##      352 < 79.5   to the left,  improve=3.684416, (0 missing)
## Surrogate splits:
##      379 < 18.5   to the left,  agree=0.950, adj=0.833, (0 split)
##      352 < 111    to the left,  agree=0.900, adj=0.667, (0 split)
##      299 < 58     to the right, agree=0.825, adj=0.417, (0 split)
##      350 < 199.5  to the left,  agree=0.825, adj=0.417, (0 split)
##      353 < 2.5    to the left,  agree=0.825, adj=0.417, (0 split)
##
## Node number 187: 16 observations
## predicted class=2 expected loss=0.5 P(node) =0.0006347947
## class counts:      0      0      8      0      0      0      0      0      8
##
## probabilities: 0.000 0.000 0.500 0.000 0.000 0.000 0.000 0.000 0.500
## 0.000
##
## Node number 188: 27 observations,      complexity param=0.0001786193
## predicted class=3 expected loss=0.2222222 P(node) =0.001071216
## class counts:      0      0      0      21      0      1      0      0      0
## 5
## probabilities: 0.000 0.000 0.000 0.778 0.000 0.037 0.000 0.000 0.000
## 0.185
## left son=376 (20 obs) right son=377 (7 obs)
## Primary splits:
##      320 < 71.5   to the left,  improve=6.560847, (0 missing)
##      265 < 233.5  to the left,  improve=5.453704, (0 missing)
##      292 < 131.5  to the left,  improve=5.453704, (0 missing)

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##      319 < 74      to the left,  improve=5.453704, (0 missing)
##      653 < 6       to the right, improve=5.453704, (0 missing)
##  Surrogate splits:
##      265 < 233.5 to the left,  agree=0.963, adj=0.857, (0 split)
##      292 < 131.5 to the left,  agree=0.963, adj=0.857, (0 split)
##      319 < 74      to the left,  agree=0.963, adj=0.857, (0 split)
##      183 < 146.5 to the right, agree=0.926, adj=0.714, (0 split)
##      291 < 15.5   to the left,  agree=0.926, adj=0.714, (0 split)
##
## Node number 189: 16 observations
##   predicted class=8   expected loss=0.1875   P(node) =0.0006347947
##   class counts:      0      0      1      1      0      1      0      0      13
##   probabilities: 0.000 0.000 0.062 0.062 0.000 0.062 0.000 0.000 0.813
##   0.000
##
## Node number 190: 28 observations,      complexity param=0.0002344378
##   predicted class=3   expected loss=0.7142857   P(node) =0.001110891
##   class counts:      6      0      1      8      0      6      1      0      5
##   1
##   probabilities: 0.214 0.000 0.036 0.286 0.000 0.214 0.036 0.000 0.179
##   0.036
##   left son=380 (13 obs) right son=381 (15 obs)
##   Primary splits:
##       429 < 101.5 to the right, improve=5.722344, (0 missing)
##       457 < 228.5 to the right, improve=5.722344, (0 missing)
##       402 < 196.5 to the right, improve=5.684524, (0 missing)
##       430 < 119.5 to the right, improve=5.684524, (0 missing)
##       317 < 20.5   to the right, improve=5.559524, (0 missing)
##   Surrogate splits:
##       457 < 228.5 to the right, agree=1.000, adj=1.000, (0 split)
##       401 < 24      to the right, agree=0.964, adj=0.923, (0 split)
##       402 < 196.5 to the right, agree=0.964, adj=0.923, (0 split)
##       428 < 17.5   to the right, agree=0.964, adj=0.923, (0 split)
##       430 < 53      to the right, agree=0.964, adj=0.923, (0 split)
##
## Node number 191: 402 observations,      complexity param=0.0002344378
##   predicted class=8   expected loss=0.141791   P(node) =0.01594922
##   class counts:      2      0      18      15      0      7      11      1      345
##   3
##   probabilities: 0.005 0.000 0.045 0.037 0.000 0.017 0.027 0.002 0.858
##   0.007
##   left son=382 (57 obs) right son=383 (345 obs)
##   Primary splits:
##       436 < 7        to the left,  improve=10.780420, (0 missing)
##       439 < 250.5 to the right, improve= 9.744096, (0 missing)
##       611 < 5.5      to the right, improve= 9.738585, (0 missing)
##       435 < 44.5     to the left,  improve= 9.566444, (0 missing)
##       464 < 0.5      to the left,  improve= 8.444042, (0 missing)
##   Surrogate splits:

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##      407 < 114.5 to the left, agree=0.876, adj=0.123, (0 split)
##      408 < 0.5   to the left, agree=0.876, adj=0.123, (0 split)
##      584 < 57    to the right, agree=0.871, adj=0.088, (0 split)
##      611 < 5.5   to the right, agree=0.871, adj=0.088, (0 split)
##      556 < 121.5 to the right, agree=0.868, adj=0.070, (0 split)
##
## Node number 192: 1955 observations,      complexity param=0.0001786193
##   predicted class=0 expected loss=0.03734015 P(node) =0.07756398
##   class counts:  1882      0      26      7      1      16      17      4      0
2
##   probabilities: 0.963 0.000 0.013 0.004 0.001 0.008 0.009 0.002 0.000
0.001
##   left son=384 (1623 obs) right son=385 (332 obs)
##   Primary splits:
##      400 < 3.5   to the right, improve=9.077685, (0 missing)
##      427 < 0.5   to the right, improve=8.966215, (0 missing)
##      563 < 11.5  to the left,  improve=8.723178, (0 missing)
##      455 < 1     to the right, improve=8.318778, (0 missing)
##      214 < 0.5   to the right, improve=8.285884, (0 missing)
##   Surrogate splits:
##      428 < 1.5   to the right, agree=0.935, adj=0.614, (0 split)
##      372 < 5.5   to the right, agree=0.912, adj=0.482, (0 split)
##      345 < 3.5   to the right, agree=0.908, adj=0.458, (0 split)
##      373 < 3.5   to the right, agree=0.881, adj=0.301, (0 split)
##      456 < 0.5   to the right, agree=0.874, adj=0.256, (0 split)
##
## Node number 193: 18 observations
##   predicted class=7 expected loss=0.6666667 P(node) =0.000714144
##   class counts:      3      0      4      0      0      3      1      6      1
0
##   probabilities: 0.167 0.000 0.222 0.000 0.000 0.167 0.056 0.333 0.056
0.000
##
## Node number 194: 42 observations
##   predicted class=0 expected loss=0.04761905 P(node) =0.001666336
##   class counts:     40      0      0      1      0      1      0      0      0
0
##   probabilities: 0.952 0.000 0.000 0.024 0.000 0.024 0.000 0.000 0.000
0.000
##
## Node number 195: 57 observations,      complexity param=0.0004242208
##   predicted class=5 expected loss=0.5789474 P(node) =0.002261456
##   class counts:      5      0      2      23      0      24      3      0      0
0
##   probabilities: 0.088 0.000 0.035 0.404 0.000 0.421 0.053 0.000 0.000
0.000
##   left son=390 (30 obs) right son=391 (27 obs)
##   Primary splits:
##      240 < 64.5  to the right, improve=11.117740, (0 missing)
##      241 < 12    to the right, improve=10.379130, (0 missing)

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##      208 < 18      to the left,  improve= 9.593314, (0 missing)
##      267 < 123.5 to the right, improve= 8.864035, (0 missing)
##      239 < 11.5   to the right, improve= 8.677368, (0 missing)
##      Surrogate splits:
##      239 < 11.5   to the right, agree=0.930, adj=0.852, (0 split)
##      241 < 1       to the right, agree=0.860, adj=0.704, (0 split)
##      267 < 190     to the right, agree=0.860, adj=0.704, (0 split)
##      212 < 148.5   to the right, agree=0.825, adj=0.630, (0 split)
##      213 < 12      to the right, agree=0.825, adj=0.630, (0 split)
##
## Node number 196: 45 observations,      complexity param=0.0001339645
##   predicted class=0   expected loss=0.2   P(node) =0.00178536
##   class counts:      36      0      3      0      1      2      0      0      2
1
##   probabilities: 0.800 0.000 0.067 0.000 0.022 0.044 0.000 0.000 0.044
0.022
##   left son=392 (38 obs) right son=393 (7 obs)
##   Primary splits:
##      378 < 76.5   to the left,  improve=7.364244, (0 missing)
##      379 < 201    to the left,  improve=7.364244, (0 missing)
##      405 < 14     to the left,  improve=5.277778, (0 missing)
##      406 < 24.5   to the left,  improve=5.236424, (0 missing)
##      432 < 88     to the left,  improve=5.236424, (0 missing)
##   Surrogate splits:
##      379 < 201    to the left,  agree=1.000, adj=1.000, (0 split)
##      405 < 125.5  to the left,  agree=0.978, adj=0.857, (0 split)
##      406 < 128.5  to the left,  agree=0.978, adj=0.857, (0 split)
##      377 < 107.5  to the left,  agree=0.956, adj=0.714, (0 split)
##      380 < 252.5  to the left,  agree=0.956, adj=0.714, (0 split)
##
## Node number 197: 39 observations,      complexity param=0.0002679289
##   predicted class=6   expected loss=0.4358974   P(node) =0.001547312
##   class counts:      3      0      3      2      0      9      22      0      0
0
##   probabilities: 0.077 0.000 0.077 0.051 0.000 0.231 0.564 0.000 0.000
0.000
##   left son=394 (13 obs) right son=395 (26 obs)
##   Primary splits:
##      325 < 145    to the right, improve=8.025641, (0 missing)
##      324 < 49.5   to the right, improve=7.632051, (0 missing)
##      408 < 15.5   to the left,  improve=6.932414, (0 missing)
##      296 < 67.5   to the right, improve=6.494172, (0 missing)
##      323 < 134.5  to the right, improve=6.370940, (0 missing)
##   Surrogate splits:
##      297 < 4.5    to the right, agree=0.949, adj=0.846, (0 split)
##      324 < 49.5   to the right, agree=0.949, adj=0.846, (0 split)
##      296 < 71     to the right, agree=0.923, adj=0.769, (0 split)
##      401 < 4       to the left,  agree=0.872, adj=0.615, (0 split)
##      323 < 134.5  to the right, agree=0.846, adj=0.538, (0 split)
##

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## Node number 198: 65 observations,    complexity param=0.0003125837
##   predicted class=3   expected loss=0.5230769   P(node) =0.002578853
##   class counts:      3      1      10      31      0      14      3      2      1
0
##   probabilities: 0.046 0.015 0.154 0.477 0.000 0.215 0.046 0.031 0.015
0.000
##   left son=396 (55 obs) right son=397 (10 obs)
##   Primary splits:
##       287 < 38.5   to the left,   improve=6.146853, (0 missing)
##       485 < 9.5    to the right,  improve=6.090287, (0 missing)
##       322 < 21.5   to the left,   improve=5.958974, (0 missing)
##       571 < 198    to the left,   improve=5.746089, (0 missing)
##       514 < 4      to the right,  improve=5.712476, (0 missing)
##   Surrogate splits:
##       288 < 180    to the left,   agree=0.969, adj=0.8, (0 split)
##       315 < 3      to the left,   agree=0.954, adj=0.7, (0 split)
##       260 < 171.5  to the left,   agree=0.938, adj=0.6, (0 split)
##       342 < 13     to the left,   agree=0.938, adj=0.6, (0 split)
##       371 < 71     to the left,   agree=0.923, adj=0.5, (0 split)
##
## Node number 199: 74 observations,    complexity param=8.930964e-05
##   predicted class=5   expected loss=0.2972973   P(node) =0.002935925
##   class counts:      4      0      1      11      0      52      1      0      2
3
##   probabilities: 0.054 0.000 0.014 0.149 0.000 0.703 0.014 0.000 0.027
0.041
##   left son=398 (21 obs) right son=399 (53 obs)
##   Primary splits:
##       326 < 3.5    to the right,  improve=6.206843, (0 missing)
##       268 < 27     to the right,  improve=5.378133, (0 missing)
##       296 < 187    to the right,  improve=5.135544, (0 missing)
##       297 < 226    to the right,  improve=4.935708, (0 missing)
##       459 < 155.5  to the right,  improve=4.910736, (0 missing)
##   Surrogate splits:
##       325 < 35.5   to the right,  agree=0.905, adj=0.667, (0 split)
##       353 < 237    to the right,  agree=0.905, adj=0.667, (0 split)
##       354 < 73.5   to the right,  agree=0.905, adj=0.667, (0 split)
##       324 < 2.5    to the right,  agree=0.851, adj=0.476, (0 split)
##       408 < 61     to the left,   agree=0.851, adj=0.476, (0 split)
##
## Node number 200: 169 observations
##   predicted class=2   expected loss=0.04142012   P(node) =0.006705019
##   class counts:      0      0      162      2      1      0      1      3      0
0
##   probabilities: 0.000 0.000 0.959 0.012 0.006 0.000 0.006 0.018 0.000
0.000
##
## Node number 201: 23 observations,    complexity param=8.930964e-05
##   predicted class=2   expected loss=0.6956522   P(node) =0.0009125174
##   class counts:      0      5      7      4      0      2      0      0      5

```



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0
## probabilities: 0.000 0.217 0.304 0.174 0.000 0.087 0.000 0.000 0.217
0.000
## left son=402 (11 obs) right son=403 (12 obs)
## Primary splits:
## 351 < 171.5 to the right, improve=4.204875, (0 missing)
## 546 < 103.5 to the left, improve=4.143547, (0 missing)
## 598 < 244.5 to the right, improve=3.986801, (0 missing)
## 124 < 47 to the right, improve=3.759420, (0 missing)
## 125 < 111 to the right, improve=3.759420, (0 missing)
## Surrogate splits:
## 518 < 13 to the left, agree=0.957, adj=0.909, (0 split)
## 209 < 4.5 to the left, agree=0.913, adj=0.818, (0 split)
## 324 < 159.5 to the right, agree=0.913, adj=0.818, (0 split)
## 378 < 164.5 to the right, agree=0.913, adj=0.818, (0 split)
## 517 < 22 to the left, agree=0.913, adj=0.818, (0 split)
##
## Node number 202: 17 observations
## predicted class=0 expected loss=0.5882353 P(node) =0.0006744694
## class counts: 7 0 1 0 1 0 5 0 1
2
## probabilities: 0.412 0.000 0.059 0.000 0.059 0.000 0.294 0.000 0.059
0.118
##
## Node number 203: 9 observations
## predicted class=5 expected loss=0.1111111 P(node) =0.000357072
## class counts: 0 0 0 0 0 8 1 0 0
0
## probabilities: 0.000 0.000 0.000 0.000 0.000 0.889 0.111 0.000 0.000
0.000
##
## Node number 204: 64 observations
## predicted class=0 expected loss=0.046875 P(node) =0.002539179
## class counts: 61 0 1 0 0 0 0 1 1
0
## probabilities: 0.953 0.000 0.016 0.000 0.000 0.000 0.000 0.016 0.016
0.000
##
## Node number 205: 9 observations
## predicted class=6 expected loss=0.4444444 P(node) =0.000357072
## class counts: 3 0 0 0 0 0 5 0 0
1
## probabilities: 0.333 0.000 0.000 0.000 0.000 0.000 0.556 0.000 0.000
0.111
##
## Node number 206: 64 observations, complexity param=0.0002976988
## predicted class=6 expected loss=0.640625 P(node) =0.002539179
## class counts: 5 0 9 4 1 10 23 0 12
0
## probabilities: 0.078 0.000 0.141 0.062 0.016 0.156 0.359 0.000 0.188

```

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0.000
## left son=412 (44 obs) right son=413 (20 obs)
## Primary splits:
## 131 < 89 to the left, improve=9.009091, (0 missing)
## 132 < 19.5 to the left, improve=8.963636, (0 missing)
## 432 < 229.5 to the left, improve=8.156725, (0 missing)
## 103 < 9.5 to the left, improve=8.133333, (0 missing)
## 682 < 20.5 to the left, improve=7.714286, (0 missing)
## Surrogate splits:
## 132 < 19.5 to the left, agree=0.938, adj=0.80, (0 split)
## 103 < 49 to the left, agree=0.891, adj=0.65, (0 split)
## 130 < 157 to the left, agree=0.891, adj=0.65, (0 split)
## 104 < 8 to the left, agree=0.875, adj=0.60, (0 split)
## 159 < 210 to the left, agree=0.859, adj=0.55, (0 split)
##
## Node number 207: 87 observations
## predicted class=5 expected loss=0.09195402 P(node) =0.003451696
## class counts: 1 0 1 0 0 79 1 0 5
0
## probabilities: 0.011 0.000 0.011 0.000 0.000 0.908 0.011 0.000 0.057
0.000
##
## Node number 208: 93 observations, complexity param=4.465482e-05
## predicted class=0 expected loss=0.1397849 P(node) =0.003689744
## class counts: 80 0 3 1 0 2 2 2 1
2
## probabilities: 0.860 0.000 0.032 0.011 0.000 0.022 0.022 0.022 0.011
0.022
## left son=416 (86 obs) right son=417 (7 obs)
## Primary splits:
## 322 < 103 to the left, improve=5.184832, (0 missing)
## 350 < 6 to the left, improve=5.161576, (0 missing)
## 294 < 236 to the left, improve=4.098355, (0 missing)
## 263 < 9.5 to the right, improve=3.316716, (0 missing)
## 600 < 172 to the right, improve=2.993843, (0 missing)
## Surrogate splits:
## 294 < 236 to the left, agree=0.968, adj=0.571, (0 split)
## 350 < 6 to the left, agree=0.957, adj=0.429, (0 split)
## 321 < 252.5 to the left, agree=0.946, adj=0.286, (0 split)
## 323 < 144 to the left, agree=0.946, adj=0.286, (0 split)
## 349 < 215.5 to the left, agree=0.946, adj=0.286, (0 split)
##
## Node number 209: 58 observations, complexity param=0.0004018934
## predicted class=2 expected loss=0.7758621 P(node) =0.002301131
## class counts: 10 0 13 2 3 12 3 1 1
13
## probabilities: 0.172 0.000 0.224 0.034 0.052 0.207 0.052 0.017 0.017
0.224
## left son=418 (25 obs) right son=419 (33 obs)
## Primary splits:

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##      438 < 23.5  to the left,  improve=9.008694, (0 missing)
##      443 < 22    to the right, improve=7.751724, (0 missing)
##      494 < 2     to the right, improve=7.646461, (0 missing)
##      466 < 25.5  to the left,  improve=7.511320, (0 missing)
##      411 < 9     to the left,  improve=7.316573, (0 missing)
## Surrogate splits:
##      410 < 5     to the left,  agree=0.948, adj=0.88, (0 split)
##      411 < 22.5  to the left,  agree=0.948, adj=0.88, (0 split)
##      437 < 1.5   to the left,  agree=0.914, adj=0.80, (0 split)
##      466 < 25.5  to the left,  agree=0.914, adj=0.80, (0 split)
##      439 < 39    to the left,  agree=0.897, adj=0.76, (0 split)
##
## Node number 210: 15 observations
## predicted class=0 expected loss=0.5333333 P(node) =0.00059512
## class counts:      7      0      3      0      2      0      1      0      1
1
## probabilities: 0.467 0.000 0.200 0.000 0.133 0.000 0.067 0.000 0.067
0.067
##
## Node number 211: 143 observations,      complexity param=8.930964e-05
## predicted class=6 expected loss=0.1818182 P(node) =0.005673477
## class counts:      2      1     11      3      4      5     117      0      0
0
## probabilities: 0.014 0.007 0.077 0.021 0.028 0.035 0.818 0.000 0.000
0.000
## left son=422 (15 obs) right son=423 (128 obs)
## Primary splits:
##      322 < 99.5  to the right, improve=9.768000, (0 missing)
##      295 < 31    to the right, improve=7.841958, (0 missing)
##      554 < 252.5 to the right, improve=7.336076, (0 missing)
##      323 < 122   to the right, improve=7.176412, (0 missing)
##      149 < 21    to the right, improve=7.004282, (0 missing)
## Surrogate splits:
##      295 < 31    to the right, agree=0.958, adj=0.600, (0 split)
##      294 < 202   to the right, agree=0.951, adj=0.533, (0 split)
##      349 < 212.5 to the right, agree=0.951, adj=0.533, (0 split)
##      323 < 40    to the right, agree=0.944, adj=0.467, (0 split)
##      324 < 114.5 to the right, agree=0.930, adj=0.333, (0 split)
##
## Node number 212: 103 observations,      complexity param=4.465482e-05
## predicted class=4 expected loss=0.1067961 P(node) =0.004086491
## class counts:      1      0      3      0     92      0      5      0      0
2
## probabilities: 0.010 0.000 0.029 0.000 0.893 0.000 0.049 0.000 0.000
0.019
## left son=424 (7 obs) right son=425 (96 obs)
## Primary splits:
##      125 < 149.5 to the right, improve=4.396007, (0 missing)
##      126 < 128   to the right, improve=4.396007, (0 missing)
##      415 < 65    to the left,  improve=3.184236, (0 missing)

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##      128 < 2      to the right, improve=2.952554, (0 missing)
##      155 < 6.5    to the right, improve=2.952554, (0 missing)
## Surrogate splits:
##      126 < 128    to the right, agree=0.981, adj=0.714, (0 split)
##      97 < 67.5    to the right, agree=0.971, adj=0.571, (0 split)
##      98 < 33      to the right, agree=0.971, adj=0.571, (0 split)
##      127 < 70.5   to the right, agree=0.961, adj=0.429, (0 split)
##      155 < 64.5   to the right, agree=0.961, adj=0.429, (0 split)
##
## Node number 213: 16 observations
## predicted class=7 expected loss=0.625 P(node) =0.0006347947
## class counts:      1      0      3      0      0      3      0      6      0
3
## probabilities: 0.062 0.000 0.188 0.000 0.000 0.188 0.000 0.375 0.000
0.188
##
## Node number 214: 69 observations, complexity param=0.000111637
## predicted class=5 expected loss=0.4492754 P(node) =0.002737552
## class counts:      6      0      5      5      1     38      4      4      1
5
## probabilities: 0.087 0.000 0.072 0.072 0.014 0.551 0.058 0.058 0.014
0.072
## left son=428 (35 obs) right son=429 (34 obs)
## Primary splits:
##      218 < 1.5    to the right, improve=10.841600, (0 missing)
##      345 < 15     to the left, improve=10.481360, (0 missing)
##      523 < 139    to the right, improve= 9.488872, (0 missing)
##      467 < 0.5    to the left, improve= 8.841421, (0 missing)
##      373 < 18.5   to the left, improve= 8.838739, (0 missing)
## Surrogate splits:
##      217 < 31     to the right, agree=0.928, adj=0.853, (0 split)
##      216 < 116.5  to the right, agree=0.884, adj=0.765, (0 split)
##      219 < 2      to the right, agree=0.870, adj=0.735, (0 split)
##      189 < 10     to the right, agree=0.855, adj=0.706, (0 split)
##      190 < 0.5    to the right, agree=0.855, adj=0.706, (0 split)
##
## Node number 215: 106 observations, complexity param=0.0006251675
## predicted class=9 expected loss=0.3962264 P(node) =0.004205515
## class counts:      1      0      3      0     23      0      1     13      1
64
## probabilities: 0.009 0.000 0.028 0.000 0.217 0.000 0.009 0.123 0.009
0.604
## left son=430 (24 obs) right son=431 (82 obs)
## Primary splits:
##      208 < 2.5    to the left, improve=14.69290, (0 missing)
##      235 < 3      to the left, improve=13.55717, (0 missing)
##      156 < 10.5   to the right, improve=12.51154, (0 missing)
##      374 < 121    to the right, improve=12.34940, (0 missing)
##      320 < 89     to the right, improve=12.34725, (0 missing)
## Surrogate splits:

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##      209 < 17    to the left,  agree=0.962, adj=0.833, (0 split)
##      210 < 72    to the left,  agree=0.906, adj=0.583, (0 split)
##      207 < 2.5   to the left,  agree=0.877, adj=0.458, (0 split)
##      235 < 3     to the left,  agree=0.877, adj=0.458, (0 split)
##      157 < 59.5  to the right, agree=0.858, adj=0.375, (0 split)
##
## Node number 216: 53 observations,    complexity param=0.0002456015
##   predicted class=3  expected loss=0.6792453  P(node) =0.002102757
##   class counts:      1      7      0      17      1      17      8      0      0
2
##   probabilities: 0.019 0.132 0.000 0.321 0.019 0.321 0.151 0.000 0.000
0.038
##   left son=432 (16 obs) right son=433 (37 obs)
##   Primary splits:
##       205 < 9.5   to the right, improve=7.426759, (0 missing)
##       541 < 18.5  to the left,  improve=6.576329, (0 missing)
##       574 < 1.5   to the left,  improve=6.534771, (0 missing)
##       517 < 31    to the left,  improve=6.495608, (0 missing)
##       544 < 2.5   to the left,  improve=6.334176, (0 missing)
##   Surrogate splits:
##       232 < 13    to the right, agree=0.943, adj=0.813, (0 split)
##       204 < 10    to the right, agree=0.925, adj=0.750, (0 split)
##       206 < 23.5  to the right, agree=0.925, adj=0.750, (0 split)
##       203 < 5     to the right, agree=0.906, adj=0.688, (0 split)
##       231 < 2     to the right, agree=0.906, adj=0.688, (0 split)
##
## Node number 217: 53 observations,    complexity param=0.0001339645
##   predicted class=5  expected loss=0.2075472  P(node) =0.002102757
##   class counts:      1      0      0      0      1      42      1      2      2
4
##   probabilities: 0.019 0.000 0.000 0.000 0.019 0.792 0.019 0.038 0.038
0.075
##   left son=434 (46 obs) right son=435 (7 obs)
##   Primary splits:
##       464 < 87    to the left,  improve=5.617485, (0 missing)
##       465 < 186   to the left,  improve=3.306926, (0 missing)
##       325 < 20.5  to the left,  improve=3.185902, (0 missing)
##       656 < 88    to the right, improve=3.156754, (0 missing)
##       351 < 151   to the left,  improve=3.064690, (0 missing)
##   Surrogate splits:
##       436 < 104.5 to the left,  agree=0.943, adj=0.571, (0 split)
##       465 < 199.5 to the left,  agree=0.943, adj=0.571, (0 split)
##       492 < 248.5 to the left,  agree=0.943, adj=0.571, (0 split)
##       352 < 184   to the left,  agree=0.925, adj=0.429, (0 split)
##       353 < 97.5  to the left,  agree=0.925, adj=0.429, (0 split)
##
## Node number 218: 31 observations,    complexity param=0.0001786193
##   predicted class=4  expected loss=0.3870968  P(node) =0.001229915
##   class counts:      0      0      1      4      19      1      0      3      0
3

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## probabilities: 0.000 0.000 0.032 0.129 0.613 0.032 0.000 0.097 0.000
0.097
## left son=436 (7 obs) right son=437 (24 obs)
## Primary splits:
## 155 < 78.5 to the right, improve=5.693548, (0 missing)
## 183 < 35 to the right, improve=5.693548, (0 missing)
## 184 < 114 to the right, improve=4.508766, (0 missing)
## 381 < 251 to the right, improve=4.219189, (0 missing)
## 464 < 13 to the right, improve=4.213750, (0 missing)
## Surrogate splits:
## 154 < 90.5 to the right, agree=0.968, adj=0.857, (0 split)
## 156 < 104.5 to the right, agree=0.968, adj=0.857, (0 split)
## 153 < 77.5 to the right, agree=0.935, adj=0.714, (0 split)
## 183 < 35 to the right, agree=0.935, adj=0.714, (0 split)
## 622 < 9 to the right, agree=0.935, adj=0.714, (0 split)
##
## Node number 219: 71 observations
## predicted class=9 expected loss=0.2112676 P(node) =0.002816901
## class counts: 2 0 2 4 1 2 0 4 0
56
## probabilities: 0.028 0.000 0.028 0.056 0.014 0.028 0.000 0.056 0.000
0.789
##
## Node number 220: 59 observations, complexity param=8.930964e-05
## predicted class=0 expected loss=0.1694915 P(node) =0.002340805
## class counts: 49 0 0 0 2 3 0 2 0
3
## probabilities: 0.831 0.000 0.000 0.000 0.034 0.051 0.000 0.034 0.000
0.051
## left son=440 (51 obs) right son=441 (8 obs)
## Primary splits:
## 518 < 37.5 to the left, improve=6.388917, (0 missing)
## 517 < 15 to the left, improve=5.477740, (0 missing)
## 519 < 158.5 to the left, improve=5.430341, (0 missing)
## 491 < 1 to the left, improve=5.144627, (0 missing)
## 492 < 46 to the left, improve=4.550121, (0 missing)
## Surrogate splits:
## 517 < 15 to the left, agree=0.983, adj=0.875, (0 split)
## 519 < 158.5 to the left, agree=0.983, adj=0.875, (0 split)
## 491 < 11 to the left, agree=0.966, adj=0.750, (0 split)
## 490 < 13.5 to the left, agree=0.949, adj=0.625, (0 split)
## 492 < 112.5 to the left, agree=0.949, adj=0.625, (0 split)
##
## Node number 221: 9 observations
## predicted class=5 expected loss=0.3333333 P(node) =0.000357072
## class counts: 0 0 0 1 0 6 0 2 0
0
## probabilities: 0.000 0.000 0.000 0.111 0.000 0.667 0.000 0.222 0.000
0.000
##

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## Node number 222: 30 observations,    complexity param=0.0003572385
##   predicted class=5   expected loss=0.6666667   P(node) =0.00119024
##   class counts:      0      2      1      1      8      10      1      2      0
5
##   probabilities: 0.000 0.067 0.033 0.033 0.267 0.333 0.033 0.067 0.000
0.167
##   left son=444 (14 obs) right son=445 (16 obs)
##   Primary splits:
##       381 < 10.5   to the left,   improve=6.779762, (0 missing)
##       409 < 65     to the left,   improve=6.779762, (0 missing)
##       437 < 77     to the left,   improve=6.779762, (0 missing)
##       465 < 168.5 to the left,   improve=6.779762, (0 missing)
##       464 < 205    to the right,  improve=6.733333, (0 missing)
##   Surrogate splits:
##       409 < 65     to the left,   agree=1.000, adj=1.000, (0 split)
##       437 < 77     to the left,   agree=1.000, adj=1.000, (0 split)
##       465 < 168.5 to the left,   agree=1.000, adj=1.000, (0 split)
##       493 < 115.5 to the left,   agree=0.967, adj=0.929, (0 split)
##       353 < 3.5    to the left,   agree=0.933, adj=0.857, (0 split)
##
## Node number 223: 648 observations,    complexity param=0.0001786193
##   predicted class=7   expected loss=0.0632716   P(node) =0.02570918
##   class counts:      8      1      4      7      4      7      3      607      0
7
##   probabilities: 0.012 0.002 0.006 0.011 0.006 0.011 0.005 0.937 0.000
0.011
##   left son=446 (19 obs) right son=447 (629 obs)
##   Primary splits:
##       153 < 27     to the right,  improve=18.41900, (0 missing)
##       155 < 11.5   to the right,  improve=17.95829, (0 missing)
##       154 < 1      to the right,  improve=17.53289, (0 missing)
##       157 < 1.5    to the right,  improve=16.51543, (0 missing)
##       156 < 6.5    to the right,  improve=16.38860, (0 missing)
##   Surrogate splits:
##       154 < 1      to the right,  agree=0.998, adj=0.947, (0 split)
##       152 < 29     to the right,  agree=0.994, adj=0.789, (0 split)
##       151 < 1      to the right,  agree=0.991, adj=0.684, (0 split)
##       150 < 4      to the right,  agree=0.988, adj=0.579, (0 split)
##       155 < 27     to the right,  agree=0.988, adj=0.579, (0 split)
##
## Node number 224: 936 observations,    complexity param=0.0006251675
##   predicted class=2   expected loss=0.05769231   P(node) =0.03713549
##   class counts:      0      0      882      15      0      1      0      12      25
1
##   probabilities: 0.000 0.000 0.942 0.016 0.000 0.001 0.000 0.013 0.027
0.001
##   left son=448 (922 obs) right son=449 (14 obs)
##   Primary splits:
##       349 < 134.5 to the left,   improve=26.08949, (0 missing)
##       348 < 51    to the left,   improve=20.47057, (0 missing)

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##      321 < 169.5 to the left, improve=17.05345, (0 missing)
##      320 < 143   to the left, improve=15.22744, (0 missing)
##      345 < 104.5 to the left, improve=11.95572, (0 missing)
## Surrogate splits:
##      348 < 51   to the left, agree=0.997, adj=0.786, (0 split)
##      321 < 169.5 to the left, agree=0.995, adj=0.643, (0 split)
##      320 < 143   to the left, agree=0.994, adj=0.571, (0 split)
##      377 < 253.5 to the left, agree=0.987, adj=0.143, (0 split)
##
## Node number 225: 85 observations,    complexity param=0.0007591319
## predicted class=8 expected loss=0.5176471 P(node) =0.003372347
## class counts:      3      0      20      1      2      1      2      0      41
15
## probabilities: 0.035 0.000 0.235 0.012 0.024 0.012 0.024 0.000 0.482
0.176
## left son=450 (35 obs) right son=451 (50 obs)
## Primary splits:
##      402 < 51.5 to the left, improve=19.00706, (0 missing)
##      403 < 5.5   to the left, improve=17.87550, (0 missing)
##      657 < 157.5 to the left, improve=15.56613, (0 missing)
##      431 < 182   to the left, improve=15.56511, (0 missing)
##      432 < 128   to the left, improve=15.20337, (0 missing)
## Surrogate splits:
##      403 < 5.5   to the left, agree=0.918, adj=0.800, (0 split)
##      430 < 50.5  to the left, agree=0.906, adj=0.771, (0 split)
##      431 < 24    to the left, agree=0.894, adj=0.743, (0 split)
##      432 < 128   to the left, agree=0.882, adj=0.714, (0 split)
##      404 < 11    to the left, agree=0.871, adj=0.686, (0 split)
##
## Node number 226: 487 observations,    complexity param=0.002857908
## predicted class=2 expected loss=0.7864476 P(node) =0.01932156
## class counts:      2    102    104      6    62    10    48    57    22
74
## probabilities: 0.004 0.209 0.214 0.012 0.127 0.021 0.099 0.117 0.045
0.152
## left son=452 (246 obs) right son=453 (241 obs)
## Primary splits:
##      211 < 1      to the left, improve=54.34980, (0 missing)
##      344 < 21.5   to the left, improve=52.68771, (0 missing)
##      238 < 1      to the left, improve=52.56168, (0 missing)
##      210 < 5.5    to the left, improve=52.23305, (0 missing)
##      237 < 1      to the left, improve=50.24258, (0 missing)
## Surrogate splits:
##      210 < 0.5    to the left, agree=0.973, adj=0.946, (0 split)
##      212 < 63     to the left, agree=0.951, adj=0.900, (0 split)
##      209 < 1      to the left, agree=0.940, adj=0.880, (0 split)
##      237 < 26.5   to the left, agree=0.940, adj=0.880, (0 split)
##      238 < 1      to the left, agree=0.938, adj=0.876, (0 split)
##
## Node number 227: 136 observations,    complexity param=0.0002679289

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## predicted class=7 expected loss=0.08823529 P(node) =0.005395755
## class counts:      0      0      3      1      1      0      0      124      6
1
## probabilities: 0.000 0.000 0.022 0.007 0.007 0.000 0.000 0.912 0.044
0.007
## left son=454 (128 obs) right son=455 (8 obs)
## Primary splits:
##      373 < 182.5 to the left, improve=11.541360, (0 missing)
##      374 < 46    to the left, improve=10.126290, (0 missing)
##      401 < 51.5  to the left, improve= 9.641326, (0 missing)
##      402 < 128   to the left, improve= 8.369485, (0 missing)
##      603 < 54    to the right, improve= 8.036963, (0 missing)
## Surrogate splits:
##      374 < 46    to the left, agree=0.993, adj=0.875, (0 split)
##      402 < 128   to the left, agree=0.985, adj=0.750, (0 split)
##      345 < 233.5 to the left, agree=0.978, adj=0.625, (0 split)
##      401 < 51.5  to the left, agree=0.978, adj=0.625, (0 split)
##      346 < 106.5 to the left, agree=0.971, adj=0.500, (0 split)
##
## Node number 228: 121 observations, complexity param=0.0002679289
## predicted class=5 expected loss=0.2231405 P(node) =0.004800635
## class counts:      5      0      7      0      3      94      4      0      8
0
## probabilities: 0.041 0.000 0.058 0.000 0.025 0.777 0.033 0.000 0.066
0.000
## left son=456 (20 obs) right son=457 (101 obs)
## Primary splits:
##      384 < 14    to the right, improve=18.04196, (0 missing)
##      413 < 1     to the right, improve=17.66176, (0 missing)
##      412 < 5     to the right, improve=17.56195, (0 missing)
##      385 < 43.5  to the right, improve=17.43202, (0 missing)
##      356 < 2.5   to the right, improve=16.41559, (0 missing)
## Surrogate splits:
##      385 < 43.5  to the right, agree=0.992, adj=0.95, (0 split)
##      356 < 2.5   to the right, agree=0.983, adj=0.90, (0 split)
##      357 < 5     to the right, agree=0.983, adj=0.90, (0 split)
##      412 < 130   to the right, agree=0.983, adj=0.90, (0 split)
##      413 < 1     to the right, agree=0.983, adj=0.90, (0 split)
##
## Node number 229: 364 observations, complexity param=0.001674556
## predicted class=4 expected loss=0.6565934 P(node) =0.01444158
## class counts:      14      0      66      0      125      2      15      48      41
53
## probabilities: 0.038 0.000 0.181 0.000 0.343 0.005 0.041 0.132 0.113
0.146
## left son=458 (155 obs) right son=459 (209 obs)
## Primary splits:
##      212 < 1.5   to the left, improve=41.35091, (0 missing)
##      240 < 16.5  to the left, improve=40.03897, (0 missing)
##      213 < 6.5   to the left, improve=34.08154, (0 missing)

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##      184 < 55      to the right, improve=33.64439, (0 missing)
##      429 < 64      to the right, improve=32.44985, (0 missing)
##      Surrogate splits:
##      211 < 7.5      to the left,  agree=0.896, adj=0.755, (0 split)
##      213 < 6.5      to the left,  agree=0.882, adj=0.723, (0 split)
##      184 < 4.5      to the left,  agree=0.857, adj=0.665, (0 split)
##      240 < 6        to the left,  agree=0.843, adj=0.632, (0 split)
##      239 < 103.5    to the left,  agree=0.832, adj=0.606, (0 split)
##
## Node number 230: 74 observations,      complexity param=0.0004465482
## predicted class=4 expected loss=0.7162162 P(node) =0.002935925
## class counts:      10      0      1      0      21      9      5      0      15
13
## probabilities: 0.135 0.000 0.014 0.000 0.284 0.122 0.068 0.000 0.203
0.176
## left son=460 (21 obs) right son=461 (53 obs)
## Primary splits:
##      212 < 40.5      to the left,  improve=13.65836, (0 missing)
##      213 < 11        to the left,  improve=11.76198, (0 missing)
##      211 < 40.5      to the left,  improve=11.71766, (0 missing)
##      597 < 35        to the right, improve=11.04087, (0 missing)
##      185 < 107       to the left,  improve=10.69842, (0 missing)
##      Surrogate splits:
##      211 < 40.5      to the left,  agree=0.946, adj=0.810, (0 split)
##      239 < 21.5      to the left,  agree=0.946, adj=0.810, (0 split)
##      213 < 20        to the left,  agree=0.932, adj=0.762, (0 split)
##      210 < 50        to the left,  agree=0.919, adj=0.714, (0 split)
##      184 < 3         to the left,  agree=0.905, adj=0.667, (0 split)
##
## Node number 231: 635 observations,      complexity param=0.0002456015
## predicted class=8 expected loss=0.08031496 P(node) =0.02519341
## class counts:      7      0      4      5      3      14      4      8      584
6
## probabilities: 0.011 0.000 0.006 0.008 0.005 0.022 0.006 0.013 0.920
0.009
## left son=462 (47 obs) right son=463 (588 obs)
## Primary splits:
##      488 < 14.5      to the left,  improve=12.62911, (0 missing)
##      404 < 2         to the left,  improve=12.45999, (0 missing)
##      487 < 2.5       to the left,  improve=11.15042, (0 missing)
##      434 < 27        to the left,  improve=10.17359, (0 missing)
##      461 < 56.5      to the left,  improve=10.09254, (0 missing)
##      Surrogate splits:
##      461 < 67.5      to the left,  agree=0.965, adj=0.532, (0 split)
##      515 < 8.5       to the left,  agree=0.961, adj=0.468, (0 split)
##      489 < 0.5       to the left,  agree=0.943, adj=0.234, (0 split)
##      462 < 0.5       to the left,  agree=0.942, adj=0.213, (0 split)
##      121 < 6.5       to the right, agree=0.932, adj=0.085, (0 split)
##
## Node number 232: 318 observations,      complexity param=0.0006698223

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## predicted class=2 expected loss=0.1823899 P(node) =0.01261654
## class counts:      2      25      260      2      8      0      3      9      4
5
## probabilities: 0.006 0.079 0.818 0.006 0.025 0.000 0.009 0.028 0.013
0.016
## left son=464 (32 obs) right son=465 (286 obs)
## Primary splits:
##      159 < 0.5   to the right, improve=26.02915, (0 missing)
##      187 < 16.5  to the right, improve=25.86607, (0 missing)
##      215 < 28    to the right, improve=24.47659, (0 missing)
##      186 < 129   to the right, improve=22.71974, (0 missing)
##      158 < 132.5 to the right, improve=19.37000, (0 missing)
## Surrogate splits:
##      187 < 16.5  to the right, agree=0.987, adj=0.875, (0 split)
##      186 < 215   to the right, agree=0.965, adj=0.656, (0 split)
##      131 < 12.5  to the right, agree=0.959, adj=0.594, (0 split)
##      158 < 143   to the right, agree=0.956, adj=0.562, (0 split)
##      215 < 4     to the right, agree=0.953, adj=0.531, (0 split)
##
## Node number 233: 26 observations
## predicted class=7 expected loss=0.3076923 P(node) =0.001031541
## class counts:      1      0      0      2      2      0      0      18      2
1
## probabilities: 0.038 0.000 0.000 0.077 0.077 0.000 0.000 0.692 0.077
0.038
##
## Node number 234: 73 observations, complexity param=0.0008484415
## predicted class=4 expected loss=0.6712329 P(node) =0.002896251
## class counts:      0      1      9      0      24      1      19      4      4
11
## probabilities: 0.000 0.014 0.123 0.000 0.329 0.014 0.260 0.055 0.055
0.151
## left son=468 (48 obs) right son=469 (25 obs)
## Primary splits:
##      573 < 214   to the left, improve=14.67151, (0 missing)
##      571 < 79    to the right, improve=13.28790, (0 missing)
##      356 < 63.5  to the left, improve=12.90220, (0 missing)
##      572 < 108.5 to the right, improve=12.42019, (0 missing)
##      269 < 4     to the right, improve=11.92731, (0 missing)
## Surrogate splits:
##      572 < 232.5 to the left, agree=0.932, adj=0.80, (0 split)
##      601 < 26.5  to the left, agree=0.904, adj=0.72, (0 split)
##      574 < 182   to the left, agree=0.890, adj=0.68, (0 split)
##      600 < 96    to the left, agree=0.890, adj=0.68, (0 split)
##      269 < 4     to the right, agree=0.863, adj=0.60, (0 split)
##
## Node number 235: 30 observations
## predicted class=8 expected loss=0.1 P(node) =0.00119024
## class counts:      2      0      1      0      0      0      0      0      27
0

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## probabilities: 0.067 0.000 0.033 0.000 0.000 0.000 0.000 0.000 0.900
0.000
##
## Node number 236: 127 observations, complexity param=0.0004465482
## predicted class=2 expected loss=0.4330709 P(node) =0.005038683
## class counts: 3 1 72 3 12 1 14 1 15
5
## probabilities: 0.024 0.008 0.567 0.024 0.094 0.008 0.110 0.008 0.118
0.039
## left son=472 (83 obs) right son=473 (44 obs)
## Primary splits:
## 537 < 23.5 to the right, improve=23.51794, (0 missing)
## 565 < 20 to the right, improve=22.83947, (0 missing)
## 158 < 9 to the right, improve=19.65800, (0 missing)
## 159 < 9.5 to the right, improve=19.65800, (0 missing)
## 157 < 67.5 to the right, improve=18.50751, (0 missing)
## Surrogate splits:
## 565 < 2.5 to the right, agree=0.937, adj=0.818, (0 split)
## 566 < 17 to the right, agree=0.921, adj=0.773, (0 split)
## 509 < 3 to the right, agree=0.913, adj=0.750, (0 split)
## 538 < 61.5 to the right, agree=0.913, adj=0.750, (0 split)
## 594 < 3 to the right, agree=0.890, adj=0.682, (0 split)
##
## Node number 237: 114 observations, complexity param=0.000111637
## predicted class=8 expected loss=0.0877193 P(node) =0.004522912
## class counts: 0 0 6 0 3 0 0 1 104
0
## probabilities: 0.000 0.000 0.053 0.000 0.026 0.000 0.000 0.009 0.912
0.000
## left son=474 (20 obs) right son=475 (94 obs)
## Primary splits:
## 404 < 4.5 to the left, improve=6.019298, (0 missing)
## 405 < 2 to the left, improve=5.671679, (0 missing)
## 465 < 251 to the right, improve=5.130837, (0 missing)
## 467 < 250.5 to the right, improve=5.037055, (0 missing)
## 468 < 138.5 to the right, improve=5.037055, (0 missing)
## Surrogate splits:
## 433 < 23.5 to the left, agree=0.912, adj=0.50, (0 split)
## 405 < 2 to the left, agree=0.904, adj=0.45, (0 split)
## 376 < 3 to the left, agree=0.895, adj=0.40, (0 split)
## 432 < 4.5 to the left, agree=0.886, adj=0.35, (0 split)
## 434 < 35.5 to the left, agree=0.886, adj=0.35, (0 split)
##
## Node number 238: 1537 observations, complexity param=0.00111637
## predicted class=6 expected loss=0.0540013 P(node) =0.06097996
## class counts: 0 2 30 1 4 27 1454 1 11
7
## probabilities: 0.000 0.001 0.020 0.001 0.003 0.018 0.946 0.001 0.007
0.005
## left son=476 (34 obs) right son=477 (1503 obs)

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## Primary splits:
## 323 < 161.5 to the right, improve=48.87607, (0 missing)
## 296 < 141.5 to the right, improve=26.03819, (0 missing)
## 324 < 155 to the right, improve=25.77839, (0 missing)
## 217 < 164 to the right, improve=21.99027, (0 missing)
## 218 < 139 to the right, improve=21.17130, (0 missing)
## Surrogate splits:
## 351 < 250 to the right, agree=0.985, adj=0.324, (0 split)
## 296 < 141.5 to the right, agree=0.984, adj=0.294, (0 split)
## 295 < 250.5 to the right, agree=0.983, adj=0.235, (0 split)
## 324 < 166 to the right, agree=0.982, adj=0.206, (0 split)
## 201 < 212 to the right, agree=0.979, adj=0.059, (0 split)
##
## Node number 239: 163 observations, complexity param=0.000870769
## predicted class=5 expected loss=0.5398773 P(node) =0.006466971
## class counts: 0 0 2 4 1 75 37 1 39
4
## probabilities: 0.000 0.000 0.012 0.025 0.006 0.460 0.227 0.006 0.239
0.025
## left son=478 (67 obs) right son=479 (96 obs)
## Primary splits:
## 515 < 12.5 to the left, improve=23.29689, (0 missing)
## 355 < 30.5 to the left, improve=23.03449, (0 missing)
## 488 < 23.5 to the left, improve=22.22119, (0 missing)
## 487 < 5 to the left, improve=21.91009, (0 missing)
## 328 < 10 to the left, improve=21.24660, (0 missing)
## Surrogate splits:
## 487 < 5 to the left, agree=0.883, adj=0.716, (0 split)
## 514 < 65.5 to the left, agree=0.883, adj=0.716, (0 split)
## 516 < 1.5 to the left, agree=0.871, adj=0.687, (0 split)
## 488 < 0.5 to the left, agree=0.865, adj=0.672, (0 split)
## 486 < 41.5 to the left, agree=0.810, adj=0.537, (0 split)
##
## Node number 240: 109 observations, complexity param=0.0005805126
## predicted class=2 expected loss=0.2293578 P(node) =0.004324539
## class counts: 0 0 84 17 0 2 0 0 6
0
## probabilities: 0.000 0.000 0.771 0.156 0.000 0.018 0.000 0.000 0.055
0.000
## left son=480 (87 obs) right son=481 (22 obs)
## Primary splits:
## 379 < 151.5 to the left, improve=21.18397, (0 missing)
## 456 < 3 to the right, improve=17.86108, (0 missing)
## 484 < 2 to the right, improve=15.49374, (0 missing)
## 483 < 1.5 to the right, improve=14.94328, (0 missing)
## 351 < 1 to the left, improve=14.40911, (0 missing)
## Surrogate splits:
## 351 < 1 to the left, agree=0.954, adj=0.773, (0 split)
## 378 < 162.5 to the left, agree=0.945, adj=0.727, (0 split)
## 380 < 155 to the left, agree=0.917, adj=0.591, (0 split)

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##      352 < 66      to the left,  agree=0.908, adj=0.545, (0 split)
##      377 < 162.5 to the left,  agree=0.908, adj=0.545, (0 split)
##
## Node number 241: 112 observations,      complexity param=0.0006251675
## predicted class=5 expected loss=0.2946429 P(node) =0.004443563
## class counts:      0      0      4      7      4      79      2      0      16
##
## probabilities: 0.000 0.000 0.036 0.062 0.036 0.705 0.018 0.000 0.143
0.000
## left son=482 (87 obs) right son=483 (25 obs)
## Primary splits:
##      355 < 10      to the left,  improve=21.55950, (0 missing)
##      381 < 6       to the left,  improve=21.24793, (0 missing)
##      382 < 4.5     to the left,  improve=20.59950, (0 missing)
##      354 < 7       to the left,  improve=19.31057, (0 missing)
##      356 < 14.5    to the left,  improve=17.67997, (0 missing)
## Surrogate splits:
##      354 < 63      to the left,  agree=0.973, adj=0.88, (0 split)
##      381 < 74      to the left,  agree=0.964, adj=0.84, (0 split)
##      382 < 4.5     to the left,  agree=0.964, adj=0.84, (0 split)
##      383 < 6       to the left,  agree=0.955, adj=0.80, (0 split)
##      353 < 14      to the left,  agree=0.929, adj=0.68, (0 split)
##
## Node number 242: 1469 observations,      complexity param=0.001629901
## predicted class=4 expected loss=0.1266167 P(node) =0.05828209
## class counts:      0      6      16      16 1283      21      66      10      31
20
## probabilities: 0.000 0.004 0.011 0.011 0.873 0.014 0.045 0.007 0.021
0.014
## left son=484 (1415 obs) right son=485 (54 obs)
## Primary splits:
##      98 < 3        to the left,  improve=86.42458, (0 missing)
##      97 < 1        to the left,  improve=73.90600, (0 missing)
##      155 < 99.5    to the left,  improve=72.01172, (0 missing)
##      126 < 2       to the left,  improve=70.29448, (0 missing)
##      154 < 64.5    to the left,  improve=67.46091, (0 missing)
## Surrogate splits:
##      99 < 24       to the left,  agree=0.990, adj=0.722, (0 split)
##      97 < 1        to the left,  agree=0.988, adj=0.685, (0 split)
##      70 < 2        to the left,  agree=0.982, adj=0.500, (0 split)
##      126 < 215     to the left,  agree=0.980, adj=0.463, (0 split)
##      71 < 7        to the left,  agree=0.980, adj=0.444, (0 split)
##
## Node number 243: 140 observations,      complexity param=0.0009377512
## predicted class=9 expected loss=0.6642857 P(node) =0.005554453
## class counts:      0      0      7      4      24      21      0      34      3
47
## probabilities: 0.000 0.000 0.050 0.029 0.171 0.150 0.000 0.243 0.021
0.336
## left son=486 (93 obs) right son=487 (47 obs)

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## Primary splits:
##   401 < 2.5   to the right, improve=15.36521, (0 missing)
##   373 < 12    to the left,  improve=15.21905, (0 missing)
##   372 < 3     to the left,  improve=14.71924, (0 missing)
##   428 < 2     to the left,  improve=13.38245, (0 missing)
##   429 < 5     to the left,  improve=13.28977, (0 missing)
## Surrogate splits:
##   402 < 3     to the right, agree=0.907, adj=0.723, (0 split)
##   373 < 1     to the right, agree=0.886, adj=0.660, (0 split)
##   374 < 1.5   to the right, agree=0.857, adj=0.574, (0 split)
##   429 < 91.5  to the right, agree=0.857, adj=0.574, (0 split)
##   430 < 94    to the right, agree=0.857, adj=0.574, (0 split)
##
## Node number 244: 581 observations,    complexity param=0.0009377512
## predicted class=5 expected loss=0.2340792 P(node) =0.02305098
## class counts:      3      0      14      37      6    445      26      1      9
40
## probabilities: 0.005 0.000 0.024 0.064 0.010 0.766 0.045 0.002 0.015
0.069
## left son=488 (521 obs) right son=489 (60 obs)
## Primary splits:
##   384 < 17.5  to the left,  improve=45.16512, (0 missing)
##   356 < 2     to the left,  improve=44.03084, (0 missing)
##   385 < 1.5   to the left,  improve=42.43825, (0 missing)
##   357 < 4.5   to the left,  improve=41.53327, (0 missing)
##   383 < 49.5  to the left,  improve=37.52325, (0 missing)
## Surrogate splits:
##   385 < 1.5   to the left,  agree=0.981, adj=0.817, (0 split)
##   383 < 49.5  to the left,  agree=0.979, adj=0.800, (0 split)
##   412 < 78    to the left,  agree=0.978, adj=0.783, (0 split)
##   356 < 2     to the left,  agree=0.976, adj=0.767, (0 split)
##   357 < 4.5   to the left,  agree=0.974, adj=0.750, (0 split)
##
## Node number 245: 227 observations,    complexity param=0.00129499
## predicted class=4 expected loss=0.6123348 P(node) =0.00900615
## class counts:      0      2      5      18      88      0      2      32      28
52
## probabilities: 0.000 0.009 0.022 0.079 0.388 0.000 0.009 0.141 0.123
0.229
## left son=490 (79 obs) right son=491 (148 obs)
## Primary splits:
##   209 < 16.5  to the left,  improve=34.57810, (0 missing)
##   208 < 14.5  to the left,  improve=33.34277, (0 missing)
##   210 < 95    to the left,  improve=22.91833, (0 missing)
##   156 < 1     to the right, improve=20.89619, (0 missing)
##   373 < 40    to the right, improve=18.83432, (0 missing)
## Surrogate splits:
##   210 < 82.5  to the left,  agree=0.912, adj=0.747, (0 split)
##   208 < 1     to the left,  agree=0.881, adj=0.658, (0 split)
##   181 < 5     to the left,  agree=0.819, adj=0.481, (0 split)

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##      182 < 1      to the left,  agree=0.802, adj=0.430, (0 split)
##      237 < 18     to the left,  agree=0.780, adj=0.367, (0 split)
##
## Node number 246: 406 observations,      complexity param=0.002835581
## predicted class=4 expected loss=0.7487685 P(node) =0.01610792
## class counts:      3      0      53      98      102      12      4      1      77
56
## probabilities: 0.007 0.000 0.131 0.241 0.251 0.030 0.010 0.002 0.190
0.138
## left son=492 (178 obs) right son=493 (228 obs)
## Primary splits:
##      624 < 1      to the right, improve=41.06848, (0 missing)
##      400 < 6.5    to the left,  improve=41.06288, (0 missing)
##      372 < 2.5    to the left,  improve=40.49366, (0 missing)
##      345 < 1      to the left,  improve=40.21070, (0 missing)
##      373 < 65     to the left,  improve=40.00554, (0 missing)
## Surrogate splits:
##      625 < 90.5   to the right, agree=0.941, adj=0.865, (0 split)
##      623 < 1      to the right, agree=0.936, adj=0.854, (0 split)
##      595 < 0.5    to the right, agree=0.904, adj=0.781, (0 split)
##      596 < 3.5    to the right, agree=0.904, adj=0.781, (0 split)
##      652 < 0.5    to the right, agree=0.887, adj=0.742, (0 split)
##
## Node number 247: 1445 observations,      complexity param=0.0006698223
## predicted class=9 expected loss=0.1944637 P(node) =0.05732989
## class counts:      1      0      18      62      92      7      0      54      47
1164
## probabilities: 0.001 0.000 0.012 0.043 0.064 0.005 0.000 0.037 0.033
0.806
## left son=494 (293 obs) right son=495 (1152 obs)
## Primary splits:
##      317 < 1      to the left,  improve=48.99596, (0 missing)
##      290 < 3.5    to the left,  improve=45.68732, (0 missing)
##      345 < 0.5    to the left,  improve=44.17524, (0 missing)
##      289 < 8.5    to the left,  improve=39.02495, (0 missing)
##      373 < 0.5    to the left,  improve=36.31497, (0 missing)
## Surrogate splits:
##      290 < 13.5   to the left,  agree=0.905, adj=0.532, (0 split)
##      345 < 0.5    to the left,  agree=0.901, adj=0.512, (0 split)
##      289 < 0.5    to the left,  agree=0.878, adj=0.399, (0 split)
##      344 < 0.5    to the left,  agree=0.854, adj=0.280, (0 split)
##      263 < 0.5    to the left,  agree=0.846, adj=0.239, (0 split)
##
## Node number 248: 175 observations,      complexity param=0.0008930964
## predicted class=5 expected loss=0.3428571 P(node) =0.006943067
## class counts:      1      7      4      40      3      115      2      0      1
2
## probabilities: 0.006 0.040 0.023 0.229 0.017 0.657 0.011 0.000 0.006
0.011
## left son=496 (40 obs) right son=497 (135 obs)

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## Primary splits:
## 323 < 1.5 to the right, improve=24.11683, (0 missing)
## 322 < 52 to the right, improve=23.30486, (0 missing)
## 150 < 65 to the right, improve=17.90386, (0 missing)
## 295 < 126 to the right, improve=17.71134, (0 missing)
## 321 < 210 to the right, improve=16.90571, (0 missing)
## Surrogate splits:
## 295 < 140 to the right, agree=0.914, adj=0.625, (0 split)
## 322 < 76 to the right, agree=0.897, adj=0.550, (0 split)
## 324 < 2.5 to the right, agree=0.897, adj=0.550, (0 split)
## 296 < 97 to the right, agree=0.880, adj=0.475, (0 split)
## 294 < 252.5 to the right, agree=0.851, adj=0.350, (0 split)
##
## Node number 249: 138 observations, complexity param=0.00111637
## predicted class=9 expected loss=0.6594203 P(node) =0.005475104
## class counts: 0 5 4 17 27 1 0 8 29
47
## probabilities: 0.000 0.036 0.029 0.123 0.196 0.007 0.000 0.058 0.210
0.341
## left son=498 (46 obs) right son=499 (92 obs)
## Primary splits:
## 434 < 208.5 to the right, improve=19.10145, (0 missing)
## 433 < 12 to the right, improve=17.09489, (0 missing)
## 154 < 1.5 to the right, improve=14.04231, (0 missing)
## 376 < 47.5 to the left, improve=13.70145, (0 missing)
## 375 < 129.5 to the left, improve=13.29010, (0 missing)
## Surrogate splits:
## 461 < 63 to the right, agree=0.899, adj=0.696, (0 split)
## 433 < 17 to the right, agree=0.891, adj=0.674, (0 split)
## 489 < 183.5 to the right, agree=0.862, adj=0.587, (0 split)
## 462 < 193.5 to the right, agree=0.848, adj=0.543, (0 split)
## 488 < 8.5 to the right, agree=0.833, adj=0.500, (0 split)
##
## Node number 250: 93 observations, complexity param=0.0009377512
## predicted class=1 expected loss=0.5591398 P(node) =0.003689744
## class counts: 4 41 24 5 0 2 12 5 0
0
## probabilities: 0.043 0.441 0.258 0.054 0.000 0.022 0.129 0.054 0.000
0.000
## left son=500 (54 obs) right son=501 (39 obs)
## Primary splits:
## 179 < 7 to the left, improve=18.75774, (0 missing)
## 351 < 244 to the right, improve=18.16590, (0 missing)
## 378 < 71.5 to the right, improve=18.01097, (0 missing)
## 323 < 173 to the right, improve=17.50988, (0 missing)
## 178 < 29 to the left, improve=17.14835, (0 missing)
## Surrogate splits:
## 180 < 49 to the left, agree=0.968, adj=0.923, (0 split)
## 153 < 53 to the left, agree=0.946, adj=0.872, (0 split)
## 178 < 4 to the left, agree=0.946, adj=0.872, (0 split)

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##      152 < 19      to the left,  agree=0.925, adj=0.821, (0 split)
##      206 < 1      to the left,  agree=0.925, adj=0.821, (0 split)
##
## Node number 251: 1360 observations,      complexity param=0.0004018934
## predicted class=7 expected loss=0.04705882 P(node) =0.05395755
## class counts:      2      12      21      6      4      0      7 1296      1
11
## probabilities: 0.001 0.009 0.015 0.004 0.003 0.000 0.005 0.953 0.001
0.008
## left son=502 (23 obs) right son=503 (1337 obs)
## Primary splits:
##      153 < 57      to the right, improve=25.10725, (0 missing)
##      154 < 7       to the right, improve=20.15141, (0 missing)
##      152 < 18      to the right, improve=19.96451, (0 missing)
##      151 < 5.5     to the right, improve=17.55849, (0 missing)
##      150 < 219     to the right, improve=17.38734, (0 missing)
## Surrogate splits:
##      154 < 3       to the right, agree=0.996, adj=0.783, (0 split)
##      152 < 98.5    to the right, agree=0.996, adj=0.739, (0 split)
##      124 < 6.5     to the right, agree=0.991, adj=0.478, (0 split)
##      125 < 1.5     to the right, agree=0.991, adj=0.478, (0 split)
##      151 < 87      to the right, agree=0.991, adj=0.478, (0 split)
##
## Node number 252: 132 observations,      complexity param=0.0001562919
## predicted class=4 expected loss=0.1969697 P(node) =0.005237056
## class counts:      1      1      8      0 106      1      6      1      1
7
## probabilities: 0.008 0.008 0.061 0.000 0.803 0.008 0.045 0.008 0.008
0.053
## left son=504 (29 obs) right son=505 (103 obs)
## Primary splits:
##      429 < 8       to the left,  improve=8.663578, (0 missing)
##      597 < 35.5    to the right, improve=8.599218, (0 missing)
##      97 < 4.5      to the left,  improve=7.835550, (0 missing)
##      125 < 155     to the right, improve=7.614560, (0 missing)
##      267 < 132     to the left,  improve=7.563361, (0 missing)
## Surrogate splits:
##      457 < 95.5    to the left,  agree=0.886, adj=0.483, (0 split)
##      401 < 11.5    to the left,  agree=0.879, adj=0.448, (0 split)
##      373 < 1.5     to the left,  agree=0.864, adj=0.379, (0 split)
##      353 < 1       to the left,  agree=0.841, adj=0.276, (0 split)
##      538 < 19      to the right, agree=0.841, adj=0.276, (0 split)
##
## Node number 253: 12 observations
## predicted class=6 expected loss=0.25 P(node) =0.000476096
## class counts:      0      0      3      0      0      0      9      0      0
0
## probabilities: 0.000 0.000 0.250 0.000 0.000 0.000 0.750 0.000 0.000
0.000
##

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## Node number 254: 50 observations,    complexity param=0.0003125837
##   predicted class=7   expected loss=0.68   P(node) =0.001983733
##   class counts:      0      0      4      0     12      0      0     16      3
15
##   probabilities: 0.000 0.000 0.080 0.000 0.240 0.000 0.000 0.320 0.060
0.300
##   left son=508 (24 obs) right son=509 (26 obs)
##   Primary splits:
##       429 < 48.5   to the left,   improve=9.358974, (0 missing)
##       457 < 169.5 to the left,   improve=9.358974, (0 missing)
##       205 < 45     to the left,   improve=9.039216, (0 missing)
##       428 < 42     to the left,   improve=8.314103, (0 missing)
##       232 < 76.5   to the left,   improve=7.873016, (0 missing)
##   Surrogate splits:
##       457 < 169.5 to the left,   agree=0.96, adj=0.917, (0 split)
##       401 < 31     to the left,   agree=0.92, adj=0.833, (0 split)
##       428 < 42     to the left,   agree=0.92, adj=0.833, (0 split)
##       400 < 3.5    to the left,   agree=0.88, adj=0.750, (0 split)
##       456 < 15.5   to the left,   agree=0.88, adj=0.750, (0 split)
##
## Node number 255: 168 observations,    complexity param=0.0002902563
##   predicted class=9   expected loss=0.1785714   P(node) =0.006665344
##   class counts:      0      0      4      1     17      0      1      6      1
138
##   probabilities: 0.000 0.000 0.024 0.006 0.101 0.000 0.006 0.036 0.006
0.821
##   left son=510 (25 obs) right son=511 (143 obs)
##   Primary splits:
##       235 < 0.5    to the left,   improve=12.447550, (0 missing)
##       320 < 91.5   to the right,  improve=11.288570, (0 missing)
##       326 < 2      to the left,   improve=10.129240, (0 missing)
##       354 < 3      to the left,   improve= 9.811462, (0 missing)
##       293 < 72     to the right,  improve= 9.306647, (0 missing)
##   Surrogate splits:
##       320 < 81.5   to the right,  agree=0.911, adj=0.40, (0 split)
##       208 < 1.5    to the left,   agree=0.905, adj=0.36, (0 split)
##       292 < 181    to the right,  agree=0.905, adj=0.36, (0 split)
##       293 < 72     to the right,  agree=0.905, adj=0.36, (0 split)
##       347 < 192    to the right,  agree=0.899, adj=0.32, (0 split)
##
## Node number 256: 2260 observations,    complexity param=0.0001339645
##   predicted class=1   expected loss=0.02256637   P(node) =0.08966475
##   class counts:      0 2209      4      6      2      5      5      8      19
2
##   probabilities: 0.000 0.977 0.002 0.003 0.001 0.002 0.002 0.004 0.008
0.001
##   left son=512 (2249 obs) right son=513 (11 obs)
##   Primary splits:
##       406 < 48     to the right,  improve=10.840210, (0 missing)
##       410 < 32     to the left,   improve= 9.961333, (0 missing)

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##      437 < 198   to the left,   improve= 9.149731, (0 missing)
##      466 < 3     to the left,   improve= 8.726610, (0 missing)
##      411 < 28.5  to the left,   improve= 8.723056, (0 missing)
##      Surrogate splits:
##      434 < 6.5   to the right,  agree=0.998, adj=0.545, (0 split)
##      378 < 126.5 to the right,  agree=0.996, adj=0.273, (0 split)
##      345 < 136.5 to the left,   agree=0.996, adj=0.182, (0 split)
##      372 < 73    to the left,   agree=0.996, adj=0.182, (0 split)
##      387 < 7.5   to the left,   agree=0.996, adj=0.182, (0 split)
##
## Node number 257: 31 observations,      complexity param=0.0001786193
##   predicted class=2   expected loss=0.7419355   P(node) =0.001229915
##   class counts:      0      5      8      0      5      5      3      0      5
##   0
##   probabilities: 0.000 0.161 0.258 0.000 0.161 0.161 0.097 0.000 0.161
##   0.000
##   left son=514 (19 obs) right son=515 (12 obs)
##   Primary splits:
##      623 < 14.5   to the left,   improve=4.489530, (0 missing)
##      457 < 152.5  to the right,  improve=4.227688, (0 missing)
##      652 < 12.5   to the left,   improve=4.095545, (0 missing)
##      432 < 115    to the right,  improve=4.062212, (0 missing)
##      322 < 159    to the left,   improve=4.038402, (0 missing)
##   Surrogate splits:
##      595 < 136.5  to the left,   agree=0.935, adj=0.833, (0 split)
##      624 < 168.5  to the left,   agree=0.935, adj=0.833, (0 split)
##      652 < 12.5   to the left,   agree=0.935, adj=0.833, (0 split)
##      622 < 5.5    to the left,   agree=0.903, adj=0.750, (0 split)
##      651 < 0.5    to the left,   agree=0.903, adj=0.750, (0 split)
##
## Node number 260: 55 observations
##   predicted class=1   expected loss=0.07272727   P(node) =0.002182107
##   class counts:      0      51      1      1      0      1      0      0      1
##   0
##   probabilities: 0.000 0.927 0.018 0.018 0.000 0.018 0.000 0.000 0.018
##   0.000
##
## Node number 261: 17 observations
##   predicted class=5   expected loss=0.2941176   P(node) =0.0006744694
##   class counts:      0      0      0      1      1      12      0      0      3
##   0
##   probabilities: 0.000 0.000 0.000 0.059 0.059 0.706 0.000 0.000 0.176
##   0.000
##
## Node number 264: 83 observations
##   predicted class=2   expected loss=0.03614458   P(node) =0.003292997
##   class counts:      0      2      80      0      0      0      0      0      1
##   0
##   probabilities: 0.000 0.024 0.964 0.000 0.000 0.000 0.000 0.000 0.012
##   0.000

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##
## Node number 265: 8 observations
## predicted class=3 expected loss=0.375 P(node) =0.0003173973
## class counts: 0 0 2 5 0 0 0 0 1
0
## probabilities: 0.000 0.000 0.250 0.625 0.000 0.000 0.000 0.000 0.125
0.000
##
## Node number 268: 13 observations
## predicted class=2 expected loss=0.3846154 P(node) =0.0005157707
## class counts: 1 0 8 0 3 0 0 1 0
0
## probabilities: 0.077 0.000 0.615 0.000 0.231 0.000 0.000 0.077 0.000
0.000
##
## Node number 269: 11 observations
## predicted class=6 expected loss=0.5454545 P(node) =0.0004364213
## class counts: 0 1 0 3 0 0 5 0 2
0
## probabilities: 0.000 0.091 0.000 0.273 0.000 0.000 0.455 0.000 0.182
0.000
##
## Node number 272: 93 observations, complexity param=0.0005805126
## predicted class=6 expected loss=0.4623656 P(node) =0.003689744
## class counts: 7 13 9 6 3 3 50 1 0
1
## probabilities: 0.075 0.140 0.097 0.065 0.032 0.032 0.538 0.011 0.000
0.011
## left son=544 (25 obs) right son=545 (68 obs)
## Primary splits:
## 486 < 67.5 to the left, improve=15.77872, (0 missing)
## 514 < 7 to the left, improve=13.63803, (0 missing)
## 458 < 48.5 to the left, improve=12.53402, (0 missing)
## 487 < 30 to the left, improve=12.32299, (0 missing)
## 459 < 119.5 to the left, improve=11.10767, (0 missing)
## Surrogate splits:
## 487 < 30 to the left, agree=0.946, adj=0.80, (0 split)
## 514 < 7 to the left, agree=0.946, adj=0.80, (0 split)
## 458 < 14.5 to the left, agree=0.914, adj=0.68, (0 split)
## 485 < 2.5 to the left, agree=0.903, adj=0.64, (0 split)
## 515 < 24.5 to the left, agree=0.882, adj=0.56, (0 split)
##
## Node number 273: 159 observations, complexity param=0.0007591319
## predicted class=4 expected loss=0.7672956 P(node) =0.006308272
## class counts: 5 20 22 8 37 21 4 7 6
29
## probabilities: 0.031 0.126 0.138 0.050 0.233 0.132 0.025 0.044 0.038
0.182
## left son=546 (67 obs) right son=547 (92 obs)
## Primary splits:

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##      539 < 2      to the right, improve=14.46493, (0 missing)
##      540 < 48     to the right, improve=14.31537, (0 missing)
##      567 < 10.5   to the right, improve=12.80517, (0 missing)
##      681 < 73     to the left,  improve=12.69986, (0 missing)
##      538 < 0.5    to the right, improve=12.23804, (0 missing)
## Surrogate splits:
##      540 < 2.5    to the right, agree=0.962, adj=0.910, (0 split)
##      512 < 37.5   to the right, agree=0.931, adj=0.836, (0 split)
##      511 < 59.5   to the right, agree=0.906, adj=0.776, (0 split)
##      541 < 57.5   to the right, agree=0.906, adj=0.776, (0 split)
##      567 < 2.5    to the right, agree=0.906, adj=0.776, (0 split)
##
## Node number 276: 95 observations,      complexity param=0.0002232741
## predicted class=1 expected loss=0.2421053 P(node) =0.003769093
## class counts:      1      72      1      1      0      3      1      4      8
4
## probabilities: 0.011 0.758 0.011 0.011 0.000 0.032 0.011 0.042 0.084
0.042
## left son=552 (77 obs) right son=553 (18 obs)
## Primary splits:
##      299 < 31     to the left,  improve=12.03746, (0 missing)
##      300 < 2      to the left,  improve=11.65921, (0 missing)
##      155 < 1.5    to the right, improve=11.20692, (0 missing)
##      271 < 27.5   to the left,  improve=11.11690, (0 missing)
##      272 < 170    to the left,  improve=10.82839, (0 missing)
## Surrogate splits:
##      271 < 43     to the left,  agree=0.979, adj=0.889, (0 split)
##      298 < 219    to the left,  agree=0.968, adj=0.833, (0 split)
##      300 < 2      to the left,  agree=0.968, adj=0.833, (0 split)
##      327 < 19     to the left,  agree=0.968, adj=0.833, (0 split)
##      272 < 60     to the left,  agree=0.958, adj=0.778, (0 split)
##
## Node number 277: 39 observations,      complexity param=0.0003125837
## predicted class=4 expected loss=0.7435897 P(node) =0.001547312
## class counts:      2      1      0      3      10      6      3      0      8
6
## probabilities: 0.051 0.026 0.000 0.077 0.256 0.154 0.077 0.000 0.205
0.154
## left son=554 (11 obs) right son=555 (28 obs)
## Primary splits:
##      627 < 5.5    to the left,  improve=6.047286, (0 missing)
##      628 < 87.5   to the left,  improve=5.647863, (0 missing)
##      655 < 10.5   to the left,  improve=5.136752, (0 missing)
##      625 < 40.5   to the right, improve=5.043185, (0 missing)
##      653 < 106.5  to the left,  improve=4.815496, (0 missing)
## Surrogate splits:
##      655 < 10.5   to the left,  agree=0.974, adj=0.909, (0 split)
##      628 < 87.5   to the left,  agree=0.949, adj=0.818, (0 split)
##      626 < 13     to the left,  agree=0.923, adj=0.727, (0 split)
##      598 < 5.5    to the left,  agree=0.897, adj=0.636, (0 split)

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##      600 < 77.5  to the left,  agree=0.897, adj=0.636, (0 split)
##
## Node number 278: 124 observations,      complexity param=0.0002902563
## predicted class=8  expected loss=0.2822581  P(node) =0.004919659
##   class counts:      1      3      1     15      9      3      0      1     89
##   2
##   probabilities: 0.008 0.024 0.008 0.121 0.073 0.024 0.000 0.008 0.718
##   0.016
##   left son=556 (37 obs) right son=557 (87 obs)
##   Primary splits:
##       265 < 15.5  to the left,  improve=11.27827, (0 missing)
##       373 < 6      to the right, improve=11.17824, (0 missing)
##       401 < 123   to the right, improve=10.98102, (0 missing)
##       378 < 196   to the left,  improve=10.40339, (0 missing)
##       292 < 98.5  to the left,  improve=10.24454, (0 missing)
##   Surrogate splits:
##       237 < 49     to the left,  agree=0.935, adj=0.784, (0 split)
##       264 < 25     to the left,  agree=0.935, adj=0.784, (0 split)
##       292 < 126.5  to the left,  agree=0.919, adj=0.730, (0 split)
##       238 < 4      to the left,  agree=0.895, adj=0.649, (0 split)
##       236 < 40.5  to the left,  agree=0.887, adj=0.622, (0 split)
##
## Node number 279: 20 observations
## predicted class=9  expected loss=0.1  P(node) =0.0007934934
##   class counts:      0      0      0      0      0      0      0      2      0
##   18
##   probabilities: 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.100 0.000
##   0.900
##
## Node number 290: 9 observations
## predicted class=6  expected loss=0.4444444  P(node) =0.000357072
##   class counts:      0      0      3      1      0      0      5      0      0
##   0
##   probabilities: 0.000 0.000 0.333 0.111 0.000 0.000 0.556 0.000 0.000
##   0.000
##
## Node number 291: 11 observations
## predicted class=8  expected loss=0.09090909  P(node) =0.0004364213
##   class counts:      0      0      0      0      0      0      0      0     10
##   1
##   probabilities: 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.909
##   0.091
##
## Node number 292: 21 observations
## predicted class=1  expected loss=0.1904762  P(node) =0.000833168
##   class counts:      0     17      2      0      0      0      0      0      1
##   1
##   probabilities: 0.000 0.810 0.095 0.000 0.000 0.000 0.000 0.000 0.048
##   0.048
##

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## Node number 293: 36 observations,    complexity param=0.0004018934
##   predicted class=2   expected loss=0.6388889   P(node) =0.001428288
##   class counts:      0      0      13      10      0      0      3      2      7
1
##   probabilities: 0.000 0.000 0.361 0.278 0.000 0.000 0.083 0.056 0.194
0.028
##   left son=586 (24 obs) right son=587 (12 obs)
##   Primary splits:
##       516 < 7      to the right, improve=6.777778, (0 missing)
##       517 < 88     to the right, improve=6.777778, (0 missing)
##       515 < 1.5    to the right, improve=6.383129, (0 missing)
##       488 < 234    to the right, improve=6.377778, (0 missing)
##       544 < 8      to the left,  improve=5.863492, (0 missing)
##   Surrogate splits:
##       517 < 88     to the right, agree=1.000, adj=1.00, (0 split)
##       488 < 234    to the right, agree=0.917, adj=0.75, (0 split)
##       489 < 152.5  to the right, agree=0.917, adj=0.75, (0 split)
##       515 < 1.5    to the right, agree=0.917, adj=0.75, (0 split)
##       544 < 8      to the right, agree=0.917, adj=0.75, (0 split)
##
## Node number 294: 17 observations
##   predicted class=7   expected loss=0.05882353   P(node) =0.0006744694
##   class counts:      0      0      0      1      0      0      0      16      0
0
##   probabilities: 0.000 0.000 0.000 0.059 0.000 0.000 0.000 0.941 0.000
0.000
##
## Node number 295: 12 observations
##   predicted class=9   expected loss=0.4166667   P(node) =0.000476096
##   class counts:      0      0      0      2      1      0      0      1      1
7
##   probabilities: 0.000 0.000 0.000 0.167 0.083 0.000 0.000 0.083 0.083
0.583
##
## Node number 296: 14 observations
##   predicted class=7   expected loss=0.7142857   P(node) =0.0005554453
##   class counts:      1      2      0      0      2      1      3      4      0
1
##   probabilities: 0.071 0.143 0.000 0.000 0.143 0.071 0.214 0.286 0.000
0.071
##
## Node number 297: 98 observations
##   predicted class=6   expected loss=0.02040816   P(node) =0.003888117
##   class counts:      0      0      0      0      1      1      96      0      0
0
##   probabilities: 0.000 0.000 0.000 0.000 0.010 0.010 0.980 0.000 0.000
0.000
##
## Node number 298: 12 observations
##   predicted class=6   expected loss=0.5   P(node) =0.000476096

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##      class counts:      4      0      2      0      0      0      6      0      0
0
##      probabilities: 0.333 0.000 0.167 0.000 0.000 0.000 0.500 0.000 0.000
0.000
##
## Node number 299: 20 observations,      complexity param=0.0001786193
##      predicted class=8      expected loss=0.5      P(node) =0.0007934934
##      class counts:      0      0      1      0      0      3      0      1      10
5
##      probabilities: 0.000 0.000 0.050 0.000 0.000 0.150 0.000 0.050 0.500
0.250
##      left son=598 (9 obs) right son=599 (11 obs)
##      Primary splits:
##          432 < 47.5 to the left,      improve=5.381818, (0 missing)
##          433 < 173.5 to the left,      improve=5.381818, (0 missing)
##          434 < 181.5 to the left,      improve=5.381818, (0 missing)
##          409 < 183 to the left,      improve=5.000000, (0 missing)
##          410 < 50.5 to the left,      improve=5.000000, (0 missing)
##      Surrogate splits:
##          433 < 173.5 to the left,      agree=1.00, adj=1.000, (0 split)
##          434 < 181.5 to the left,      agree=1.00, adj=1.000, (0 split)
##          406 < 216 to the left,      agree=0.95, adj=0.889, (0 split)
##          461 < 48 to the left,      agree=0.95, adj=0.889, (0 split)
##          431 < 37.5 to the left,      agree=0.90, adj=0.778, (0 split)
##
## Node number 304: 7 observations
##      predicted class=2      expected loss=0.1428571      P(node) =0.0002777227
##      class counts:      0      0      6      1      0      0      0      0      0
0
##      probabilities: 0.000 0.000 0.857 0.143 0.000 0.000 0.000 0.000 0.000
0.000
##
## Node number 305: 52 observations
##      predicted class=3      expected loss=0.07692308      P(node) =0.002063083
##      class counts:      0      0      1      48      0      0      0      2      1
0
##      probabilities: 0.000 0.000 0.019 0.923 0.000 0.000 0.000 0.038 0.019
0.000
##
## Node number 306: 47 observations,      complexity param=0.0004465482
##      predicted class=2      expected loss=0.4893617      P(node) =0.001864709
##      class counts:      0      4      24      8      0      0      0      0      11
0
##      probabilities: 0.000 0.085 0.511 0.170 0.000 0.000 0.000 0.000 0.234
0.000
##      left son=612 (34 obs) right son=613 (13 obs)
##      Primary splits:
##          321 < 195 to the left,      improve=10.735050, (0 missing)
##          293 < 55.5 to the left,      improve= 9.355531, (0 missing)
##          292 < 19.5 to the left,      improve= 8.993085, (0 missing)

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##      600 < 133   to the right, improve= 8.151418, (0 missing)
##      320 < 30    to the left,  improve= 8.006097, (0 missing)
##  Surrogate splits:
##      293 < 55.5  to the left,  agree=0.979, adj=0.923, (0 split)
##      292 < 19.5  to the left,  agree=0.957, adj=0.846, (0 split)
##      264 < 80.5  to the left,  agree=0.936, adj=0.769, (0 split)
##      320 < 9.5   to the left,  agree=0.936, adj=0.769, (0 split)
##      265 < 57.5  to the left,  agree=0.915, adj=0.692, (0 split)
##
## Node number 307: 56 observations,      complexity param=0.0001786193
## predicted class=7 expected loss=0.25 P(node) =0.002221781
## class counts:      0      5      2      5      0      0      0      42      1
1
## probabilities: 0.000 0.089 0.036 0.089 0.000 0.000 0.000 0.750 0.018
0.018
## left son=614 (7 obs) right son=615 (49 obs)
## Primary splits:
##      546 < 15    to the left,  improve=6.275510, (0 missing)
##      578 < 59    to the right, improve=5.541667, (0 missing)
##      634 < 94    to the right, improve=4.397959, (0 missing)
##      606 < 105.5 to the right, improve=4.275510, (0 missing)
##      518 < 116   to the left,  improve=4.208333, (0 missing)
## Surrogate splits:
##      518 < 116   to the left,  agree=0.946, adj=0.571, (0 split)
##      573 < 16    to the left,  agree=0.929, adj=0.429, (0 split)
##      574 < 90    to the left,  agree=0.929, adj=0.429, (0 split)
##      315 < 196   to the right, agree=0.911, adj=0.286, (0 split)
##      316 < 178.5 to the right, agree=0.911, adj=0.286, (0 split)
##
## Node number 310: 7 observations
## predicted class=6 expected loss=0.5714286 P(node) =0.0002777227
## class counts:      1      0      0      1      0      0      3      0      2
0
## probabilities: 0.143 0.000 0.000 0.143 0.000 0.000 0.429 0.000 0.286
0.000
##
## Node number 311: 35 observations
## predicted class=8 expected loss=0.05714286 P(node) =0.001388613
## class counts:      0      0      1      0      0      1      0      0      33
0
## probabilities: 0.000 0.000 0.029 0.000 0.000 0.029 0.000 0.000 0.943
0.000
##
## Node number 312: 35 observations,      complexity param=0.0002976988
## predicted class=1 expected loss=0.6285714 P(node) =0.001388613
## class counts:      0     13      0      3      0      1      0      8      9
1
## probabilities: 0.000 0.371 0.000 0.086 0.000 0.029 0.000 0.229 0.257
0.029
## left son=624 (26 obs) right son=625 (9 obs)

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## Primary splits:
## 180 < 118.5 to the right, improve=7.936508, (0 missing)
## 269 < 25.5 to the left, improve=7.431391, (0 missing)
## 268 < 26 to the left, improve=7.098344, (0 missing)
## 377 < 134.5 to the right, improve=7.071429, (0 missing)
## 233 < 126 to the left, improve=6.786181, (0 missing)
## Surrogate splits:
## 179 < 7 to the right, agree=0.943, adj=0.778, (0 split)
## 181 < 43 to the right, agree=0.943, adj=0.778, (0 split)
## 377 < 134.5 to the right, agree=0.943, adj=0.778, (0 split)
## 349 < 138.5 to the right, agree=0.914, adj=0.667, (0 split)
## 352 < 251.5 to the left, agree=0.914, adj=0.667, (0 split)
##
## Node number 313: 45 observations, complexity param=0.0001339645
## predicted class=8 expected loss=0.2888889 P(node) =0.00178536
## class counts: 0 0 1 3 4 0 0 0 32
5
## probabilities: 0.000 0.000 0.022 0.067 0.089 0.000 0.000 0.000 0.711
0.111
## left son=626 (8 obs) right son=627 (37 obs)
## Primary splits:
## 461 < 62.5 to the left, improve=5.658408, (0 missing)
## 433 < 129 to the left, improve=5.444444, (0 missing)
## 180 < 61.5 to the left, improve=5.134153, (0 missing)
## 207 < 191.5 to the left, improve=4.691111, (0 missing)
## 488 < 15.5 to the left, improve=4.555556, (0 missing)
## Surrogate splits:
## 433 < 15.5 to the left, agree=0.956, adj=0.750, (0 split)
## 209 < 4.5 to the left, agree=0.889, adj=0.375, (0 split)
## 405 < 2.5 to the left, agree=0.889, adj=0.375, (0 split)
## 406 < 230.5 to the left, agree=0.889, adj=0.375, (0 split)
## 432 < 6 to the left, agree=0.889, adj=0.375, (0 split)
##
## Node number 314: 18 observations
## predicted class=3 expected loss=0.4444444 P(node) =0.000714144
## class counts: 0 0 0 10 0 1 0 3 3
1
## probabilities: 0.000 0.000 0.000 0.556 0.000 0.056 0.000 0.167 0.167
0.056
##
## Node number 315: 26 observations, complexity param=4.465482e-05
## predicted class=9 expected loss=0.2307692 P(node) =0.001031541
## class counts: 1 0 0 0 3 0 0 1 1
20
## probabilities: 0.038 0.000 0.000 0.000 0.115 0.000 0.000 0.038 0.038
0.769
## left son=630 (7 obs) right son=631 (19 obs)
## Primary splits:
## 325 < 213.5 to the left, improve=3.401966, (0 missing)
## 326 < 25.5 to the left, improve=3.401966, (0 missing)

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##      353 < 159.5 to the left, improve=3.401966, (0 missing)
##      440 < 153.5 to the right, improve=3.401966, (0 missing)
##      441 < 22.5 to the right, improve=3.401966, (0 missing)
## Surrogate splits:
##      157 < 68 to the right, agree=0.923, adj=0.714, (0 split)
##      158 < 9 to the right, agree=0.923, adj=0.714, (0 split)
##      326 < 25.5 to the left, agree=0.923, adj=0.714, (0 split)
##      353 < 159.5 to the left, agree=0.923, adj=0.714, (0 split)
##      156 < 47.5 to the right, agree=0.885, adj=0.571, (0 split)
##
## Node number 318: 7 observations
## predicted class=7 expected loss=0.5714286 P(node) =0.0002777227
## class counts: 0 0 0 1 2 1 0 3 0
0
## probabilities: 0.000 0.000 0.000 0.143 0.286 0.143 0.000 0.429 0.000
0.000
##
## Node number 319: 348 observations, complexity param=8.930964e-05
## predicted class=8 expected loss=0.06321839 P(node) =0.01380678
## class counts: 1 1 1 3 8 1 2 2 326
3
## probabilities: 0.003 0.003 0.003 0.009 0.023 0.003 0.006 0.006 0.937
0.009
## left son=638 (36 obs) right son=639 (312 obs)
## Primary splits:
##      401 < 218.5 to the right, improve=5.680961, (0 missing)
##      430 < 252.5 to the right, improve=4.851546, (0 missing)
##      573 < 252.5 to the right, improve=4.635418, (0 missing)
##      428 < 52 to the right, improve=4.473383, (0 missing)
##      400 < 162.5 to the right, improve=4.259570, (0 missing)
## Surrogate splits:
##      400 < 15 to the right, agree=0.983, adj=0.833, (0 split)
##      428 < 3 to the right, agree=0.966, adj=0.667, (0 split)
##      372 < 145.5 to the right, agree=0.963, adj=0.639, (0 split)
##      429 < 128 to the right, agree=0.957, adj=0.583, (0 split)
##      399 < 8 to the right, agree=0.954, adj=0.556, (0 split)
##
## Node number 320: 39 observations, complexity param=4.465482e-05
## predicted class=1 expected loss=0.1538462 P(node) =0.001547312
## class counts: 0 33 3 0 0 1 0 2 0
0
## probabilities: 0.000 0.846 0.077 0.000 0.000 0.026 0.000 0.051 0.000
0.000
## left son=640 (32 obs) right son=641 (7 obs)
## Primary splits:
##      264 < 27.5 to the right, improve=4.20902, (0 missing)
##      265 < 185.5 to the right, improve=4.20902, (0 missing)
##      292 < 6 to the right, improve=4.20902, (0 missing)
##      293 < 175 to the right, improve=4.20902, (0 missing)
##      321 < 128.5 to the right, improve=4.20902, (0 missing)

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## Surrogate splits:
##      265 < 185.5 to the right, agree=1.000, adj=1.000, (0 split)
##      292 < 6      to the right, agree=1.000, adj=1.000, (0 split)
##      293 < 175    to the right, agree=1.000, adj=1.000, (0 split)
##      321 < 128.5 to the right, agree=1.000, adj=1.000, (0 split)
##      236 < 39.5   to the right, agree=0.974, adj=0.857, (0 split)
##
## Node number 321: 25 observations,      complexity param=4.465482e-05
## predicted class=3 expected loss=0.2 P(node) =0.0009918667
## class counts:      0      0      0      20      0      0      0      3      2
##
## probabilities: 0.000 0.000 0.000 0.800 0.000 0.000 0.000 0.120 0.080
##
## left son=642 (18 obs) right son=643 (7 obs)
## Primary splits:
##      628 < 164    to the right, improve=3.908571, (0 missing)
##      625 < 17.5   to the right, improve=3.230000, (0 missing)
##      653 < 10     to the right, improve=3.230000, (0 missing)
##      654 < 115    to the right, improve=3.230000, (0 missing)
##      156 < 139.5  to the right, improve=2.702222, (0 missing)
## Surrogate splits:
##      627 < 33.5   to the right, agree=0.96, adj=0.857, (0 split)
##      214 < 8      to the right, agree=0.92, adj=0.714, (0 split)
##      599 < 4      to the right, agree=0.92, adj=0.714, (0 split)
##      625 < 49.5   to the right, agree=0.92, adj=0.714, (0 split)
##      629 < 47.5   to the right, agree=0.92, adj=0.714, (0 split)
##
## Node number 322: 1393 observations,      complexity param=0.0002456015
## predicted class=3 expected loss=0.04020101 P(node) =0.05526681
## class counts:      0      2      10 1337      0      23      0      0      16
##
## probabilities: 0.000 0.001 0.007 0.960 0.000 0.017 0.000 0.000 0.011
##
## left son=644 (1370 obs) right son=645 (23 obs)
## Primary splits:
##      317 < 206    to the left, improve=17.86201, (0 missing)
##      289 < 174    to the left, improve=16.71907, (0 missing)
##      487 < 140.5  to the left, improve=16.29442, (0 missing)
##      488 < 58.5   to the left, improve=14.98376, (0 missing)
##      316 < 156    to the left, improve=13.71488, (0 missing)
## Surrogate splits:
##      289 < 151.5  to the left, agree=0.992, adj=0.522, (0 split)
##      316 < 132    to the left, agree=0.992, adj=0.522, (0 split)
##      288 < 211    to the left, agree=0.986, adj=0.174, (0 split)
##      290 < 40.5   to the left, agree=0.984, adj=0.043, (0 split)
##      717 < 142    to the left, agree=0.984, adj=0.043, (0 split)
##
## Node number 323: 45 observations,      complexity param=0.0002456015
## predicted class=3 expected loss=0.6222222 P(node) =0.00178536
## class counts:      0      6      0      17      0      15      0      2      5

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0
## probabilities: 0.000 0.133 0.000 0.378 0.000 0.333 0.000 0.044 0.111
0.000
## left son=646 (16 obs) right son=647 (29 obs)
## Primary splits:
## 296 < 124.5 to the right, improve=7.904885, (0 missing)
## 297 < 146 to the right, improve=7.849679, (0 missing)
## 205 < 103 to the right, improve=7.737020, (0 missing)
## 324 < 169.5 to the right, improve=7.651852, (0 missing)
## 323 < 191.5 to the right, improve=7.538192, (0 missing)
## Surrogate splits:
## 297 < 25.5 to the right, agree=0.978, adj=0.937, (0 split)
## 268 < 10.5 to the right, agree=0.956, adj=0.875, (0 split)
## 324 < 169.5 to the right, agree=0.956, adj=0.875, (0 split)
## 323 < 191.5 to the right, agree=0.933, adj=0.812, (0 split)
## 269 < 58 to the right, agree=0.911, adj=0.750, (0 split)
##
## Node number 324: 62 observations
## predicted class=5 expected loss=0.08064516 P(node) =0.002459829
## class counts: 1 0 0 2 2 57 0 0 0
0
## probabilities: 0.016 0.000 0.000 0.032 0.032 0.919 0.000 0.000 0.000
0.000
##
## Node number 325: 16 observations
## predicted class=9 expected loss=0.6875 P(node) =0.0006347947
## class counts: 0 0 0 1 2 4 0 0 4
5
## probabilities: 0.000 0.000 0.000 0.062 0.125 0.250 0.000 0.000 0.250
0.312
##
## Node number 326: 25 observations, complexity param=0.0002232741
## predicted class=3 expected loss=0.52 P(node) =0.0009918667
## class counts: 2 0 0 12 0 5 1 0 4
1
## probabilities: 0.080 0.000 0.000 0.480 0.000 0.200 0.040 0.000 0.160
0.040
## left son=652 (13 obs) right son=653 (12 obs)
## Primary splits:
## 401 < 112.5 to the left, improve=7.180513, (0 missing)
## 428 < 4 to the left, improve=7.180513, (0 missing)
## 429 < 41 to the left, improve=6.840519, (0 missing)
## 400 < 67 to the left, improve=6.697662, (0 missing)
## 399 < 42 to the left, improve=4.960000, (0 missing)
## Surrogate splits:
## 428 < 4 to the left, agree=1.00, adj=1.000, (0 split)
## 400 < 67 to the left, agree=0.96, adj=0.917, (0 split)
## 429 < 41 to the left, agree=0.96, adj=0.917, (0 split)
## 399 < 42 to the left, agree=0.92, adj=0.833, (0 split)
## 427 < 4 to the left, agree=0.92, adj=0.833, (0 split)

```

```

##
## Node number 327: 21 observations
## predicted class=9 expected loss=0.2380952 P(node) =0.000833168
## class counts:      0      0      0      3      1      0      1      0      0
16
## probabilities: 0.000 0.000 0.000 0.143 0.048 0.000 0.048 0.000 0.000
0.762
##
## Node number 328: 202 observations, complexity param=8.930964e-05
## predicted class=3 expected loss=0.06930693 P(node) =0.008014283
## class counts:      2      1      4    188      0      2      0      0      4
1
## probabilities: 0.010 0.005 0.020 0.931 0.000 0.010 0.000 0.000 0.020
0.005
## left son=656 (9 obs) right son=657 (193 obs)
## Primary splits:
## 428 < 205 to the right, improve=6.698581, (0 missing)
## 456 < 107.5 to the right, improve=5.803467, (0 missing)
## 427 < 216.5 to the left, improve=5.334603, (0 missing)
## 455 < 63.5 to the right, improve=4.149721, (0 missing)
## 454 < 252 to the right, improve=4.039365, (0 missing)
## Surrogate splits:
## 357 < 210.5 to the right, agree=0.975, adj=0.444, (0 split)
## 358 < 107 to the right, agree=0.975, adj=0.444, (0 split)
## 427 < 232.5 to the right, agree=0.975, adj=0.444, (0 split)
## 330 < 95 to the right, agree=0.970, adj=0.333, (0 split)
## 385 < 237.5 to the right, agree=0.970, adj=0.333, (0 split)
##
## Node number 329: 59 observations, complexity param=0.000379566
## predicted class=3 expected loss=0.6271186 P(node) =0.002340805
## class counts:      5      3      1     22      0     21      3      3      1
0
## probabilities: 0.085 0.051 0.017 0.373 0.000 0.356 0.051 0.051 0.017
0.000
## left son=658 (29 obs) right son=659 (30 obs)
## Primary splits:
## 348 < 235 to the left, improve=11.326320, (0 missing)
## 321 < 120 to the left, improve=10.406780, (0 missing)
## 320 < 11.5 to the left, improve= 9.742619, (0 missing)
## 209 < 30 to the right, improve= 9.666942, (0 missing)
## 294 < 71 to the left, improve= 9.123446, (0 missing)
## Surrogate splits:
## 320 < 105.5 to the left, agree=0.898, adj=0.793, (0 split)
## 347 < 108.5 to the left, agree=0.898, adj=0.793, (0 split)
## 319 < 2 to the left, agree=0.864, adj=0.724, (0 split)
## 321 < 207 to the left, agree=0.831, adj=0.655, (0 split)
## 349 < 250.5 to the left, agree=0.814, adj=0.621, (0 split)
##
## Node number 330: 25 observations, complexity param=8.930964e-05
## predicted class=0 expected loss=0.24 P(node) =0.0009918667

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##      class counts:   19      0      0      0      0      1      2      0      3
0
##      probabilities: 0.760 0.000 0.000 0.000 0.000 0.040 0.080 0.000 0.120
0.000
##      left son=660 (18 obs) right son=661 (7 obs)
##      Primary splits:
##          214 < 169   to the right, improve=5.142857, (0 missing)
##          241 < 184.5 to the right, improve=5.142857, (0 missing)
##          295 < 242.5 to the right, improve=5.142857, (0 missing)
##          351 < 223   to the left,  improve=5.142857, (0 missing)
##          352 < 50    to the left,  improve=5.142857, (0 missing)
##      Surrogate splits:
##          241 < 184.5 to the right, agree=1.00, adj=1.000, (0 split)
##          352 < 50    to the left,  agree=1.00, adj=1.000, (0 split)
##          240 < 245   to the right, agree=0.96, adj=0.857, (0 split)
##          353 < 185.5 to the left,  agree=0.96, adj=0.857, (0 split)
##          380 < 176   to the left,  agree=0.96, adj=0.857, (0 split)
##
##      Node number 331: 131 observations,      complexity param=0.0005358578
##      predicted class=5 expected loss=0.2748092 P(node) =0.005197381
##      class counts:      0      0      0      25      0      95      3      1      4
3
##      probabilities: 0.000 0.000 0.000 0.191 0.000 0.725 0.023 0.008 0.031
0.023
##      left son=662 (30 obs) right son=663 (101 obs)
##      Primary splits:
##          299 < 40    to the right, improve=18.01656, (0 missing)
##          298 < 162   to the right, improve=17.94568, (0 missing)
##          326 < 98    to the right, improve=14.96753, (0 missing)
##          327 < 8.5   to the right, improve=13.19848, (0 missing)
##          328 < 56.5  to the right, improve=12.87945, (0 missing)
##      Surrogate splits:
##          298 < 80.5  to the right, agree=0.954, adj=0.800, (0 split)
##          271 < 217   to the right, agree=0.916, adj=0.633, (0 split)
##          297 < 131   to the right, agree=0.916, adj=0.633, (0 split)
##          300 < 0.5   to the right, agree=0.908, adj=0.600, (0 split)
##          270 < 202.5 to the right, agree=0.885, adj=0.500, (0 split)
##
##      Node number 332: 85 observations,      complexity param=8.930964e-05
##      predicted class=1 expected loss=0.07058824 P(node) =0.003372347
##      class counts:      0      79      0      0      1      0      1      4      0
0
##      probabilities: 0.000 0.929 0.000 0.000 0.012 0.000 0.012 0.047 0.000
0.000
##      left son=664 (77 obs) right son=665 (8 obs)
##      Primary splits:
##          324 < 109.5 to the left,  improve=6.114706, (0 missing)
##          352 < 173   to the left,  improve=6.114706, (0 missing)
##          266 < 71.5  to the right, improve=4.533204, (0 missing)
##          296 < 104.5 to the left,  improve=4.533204, (0 missing)

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##      380 < 105.5 to the left, improve=3.391022, (0 missing)
##      Surrogate splits:
##      352 < 173   to the left, agree=1.000, adj=1.000, (0 split)
##      232 < 22    to the left, agree=0.976, adj=0.750, (0 split)
##      380 < 178   to the left, agree=0.976, adj=0.750, (0 split)
##      204 < 12.5  to the left, agree=0.965, adj=0.625, (0 split)
##      260 < 14    to the left, agree=0.965, adj=0.625, (0 split)
##
## Node number 333: 19 observations
## predicted class=5 expected loss=0.7368421 P(node) =0.0007538187
## class counts:      0      1      0      4      0      5      0      3      3
## probabilities: 0.000 0.053 0.000 0.211 0.000 0.263 0.000 0.158 0.158
##
## Node number 334: 58 observations, complexity param=0.0002232741
## predicted class=5 expected loss=0.2586207 P(node) =0.002301131
## class counts:      5      0      1      6      0     43      1      1      1
## probabilities: 0.086 0.000 0.017 0.103 0.000 0.741 0.017 0.017 0.017
##
## left son=668 (7 obs) right son=669 (51 obs)
## Primary splits:
##      413 < 194   to the right, improve=7.789916, (0 missing)
##      507 < 5.5   to the right, improve=7.442577, (0 missing)
##      456 < 243   to the right, improve=7.220000, (0 missing)
##      455 < 228.5 to the right, improve=6.977324, (0 missing)
##      385 < 3.5   to the right, improve=6.832200, (0 missing)
## Surrogate splits:
##      385 < 28    to the right, agree=0.983, adj=0.857, (0 split)
##      414 < 28.5  to the right, agree=0.983, adj=0.857, (0 split)
##      330 < 169.5 to the right, agree=0.966, adj=0.714, (0 split)
##      358 < 128.5 to the right, agree=0.966, adj=0.714, (0 split)
##      359 < 52.5  to the right, agree=0.966, adj=0.714, (0 split)
##
## Node number 335: 113 observations, complexity param=0.001161025
## predicted class=9 expected loss=0.7256637 P(node) =0.004483237
## class counts:      0      7      0     16     30      5      7     11      6
## probabilities: 0.000 0.062 0.000 0.142 0.265 0.044 0.062 0.097 0.053
##
## left son=670 (43 obs) right son=671 (70 obs)
## Primary splits:
##      237 < 2     to the left, improve=15.18030, (0 missing)
##      210 < 1     to the left, improve=14.74200, (0 missing)
##      238 < 17    to the left, improve=14.30474, (0 missing)
##      209 < 3     to the left, improve=12.95114, (0 missing)
##      236 < 5.5   to the left, improve=12.88428, (0 missing)
## Surrogate splits:
##      210 < 1     to the left, agree=0.956, adj=0.884, (0 split)

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##      238 < 17      to the left,  agree=0.938, adj=0.837, (0 split)
##      209 < 3       to the left,  agree=0.920, adj=0.791, (0 split)
##      236 < 5.5     to the left,  agree=0.858, adj=0.628, (0 split)
##      211 < 2.5     to the left,  agree=0.850, adj=0.605, (0 split)
##
## Node number 338: 112 observations,      complexity param=0.0004465482
##   predicted class=3 expected loss=0.2321429 P(node) =0.004443563
##   class counts:      0      0      0      86      0      4      0      0      16
6
##   probabilities: 0.000 0.000 0.000 0.768 0.000 0.036 0.000 0.000 0.143
0.054
##   left son=676 (101 obs) right son=677 (11 obs)
##   Primary splits:
##       484 < 186     to the left,  improve=14.425810, (0 missing)
##       485 < 113     to the left,  improve=12.845660, (0 missing)
##       483 < 100     to the left,  improve=11.382120, (0 missing)
##       456 < 204.5   to the left,  improve=10.193880, (0 missing)
##       457 < 141     to the left,  improve= 9.204099, (0 missing)
##   Surrogate splits:
##       485 < 113     to the left,  agree=0.991, adj=0.909, (0 split)
##       483 < 100     to the left,  agree=0.964, adj=0.636, (0 split)
##       456 < 204.5   to the left,  agree=0.955, adj=0.545, (0 split)
##       457 < 252.5   to the left,  agree=0.955, adj=0.545, (0 split)
##       512 < 218     to the left,  agree=0.955, adj=0.545, (0 split)
##
## Node number 339: 180 observations,      complexity param=0.0007144771
##   predicted class=5 expected loss=0.6388889 P(node) =0.00714144
##   class counts:      5      1      1      59      0      65      2      3      21
23
##   probabilities: 0.028 0.006 0.006 0.328 0.000 0.361 0.011 0.017 0.117
0.128
##   left son=678 (40 obs) right son=679 (140 obs)
##   Primary splits:
##       176 < 79.5    to the right, improve=14.89206, (0 missing)
##       149 < 81      to the right, improve=14.58492, (0 missing)
##       262 < 5       to the left,  improve=13.83847, (0 missing)
##       263 < 51.5    to the left,  improve=13.79172, (0 missing)
##       148 < 48      to the right, improve=13.79111, (0 missing)
##   Surrogate splits:
##       175 < 3       to the right, agree=0.972, adj=0.875, (0 split)
##       148 < 5.5     to the right, agree=0.944, adj=0.750, (0 split)
##       177 < 213     to the right, agree=0.933, adj=0.700, (0 split)
##       147 < 0.5     to the right, agree=0.922, adj=0.650, (0 split)
##       149 < 46      to the right, agree=0.922, adj=0.650, (0 split)
##
## Node number 340: 23 observations
##   predicted class=0 expected loss=0 P(node) =0.0009125174
##   class counts:      23      0      0      0      0      0      0      0      0
0
##   probabilities: 1.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000

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0.000
##
## Node number 341: 16 observations
## predicted class=8 expected loss=0.6875 P(node) =0.0006347947
## class counts: 1 0 0 3 1 1 0 0 5
5
## probabilities: 0.062 0.000 0.000 0.188 0.062 0.062 0.000 0.000 0.312
0.312
##
## Node number 342: 33 observations, complexity param=0.0001786193
## predicted class=3 expected loss=0.3333333 P(node) =0.001309264
## class counts: 2 0 0 22 0 5 1 0 2
1
## probabilities: 0.061 0.000 0.000 0.667 0.000 0.152 0.030 0.000 0.061
0.030
## left son=684 (23 obs) right son=685 (10 obs)
## Primary splits:
## 214 < 206 to the left, improve=6.733597, (0 missing)
## 242 < 146 to the left, improve=6.217172, (0 missing)
## 187 < 34.5 to the left, improve=6.133597, (0 missing)
## 243 < 100 to the left, improve=6.041958, (0 missing)
## 244 < 6.5 to the left, improve=6.041958, (0 missing)
## Surrogate splits:
## 187 < 96 to the left, agree=0.97, adj=0.9, (0 split)
## 215 < 65.5 to the left, agree=0.97, adj=0.9, (0 split)
## 216 < 10 to the left, agree=0.97, adj=0.9, (0 split)
## 242 < 104.5 to the left, agree=0.97, adj=0.9, (0 split)
## 243 < 10.5 to the left, agree=0.97, adj=0.9, (0 split)
##
## Node number 343: 440 observations, complexity param=0.0004018934
## predicted class=5 expected loss=0.08863636 P(node) =0.01745685
## class counts: 0 0 0 28 0 401 5 0 4
2
## probabilities: 0.000 0.000 0.000 0.064 0.000 0.911 0.011 0.000 0.009
0.005
## left son=686 (18 obs) right son=687 (422 obs)
## Primary splits:
## 121 < 122.5 to the right, improve=17.09669, (0 missing)
## 262 < 12.5 to the left, improve=14.56608, (0 missing)
## 148 < 159.5 to the right, improve=12.84638, (0 missing)
## 186 < 1 to the left, improve=12.75933, (0 missing)
## 120 < 3.5 to the right, improve=12.66861, (0 missing)
## Surrogate splits:
## 120 < 19.5 to the right, agree=0.989, adj=0.722, (0 split)
## 122 < 193.5 to the right, agree=0.982, adj=0.556, (0 split)
## 148 < 232.5 to the right, agree=0.980, adj=0.500, (0 split)
## 119 < 3.5 to the right, agree=0.973, adj=0.333, (0 split)
## 118 < 64.5 to the right, agree=0.970, adj=0.278, (0 split)
##
## Node number 344: 70 observations, complexity param=0.0001786193

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```

## predicted class=4 expected loss=0.1857143 P(node) =0.002777227
## class counts:      0      0      0      1      57      3      4      2      0
3
## probabilities: 0.000 0.000 0.000 0.014 0.814 0.043 0.057 0.029 0.000
0.043
## left son=688 (63 obs) right son=689 (7 obs)
## Primary splits:
##      124 < 37      to the left, improve=8.393651, (0 missing)
##      543 < 17.5    to the left, improve=8.393651, (0 missing)
##      544 < 32      to the left, improve=8.393651, (0 missing)
##      571 < 5       to the left, improve=8.393651, (0 missing)
##      152 < 187.5   to the left, improve=6.585023, (0 missing)
## Surrogate splits:
##      543 < 17.5    to the left, agree=1.000, adj=1.000, (0 split)
##      544 < 32      to the left, agree=1.000, adj=1.000, (0 split)
##      571 < 5       to the left, agree=1.000, adj=1.000, (0 split)
##      123 < 17      to the left, agree=0.986, adj=0.857, (0 split)
##      125 < 76      to the left, agree=0.986, adj=0.857, (0 split)
##
## Node number 345: 15 observations
## predicted class=9 expected loss=0.6666667 P(node) =0.00059512
## class counts:      0      0      0      3      1      4      0      1      1
5
## probabilities: 0.000 0.000 0.000 0.200 0.067 0.267 0.000 0.067 0.067
0.333
##
## Node number 346: 12 observations
## predicted class=0 expected loss=0.6666667 P(node) =0.000476096
## class counts:      4      0      0      2      0      4      0      0      2
0
## probabilities: 0.333 0.000 0.000 0.167 0.000 0.333 0.000 0.000 0.167
0.000
##
## Node number 347: 67 observations
## predicted class=7 expected loss=0.119403 P(node) =0.002658203
## class counts:      0      3      0      3      0      0      0      59      0
2
## probabilities: 0.000 0.045 0.000 0.045 0.000 0.000 0.000 0.881 0.000
0.030
##
## Node number 348: 63 observations, complexity param=0.0001339645
## predicted class=5 expected loss=0.3174603 P(node) =0.002499504
## class counts:      0      0      0      5      4      43      3      1      1
6
## probabilities: 0.000 0.000 0.000 0.079 0.063 0.683 0.048 0.016 0.016
0.095
## left son=696 (52 obs) right son=697 (11 obs)
## Primary splits:
##      491 < 144     to the left, improve=7.089633, (0 missing)
##      327 < 21.5    to the left, improve=6.906798, (0 missing)

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##      519 < 156.5 to the left, improve=6.533968, (0 missing)
##      518 < 94.5  to the left, improve=6.072836, (0 missing)
##      326 < 177   to the left, improve=5.994709, (0 missing)
## Surrogate splits:
##      463 < 59.5  to the left, agree=0.968, adj=0.818, (0 split)
##      490 < 14.5  to the left, agree=0.952, adj=0.727, (0 split)
##      435 < 146   to the left, agree=0.937, adj=0.636, (0 split)
##      462 < 69    to the left, agree=0.937, adj=0.636, (0 split)
##      464 < 241.5 to the left, agree=0.937, adj=0.636, (0 split)
##
## Node number 349: 37 observations,      complexity param=0.0004018934
## predicted class=9 expected loss=0.6216216 P(node) =0.001467963
## class counts:      0      2      0     11      6      1      0      1      2
14
## probabilities: 0.000 0.054 0.000 0.297 0.162 0.027 0.000 0.027 0.054
0.378
## left son=698 (9 obs) right son=699 (28 obs)
## Primary splits:
##      468 < 26    to the right, improve=7.974903, (0 missing)
##      496 < 101   to the right, improve=7.974903, (0 missing)
##      294 < 197.5 to the right, improve=7.958420, (0 missing)
##      349 < 249.5 to the right, improve=7.570142, (0 missing)
##      321 < 196   to the right, improve=6.995072, (0 missing)
## Surrogate splits:
##      496 < 101   to the right, agree=1.000, adj=1.000, (0 split)
##      524 < 69    to the right, agree=0.946, adj=0.778, (0 split)
##      467 < 227.5 to the right, agree=0.919, adj=0.667, (0 split)
##      469 < 23    to the right, agree=0.919, adj=0.667, (0 split)
##      497 < 17    to the right, agree=0.919, adj=0.667, (0 split)
##
## Node number 350: 10 observations
## predicted class=3 expected loss=0.2 P(node) =0.0003967467
## class counts:      1      0      0      8      0      1      0      0      0
0
## probabilities: 0.100 0.000 0.000 0.800 0.000 0.100 0.000 0.000 0.000
0.000
##
## Node number 351: 247 observations,      complexity param=0.0002232741
## predicted class=9 expected loss=0.1336032 P(node) =0.009799643
## class counts:      3      0      2      4      8      1      0     10      5
214
## probabilities: 0.012 0.000 0.008 0.016 0.032 0.004 0.000 0.040 0.020
0.866
## left son=702 (9 obs) right son=703 (238 obs)
## Primary splits:
##      515 < 44    to the right, improve=10.555990, (0 missing)
##      543 < 61    to the right, improve= 9.894746, (0 missing)
##      571 < 23.5  to the right, improve= 9.894746, (0 missing)
##      516 < 10.5  to the right, improve= 9.302766, (0 missing)
##      544 < 79    to the right, improve= 8.892397, (0 missing)

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## Surrogate splits:
##      516 < 10.5 to the right, agree=0.996, adj=0.889, (0 split)
##      543 < 61   to the right, agree=0.992, adj=0.778, (0 split)
##      571 < 23.5 to the right, agree=0.992, adj=0.778, (0 split)
##      514 < 5.5  to the right, agree=0.988, adj=0.667, (0 split)
##      542 < 0.5  to the right, agree=0.988, adj=0.667, (0 split)
##
## Node number 356: 39 observations, complexity param=0.0003125837
## predicted class=1 expected loss=0.6410256 P(node) =0.001547312
## class counts:      0      14      0      0      8      7      7      0      2
1
## probabilities: 0.000 0.359 0.000 0.000 0.205 0.179 0.179 0.000 0.051
0.026
## left son=712 (14 obs) right son=713 (25 obs)
## Primary splits:
##      457 < 14.5 to the left, improve=9.035165, (0 missing)
##      402 < 16   to the left, improve=8.007525, (0 missing)
##      572 < 25.5 to the left, improve=7.542308, (0 missing)
##      548 < 3.5  to the left, improve=7.200244, (0 missing)
##      429 < 32   to the left, improve=6.976518, (0 missing)
## Surrogate splits:
##      429 < 8     to the left, agree=0.923, adj=0.786, (0 split)
##      458 < 205.5 to the left, agree=0.923, adj=0.786, (0 split)
##      160 < 13    to the right, agree=0.897, adj=0.714, (0 split)
##      161 < 25    to the right, agree=0.897, adj=0.714, (0 split)
##      402 < 16    to the left, agree=0.897, adj=0.714, (0 split)
##
## Node number 357: 44 observations, complexity param=0.0004018934
## predicted class=8 expected loss=0.6818182 P(node) =0.001745685
## class counts:      9      0      12      3      1      0      3      0      14
2
## probabilities: 0.205 0.000 0.273 0.068 0.023 0.000 0.068 0.000 0.318
0.045
## left son=714 (9 obs) right son=715 (35 obs)
## Primary splits:
##      406 < 98    to the left, improve=7.388456, (0 missing)
##      380 < 1.5   to the left, improve=6.828010, (0 missing)
##      386 < 75    to the right, improve=6.214646, (0 missing)
##      414 < 43    to the right, improve=6.214646, (0 missing)
##      429 < 50.5  to the right, improve=6.132249, (0 missing)
## Surrogate splits:
##      386 < 75    to the right, agree=0.977, adj=0.889, (0 split)
##      414 < 43    to the right, agree=0.977, adj=0.889, (0 split)
##      358 < 82    to the right, agree=0.955, adj=0.778, (0 split)
##      380 < 1.5   to the left, agree=0.955, adj=0.778, (0 split)
##      385 < 31    to the right, agree=0.932, adj=0.667, (0 split)
##
## Node number 362: 13 observations
## predicted class=4 expected loss=0.6923077 P(node) =0.0005157707
## class counts:      0      0      0      3      4      1      3      0      2

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0
## probabilities: 0.000 0.000 0.000 0.231 0.308 0.077 0.231 0.000 0.154
0.000
##
## Node number 363: 10 observations
## predicted class=9 expected loss=0.3 P(node) =0.0003967467
## class counts: 1 0 0 0 1 1 0 0 0
7
## probabilities: 0.100 0.000 0.000 0.000 0.100 0.100 0.000 0.000 0.000
0.700
##
## Node number 366: 21 observations, complexity param=0.0002009467
## predicted class=5 expected loss=0.5238095 P(node) =0.000833168
## class counts: 0 0 0 3 0 10 8 0 0
0
## probabilities: 0.000 0.000 0.000 0.143 0.000 0.476 0.381 0.000 0.000
0.000
## left son=732 (14 obs) right son=733 (7 obs)
## Primary splits:
## 321 < 93.5 to the right, improve=6.619048, (0 missing)
## 598 < 138.5 to the right, improve=5.011905, (0 missing)
## 400 < 62.5 to the left, improve=5.011905, (0 missing)
## 597 < 135 to the right, improve=4.984127, (0 missing)
## 293 < 84.5 to the right, improve=4.761905, (0 missing)
## Surrogate splits:
## 293 < 11.5 to the right, agree=0.952, adj=0.857, (0 split)
## 430 < 97 to the left, agree=0.952, adj=0.857, (0 split)
## 294 < 44.5 to the right, agree=0.905, adj=0.714, (0 split)
## 401 < 208 to the left, agree=0.905, adj=0.714, (0 split)
## 429 < 190.5 to the left, agree=0.905, adj=0.714, (0 split)
##
## Node number 367: 172 observations, complexity param=0.0001339645
## predicted class=6 expected loss=0.09302326 P(node) =0.006824043
## class counts: 2 0 7 1 0 2 156 0 4
0
## probabilities: 0.012 0.000 0.041 0.006 0.000 0.012 0.907 0.000 0.023
0.000
## left son=734 (7 obs) right son=735 (165 obs)
## Primary splits:
## 273 < 58.5 to the right, improve=8.024252, (0 missing)
## 245 < 33.5 to the right, improve=6.886273, (0 missing)
## 246 < 18.5 to the right, improve=6.886273, (0 missing)
## 271 < 34 to the right, improve=6.157586, (0 missing)
## 272 < 22.5 to the right, improve=6.157586, (0 missing)
## Surrogate splits:
## 245 < 33.5 to the right, agree=0.994, adj=0.857, (0 split)
## 246 < 18.5 to the right, agree=0.994, adj=0.857, (0 split)
## 271 < 48.5 to the right, agree=0.994, adj=0.857, (0 split)
## 272 < 103.5 to the right, agree=0.994, adj=0.857, (0 split)
## 274 < 29 to the right, agree=0.994, adj=0.857, (0 split)

```

```

##
## Node number 372: 12 observations
## predicted class=0 expected loss=0.4166667 P(node) =0.000476096
## class counts:      7      0      0      1      0      3      1      0      0
0
## probabilities: 0.583 0.000 0.000 0.083 0.000 0.250 0.083 0.000 0.000
0.000
##
## Node number 373: 28 observations, complexity param=0.0002083892
## predicted class=8 expected loss=0.5714286 P(node) =0.001110891
## class counts:      0      0      0      4      0     10      2      0     12
0
## probabilities: 0.000 0.000 0.000 0.143 0.000 0.357 0.071 0.000 0.429
0.000
## left son=746 (16 obs) right son=747 (12 obs)
## Primary splits:
## 297 < 178 to the left, improve=4.863095, (0 missing)
## 468 < 197.5 to the right, improve=4.089377, (0 missing)
## 269 < 10.5 to the left, improve=3.863095, (0 missing)
## 270 < 1 to the left, improve=3.863095, (0 missing)
## 431 < 27.5 to the left, improve=3.771429, (0 missing)
## Surrogate splits:
## 298 < 3.5 to the left, agree=0.929, adj=0.833, (0 split)
## 269 < 10.5 to the left, agree=0.857, adj=0.667, (0 split)
## 270 < 1 to the left, agree=0.857, adj=0.667, (0 split)
## 296 < 181 to the left, agree=0.857, adj=0.667, (0 split)
## 548 < 14 to the left, agree=0.821, adj=0.583, (0 split)
##
## Node number 376: 20 observations
## predicted class=3 expected loss=0 P(node) =0.0007934934
## class counts:      0      0      0     20      0      0      0      0      0
0
## probabilities: 0.000 0.000 0.000 1.000 0.000 0.000 0.000 0.000 0.000
0.000
##
## Node number 377: 7 observations
## predicted class=9 expected loss=0.2857143 P(node) =0.0002777227
## class counts:      0      0      0      1      0      1      0      0      0
5
## probabilities: 0.000 0.000 0.000 0.143 0.000 0.143 0.000 0.000 0.000
0.714
##
## Node number 380: 13 observations
## predicted class=0 expected loss=0.5384615 P(node) =0.0005157707
## class counts:      6      0      1      0      0      0      1      0      5
0
## probabilities: 0.462 0.000 0.077 0.000 0.000 0.000 0.077 0.000 0.385
0.000
##
## Node number 381: 15 observations

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## predicted class=3 expected loss=0.466667 P(node) =0.00059512
## class counts: 0 0 0 8 0 6 0 0 0
1
## probabilities: 0.000 0.000 0.000 0.533 0.000 0.400 0.000 0.000 0.000
0.067
##
## Node number 382: 57 observations, complexity param=0.0002344378
## predicted class=8 expected loss=0.4385965 P(node) =0.002261456
## class counts: 1 0 18 3 0 1 1 1 32
0
## probabilities: 0.018 0.000 0.316 0.053 0.000 0.018 0.018 0.018 0.561
0.000
## left son=764 (24 obs) right son=765 (33 obs)
## Primary splits:
## 126 < 44.5 to the right, improve=11.622810, (0 missing)
## 125 < 27 to the right, improve=11.084970, (0 missing)
## 154 < 246.5 to the right, improve=10.226700, (0 missing)
## 606 < 250.5 to the right, improve= 9.847131, (0 missing)
## 608 < 57 to the right, improve= 9.819103, (0 missing)
## Surrogate splits:
## 127 < 24 to the right, agree=0.965, adj=0.917, (0 split)
## 128 < 5.5 to the right, agree=0.947, adj=0.875, (0 split)
## 125 < 1.5 to the right, agree=0.930, adj=0.833, (0 split)
## 129 < 2.5 to the right, agree=0.912, adj=0.792, (0 split)
## 154 < 237 to the right, agree=0.877, adj=0.708, (0 split)
##
## Node number 383: 345 observations, complexity param=0.0001786193
## predicted class=8 expected loss=0.09275362 P(node) =0.01368776
## class counts: 1 0 0 12 0 6 10 0 313
3
## probabilities: 0.003 0.000 0.000 0.035 0.000 0.017 0.029 0.000 0.907
0.009
## left son=766 (36 obs) right son=767 (309 obs)
## Primary splits:
## 439 < 250.5 to the right, improve=9.676202, (0 missing)
## 459 < 15 to the left, improve=8.315192, (0 missing)
## 428 < 119 to the right, improve=7.693051, (0 missing)
## 440 < 156.5 to the right, improve=7.585100, (0 missing)
## 468 < 249.5 to the right, improve=7.509916, (0 missing)
## Surrogate splits:
## 440 < 72.5 to the right, agree=0.965, adj=0.667, (0 split)
## 468 < 242 to the right, agree=0.965, adj=0.667, (0 split)
## 412 < 4 to the right, agree=0.945, adj=0.472, (0 split)
## 411 < 130 to the right, agree=0.942, adj=0.444, (0 split)
## 441 < 1 to the right, agree=0.936, adj=0.389, (0 split)
##
## Node number 384: 1623 observations, complexity param=6.698223e-05
## predicted class=0 expected loss=0.01047443 P(node) =0.06439199
## class counts: 1606 0 1 0 1 2 12 0 0
1

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## probabilities: 0.990 0.000 0.001 0.000 0.001 0.001 0.007 0.000 0.000
0.001
## left son=768 (1603 obs) right son=769 (20 obs)
## Primary splits:
## 96 < 93.5 to the left, improve=2.353663, (0 missing)
## 97 < 24.5 to the left, improve=1.727104, (0 missing)
## 214 < 0.5 to the right, improve=1.546484, (0 missing)
## 101 < 189 to the left, improve=1.542815, (0 missing)
## 626 < 64.5 to the right, improve=1.534401, (0 missing)
## Surrogate splits:
## 95 < 2.5 to the left, agree=0.998, adj=0.80, (0 split)
## 97 < 162 to the left, agree=0.994, adj=0.50, (0 split)
## 70 < 126.5 to the left, agree=0.989, adj=0.10, (0 split)
## 71 < 31 to the left, agree=0.989, adj=0.10, (0 split)
## 69 < 52 to the left, agree=0.988, adj=0.05, (0 split)
##
## Node number 385: 332 observations, complexity param=0.0001786193
## predicted class=0 expected loss=0.1686747 P(node) =0.01317199
## class counts: 276 0 25 7 0 14 5 4 0
1
## probabilities: 0.831 0.000 0.075 0.021 0.000 0.042 0.015 0.012 0.000
0.003
## left son=770 (299 obs) right son=771 (33 obs)
## Primary splits:
## 545 < 198.5 to the left, improve=14.54646, (0 missing)
## 517 < 13 to the left, improve=13.77057, (0 missing)
## 544 < 83.5 to the left, improve=13.00613, (0 missing)
## 398 < 10.5 to the right, improve=12.99808, (0 missing)
## 370 < 8 to the right, improve=12.75578, (0 missing)
## Surrogate splits:
## 517 < 7 to the left, agree=0.961, adj=0.606, (0 split)
## 546 < 239.5 to the left, agree=0.961, adj=0.606, (0 split)
## 544 < 145.5 to the left, agree=0.958, adj=0.576, (0 split)
## 518 < 93.5 to the left, agree=0.949, adj=0.485, (0 split)
## 490 < 13.5 to the left, agree=0.934, adj=0.333, (0 split)
##
## Node number 390: 30 observations, complexity param=8.930964e-05
## predicted class=3 expected loss=0.3 P(node) =0.00119024
## class counts: 4 0 1 21 0 4 0 0 0
0
## probabilities: 0.133 0.000 0.033 0.700 0.000 0.133 0.000 0.000 0.000
0.000
## left son=780 (11 obs) right son=781 (19 obs)
## Primary splits:
## 209 < 148.5 to the right, improve=6.563636, (0 missing)
## 208 < 131 to the right, improve=5.300000, (0 missing)
## 236 < 185.5 to the right, improve=4.436025, (0 missing)
## 210 < 229 to the left, improve=3.768182, (0 missing)
## 299 < 13 to the right, improve=3.600000, (0 missing)
## Surrogate splits:

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##      208 < 131   to the right, agree=0.967, adj=0.909, (0 split)
##      210 < 186   to the right, agree=0.900, adj=0.727, (0 split)
##      236 < 22.5  to the right, agree=0.900, adj=0.727, (0 split)
##      181 < 211.5 to the right, agree=0.867, adj=0.636, (0 split)
##      207 < 131   to the right, agree=0.867, adj=0.636, (0 split)
##
## Node number 391: 27 observations,      complexity param=4.465482e-05
##   predicted class=5   expected loss=0.2592593   P(node) =0.001071216
##   class counts:      1      0      1      2      0      20      3      0      0
##
##   probabilities: 0.037 0.000 0.037 0.074 0.000 0.741 0.111 0.000 0.000
##   0.000
##   left son=782 (7 obs) right son=783 (20 obs)
##   Primary splits:
##       541 < 148   to the right, improve=3.172487, (0 missing)
##       572 < 9.5   to the right, improve=3.074074, (0 missing)
##       512 < 216.5 to the right, improve=3.072487, (0 missing)
##       602 < 121   to the right, improve=2.552707, (0 missing)
##       153 < 10    to the right, improve=2.445419, (0 missing)
##   Surrogate splits:
##       327 < 248   to the right, agree=0.889, adj=0.571, (0 split)
##       354 < 129   to the left,  agree=0.889, adj=0.571, (0 split)
##       429 < 210   to the right, agree=0.889, adj=0.571, (0 split)
##       457 < 163.5 to the right, agree=0.889, adj=0.571, (0 split)
##       485 < 153.5 to the right, agree=0.889, adj=0.571, (0 split)
##
## Node number 392: 38 observations
##   predicted class=0   expected loss=0.05263158   P(node) =0.001507637
##   class counts:      36      0      0      0      1      0      0      0      0
##   1
##   probabilities: 0.947 0.000 0.000 0.000 0.026 0.000 0.000 0.000 0.000
##   0.026
##
## Node number 393: 7 observations
##   predicted class=2   expected loss=0.5714286   P(node) =0.0002777227
##   class counts:       0      0      3      0      0      2      0      0      2
##   0
##   probabilities: 0.000 0.000 0.429 0.000 0.000 0.286 0.000 0.000 0.286
##   0.000
##
## Node number 394: 13 observations
##   predicted class=5   expected loss=0.5384615   P(node) =0.0005157707
##   class counts:       2      0      3      2      0      6      0      0      0
##   0
##   probabilities: 0.154 0.000 0.231 0.154 0.000 0.462 0.000 0.000 0.000
##   0.000
##
## Node number 395: 26 observations
##   predicted class=6   expected loss=0.1538462   P(node) =0.001031541
##   class counts:       1      0      0      0      0      3      22      0      0

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0
## probabilities: 0.038 0.000 0.000 0.000 0.000 0.115 0.846 0.000 0.000
0.000
##
## Node number 396: 55 observations, complexity param=0.0002679289
## predicted class=3 expected loss=0.4363636 P(node) =0.002182107
## class counts: 3 1 10 31 0 7 1 2 0
0
## probabilities: 0.055 0.018 0.182 0.564 0.000 0.127 0.018 0.036 0.000
0.000
## left son=792 (11 obs) right son=793 (44 obs)
## Primary splits:
## 514 < 4 to the right, improve=6.409091, (0 missing)
## 485 < 9.5 to the right, improve=6.357049, (0 missing)
## 513 < 37.5 to the right, improve=6.234343, (0 missing)
## 571 < 209.5 to the left, improve=6.188865, (0 missing)
## 541 < 187 to the right, improve=6.146518, (0 missing)
## Surrogate splits:
## 513 < 37.5 to the right, agree=0.982, adj=0.909, (0 split)
## 485 < 9.5 to the right, agree=0.964, adj=0.818, (0 split)
## 486 < 44.5 to the right, agree=0.964, adj=0.818, (0 split)
## 487 < 22 to the right, agree=0.945, adj=0.727, (0 split)
## 515 < 2 to the right, agree=0.945, adj=0.727, (0 split)
##
## Node number 397: 10 observations
## predicted class=5 expected loss=0.3 P(node) =0.0003967467
## class counts: 0 0 0 0 0 7 2 0 1
0
## probabilities: 0.000 0.000 0.000 0.000 0.000 0.700 0.200 0.000 0.100
0.000
##
## Node number 398: 21 observations, complexity param=8.930964e-05
## predicted class=5 expected loss=0.7142857 P(node) =0.000833168
## class counts: 4 0 1 4 0 6 1 0 2
3
## probabilities: 0.190 0.000 0.048 0.190 0.000 0.286 0.048 0.000 0.095
0.143
## left son=796 (13 obs) right son=797 (8 obs)
## Primary splits:
## 381 < 215.5 to the right, improve=3.105311, (0 missing)
## 351 < 63.5 to the left, improve=3.047619, (0 missing)
## 352 < 218 to the left, improve=2.993074, (0 missing)
## 654 < 106.5 to the right, improve=2.701465, (0 missing)
## 575 < 36 to the right, improve=2.658730, (0 missing)
## Surrogate splits:
## 351 < 113.5 to the left, agree=0.905, adj=0.75, (0 split)
## 409 < 36 to the right, agree=0.905, adj=0.75, (0 split)
## 437 < 18.5 to the right, agree=0.905, adj=0.75, (0 split)
## 465 < 31 to the right, agree=0.905, adj=0.75, (0 split)
## 493 < 18.5 to the right, agree=0.905, adj=0.75, (0 split)

```

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##
## Node number 399: 53 observations,      complexity param=8.930964e-05
## predicted class=5 expected loss=0.1320755 P(node) =0.002102757
## class counts:      0      0      0      7      0      46      0      0      0
0
## probabilities: 0.000 0.000 0.000 0.132 0.000 0.868 0.000 0.000 0.000
0.000
## left son=798 (7 obs) right son=799 (46 obs)
## Primary splits:
##      202 < 10      to the right, improve=5.467714, (0 missing)
##      203 < 95      to the right, improve=5.467714, (0 missing)
##      177 < 144     to the right, improve=4.684277, (0 missing)
##      554 < 8       to the right, improve=4.199724, (0 missing)
##      294 < 47      to the right, improve=3.915649, (0 missing)
## Surrogate splits:
##      203 < 95      to the right, agree=1.000, adj=1.000, (0 split)
##      174 < 1       to the right, agree=0.962, adj=0.714, (0 split)
##      175 < 11      to the right, agree=0.962, adj=0.714, (0 split)
##      204 < 220     to the right, agree=0.962, adj=0.714, (0 split)
##      176 < 52      to the right, agree=0.943, adj=0.571, (0 split)
##
## Node number 402: 11 observations
## predicted class=2 expected loss=0.4545455 P(node) =0.0004364213
## class counts:      0      5      6      0      0      0      0      0      0
0
## probabilities: 0.000 0.455 0.545 0.000 0.000 0.000 0.000 0.000 0.000
0.000
##
## Node number 403: 12 observations
## predicted class=8 expected loss=0.5833333 P(node) =0.000476096
## class counts:      0      0      1      4      0      2      0      0      5
0
## probabilities: 0.000 0.000 0.083 0.333 0.000 0.167 0.000 0.000 0.417
0.000
##
## Node number 412: 44 observations,      complexity param=0.0002976988
## predicted class=8 expected loss=0.7272727 P(node) =0.001745685
## class counts:      4      0      8      3      1      10      6      0      12
0
## probabilities: 0.091 0.000 0.182 0.068 0.023 0.227 0.136 0.000 0.273
0.000
## left son=824 (34 obs) right son=825 (10 obs)
## Primary splits:
##      407 < 63      to the left, improve=6.379144, (0 missing)
##      682 < 20.5    to the left, improve=6.313131, (0 missing)
##      684 < 31.5    to the left, improve=5.933341, (0 missing)
##      685 < 43.5    to the left, improve=5.933341, (0 missing)
##      380 < 118.5   to the left, improve=5.772727, (0 missing)
## Surrogate splits:
##      380 < 118.5 to the left, agree=0.977, adj=0.9, (0 split)

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##      378 < 89.5  to the left,  agree=0.955, adj=0.8, (0 split)
##      379 < 107.5 to the left,  agree=0.955, adj=0.8, (0 split)
##      405 < 197.5 to the left,  agree=0.955, adj=0.8, (0 split)
##      406 < 130.5 to the left,  agree=0.955, adj=0.8, (0 split)
##
## Node number 413: 20 observations
##   predicted class=6  expected loss=0.15  P(node) =0.0007934934
##   class counts:      1      0      1      1      0      0      17      0      0
##   0
##   probabilities: 0.050 0.000 0.050 0.050 0.000 0.000 0.850 0.000 0.000
##   0.000
##
## Node number 416: 86 observations
##   predicted class=0  expected loss=0.08139535  P(node) =0.003412021
##   class counts:      79      0      2      1      0      0      0      2      0
##   2
##   probabilities: 0.919 0.000 0.023 0.012 0.000 0.000 0.000 0.023 0.000
##   0.023
##
## Node number 417: 7 observations
##   predicted class=5  expected loss=0.7142857  P(node) =0.0002777227
##   class counts:      1      0      1      0      0      2      2      0      1
##   0
##   probabilities: 0.143 0.000 0.143 0.000 0.000 0.286 0.286 0.000 0.143
##   0.000
##
## Node number 418: 25 observations,  complexity param=0.0003572385
##   predicted class=5  expected loss=0.52  P(node) =0.0009918667
##   class counts:      8      0      0      1      0      12      3      0      1
##   0
##   probabilities: 0.320 0.000 0.000 0.040 0.000 0.480 0.120 0.000 0.040
##   0.000
##   left son=836 (8 obs) right son=837 (17 obs)
##   Primary splits:
##       370 < 3      to the right, improve=8.357647, (0 missing)
##       386 < 2      to the right, improve=8.357647, (0 missing)
##       443 < 22     to the right, improve=8.357647, (0 missing)
##       470 < 1      to the right, improve=8.357647, (0 missing)
##       398 < 36     to the right, improve=8.087222, (0 missing)
##   Surrogate splits:
##       386 < 2      to the right, agree=1.00, adj=1.000, (0 split)
##       443 < 22     to the right, agree=1.00, adj=1.000, (0 split)
##       470 < 1      to the right, agree=1.00, adj=1.000, (0 split)
##       358 < 62     to the right, agree=0.96, adj=0.875, (0 split)
##       359 < 16.5   to the right, agree=0.96, adj=0.875, (0 split)
##
## Node number 419: 33 observations,  complexity param=0.0004018934
##   predicted class=2  expected loss=0.6060606  P(node) =0.001309264
##   class counts:      2      0      13      1      3      0      0      1      0
##   13

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##      probabilities: 0.061 0.000 0.394 0.030 0.091 0.000 0.000 0.030 0.000
0.394
##      left son=838 (19 obs) right son=839 (14 obs)
##      Primary splits:
##          343 < 29      to the left,  improve=9.152654, (0 missing)
##          371 < 64.5    to the left,  improve=9.152654, (0 missing)
##          315 < 3.5     to the left,  improve=7.658586, (0 missing)
##          372 < 2.5     to the left,  improve=7.560383, (0 missing)
##          261 < 72.5    to the left,  improve=7.560383, (0 missing)
##      Surrogate splits:
##          371 < 6       to the left,  agree=0.939, adj=0.857, (0 split)
##          315 < 3.5     to the left,  agree=0.909, adj=0.786, (0 split)
##          316 < 38      to the left,  agree=0.909, adj=0.786, (0 split)
##          261 < 72.5    to the left,  agree=0.879, adj=0.714, (0 split)
##          288 < 62.5    to the left,  agree=0.879, adj=0.714, (0 split)
##
##      Node number 422: 15 observations
##      predicted class=2 expected loss=0.7333333 P(node) =0.00059512
##      class counts:      2      1      4      3      0      3      2      0      0
0
##      probabilities: 0.133 0.067 0.267 0.200 0.000 0.200 0.133 0.000 0.000
0.000
##
##      Node number 423: 128 observations,      complexity param=8.930964e-05
##      predicted class=6 expected loss=0.1015625 P(node) =0.005078357
##      class counts:      0      0      7      0      4      2     115      0      0
0
##      probabilities: 0.000 0.000 0.055 0.000 0.031 0.016 0.898 0.000 0.000
0.000
##      left son=846 (8 obs) right son=847 (120 obs)
##      Primary splits:
##          555 < 194     to the right, improve=5.123958, (0 missing)
##          657 < 4.5     to the right, improve=4.126457, (0 missing)
##          272 < 7       to the right, improve=3.819492, (0 missing)
##          273 < 62.5    to the right, improve=3.819492, (0 missing)
##          300 < 176.5   to the right, improve=3.819492, (0 missing)
##      Surrogate splits:
##          528 < 60      to the right, agree=0.984, adj=0.750, (0 split)
##          556 < 4.5     to the right, agree=0.984, adj=0.750, (0 split)
##          583 < 9       to the right, agree=0.984, adj=0.750, (0 split)
##          529 < 56      to the right, agree=0.977, adj=0.625, (0 split)
##          584 < 6.5     to the right, agree=0.977, adj=0.625, (0 split)
##
##      Node number 424: 7 observations
##      predicted class=2 expected loss=0.5714286 P(node) =0.0002777227
##      class counts:      0      0      3      0      2      0      2      0      0
0
##      probabilities: 0.000 0.000 0.429 0.000 0.286 0.000 0.286 0.000 0.000
0.000
##

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## Node number 425: 96 observations
##   predicted class=4   expected loss=0.0625   P(node) =0.003808768
##   class counts:      1      0      0      0      90      0      3      0      0
2
##   probabilities: 0.010 0.000 0.000 0.000 0.938 0.000 0.031 0.000 0.000
0.021
##
## Node number 428: 35 observations
##   predicted class=5   expected loss=0.08571429   P(node) =0.001388613
##   class counts:      2      0      1      0      0      32      0      0      0
0
##   probabilities: 0.057 0.000 0.029 0.000 0.000 0.914 0.000 0.000 0.000
0.000
##
## Node number 429: 34 observations,   complexity param=0.000111637
##   predicted class=5   expected loss=0.8235294   P(node) =0.001348939
##   class counts:      4      0      4      5      1      6      4      4      1
5
##   probabilities: 0.118 0.000 0.118 0.147 0.029 0.176 0.118 0.118 0.029
0.147
##   left son=858 (25 obs) right son=859 (9 obs)
##   Primary splits:
##       345 < 146   to the left,   improve=4.569412, (0 missing)
##       373 < 160.5 to the left,   improve=4.569412, (0 missing)
##       317 < 97    to the left,   improve=3.514260, (0 missing)
##       318 < 209   to the left,   improve=3.423592, (0 missing)
##       570 < 82.5  to the right,  improve=3.394796, (0 missing)
##   Surrogate splits:
##       373 < 160.5 to the left,   agree=1.000, adj=1.000, (0 split)
##       317 < 146   to the left,   agree=0.941, adj=0.778, (0 split)
##       318 < 204.5 to the left,   agree=0.912, adj=0.667, (0 split)
##       401 < 250   to the left,   agree=0.912, adj=0.667, (0 split)
##       661 < 192.5 to the left,   agree=0.882, adj=0.556, (0 split)
##
## Node number 430: 24 observations,   complexity param=4.465482e-05
##   predicted class=4   expected loss=0.2916667   P(node) =0.000952192
##   class counts:      1      0      1      0      17      0      0      2      0
3
##   probabilities: 0.042 0.000 0.042 0.000 0.708 0.000 0.000 0.083 0.000
0.125
##   left son=860 (17 obs) right son=861 (7 obs)
##   Primary splits:
##       328 < 97.5  to the left,   improve=4.022409, (0 missing)
##       411 < 120.5 to the left,   improve=4.022409, (0 missing)
##       184 < 2.5   to the right,  improve=3.708333, (0 missing)
##       263 < 112.5 to the left,   improve=3.708333, (0 missing)
##       356 < 44.5  to the left,   improve=3.208333, (0 missing)
##   Surrogate splits:
##       411 < 120.5 to the left,   agree=1.000, adj=1.000, (0 split)
##       356 < 44.5  to the left,   agree=0.958, adj=0.857, (0 split)

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##      345 < 22.5  to the right, agree=0.917, adj=0.714, (0 split)
##      353 < 8      to the right, agree=0.917, adj=0.714, (0 split)
##      355 < 249.5 to the left,  agree=0.917, adj=0.714, (0 split)
##
## Node number 431: 82 observations,      complexity param=0.0001339645
## predicted class=9 expected loss=0.2560976 P(node) =0.003253323
## class counts:      0      0      2      0      6      0      1      11      1
61
## probabilities: 0.000 0.000 0.024 0.000 0.073 0.000 0.012 0.134 0.012
0.744
## left son=862 (9 obs) right son=863 (73 obs)
## Primary splits:
##      375 < 62.5  to the right, improve=5.696551, (0 missing)
##      293 < 122   to the right, improve=4.776038, (0 missing)
##      153 < 2     to the right, improve=4.747579, (0 missing)
##      154 < 12    to the right, improve=4.660902, (0 missing)
##      155 < 4.5   to the right, improve=4.660902, (0 missing)
## Surrogate splits:
##      348 < 6.5   to the right, agree=0.988, adj=0.889, (0 split)
##      347 < 161.5 to the right, agree=0.976, adj=0.778, (0 split)
##      402 < 208.5 to the right, agree=0.963, adj=0.667, (0 split)
##      403 < 156   to the right, agree=0.963, adj=0.667, (0 split)
##      320 < 68.5  to the right, agree=0.951, adj=0.556, (0 split)
##
## Node number 432: 16 observations
## predicted class=3 expected loss=0.1875 P(node) =0.0006347947
## class counts:      0      0      0      13      1      2      0      0      0
0
## probabilities: 0.000 0.000 0.000 0.813 0.062 0.125 0.000 0.000 0.000
0.000
##
## Node number 433: 37 observations,      complexity param=0.0001786193
## predicted class=5 expected loss=0.5945946 P(node) =0.001467963
## class counts:      1      7      0      4      0      15      8      0      0
2
## probabilities: 0.027 0.189 0.000 0.108 0.000 0.405 0.216 0.000 0.000
0.054
## left son=866 (28 obs) right son=867 (9 obs)
## Primary splits:
##      541 < 12    to the left, improve=5.368726, (0 missing)
##      550 < 9.5   to the left, improve=5.322938, (0 missing)
##      487 < 65    to the left, improve=5.116345, (0 missing)
##      488 < 40.5  to the left, improve=4.987356, (0 missing)
##      551 < 1.5   to the left, improve=4.917297, (0 missing)
## Surrogate splits:
##      540 < 46.5  to the left, agree=0.973, adj=0.889, (0 split)
##      482 < 12.5  to the left, agree=0.946, adj=0.778, (0 split)
##      510 < 40    to the left, agree=0.946, adj=0.778, (0 split)
##      511 < 13    to the left, agree=0.946, adj=0.778, (0 split)
##      512 < 91    to the left, agree=0.946, adj=0.778, (0 split)

```

```

##
## Node number 434: 46 observations
## predicted class=5 expected loss=0.1086957 P(node) =0.001825035
## class counts: 1 0 0 0 0 41 1 1 2
0
## probabilities: 0.022 0.000 0.000 0.000 0.000 0.891 0.022 0.022 0.043
0.000
##
## Node number 435: 7 observations
## predicted class=9 expected loss=0.4285714 P(node) =0.0002777227
## class counts: 0 0 0 0 1 1 0 1 0
4
## probabilities: 0.000 0.000 0.000 0.000 0.143 0.143 0.000 0.143 0.000
0.571
##
## Node number 436: 7 observations
## predicted class=3 expected loss=0.4285714 P(node) =0.0002777227
## class counts: 0 0 1 4 0 0 0 0 0
2
## probabilities: 0.000 0.000 0.143 0.571 0.000 0.000 0.000 0.000 0.000
0.286
##
## Node number 437: 24 observations
## predicted class=4 expected loss=0.2083333 P(node) =0.000952192
## class counts: 0 0 0 0 19 1 0 3 0
1
## probabilities: 0.000 0.000 0.000 0.000 0.792 0.042 0.000 0.125 0.000
0.042
##
## Node number 440: 51 observations
## predicted class=0 expected loss=0.05882353 P(node) =0.002023408
## class counts: 48 0 0 0 0 1 0 2 0
0
## probabilities: 0.941 0.000 0.000 0.000 0.000 0.020 0.000 0.039 0.000
0.000
##
## Node number 441: 8 observations
## predicted class=9 expected loss=0.625 P(node) =0.0003173973
## class counts: 1 0 0 0 2 2 0 0 0
3
## probabilities: 0.125 0.000 0.000 0.000 0.250 0.250 0.000 0.000 0.000
0.375
##
## Node number 444: 14 observations
## predicted class=5 expected loss=0.2857143 P(node) =0.0005554453
## class counts: 0 2 0 1 0 10 1 0 0
0
## probabilities: 0.000 0.143 0.000 0.071 0.000 0.714 0.071 0.000 0.000
0.000
##

```

```

## Node number 445: 16 observations
##   predicted class=4   expected loss=0.5   P(node) =0.0006347947
##   class counts:      0      0      1      0      8      0      0      2      0
5
##   probabilities: 0.000 0.000 0.062 0.000 0.500 0.000 0.000 0.125 0.000
0.312
##
## Node number 446: 19 observations
##   predicted class=3   expected loss=0.7368421   P(node) =0.0007538187
##   class counts:      3      1      3      5      0      4      0      1      0
2
##   probabilities: 0.158 0.053 0.158 0.263 0.000 0.211 0.000 0.053 0.000
0.105
##
## Node number 447: 629 observations,   complexity param=0.0001339645
##   predicted class=7   expected loss=0.03656598   P(node) =0.02495537
##   class counts:      5      0      1      2      4      3      3      606      0
5
##   probabilities: 0.008 0.000 0.002 0.003 0.006 0.005 0.005 0.963 0.000
0.008
##   left son=894 (7 obs) right son=895 (622 obs)
##   Primary splits:
##       158 < 2      to the right, improve=8.934805, (0 missing)
##       157 < 28.5   to the right, improve=8.649091, (0 missing)
##       542 < 123    to the right, improve=8.341861, (0 missing)
##       512 < 205    to the right, improve=8.206338, (0 missing)
##       513 < 101.5  to the right, improve=7.903226, (0 missing)
##   Surrogate splits:
##       159 < 10.5   to the right, agree=0.998, adj=0.857, (0 split)
##       157 < 28.5   to the right, agree=0.997, adj=0.714, (0 split)
##       185 < 251.5  to the right, agree=0.997, adj=0.714, (0 split)
##       156 < 39.5   to the right, agree=0.995, adj=0.571, (0 split)
##       160 < 0.5    to the right, agree=0.995, adj=0.571, (0 split)
##
## Node number 448: 922 observations,   complexity param=0.0002679289
##   predicted class=2   expected loss=0.04338395   P(node) =0.03658004
##   class counts:      0      0      882      15      0      1      0      12      11
1
##   probabilities: 0.000 0.000 0.957 0.016 0.000 0.001 0.000 0.013 0.012
0.001
##   left son=896 (912 obs) right son=897 (10 obs)
##   Primary splits:
##       345 < 104.5  to the left,  improve=12.406900, (0 missing)
##       346 < 70.5   to the left,  improve=12.406900, (0 missing)
##       681 < 18     to the left,  improve= 6.490996, (0 missing)
##       680 < 41     to the left,  improve= 5.718800, (0 missing)
##       683 < 44.5   to the left,  improve= 5.615033, (0 missing)
##   Surrogate splits:
##       346 < 70.5   to the left,  agree=1.000, adj=1.0, (0 split)
##       318 < 245.5  to the left,  agree=0.991, adj=0.2, (0 split)

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##      373 < 241.5 to the left,  agree=0.991, adj=0.2, (0 split)
##      317 < 230   to the left,  agree=0.990, adj=0.1, (0 split)
##      374 < 230.5 to the left,  agree=0.990, adj=0.1, (0 split)
##
## Node number 449: 14 observations
##   predicted class=8   expected loss=0   P(node) =0.0005554453
##   class counts:      0      0      0      0      0      0      0      0      14
##   0
##   probabilities: 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 1.000
##   0.000
##
## Node number 450: 35 observations,      complexity param=0.000491203
##   predicted class=2   expected loss=0.5142857   P(node) =0.001388613
##   class counts:      3      0     17      0      2      0      2      0      0
##   11
##   probabilities: 0.086 0.000 0.486 0.000 0.057 0.000 0.057 0.000 0.000
##   0.314
##   left son=900 (22 obs) right son=901 (13 obs)
##   Primary splits:
##       570 < 169.5 to the right, improve=11.14266, (0 missing)
##       597 < 4.5   to the right, improve=11.14266, (0 missing)
##       598 < 93.5  to the right, improve=11.14266, (0 missing)
##       599 < 19.5  to the right, improve=11.14058, (0 missing)
##       626 < 2.5   to the right, improve=11.14058, (0 missing)
##   Surrogate splits:
##       597 < 4.5   to the right, agree=1.000, adj=1.000, (0 split)
##       598 < 93.5  to the right, agree=1.000, adj=1.000, (0 split)
##       599 < 19.5  to the right, agree=0.971, adj=0.923, (0 split)
##       625 < 2.5   to the right, agree=0.971, adj=0.923, (0 split)
##       626 < 2.5   to the right, agree=0.971, adj=0.923, (0 split)
##
## Node number 451: 50 observations,      complexity param=4.465482e-05
##   predicted class=8   expected loss=0.18   P(node) =0.001983733
##   class counts:      0      0      3      1      0      1      0      0      41
##   4
##   probabilities: 0.000 0.000 0.060 0.020 0.000 0.020 0.000 0.000 0.820
##   0.080
##   left son=902 (7 obs) right son=903 (43 obs)
##   Primary splits:
##       318 < 167.5 to the right, improve=4.737010, (0 missing)
##       545 < 239.5 to the right, improve=3.780199, (0 missing)
##       290 < 247.5 to the right, improve=3.292575, (0 missing)
##       488 < 203   to the left,  improve=3.240000, (0 missing)
##       657 < 8     to the left,  improve=3.066190, (0 missing)
##   Surrogate splits:
##       290 < 247.5 to the right, agree=0.96, adj=0.714, (0 split)
##       291 < 143.5 to the right, agree=0.96, adj=0.714, (0 split)
##       319 < 5     to the right, agree=0.94, adj=0.571, (0 split)
##       577 < 253.5 to the right, agree=0.92, adj=0.429, (0 split)
##       264 < 211.5 to the right, agree=0.90, adj=0.286, (0 split)

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##
## Node number 452: 246 observations,    complexity param=0.002589979
## predicted class=1 expected loss=0.5934959 P(node) =0.009759968
## class counts:    0    100    19    1    60    5    48    8    3
2
## probabilities: 0.000 0.407 0.077 0.004 0.244 0.020 0.195 0.033 0.012
0.008
## left son=904 (135 obs) right son=905 (111 obs)
## Primary splits:
## 344 < 1.5 to the left, improve=56.73869, (0 missing)
## 456 < 1 to the left, improve=55.85903, (0 missing)
## 372 < 10 to the left, improve=55.65413, (0 missing)
## 428 < 2 to the left, improve=55.43471, (0 missing)
## 316 < 1 to the left, improve=55.18781, (0 missing)
## Surrogate splits:
## 316 < 1 to the left, agree=0.967, adj=0.928, (0 split)
## 372 < 10 to the left, agree=0.967, adj=0.928, (0 split)
## 400 < 4.5 to the left, agree=0.947, adj=0.883, (0 split)
## 288 < 0.5 to the left, agree=0.939, adj=0.865, (0 split)
## 289 < 0.5 to the left, agree=0.935, adj=0.856, (0 split)
##
## Node number 453: 241 observations,    complexity param=0.002634634
## predicted class=2 expected loss=0.6473029 P(node) =0.009561595
## class counts:    2    2    85    5    2    5    0    49    19
72
## probabilities: 0.008 0.008 0.353 0.021 0.008 0.021 0.000 0.203 0.079
0.299
## left son=906 (150 obs) right son=907 (91 obs)
## Primary splits:
## 371 < 1.5 to the left, improve=41.69612, (0 missing)
## 344 < 110 to the left, improve=41.20927, (0 missing)
## 372 < 67 to the left, improve=39.75462, (0 missing)
## 343 < 1 to the left, improve=35.41713, (0 missing)
## 399 < 3 to the left, improve=34.26607, (0 missing)
## Surrogate splits:
## 343 < 1 to the left, agree=0.946, adj=0.857, (0 split)
## 399 < 8.5 to the left, agree=0.934, adj=0.824, (0 split)
## 344 < 66.5 to the left, agree=0.925, adj=0.802, (0 split)
## 316 < 139 to the left, agree=0.913, adj=0.769, (0 split)
## 372 < 58 to the left, agree=0.909, adj=0.758, (0 split)
##
## Node number 454: 128 observations
## predicted class=7 expected loss=0.03125 P(node) =0.005078357
## class counts:    0    0    3    1    0    0    0    124    0
0
## probabilities: 0.000 0.000 0.023 0.008 0.000 0.000 0.000 0.969 0.000
0.000
##
## Node number 455: 8 observations
## predicted class=8 expected loss=0.25 P(node) =0.0003173973

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##      class counts:      0      0      0      0      1      0      0      0      6
1
##      probabilities: 0.000 0.000 0.000 0.000 0.125 0.000 0.000 0.000 0.750
0.125
##
## Node number 456: 20 observations,      complexity param=0.0002232741
##      predicted class=8      expected loss=0.7      P(node) =0.0007934934
##      class counts:      5      0      5      0      1      0      3      0      6
0
##      probabilities: 0.250 0.000 0.250 0.000 0.050 0.000 0.150 0.000 0.300
0.000
##      left son=912 (13 obs) right son=913 (7 obs)
##      Primary splits:
##          522 < 13.5      to the right, improve=5.024176, (0 missing)
##          495 < 32.5      to the right, improve=5.024176, (0 missing)
##          493 < 165.5     to the right, improve=4.800000, (0 missing)
##          494 < 80        to the right, improve=4.450000, (0 missing)
##          521 < 125       to the right, improve=4.450000, (0 missing)
##      Surrogate splits:
##          495 < 32.5      to the right, agree=1.00, adj=1.000, (0 split)
##          440 < 205       to the right, agree=0.95, adj=0.857, (0 split)
##          441 < 13.5      to the right, agree=0.95, adj=0.857, (0 split)
##          467 < 121.5     to the right, agree=0.95, adj=0.857, (0 split)
##          468 < 19        to the right, agree=0.95, adj=0.857, (0 split)
##
## Node number 457: 101 observations,      complexity param=4.465482e-05
##      predicted class=5      expected loss=0.06930693      P(node) =0.004007141
##      class counts:      0      0      2      0      2      94      1      0      2
0
##      probabilities: 0.000 0.000 0.020 0.000 0.020 0.931 0.010 0.000 0.020
0.000
##      left son=914 (7 obs) right son=915 (94 obs)
##      Primary splits:
##          352 < 52.5      to the right, improve=6.264558, (0 missing)
##          272 < 12.5      to the left,  improve=4.552805, (0 missing)
##          294 < 6.5       to the left,  improve=4.307111, (0 missing)
##          325 < 216       to the right, improve=4.307111, (0 missing)
##          353 < 14        to the right, improve=4.307111, (0 missing)
##      Surrogate splits:
##          325 < 216       to the right, agree=0.98, adj=0.714, (0 split)
##          353 < 14        to the right, agree=0.98, adj=0.714, (0 split)
##          351 < 64        to the right, agree=0.97, adj=0.571, (0 split)
##          129 < 54        to the right, agree=0.96, adj=0.429, (0 split)
##          130 < 80        to the right, agree=0.96, adj=0.429, (0 split)
##
## Node number 458: 155 observations,      complexity param=0.0005805126
##      predicted class=4      expected loss=0.316129      P(node) =0.006149573
##      class counts:      0      0      13      0      106      1      13      13      7
2
##      probabilities: 0.000 0.000 0.084 0.000 0.684 0.006 0.084 0.084 0.045

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0.013
## left son=916 (132 obs) right son=917 (23 obs)
## Primary splits:
##      268 < 136   to the left,   improve=20.08729, (0 missing)
##      295 < 173   to the left,   improve=17.80890, (0 missing)
##      429 < 55    to the right,  improve=16.97293, (0 missing)
##      126 < 6.5   to the right,  improve=16.01735, (0 missing)
##      127 < 2.5   to the right,  improve=15.84815, (0 missing)
## Surrogate splits:
##      295 < 173   to the left,   agree=0.981, adj=0.870, (0 split)
##      267 < 184.5 to the left,   agree=0.961, adj=0.739, (0 split)
##      296 < 210.5 to the left,   agree=0.948, adj=0.652, (0 split)
##      240 < 68.5  to the left,   agree=0.942, adj=0.609, (0 split)
##      294 < 228   to the left,   agree=0.935, adj=0.565, (0 split)
##
## Node number 459: 209 observations,      complexity param=0.001674556
## predicted class=2 expected loss=0.7464115 P(node) =0.008292006
## class counts:      14      0      53      0      19      1      2      35      34
51
## probabilities: 0.067 0.000 0.254 0.000 0.091 0.005 0.010 0.167 0.163
0.244
## left son=918 (85 obs) right son=919 (124 obs)
## Primary splits:
##      567 < 25    to the right,  improve=24.04753, (0 missing)
##      568 < 77    to the right,  improve=22.73472, (0 missing)
##      708 < 1.5   to the left,   improve=22.62774, (0 missing)
##      709 < 6.5   to the left,   improve=21.41509, (0 missing)
##      155 < 9.5   to the right,  improve=20.79665, (0 missing)
## Surrogate splits:
##      568 < 172.5 to the right,  agree=0.919, adj=0.800, (0 split)
##      566 < 2     to the right,  agree=0.904, adj=0.765, (0 split)
##      595 < 8.5   to the right,  agree=0.895, adj=0.741, (0 split)
##      539 < 7.5   to the right,  agree=0.876, adj=0.694, (0 split)
##      594 < 0.5   to the right,  agree=0.871, adj=0.682, (0 split)
##
## Node number 460: 21 observations
## predicted class=4 expected loss=0.0952381 P(node) =0.000833168
## class counts:      0      0      0      0      19      0      0      0      2
0
## probabilities: 0.000 0.000 0.000 0.000 0.905 0.000 0.000 0.000 0.095
0.000
##
## Node number 461: 53 observations,      complexity param=0.0004465482
## predicted class=8 expected loss=0.754717 P(node) =0.002102757
## class counts:      10      0      1      0      2      9      5      0      13
13
## probabilities: 0.189 0.000 0.019 0.000 0.038 0.170 0.094 0.000 0.245
0.245
## left son=922 (36 obs) right son=923 (17 obs)
## Primary splits:

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##      597 < 24.5 to the right, improve=9.657849, (0 missing)
##      570 < 22.5 to the right, improve=9.326491, (0 missing)
##      598 < 10.5 to the right, improve=9.164385, (0 missing)
##      569 < 2.5  to the right, improve=9.100859, (0 missing)
##      627 < 2.5  to the right, improve=8.688021, (0 missing)
## Surrogate splits:
##      569 < 96   to the right, agree=0.943, adj=0.824, (0 split)
##      598 < 39   to the right, agree=0.943, adj=0.824, (0 split)
##      626 < 16   to the right, agree=0.943, adj=0.824, (0 split)
##      568 < 7    to the right, agree=0.906, adj=0.706, (0 split)
##      570 < 22.5 to the right, agree=0.906, adj=0.706, (0 split)
##
## Node number 462: 47 observations,      complexity param=0.0002456015
## predicted class=8 expected loss=0.5106383 P(node) =0.001864709
## class counts:      4      0      0      2      1     12      1      2     23
2
## probabilities: 0.085 0.000 0.000 0.043 0.021 0.255 0.021 0.043 0.489
0.043
## left son=924 (20 obs) right son=925 (27 obs)
## Primary splits:
##      600 < 214 to the right, improve=11.983290, (0 missing)
##      485 < 32.5 to the left,  improve= 8.681651, (0 missing)
##      486 < 1.5  to the left,  improve= 8.681651, (0 missing)
##      572 < 6    to the right, improve= 8.433531, (0 missing)
##      628 < 251.5 to the right, improve= 7.878917, (0 missing)
## Surrogate splits:
##      572 < 132 to the right, agree=0.894, adj=0.75, (0 split)
##      599 < 226.5 to the right, agree=0.894, adj=0.75, (0 split)
##      601 < 71   to the right, agree=0.851, adj=0.65, (0 split)
##      265 < 237 to the right, agree=0.830, adj=0.60, (0 split)
##      373 < 145.5 to the right, agree=0.830, adj=0.60, (0 split)
##
## Node number 463: 588 observations,      complexity param=0.000111637
## predicted class=8 expected loss=0.04591837 P(node) =0.0233287
## class counts:      3      0      4      3      2      2      3      6     561
4
## probabilities: 0.005 0.000 0.007 0.005 0.003 0.003 0.005 0.010 0.954
0.007
## left son=926 (33 obs) right son=927 (555 obs)
## Primary splits:
##      404 < 2    to the left,  improve=9.524919, (0 missing)
##      433 < 111 to the left,  improve=5.477891, (0 missing)
##      322 < 122.5 to the right, improve=5.366020, (0 missing)
##      405 < 18.5 to the left,  improve=5.170456, (0 missing)
##      376 < 1.5  to the left,  improve=5.165837, (0 missing)
## Surrogate splits:
##      433 < 29   to the left,  agree=0.957, adj=0.242, (0 split)
##      376 < 1.5  to the left,  agree=0.951, adj=0.121, (0 split)
##      405 < 4    to the left,  agree=0.951, adj=0.121, (0 split)
##      322 < 252 to the right, agree=0.947, adj=0.061, (0 split)

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##      357 < 254.5 to the right, agree=0.947, adj=0.061, (0 split)
##
## Node number 464: 32 observations,      complexity param=0.0003125837
## predicted class=1 expected loss=0.3125 P(node) =0.001269589
## class counts:      1      22      7      0      1      0      0      0      1
0
## probabilities: 0.031 0.688 0.219 0.000 0.031 0.000 0.000 0.000 0.031
0.000
## left son=928 (24 obs) right son=929 (8 obs)
## Primary splits:
##      127 < 5      to the left, improve=9.750000, (0 missing)
##      128 < 106.5 to the left, improve=9.750000, (0 missing)
##      154 < 2.5   to the left, improve=9.750000, (0 missing)
##      577 < 48    to the left, improve=9.730000, (0 missing)
##      155 < 1     to the left, improve=8.177536, (0 missing)
## Surrogate splits:
##      128 < 106.5 to the left, agree=1.000, adj=1.000, (0 split)
##      154 < 2.5   to the left, agree=1.000, adj=1.000, (0 split)
##      126 < 11    to the left, agree=0.969, adj=0.875, (0 split)
##      155 < 1     to the left, agree=0.969, adj=0.875, (0 split)
##      577 < 48    to the left, agree=0.969, adj=0.875, (0 split)
##
## Node number 465: 286 observations,      complexity param=0.0002232741
## predicted class=2 expected loss=0.1153846 P(node) =0.01134695
## class counts:      1      3 253      2      7      0      3      9      3
5
## probabilities: 0.003 0.010 0.885 0.007 0.024 0.000 0.010 0.031 0.010
0.017
## left son=930 (275 obs) right son=931 (11 obs)
## Primary splits:
##      398 < 100.5 to the left, improve=12.80392, (0 missing)
##      371 < 119   to the left, improve=12.03539, (0 missing)
##      370 < 183   to the left, improve=11.69353, (0 missing)
##      343 < 21.5  to the left, improve=11.44725, (0 missing)
##      399 < 157   to the left, improve=11.43237, (0 missing)
## Surrogate splits:
##      370 < 183   to the left, agree=0.997, adj=0.909, (0 split)
##      399 < 230   to the left, agree=0.990, adj=0.727, (0 split)
##      315 < 251   to the left, agree=0.986, adj=0.636, (0 split)
##      371 < 245.5 to the left, agree=0.986, adj=0.636, (0 split)
##      397 < 10.5  to the left, agree=0.986, adj=0.636, (0 split)
##
## Node number 468: 48 observations,      complexity param=0.0001339645
## predicted class=4 expected loss=0.5 P(node) =0.001904384
## class counts:      0      1      5      0 24      1      0      2      4
11
## probabilities: 0.000 0.021 0.104 0.000 0.500 0.021 0.000 0.042 0.083
0.229
## left son=936 (27 obs) right son=937 (21 obs)
## Primary splits:

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##      465 < 250   to the right, improve=5.748677, (0 missing)
##      209 < 225.5 to the left,  improve=5.611111, (0 missing)
##      208 < 72.5  to the left,  improve=5.596189, (0 missing)
##      402 < 48.5  to the right, improve=5.588889, (0 missing)
##      492 < 250.5 to the right, improve=5.537037, (0 missing)
## Surrogate splits:
##      437 < 250   to the right, agree=0.938, adj=0.857, (0 split)
##      409 < 225.5 to the right, agree=0.896, adj=0.762, (0 split)
##      438 < 9.5   to the right, agree=0.896, adj=0.762, (0 split)
##      485 < 142   to the right, agree=0.854, adj=0.667, (0 split)
##      493 < 156.5 to the right, agree=0.854, adj=0.667, (0 split)
##
## Node number 469: 25 observations,      complexity param=0.0001339645
## predicted class=6 expected loss=0.24 P(node) =0.0009918667
## class counts:      0      0      4      0      0      0      19      2      0
##
## probabilities: 0.000 0.000 0.160 0.000 0.000 0.000 0.760 0.080 0.000
0.000
## left son=938 (7 obs) right son=939 (18 obs)
## Primary splits:
##      441 < 2.5   to the left,  improve=5.76, (0 missing)
##      468 < 13.5  to the left,  improve=5.76, (0 missing)
##      296 < 220   to the right, improve=5.76, (0 missing)
##      324 < 251.5 to the right, improve=4.76, (0 missing)
##      413 < 21.5  to the left,  improve=4.76, (0 missing)
## Surrogate splits:
##      468 < 13.5  to the left,  agree=1.00, adj=1.000, (0 split)
##      413 < 21.5  to the left,  agree=0.96, adj=0.857, (0 split)
##      440 < 5.5   to the left,  agree=0.96, adj=0.857, (0 split)
##      296 < 220   to the right, agree=0.92, adj=0.714, (0 split)
##      297 < 234   to the right, agree=0.92, adj=0.714, (0 split)
##
## Node number 472: 83 observations
## predicted class=2 expected loss=0.1566265 P(node) =0.003292997
## class counts:      3      0      70      3      0      0      2      0      5
##
## probabilities: 0.036 0.000 0.843 0.036 0.000 0.000 0.024 0.000 0.060
0.000
##
## Node number 473: 44 observations,      complexity param=0.0004465482
## predicted class=4 expected loss=0.7272727 P(node) =0.001745685
## class counts:      0      1      2      0      12      1      12      1      10
5
## probabilities: 0.000 0.023 0.045 0.000 0.273 0.023 0.273 0.023 0.227
0.114
## left son=946 (12 obs) right son=947 (32 obs)
## Primary splits:
##      220 < 30    to the right, improve=7.079545, (0 missing)
##      415 < 42.5  to the right, improve=5.933911, (0 missing)
##      443 < 3.5   to the right, improve=5.933911, (0 missing)

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##      470 < 27      to the right, improve=5.933911, (0 missing)
##      442 < 40.5    to the right, improve=5.848485, (0 missing)
##      Surrogate splits:
##      248 < 98      to the right, agree=0.932, adj=0.750, (0 split)
##      221 < 15.5    to the right, agree=0.886, adj=0.583, (0 split)
##      247 < 107     to the right, agree=0.864, adj=0.500, (0 split)
##      275 < 242.5   to the right, agree=0.864, adj=0.500, (0 split)
##      249 < 14      to the right, agree=0.841, adj=0.417, (0 split)
##
## Node number 474: 20 observations,      complexity param=0.000111637
##      predicted class=8 expected loss=0.5 P(node) =0.0007934934
##      class counts:      0      0      6      0      3      0      0      1      10
##      0
##      probabilities: 0.000 0.000 0.300 0.000 0.150 0.000 0.000 0.050 0.500
##      0.000
##      left son=948 (10 obs) right son=949 (10 obs)
##      Primary splits:
##      626 < 244      to the right, improve=5.100000, (0 missing)
##      247 < 13        to the left, improve=4.950000, (0 missing)
##      374 < 25        to the left, improve=4.950000, (0 missing)
##      402 < 64        to the left, improve=4.950000, (0 missing)
##      465 < 228.5     to the right, improve=4.765934, (0 missing)
##      Surrogate splits:
##      191 < 14        to the left, agree=0.90, adj=0.8, (0 split)
##      545 < 190        to the right, agree=0.90, adj=0.8, (0 split)
##      599 < 245.5     to the right, agree=0.90, adj=0.8, (0 split)
##      627 < 194.5     to the right, agree=0.90, adj=0.8, (0 split)
##      218 < 133.5     to the left, agree=0.85, adj=0.7, (0 split)
##
## Node number 475: 94 observations
##      predicted class=8 expected loss=0 P(node) =0.003729419
##      class counts:      0      0      0      0      0      0      0      0      94
##      0
##      probabilities: 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 1.000
##      0.000
##
## Node number 476: 34 observations
##      predicted class=2 expected loss=0.2352941 P(node) =0.001348939
##      class counts:      0      2      26      0      2      0      1      1      2
##      0
##      probabilities: 0.000 0.059 0.765 0.000 0.059 0.000 0.029 0.029 0.059
##      0.000
##
## Node number 477: 1503 observations,      complexity param=0.000491203
##      predicted class=6 expected loss=0.0332668 P(node) =0.05963103
##      class counts:      0      0      4      1      2      27      1453      0      9
##      7
##      probabilities: 0.000 0.000 0.003 0.001 0.001 0.018 0.967 0.000 0.006
##      0.005
##      left son=954 (18 obs) right son=955 (1485 obs)

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## Primary splits:
##      217 < 164   to the right, improve=22.62187, (0 missing)
##      218 < 139   to the right, improve=21.71964, (0 missing)
##      215 < 165   to the right, improve=20.87881, (0 missing)
##      191 < 40    to the right, improve=19.28097, (0 missing)
##      192 < 25    to the right, improve=18.87744, (0 missing)
## Surrogate splits:
##      218 < 139   to the right, agree=0.997, adj=0.778, (0 split)
##      216 < 194.5 to the right, agree=0.997, adj=0.722, (0 split)
##      219 < 34    to the right, agree=0.995, adj=0.556, (0 split)
##      215 < 236.5 to the right, agree=0.994, adj=0.500, (0 split)
##      220 < 82    to the right, agree=0.994, adj=0.500, (0 split)
##
## Node number 478: 67 observations,      complexity param=0.0002232741
## predicted class=5 expected loss=0.1641791 P(node) =0.002658203
## class counts:      0      0      0      2      1      56      6      0      2
##
## probabilities: 0.000 0.000 0.000 0.030 0.015 0.836 0.090 0.000 0.030
##
## left son=956 (58 obs) right son=957 (9 obs)
## Primary splits:
##      456 < 140   to the left,  improve=9.097101, (0 missing)
##      484 < 104.5 to the left,  improve=6.276934, (0 missing)
##      485 < 100.5 to the left,  improve=4.330817, (0 missing)
##      427 < 39    to the left,  improve=4.108595, (0 missing)
##      428 < 154   to the left,  improve=3.775949, (0 missing)
## Surrogate splits:
##      427 < 39    to the left,  agree=0.940, adj=0.556, (0 split)
##      455 < 35.5  to the left,  agree=0.940, adj=0.556, (0 split)
##      405 < 16    to the right, agree=0.925, adj=0.444, (0 split)
##      484 < 104.5 to the left,  agree=0.925, adj=0.444, (0 split)
##      428 < 154   to the left,  agree=0.910, adj=0.333, (0 split)
##
## Node number 479: 96 observations,      complexity param=0.000870769
## predicted class=8 expected loss=0.6145833 P(node) =0.003808768
## class counts:      0      0      2      2      0      19      31      1      37
##
## probabilities: 0.000 0.000 0.021 0.021 0.000 0.198 0.323 0.010 0.385
##
## left son=958 (34 obs) right son=959 (62 obs)
## Primary splits:
##      457 < 103   to the right, improve=13.42750, (0 missing)
##      429 < 14    to the right, improve=13.11877, (0 missing)
##      328 < 10    to the left,  improve=12.90833, (0 missing)
##      131 < 9.5   to the right, improve=12.26006, (0 missing)
##      430 < 226   to the right, improve=11.99758, (0 missing)
## Surrogate splits:
##      429 < 22.5  to the right, agree=0.885, adj=0.676, (0 split)
##      485 < 150.5 to the right, agree=0.885, adj=0.676, (0 split)
##      456 < 9.5   to the right, agree=0.854, adj=0.588, (0 split)

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##      458 < 246   to the right, agree=0.854, adj=0.588, (0 split)
##      484 < 17    to the right, agree=0.833, adj=0.529, (0 split)
##
## Node number 480: 87 observations
## predicted class=2 expected loss=0.05747126 P(node) =0.003451696
## class counts:      0      0      82      2      0      2      0      0      1
##
## probabilities: 0.000 0.000 0.943 0.023 0.000 0.023 0.000 0.000 0.011
0.000
##
## Node number 481: 22 observations, complexity param=0.0002232741
## predicted class=3 expected loss=0.3181818 P(node) =0.0008728427
## class counts:      0      0      2     15      0      0      0      0      5
##
## probabilities: 0.000 0.000 0.091 0.682 0.000 0.000 0.000 0.000 0.227
0.000
## left son=962 (15 obs) right son=963 (7 obs)
## Primary splits:
##      484 < 42.5   to the left, improve=7.597403, (0 missing)
##      485 < 86     to the left, improve=7.597403, (0 missing)
##      512 < 106    to the left, improve=7.597403, (0 missing)
##      511 < 45.5   to the left, improve=6.204545, (0 missing)
##      513 < 2.5    to the left, improve=6.204545, (0 missing)
## Surrogate splits:
##      485 < 86     to the left, agree=1.000, adj=1.000, (0 split)
##      512 < 106    to the left, agree=1.000, adj=1.000, (0 split)
##      511 < 45.5   to the left, agree=0.955, adj=0.857, (0 split)
##      513 < 2.5    to the left, agree=0.955, adj=0.857, (0 split)
##      321 < 12     to the left, agree=0.909, adj=0.714, (0 split)
##
## Node number 482: 87 observations, complexity param=4.465482e-05
## predicted class=5 expected loss=0.1034483 P(node) =0.003451696
## class counts:      0      0      2      5      0     78      1      0      1
##
## probabilities: 0.000 0.000 0.023 0.057 0.000 0.897 0.011 0.000 0.011
0.000
## left son=964 (9 obs) right son=965 (78 obs)
## Primary splits:
##      126 < 110    to the right, improve=5.088712, (0 missing)
##      185 < 218    to the right, improve=5.088712, (0 missing)
##      123 < 16     to the right, improve=4.962644, (0 missing)
##      124 < 86.5   to the right, improve=4.962644, (0 missing)
##      156 < 174    to the right, improve=4.793725, (0 missing)
## Surrogate splits:
##      124 < 43     to the right, agree=0.977, adj=0.778, (0 split)
##      125 < 7      to the right, agree=0.977, adj=0.778, (0 split)
##      127 < 37     to the right, agree=0.977, adj=0.778, (0 split)
##      123 < 7.5    to the right, agree=0.966, adj=0.667, (0 split)
##      128 < 1      to the right, agree=0.954, adj=0.556, (0 split)
##

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## Node number 483: 25 observations,    complexity param=0.0001786193
##   predicted class=8   expected loss=0.4   P(node) =0.0009918667
##   class counts:      0      0      2      2      4      1      1      0      15
##   0
##   probabilities: 0.000 0.000 0.080 0.080 0.160 0.040 0.040 0.000 0.600
##   0.000
##   left son=966 (7 obs) right son=967 (18 obs)
##   Primary splits:
##       400 < 192   to the right, improve=5.626667, (0 missing)
##       485 < 88.5  to the left,  improve=5.055238, (0 missing)
##       401 < 201.5 to the right, improve=4.890556, (0 missing)
##       512 < 17.5  to the left,  improve=4.769524, (0 missing)
##       439 < 38    to the right, improve=4.652308, (0 missing)
##   Surrogate splits:
##       427 < 25.5  to the right, agree=0.96, adj=0.857, (0 split)
##       398 < 3      to the right, agree=0.92, adj=0.714, (0 split)
##       399 < 97.5  to the right, agree=0.92, adj=0.714, (0 split)
##       401 < 201.5 to the right, agree=0.92, adj=0.714, (0 split)
##       426 < 3      to the right, agree=0.92, adj=0.714, (0 split)
##
## Node number 484: 1415 observations,    complexity param=0.0008037867
##   predicted class=4   expected loss=0.09399293   P(node) =0.05613965
##   class counts:      0      6      14      16 1282      21      15      10      31
##   20
##   probabilities: 0.000 0.004 0.010 0.011 0.906 0.015 0.011 0.007 0.022
##   0.014
##   left son=968 (1344 obs) right son=969 (71 obs)
##   Primary splits:
##       155 < 120.5 to the left,  improve=61.80734, (0 missing)
##       183 < 31.5  to the left,  improve=46.27412, (0 missing)
##       154 < 128   to the left,  improve=37.69171, (0 missing)
##       156 < 179   to the left,  improve=33.33936, (0 missing)
##       429 < 29.5  to the right, improve=24.05030, (0 missing)
##   Surrogate splits:
##       183 < 82    to the left,  agree=0.983, adj=0.662, (0 split)
##       154 < 169.5 to the left,  agree=0.972, adj=0.437, (0 split)
##       156 < 221   to the left,  agree=0.970, adj=0.394, (0 split)
##       127 < 72    to the left,  agree=0.965, adj=0.296, (0 split)
##       182 < 240.5 to the left,  agree=0.963, adj=0.268, (0 split)
##
## Node number 485: 54 observations
##   predicted class=6   expected loss=0.05555556   P(node) =0.002142432
##   class counts:      0      0      2      0      1      0      51      0      0
##   0
##   probabilities: 0.000 0.000 0.037 0.000 0.019 0.000 0.944 0.000 0.000
##   0.000
##
## Node number 486: 93 observations,    complexity param=0.0006251675
##   predicted class=9   expected loss=0.5806452   P(node) =0.003689744
##   class counts:      0      0      2      2      24      20      0      5      1

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39
## probabilities: 0.000 0.000 0.022 0.022 0.258 0.215 0.000 0.054 0.011
0.419
## left son=972 (21 obs) right son=973 (72 obs)
## Primary splits:
## 247 < 1.5 to the right, improve=11.82066, (0 missing)
## 381 < 4 to the left, improve=11.37190, (0 missing)
## 353 < 5 to the left, improve=10.84927, (0 missing)
## 248 < 1.5 to the right, improve=10.22326, (0 missing)
## 354 < 2 to the left, improve=10.20015, (0 missing)
## Surrogate splits:
## 246 < 68.5 to the right, agree=0.968, adj=0.857, (0 split)
## 248 < 1.5 to the right, agree=0.946, adj=0.762, (0 split)
## 275 < 10.5 to the right, agree=0.935, adj=0.714, (0 split)
## 218 < 29 to the right, agree=0.925, adj=0.667, (0 split)
## 219 < 2 to the right, agree=0.925, adj=0.667, (0 split)
##
## Node number 487: 47 observations, complexity param=0.0003125837
## predicted class=7 expected loss=0.3829787 P(node) =0.001864709
## class counts: 0 0 5 2 0 1 0 29 2
8
## probabilities: 0.000 0.000 0.106 0.043 0.000 0.021 0.000 0.617 0.043
0.170
## left son=974 (36 obs) right son=975 (11 obs)
## Primary splits:
## 455 < 81.5 to the left, improve=9.107135, (0 missing)
## 426 < 9 to the left, improve=8.740324, (0 missing)
## 427 < 1 to the left, improve=8.740324, (0 missing)
## 370 < 112 to the left, improve=8.707174, (0 missing)
## 371 < 190.5 to the left, improve=8.707174, (0 missing)
## Surrogate splits:
## 426 < 26 to the left, agree=0.957, adj=0.818, (0 split)
## 427 < 1 to the left, agree=0.936, adj=0.727, (0 split)
## 370 < 144 to the left, agree=0.915, adj=0.636, (0 split)
## 398 < 90 to the left, agree=0.915, adj=0.636, (0 split)
## 454 < 5.5 to the left, agree=0.915, adj=0.636, (0 split)
##
## Node number 488: 521 observations, complexity param=0.0009377512
## predicted class=5 expected loss=0.1516315 P(node) =0.0206705
## class counts: 0 0 1 35 1 442 24 1 0
17
## probabilities: 0.000 0.000 0.002 0.067 0.002 0.848 0.046 0.002 0.000
0.033
## left son=976 (494 obs) right son=977 (27 obs)
## Primary splits:
## 516 < 166.5 to the left, improve=37.42924, (0 missing)
## 544 < 240.5 to the left, improve=35.78384, (0 missing)
## 100 < 22 to the left, improve=35.66911, (0 missing)
## 101 < 1.5 to the left, improve=33.93476, (0 missing)
## 543 < 40 to the left, improve=28.88534, (0 missing)

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## Surrogate splits:
##      100 < 22    to the left,  agree=0.988, adj=0.778, (0 split)
##      544 < 240.5 to the left,  agree=0.988, adj=0.778, (0 split)
##      101 < 1.5   to the left,  agree=0.987, adj=0.741, (0 split)
##      515 < 67.5  to the left,  agree=0.981, adj=0.630, (0 split)
##      543 < 40    to the left,  agree=0.981, adj=0.630, (0 split)
##
## Node number 489: 60 observations,    complexity param=0.0005805126
## predicted class=9 expected loss=0.6166667 P(node) =0.00238048
## class counts:      3      0      13      2      5      3      2      0      9
23
## probabilities: 0.050 0.000 0.217 0.033 0.083 0.050 0.033 0.000 0.150
0.383
## left son=978 (25 obs) right son=979 (35 obs)
## Primary splits:
##      596 < 14    to the right, improve=11.298100, (0 missing)
##      155 < 24    to the right, improve= 9.944947, (0 missing)
##      597 < 21.5  to the right, improve= 9.661661, (0 missing)
##      595 < 9     to the right, improve= 9.196044, (0 missing)
##      154 < 7     to the right, improve= 9.104167, (0 missing)
## Surrogate splits:
##      597 < 44.5  to the right, agree=0.950, adj=0.88, (0 split)
##      595 < 9     to the right, agree=0.933, adj=0.84, (0 split)
##      539 < 13.5  to the right, agree=0.900, adj=0.76, (0 split)
##      567 < 4.5   to the right, agree=0.900, adj=0.76, (0 split)
##      568 < 2     to the right, agree=0.900, adj=0.76, (0 split)
##
## Node number 490: 79 observations,    complexity param=8.930964e-05
## predicted class=4 expected loss=0.1392405 P(node) =0.003134299
## class counts:      0      1      1      1      68      0      0      4      1
3
## probabilities: 0.000 0.013 0.013 0.013 0.861 0.000 0.000 0.051 0.013
0.038
## left son=980 (71 obs) right son=981 (8 obs)
## Primary splits:
##      265 < 248   to the left,  improve=5.523801, (0 missing)
##      436 < 185   to the right, improve=4.886980, (0 missing)
##      492 < 86.5  to the right, improve=4.420106, (0 missing)
##      464 < 212.5 to the right, improve=4.353250, (0 missing)
##      714 < 1     to the left,  improve=4.113171, (0 missing)
## Surrogate splits:
##      264 < 181   to the left,  agree=0.962, adj=0.625, (0 split)
##      237 < 63.5  to the left,  agree=0.949, adj=0.500, (0 split)
##      258 < 44    to the left,  agree=0.937, adj=0.375, (0 split)
##      714 < 1     to the left,  agree=0.937, adj=0.375, (0 split)
##      741 < 28.5  to the left,  agree=0.937, adj=0.375, (0 split)
##
## Node number 491: 148 observations,    complexity param=0.0008037867
## predicted class=9 expected loss=0.6689189 P(node) =0.005871851
## class counts:      0      1      4      17      20      0      2      28      27

```



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49
## probabilities: 0.000 0.007 0.027 0.115 0.135 0.000 0.014 0.189 0.182
0.331
## left son=982 (127 obs) right son=983 (21 obs)
## Primary splits:
## 544 < 172.5 to the left, improve=15.29669, (0 missing)
## 346 < 0.5 to the left, improve=14.10428, (0 missing)
## 345 < 4 to the left, improve=13.30087, (0 missing)
## 572 < 43 to the left, improve=13.08108, (0 missing)
## 373 < 3.5 to the left, improve=12.66705, (0 missing)
## Surrogate splits:
## 516 < 159 to the left, agree=0.966, adj=0.762, (0 split)
## 543 < 1 to the left, agree=0.939, adj=0.571, (0 split)
## 571 < 7.5 to the left, agree=0.939, adj=0.571, (0 split)
## 572 < 165.5 to the left, agree=0.932, adj=0.524, (0 split)
## 517 < 252.5 to the left, agree=0.926, adj=0.476, (0 split)
##
## Node number 492: 178 observations, complexity param=0.001607573
## predicted class=3 expected loss=0.5393258 P(node) =0.007062091
## class counts: 2 0 44 82 1 8 3 0 27
11
## probabilities: 0.011 0.000 0.247 0.461 0.006 0.045 0.017 0.000 0.152
0.062
## left son=984 (99 obs) right son=985 (79 obs)
## Primary splits:
## 484 < 46 to the left, improve=36.93243, (0 missing)
## 483 < 2.5 to the left, improve=34.73228, (0 missing)
## 485 < 2 to the left, improve=29.35907, (0 missing)
## 379 < 121 to the left, improve=29.01655, (0 missing)
## 511 < 69.5 to the left, improve=28.38304, (0 missing)
## Surrogate splits:
## 483 < 2.5 to the left, agree=0.938, adj=0.861, (0 split)
## 485 < 2 to the left, agree=0.904, adj=0.785, (0 split)
## 511 < 31.5 to the left, agree=0.904, adj=0.785, (0 split)
## 512 < 6 to the left, agree=0.904, adj=0.785, (0 split)
## 457 < 47.5 to the left, agree=0.876, adj=0.722, (0 split)
##
## Node number 493: 228 observations, complexity param=0.001607573
## predicted class=4 expected loss=0.5570175 P(node) =0.009045824
## class counts: 1 0 9 16 101 4 1 1 50
45
## probabilities: 0.004 0.000 0.039 0.070 0.443 0.018 0.004 0.004 0.219
0.197
## left son=986 (138 obs) right son=987 (90 obs)
## Primary splits:
## 428 < 25 to the right, improve=29.39194, (0 missing)
## 658 < 3.5 to the left, improve=29.31754, (0 missing)
## 544 < 104 to the left, improve=29.17931, (0 missing)
## 427 < 2.5 to the right, improve=27.69817, (0 missing)
## 657 < 62 to the left, improve=27.61997, (0 missing)

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## Surrogate splits:
##      456 < 1.5   to the right, agree=0.912, adj=0.778, (0 split)
##      400 < 31    to the right, agree=0.904, adj=0.756, (0 split)
##      429 < 109.5 to the right, agree=0.882, adj=0.700, (0 split)
##      427 < 2.5   to the right, agree=0.877, adj=0.689, (0 split)
##      457 < 32    to the right, agree=0.873, adj=0.678, (0 split)
##
## Node number 494: 293 observations,    complexity param=0.0006698223
## predicted class=9 expected loss=0.5119454 P(node) =0.01162468
## class counts:      1      0      17      52      23      1      0      43      13
143
## probabilities: 0.003 0.000 0.058 0.177 0.078 0.003 0.000 0.147 0.044
0.488
## left son=988 (176 obs) right son=989 (117 obs)
## Primary splits:
##      319 < 108.5 to the left, improve=23.69464, (0 missing)
##      320 < 2.5   to the left, improve=22.47628, (0 missing)
##      318 < 3.5   to the left, improve=21.91279, (0 missing)
##      347 < 71    to the left, improve=21.76380, (0 missing)
##      292 < 66.5  to the left, improve=20.70928, (0 missing)
## Surrogate splits:
##      347 < 71    to the left, agree=0.973, adj=0.932, (0 split)
##      320 < 2.5   to the left, agree=0.959, adj=0.897, (0 split)
##      292 < 85.5  to the left, agree=0.952, adj=0.880, (0 split)
##      318 < 1     to the left, agree=0.939, adj=0.846, (0 split)
##      291 < 13.5  to the left, agree=0.928, adj=0.821, (0 split)
##
## Node number 495: 1152 observations,    complexity param=0.0006698223
## predicted class=9 expected loss=0.1137153 P(node) =0.04570522
## class counts:      0      0      1      10      69      6      0      11      34
1021
## probabilities: 0.000 0.000 0.001 0.009 0.060 0.005 0.000 0.010 0.030
0.886
## left son=990 (66 obs) right son=991 (1086 obs)
## Primary splits:
##      212 < 14    to the left, improve=28.50180, (0 missing)
##      219 < 193   to the right, improve=22.58637, (0 missing)
##      191 < 63    to the right, improve=22.43587, (0 missing)
##      220 < 2     to the right, improve=20.35757, (0 missing)
##      213 < 0.5   to the left, improve=18.59774, (0 missing)
## Surrogate splits:
##      191 < 166   to the right, agree=0.948, adj=0.091, (0 split)
##      154 < 96    to the right, agree=0.947, adj=0.076, (0 split)
##      164 < 9.5   to the right, agree=0.947, adj=0.076, (0 split)
##      192 < 27.5  to the right, agree=0.946, adj=0.061, (0 split)
##      219 < 200.5 to the right, agree=0.946, adj=0.061, (0 split)
##
## Node number 496: 40 observations,    complexity param=0.0002679289
## predicted class=3 expected loss=0.4 P(node) =0.001586987
## class counts:      1      6      0      24      3      4      1      0      0

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1
## probabilities: 0.025 0.150 0.000 0.600 0.075 0.100 0.025 0.000 0.000
0.025
## left son=992 (26 obs) right son=993 (14 obs)
## Primary splits:
## 490 < 1 to the left, improve=9.945055, (0 missing)
## 462 < 37.5 to the left, improve=9.367521, (0 missing)
## 518 < 24 to the right, improve=9.133903, (0 missing)
## 517 < 7 to the right, improve=8.523810, (0 missing)
## 545 < 19.5 to the right, improve=8.523810, (0 missing)
## Surrogate splits:
## 462 < 37.5 to the left, agree=0.975, adj=0.929, (0 split)
## 518 < 24 to the left, agree=0.975, adj=0.929, (0 split)
## 517 < 7 to the left, agree=0.950, adj=0.857, (0 split)
## 545 < 19.5 to the left, agree=0.950, adj=0.857, (0 split)
## 546 < 15.5 to the left, agree=0.925, adj=0.786, (0 split)
##
## Node number 497: 135 observations, complexity param=0.0002679289
## predicted class=5 expected loss=0.1777778 P(node) =0.00535608
## class counts: 0 1 4 16 0 111 1 0 1
1
## probabilities: 0.000 0.007 0.030 0.119 0.000 0.822 0.007 0.000 0.007
0.007
## left son=994 (25 obs) right son=995 (110 obs)
## Primary splits:
## 150 < 65 to the right, improve=10.710710, (0 missing)
## 151 < 133.5 to the right, improve=10.355560, (0 missing)
## 149 < 46 to the right, improve=10.235900, (0 missing)
## 176 < 25.5 to the right, improve= 8.979616, (0 missing)
## 152 < 138.5 to the right, improve= 8.784127, (0 missing)
## Surrogate splits:
## 151 < 227.5 to the right, agree=0.948, adj=0.72, (0 split)
## 149 < 25.5 to the right, agree=0.941, adj=0.68, (0 split)
## 123 < 9.5 to the right, agree=0.933, adj=0.64, (0 split)
## 122 < 3.5 to the right, agree=0.926, adj=0.60, (0 split)
## 152 < 138.5 to the right, agree=0.904, adj=0.48, (0 split)
##
## Node number 498: 46 observations, complexity param=0.0004018934
## predicted class=8 expected loss=0.4347826 P(node) =0.001825035
## class counts: 0 5 2 9 0 0 0 3 26
1
## probabilities: 0.000 0.109 0.043 0.196 0.000 0.000 0.000 0.065 0.565
0.022
## left son=996 (18 obs) right son=997 (28 obs)
## Primary splits:
## 348 < 11.5 to the left, improve=13.425810, (0 missing)
## 347 < 20.5 to the left, improve=10.983680, (0 missing)
## 376 < 113 to the left, improve=10.578990, (0 missing)
## 319 < 3 to the left, improve=10.226420, (0 missing)
## 377 < 111.5 to the left, improve= 9.637319, (0 missing)

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## Surrogate splits:
##      347 < 20.5 to the left, agree=0.935, adj=0.833, (0 split)
##      376 < 113  to the left, agree=0.913, adj=0.778, (0 split)
##      377 < 111.5 to the left, agree=0.913, adj=0.778, (0 split)
##      351 < 148  to the right, agree=0.891, adj=0.722, (0 split)
##      319 < 3    to the left, agree=0.870, adj=0.667, (0 split)
##
## Node number 499: 92 observations, complexity param=0.0008484415
## predicted class=9 expected loss=0.5 P(node) =0.003650069
## class counts:      0      0      2      8      27      1      0      5      3
46
## probabilities: 0.000 0.000 0.022 0.087 0.293 0.011 0.000 0.054 0.033
0.500
## left son=998 (32 obs) right son=999 (60 obs)
## Primary splits:
##      210 < 49 to the left, improve=15.898190, (0 missing)
##      211 < 18 to the left, improve=14.630380, (0 missing)
##      237 < 12.5 to the left, improve=12.035720, (0 missing)
##      212 < 19 to the left, improve=10.219870, (0 missing)
##      238 < 8 to the left, improve= 9.997799, (0 missing)
## Surrogate splits:
##      209 < 3 to the left, agree=0.891, adj=0.687, (0 split)
##      211 < 11.5 to the left, agree=0.891, adj=0.687, (0 split)
##      237 < 1.5 to the left, agree=0.848, adj=0.562, (0 split)
##      212 < 19 to the left, agree=0.815, adj=0.469, (0 split)
##      238 < 0.5 to the left, agree=0.815, adj=0.469, (0 split)
##
## Node number 500: 54 observations, complexity param=0.000491203
## predicted class=1 expected loss=0.2962963 P(node) =0.002142432
## class counts:      2      38      0      1      0      2      11      0      0
0
## probabilities: 0.037 0.704 0.000 0.019 0.000 0.037 0.204 0.000 0.000
0.000
## left son=1000 (39 obs) right son=1001 (15 obs)
## Primary splits:
##      568 < 14 to the left, improve=16.36980, (0 missing)
##      268 < 40 to the right, improve=15.85899, (0 missing)
##      296 < 37.5 to the right, improve=15.65485, (0 missing)
##      295 < 10.5 to the right, improve=15.54233, (0 missing)
##      323 < 23 to the right, improve=15.54233, (0 missing)
## Surrogate splits:
##      567 < 18.5 to the left, agree=0.981, adj=0.933, (0 split)
##      569 < 28 to the left, agree=0.981, adj=0.933, (0 split)
##      596 < 77 to the left, agree=0.981, adj=0.933, (0 split)
##      597 < 144 to the left, agree=0.981, adj=0.933, (0 split)
##      296 < 37.5 to the right, agree=0.963, adj=0.867, (0 split)
##
## Node number 501: 39 observations, complexity param=8.930964e-05
## predicted class=2 expected loss=0.3846154 P(node) =0.001547312
## class counts:      2      3      24      4      0      0      1      5      0

```

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0
## probabilities: 0.051 0.077 0.615 0.103 0.000 0.000 0.026 0.128 0.000
0.000
## left son=1002 (25 obs) right son=1003 (14 obs)
## Primary splits:
## 545 < 104 to the right, improve=6.094799, (0 missing)
## 231 < 5 to the right, improve=5.025776, (0 missing)
## 544 < 23 to the right, improve=4.757021, (0 missing)
## 518 < 165.5 to the right, improve=4.574799, (0 missing)
## 204 < 15 to the right, improve=4.467252, (0 missing)
## Surrogate splits:
## 518 < 165.5 to the right, agree=0.949, adj=0.857, (0 split)
## 517 < 13.5 to the right, agree=0.923, adj=0.786, (0 split)
## 490 < 223.5 to the right, agree=0.897, adj=0.714, (0 split)
## 573 < 178 to the right, agree=0.872, adj=0.643, (0 split)
## 544 < 23 to the right, agree=0.846, adj=0.571, (0 split)
##
## Node number 502: 23 observations, complexity param=0.0002232741
## predicted class=2 expected loss=0.5652174 P(node) =0.0009125174
## class counts: 0 3 10 2 1 0 5 1 1
0
## probabilities: 0.000 0.130 0.435 0.087 0.043 0.000 0.217 0.043 0.043
0.000
## left son=1004 (12 obs) right son=1005 (11 obs)
## Primary splits:
## 176 < 25.5 to the right, improve=5.899868, (0 missing)
## 202 < 6.5 to the right, improve=5.899868, (0 missing)
## 203 < 13 to the right, improve=5.899868, (0 missing)
## 177 < 77.5 to the right, improve=5.546488, (0 missing)
## 210 < 201 to the right, improve=5.369565, (0 missing)
## Surrogate splits:
## 202 < 6.5 to the right, agree=1.000, adj=1.000, (0 split)
## 203 < 13 to the right, agree=1.000, adj=1.000, (0 split)
## 175 < 27 to the right, agree=0.957, adj=0.909, (0 split)
## 177 < 77.5 to the right, agree=0.957, adj=0.909, (0 split)
## 240 < 50 to the right, agree=0.957, adj=0.909, (0 split)
##
## Node number 503: 1337 observations, complexity param=0.0003572385
## predicted class=7 expected loss=0.03141361 P(node) =0.05304503
## class counts: 2 9 11 4 3 0 2 1295 0
11
## probabilities: 0.001 0.007 0.008 0.003 0.002 0.000 0.001 0.969 0.000
0.008
## left son=1006 (10 obs) right son=1007 (1327 obs)
## Primary splits:
## 158 < 54 to the right, improve=16.191000, (0 missing)
## 159 < 24.5 to the right, improve=14.330360, (0 missing)
## 157 < 3 to the right, improve=12.494870, (0 missing)
## 461 < 219.5 to the right, improve=11.010110, (0 missing)
## 433 < 113.5 to the right, improve= 6.680192, (0 missing)

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## Surrogate splits:
##      159 < 24.5 to the right, agree=0.999, adj=0.9, (0 split)
##      157 < 3    to the right, agree=0.999, adj=0.8, (0 split)
##      130 < 4.5  to the right, agree=0.996, adj=0.4, (0 split)
##      131 < 35.5 to the right, agree=0.996, adj=0.4, (0 split)
##      160 < 78.5 to the right, agree=0.995, adj=0.3, (0 split)
##
## Node number 504: 29 observations,    complexity param=0.0001562919
## predicted class=4 expected loss=0.6206897 P(node) =0.001150565
## class counts:      1      1      8      0      11      1      3      1      1
2
## probabilities: 0.034 0.034 0.276 0.000 0.379 0.034 0.103 0.034 0.034
0.069
## left son=1008 (11 obs) right son=1009 (18 obs)
## Primary splits:
##      398 < 2.5  to the right, improve=6.737374, (0 missing)
##      399 < 10.5 to the right, improve=6.737374, (0 missing)
##      426 < 13   to the left,  improve=6.147059, (0 missing)
##      371 < 59   to the right, improve=5.673684, (0 missing)
##      427 < 73.5 to the right, improve=5.673684, (0 missing)
## Surrogate splits:
##      399 < 10.5 to the right, agree=1.000, adj=1.000, (0 split)
##      371 < 59   to the right, agree=0.966, adj=0.909, (0 split)
##      426 < 13   to the right, agree=0.966, adj=0.909, (0 split)
##      427 < 73.5 to the right, agree=0.966, adj=0.909, (0 split)
##      454 < 0.5  to the right, agree=0.931, adj=0.818, (0 split)
##
## Node number 505: 103 observations,    complexity param=4.465482e-05
## predicted class=4 expected loss=0.0776699 P(node) =0.004086491
## class counts:      0      0      0      0      95      0      3      0      0
5
## probabilities: 0.000 0.000 0.000 0.000 0.922 0.000 0.029 0.000 0.000
0.049
## left son=1010 (96 obs) right son=1011 (7 obs)
## Primary splits:
##      490 < 97.5 to the right, improve=3.890806, (0 missing)
##      463 < 137  to the right, improve=3.096163, (0 missing)
##      210 < 11.5 to the left,  improve=2.586422, (0 missing)
##      209 < 135.5 to the left, improve=2.380440, (0 missing)
##      491 < 38   to the right, improve=2.015806, (0 missing)
## Surrogate splits:
##      207 < 254.5 to the left, agree=0.951, adj=0.286, (0 split)
##      235 < 254.5 to the left, agree=0.951, adj=0.286, (0 split)
##      268 < 254.5 to the left, agree=0.951, adj=0.286, (0 split)
##      491 < 3     to the right, agree=0.951, adj=0.286, (0 split)
##      719 < 59.5  to the left, agree=0.951, adj=0.286, (0 split)
##
## Node number 508: 24 observations,    complexity param=0.0001339645
## predicted class=7 expected loss=0.3333333 P(node) =0.000952192
## class counts:      0      0      4      0      2      0      0      16      0

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2
## probabilities: 0.000 0.000 0.167 0.000 0.083 0.000 0.000 0.667 0.000
0.083
## left son=1016 (8 obs) right son=1017 (16 obs)
## Primary splits:
## 233 < 2.5 to the left, improve=5.208333, (0 missing)
## 234 < 20 to the left, improve=5.208333, (0 missing)
## 494 < 6 to the left, improve=5.208333, (0 missing)
## 207 < 88 to the left, improve=4.708333, (0 missing)
## 205 < 74 to the left, improve=4.333333, (0 missing)
## Surrogate splits:
## 234 < 20 to the left, agree=1.000, adj=1.000, (0 split)
## 205 < 23.5 to the left, agree=0.958, adj=0.875, (0 split)
## 206 < 58.5 to the left, agree=0.958, adj=0.875, (0 split)
## 207 < 41.5 to the left, agree=0.958, adj=0.875, (0 split)
## 235 < 12.5 to the left, agree=0.958, adj=0.875, (0 split)
##
## Node number 509: 26 observations, complexity param=0.0003125837
## predicted class=9 expected loss=0.5 P(node) =0.001031541
## class counts: 0 0 0 0 10 0 0 0 3
13
## probabilities: 0.000 0.000 0.000 0.000 0.385 0.000 0.000 0.000 0.115
0.500
## left son=1018 (12 obs) right son=1019 (14 obs)
## Primary splits:
## 382 < 178.5 to the left, improve=6.902930, (0 missing)
## 355 < 79 to the left, improve=6.786480, (0 missing)
## 383 < 20.5 to the left, improve=6.786480, (0 missing)
## 410 < 175 to the left, improve=5.615385, (0 missing)
## 344 < 3 to the left, improve=4.557692, (0 missing)
## Surrogate splits:
## 355 < 79 to the left, agree=0.962, adj=0.917, (0 split)
## 383 < 20.5 to the left, agree=0.962, adj=0.917, (0 split)
## 410 < 51 to the left, agree=0.885, adj=0.750, (0 split)
## 354 < 243.5 to the left, agree=0.846, adj=0.667, (0 split)
## 327 < 35 to the left, agree=0.808, adj=0.583, (0 split)
##
## Node number 510: 25 observations, complexity param=0.0002902563
## predicted class=4 expected loss=0.44 P(node) =0.0009918667
## class counts: 0 0 1 0 14 0 0 1 0
9
## probabilities: 0.000 0.000 0.040 0.000 0.560 0.000 0.000 0.040 0.000
0.360
## left son=1020 (17 obs) right son=1021 (8 obs)
## Primary splits:
## 434 < 94 to the left, improve=8.545882, (0 missing)
## 267 < 139.5 to the right, improve=4.590000, (0 missing)
## 351 < 104 to the right, improve=4.590000, (0 missing)
## 456 < 179.5 to the right, improve=4.411429, (0 missing)
## 492 < 225.5 to the right, improve=4.333506, (0 missing)

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## Surrogate splits:
##      433 < 49    to the left,  agree=0.92, adj=0.750, (0 split)
##      406 < 4     to the left,  agree=0.88, adj=0.625, (0 split)
##      464 < 218   to the right, agree=0.88, adj=0.625, (0 split)
##      490 < 102   to the right, agree=0.88, adj=0.625, (0 split)
##      243 < 132.5 to the left,  agree=0.84, adj=0.500, (0 split)
##
## Node number 511: 143 observations
## predicted class=9 expected loss=0.0979021 P(node) =0.005673477
## class counts:      0      0      3      1      3      0      1      5      1
129
## probabilities: 0.000 0.000 0.021 0.007 0.021 0.000 0.007 0.035 0.007
0.902
##
## Node number 512: 2249 observations, complexity param=8.930964e-05
## predicted class=1 expected loss=0.01823032 P(node) =0.08922833
## class counts:      0 2208      2      2      1      4      4      8      19
1
## probabilities: 0.000 0.982 0.001 0.001 0.000 0.002 0.002 0.004 0.008
0.000
## left son=1024 (2237 obs) right son=1025 (12 obs)
## Primary splits:
##      410 < 32    to the left,  improve=9.285559, (0 missing)
##      430 < 196.5 to the left,  improve=7.490684, (0 missing)
##      437 < 198   to the left,  improve=7.445189, (0 missing)
##      411 < 32    to the left,  improve=6.891602, (0 missing)
##      438 < 3     to the left,  improve=6.695199, (0 missing)
## Surrogate splits:
##      438 < 3     to the left,  agree=0.998, adj=0.667, (0 split)
##      437 < 211.5 to the left,  agree=0.997, adj=0.500, (0 split)
##      384 < 16    to the left,  agree=0.997, adj=0.417, (0 split)
##      411 < 32    to the left,  agree=0.997, adj=0.417, (0 split)
##      409 < 245   to the left,  agree=0.996, adj=0.333, (0 split)
##
## Node number 513: 11 observations
## predicted class=3 expected loss=0.6363636 P(node) =0.0004364213
## class counts:      0      1      2      4      1      1      1      0      0
1
## probabilities: 0.000 0.091 0.182 0.364 0.091 0.091 0.091 0.000 0.000
0.091
##
## Node number 514: 19 observations
## predicted class=2 expected loss=0.5789474 P(node) =0.0007538187
## class counts:      0      0      8      0      5      4      2      0      0
0
## probabilities: 0.000 0.000 0.421 0.000 0.263 0.211 0.105 0.000 0.000
0.000
##
## Node number 515: 12 observations
## predicted class=1 expected loss=0.5833333 P(node) =0.000476096

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##      class counts:      0      5      0      0      0      1      1      0      5
0
##      probabilities: 0.000 0.417 0.000 0.000 0.000 0.083 0.083 0.000 0.417
0.000
##
## Node number 544: 25 observations,      complexity param=0.0002232741
##      predicted class=1      expected loss=0.48      P(node) =0.0009918667
##      class counts:      0      13      3      5      2      1      0      1      0
0
##      probabilities: 0.000 0.520 0.120 0.200 0.080 0.040 0.000 0.040 0.000
0.000
##      left son=1088 (16 obs) right son=1089 (9 obs)
##      Primary splits:
##          603 < 181      to the right, improve=5.959444, (0 missing)
##          631 < 32.5      to the right, improve=5.959444, (0 missing)
##          185 < 9.5      to the left, improve=5.782857, (0 missing)
##          374 < 32.5      to the left, improve=5.211429, (0 missing)
##          265 < 230      to the right, improve=5.211429, (0 missing)
##      Surrogate splits:
##          631 < 32.5      to the right, agree=1.00, adj=1.000, (0 split)
##          325 < 10.5      to the left, agree=0.92, adj=0.778, (0 split)
##          326 < 8          to the left, agree=0.92, adj=0.778, (0 split)
##          599 < 25.5      to the left, agree=0.92, adj=0.778, (0 split)
##          604 < 102.5      to the right, agree=0.92, adj=0.778, (0 split)
##
## Node number 545: 68 observations,      complexity param=0.0002232741
##      predicted class=6      expected loss=0.2647059      P(node) =0.002697877
##      class counts:      7      0      6      1      1      2      50      0      0
1
##      probabilities: 0.103 0.000 0.088 0.015 0.015 0.029 0.735 0.000 0.000
0.015
##      left son=1090 (12 obs) right son=1091 (56 obs)
##      Primary splits:
##          244 < 56          to the right, improve=8.191877, (0 missing)
##          567 < 224.5      to the right, improve=7.572943, (0 missing)
##          123 < 192.5      to the right, improve=7.446756, (0 missing)
##          150 < 251.5      to the right, improve=7.446756, (0 missing)
##          151 < 133          to the right, improve=7.446756, (0 missing)
##      Surrogate splits:
##          243 < 190.5      to the right, agree=0.956, adj=0.750, (0 split)
##          245 < 10          to the right, agree=0.956, adj=0.750, (0 split)
##          272 < 2.5          to the right, agree=0.941, adj=0.667, (0 split)
##          217 < 97          to the right, agree=0.926, adj=0.583, (0 split)
##          271 < 142.5      to the right, agree=0.926, adj=0.583, (0 split)
##
## Node number 546: 67 observations,      complexity param=0.000491203
##      predicted class=2      expected loss=0.6865672      P(node) =0.002658203
##      class counts:      5      6      21      6      4      19      1      0      5
0
##      probabilities: 0.075 0.090 0.313 0.090 0.060 0.284 0.015 0.000 0.075

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0.000
## left son=1092 (13 obs) right son=1093 (54 obs)
## Primary splits:
## 552 < 26 to the right, improve=9.399668, (0 missing)
## 553 < 31.5 to the right, improve=9.399668, (0 missing)
## 554 < 40 to the right, improve=9.399668, (0 missing)
## 555 < 12.5 to the right, improve=9.399668, (0 missing)
## 524 < 8 to the right, improve=8.635048, (0 missing)
## Surrogate splits:
## 553 < 79.5 to the right, agree=0.970, adj=0.846, (0 split)
## 524 < 197 to the right, agree=0.940, adj=0.692, (0 split)
## 554 < 40 to the right, agree=0.940, adj=0.692, (0 split)
## 555 < 12.5 to the right, agree=0.940, adj=0.692, (0 split)
## 525 < 186 to the right, agree=0.925, adj=0.615, (0 split)
##
## Node number 547: 92 observations, complexity param=0.0007144771
## predicted class=4 expected loss=0.6413043 P(node) =0.003650069
## class counts: 0 14 1 2 33 2 3 7 1
29
## probabilities: 0.000 0.152 0.011 0.022 0.359 0.022 0.033 0.076 0.011
0.315
## left son=1094 (22 obs) right son=1095 (70 obs)
## Primary splits:
## 456 < 13.5 to the right, improve=12.39633, (0 missing)
## 429 < 115.5 to the right, improve=12.32083, (0 missing)
## 401 < 130.5 to the right, improve=11.91346, (0 missing)
## 428 < 0.5 to the right, improve=11.63469, (0 missing)
## 467 < 2.5 to the right, improve=11.42450, (0 missing)
## Surrogate splits:
## 428 < 60 to the right, agree=0.957, adj=0.818, (0 split)
## 457 < 198.5 to the right, agree=0.946, adj=0.773, (0 split)
## 429 < 160 to the right, agree=0.935, adj=0.727, (0 split)
## 455 < 2 to the right, agree=0.935, adj=0.727, (0 split)
## 484 < 7 to the right, agree=0.935, adj=0.727, (0 split)
##
## Node number 552: 77 observations
## predicted class=1 expected loss=0.09090909 P(node) =0.003054949
## class counts: 0 70 1 0 0 1 1 2 1
1
## probabilities: 0.000 0.909 0.013 0.000 0.000 0.013 0.013 0.026 0.013
0.013
##
## Node number 553: 18 observations
## predicted class=8 expected loss=0.6111111 P(node) =0.000714144
## class counts: 1 2 0 1 0 2 0 2 7
3
## probabilities: 0.056 0.111 0.000 0.056 0.000 0.111 0.000 0.111 0.389
0.167
##
## Node number 554: 11 observations

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## predicted class=4 expected loss=0.1818182 P(node) =0.0004364213
## class counts: 0 0 0 0 9 0 1 0 0
1
## probabilities: 0.000 0.000 0.000 0.000 0.818 0.000 0.091 0.000 0.000
0.091
##
## Node number 555: 28 observations, complexity param=0.0002679289
## predicted class=8 expected loss=0.7142857 P(node) =0.001110891
## class counts: 2 1 0 3 1 6 2 0 8
5
## probabilities: 0.071 0.036 0.000 0.107 0.036 0.214 0.071 0.000 0.286
0.179
## left son=1110 (7 obs) right son=1111 (21 obs)
## Primary splits:
## 379 < 17.5 to the left, improve=5.047619, (0 missing)
## 378 < 119 to the left, improve=4.857143, (0 missing)
## 406 < 165 to the left, improve=4.279365, (0 missing)
## 407 < 62 to the left, improve=4.279365, (0 missing)
## 408 < 141.5 to the left, improve=3.913553, (0 missing)
## Surrogate splits:
## 378 < 119 to the left, agree=0.964, adj=0.857, (0 split)
## 240 < 232.5 to the left, agree=0.929, adj=0.714, (0 split)
## 267 < 214 to the left, agree=0.893, adj=0.571, (0 split)
## 277 < 3.5 to the right, agree=0.893, adj=0.571, (0 split)
## 380 < 15.5 to the left, agree=0.893, adj=0.571, (0 split)
##
## Node number 556: 37 observations, complexity param=0.0002902563
## predicted class=3 expected loss=0.6486486 P(node) =0.001467963
## class counts: 1 1 1 13 5 2 0 1 12
1
## probabilities: 0.027 0.027 0.027 0.351 0.135 0.054 0.000 0.027 0.324
0.027
## left son=1112 (19 obs) right son=1113 (18 obs)
## Primary splits:
## 317 < 4.5 to the left, improve=8.604078, (0 missing)
## 232 < 12 to the left, improve=8.288288, (0 missing)
## 318 < 65.5 to the left, improve=7.824003, (0 missing)
## 544 < 31 to the left, improve=7.645013, (0 missing)
## 289 < 12.5 to the left, improve=7.627682, (0 missing)
## Surrogate splits:
## 289 < 3.5 to the left, agree=0.973, adj=0.944, (0 split)
## 318 < 164.5 to the left, agree=0.973, adj=0.944, (0 split)
## 290 < 3 to the left, agree=0.892, adj=0.778, (0 split)
## 316 < 6.5 to the left, agree=0.865, adj=0.722, (0 split)
## 403 < 153 to the right, agree=0.865, adj=0.722, (0 split)
##
## Node number 557: 87 observations, complexity param=4.465482e-05
## predicted class=8 expected loss=0.1149425 P(node) =0.003451696
## class counts: 0 2 0 2 4 1 0 0 77
1

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```

## probabilities: 0.000 0.023 0.000 0.023 0.046 0.011 0.000 0.000 0.885
0.011
## left son=1114 (8 obs) right son=1115 (79 obs)
## Primary splits:
## 401 < 186 to the right, improve=4.206787, (0 missing)
## 345 < 150 to the right, improve=4.069581, (0 missing)
## 461 < 165.5 to the left, improve=3.523153, (0 missing)
## 373 < 6.5 to the right, improve=3.385057, (0 missing)
## 184 < 84 to the left, improve=2.956787, (0 missing)
## Surrogate splits:
## 373 < 190.5 to the right, agree=0.977, adj=0.750, (0 split)
## 400 < 77.5 to the right, agree=0.966, adj=0.625, (0 split)
## 372 < 38.5 to the right, agree=0.954, adj=0.500, (0 split)
## 402 < 249 to the right, agree=0.954, adj=0.500, (0 split)
## 344 < 6.5 to the right, agree=0.943, adj=0.375, (0 split)
##
## Node number 586: 24 observations, complexity param=0.0001786193
## predicted class=2 expected loss=0.4583333 P(node) =0.000952192
## class counts: 0 0 13 1 0 0 3 1 6
0
## probabilities: 0.000 0.000 0.542 0.042 0.000 0.000 0.125 0.042 0.250
0.000
## left son=1172 (16 obs) right son=1173 (8 obs)
## Primary splits:
## 270 < 4.5 to the left, improve=4.25, (0 missing)
## 470 < 11.5 to the right, improve=3.50, (0 missing)
## 471 < 11.5 to the right, improve=3.50, (0 missing)
## 472 < 1.5 to the right, improve=3.50, (0 missing)
## 498 < 68.5 to the right, improve=3.50, (0 missing)
## Surrogate splits:
## 242 < 3 to the left, agree=0.958, adj=0.875, (0 split)
## 214 < 2.5 to the left, agree=0.917, adj=0.750, (0 split)
## 241 < 120.5 to the left, agree=0.917, adj=0.750, (0 split)
## 269 < 136 to the left, agree=0.917, adj=0.750, (0 split)
## 607 < 221.5 to the left, agree=0.917, adj=0.750, (0 split)
##
## Node number 587: 12 observations
## predicted class=3 expected loss=0.25 P(node) =0.000476096
## class counts: 0 0 0 9 0 0 0 1 1
1
## probabilities: 0.000 0.000 0.000 0.750 0.000 0.000 0.000 0.083 0.083
0.083
##
## Node number 598: 9 observations
## predicted class=9 expected loss=0.5555556 P(node) =0.000357072
## class counts: 0 0 1 0 0 3 0 1 0
4
## probabilities: 0.000 0.000 0.111 0.000 0.000 0.333 0.000 0.111 0.000
0.444
##

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## Node number 599: 11 observations
##   predicted class=8   expected loss=0.09090909   P(node) =0.0004364213
##   class counts:      0      0      0      0      0      0      0      0      10
1
##   probabilities: 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.909
0.091
##
## Node number 612: 34 observations,   complexity param=0.0003125837
##   predicted class=2   expected loss=0.2941176   P(node) =0.001348939
##   class counts:      0      1      24      8      0      0      0      0      1
0
##   probabilities: 0.000 0.029 0.706 0.235 0.000 0.000 0.000 0.000 0.029
0.000
##   left son=1224 (24 obs) right son=1225 (10 obs)
##   Primary splits:
##       543 < 81   to the right, improve=9.800980, (0 missing)
##       544 < 69   to the right, improve=8.477331, (0 missing)
##       516 < 79.5 to the right, improve=8.024314, (0 missing)
##       571 < 14.5 to the right, improve=7.921880, (0 missing)
##       600 < 120  to the right, improve=7.921880, (0 missing)
##   Surrogate splits:
##       516 < 79.5 to the right, agree=0.971, adj=0.9, (0 split)
##       544 < 69   to the right, agree=0.971, adj=0.9, (0 split)
##       571 < 185  to the right, agree=0.941, adj=0.8, (0 split)
##       600 < 120  to the right, agree=0.912, adj=0.7, (0 split)
##       572 < 3.5  to the right, agree=0.882, adj=0.6, (0 split)
##
## Node number 613: 13 observations
##   predicted class=8   expected loss=0.2307692   P(node) =0.0005157707
##   class counts:      0      3      0      0      0      0      0      0      10
0
##   probabilities: 0.000 0.231 0.000 0.000 0.000 0.000 0.000 0.000 0.769
0.000
##
## Node number 614: 7 observations
##   predicted class=3   expected loss=0.2857143   P(node) =0.0002777227
##   class counts:      0      0      0      5      0      0      0      1      1
0
##   probabilities: 0.000 0.000 0.000 0.714 0.000 0.000 0.000 0.143 0.143
0.000
##
## Node number 615: 49 observations
##   predicted class=7   expected loss=0.1632653   P(node) =0.001944059
##   class counts:      0      5      2      0      0      0      0      41      0
1
##   probabilities: 0.000 0.102 0.041 0.000 0.000 0.000 0.000 0.837 0.000
0.020
##
## Node number 624: 26 observations,   complexity param=0.0002976988
##   predicted class=1   expected loss=0.5   P(node) =0.001031541

```

```

##      class counts:      0      13      0      3      0      1      0      0      9
0
##      probabilities: 0.000 0.500 0.000 0.115 0.000 0.038 0.000 0.000 0.346
0.000
##      left son=1248 (14 obs) right son=1249 (12 obs)
##      Primary splits:
##          269 < 25.5  to the left,  improve=8.309524, (0 missing)
##          573 < 251.5 to the left,  improve=7.825000, (0 missing)
##          268 < 169   to the left,  improve=6.923077, (0 missing)
##          241 < 7.5   to the left,  improve=6.896970, (0 missing)
##          374 < 14.5  to the left,  improve=6.896970, (0 missing)
##      Surrogate splits:
##          241 < 7.5   to the left,  agree=0.962, adj=0.917, (0 split)
##          268 < 169   to the left,  agree=0.962, adj=0.917, (0 split)
##          212 < 99    to the left,  agree=0.923, adj=0.833, (0 split)
##          213 < 19.5  to the left,  agree=0.923, adj=0.833, (0 split)
##          240 < 115   to the left,  agree=0.923, adj=0.833, (0 split)
##
##      Node number 625: 9 observations
##      predicted class=7  expected loss=0.1111111  P(node) =0.000357072
##      class counts:      0      0      0      0      0      0      0      8      0
1
##      probabilities: 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.889 0.000
0.111
##
##      Node number 626: 8 observations
##      predicted class=9  expected loss=0.5  P(node) =0.0003173973
##      class counts:      0      0      0      0      3      0      0      0      1
4
##      probabilities: 0.000 0.000 0.000 0.000 0.375 0.000 0.000 0.000 0.125
0.500
##
##      Node number 627: 37 observations
##      predicted class=8  expected loss=0.1621622  P(node) =0.001467963
##      class counts:      0      0      1      3      1      0      0      0      31
1
##      probabilities: 0.000 0.000 0.027 0.081 0.027 0.000 0.000 0.000 0.838
0.027
##
##      Node number 630: 7 observations
##      predicted class=4  expected loss=0.5714286  P(node) =0.0002777227
##      class counts:      1      0      0      0      3      0      0      0      1
2
##      probabilities: 0.143 0.000 0.000 0.000 0.429 0.000 0.000 0.000 0.143
0.286
##
##      Node number 631: 19 observations
##      predicted class=9  expected loss=0.05263158  P(node) =0.0007538187
##      class counts:      0      0      0      0      0      0      0      1      0
18

```

```

## probabilities: 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.053 0.000
0.947
##
## Node number 638: 36 observations, complexity param=8.930964e-05
## predicted class=8 expected loss=0.3888889 P(node) =0.001428288
## class counts: 0 0 0 2 7 1 1 1 22
2
## probabilities: 0.000 0.000 0.000 0.056 0.194 0.028 0.028 0.028 0.611
0.056
## left son=1276 (13 obs) right son=1277 (23 obs)
## Primary splits:
## 269 < 252.5 to the right, improve=6.026013, (0 missing)
## 210 < 195.5 to the left, improve=6.000000, (0 missing)
## 576 < 90.5 to the left, improve=5.960317, (0 missing)
## 183 < 25.5 to the left, improve=5.781746, (0 missing)
## 604 < 244 to the left, improve=5.450762, (0 missing)
## Surrogate splits:
## 604 < 244 to the left, agree=0.889, adj=0.692, (0 split)
## 545 < 252.5 to the right, agree=0.833, adj=0.538, (0 split)
## 573 < 252.5 to the right, agree=0.833, adj=0.538, (0 split)
## 576 < 140.5 to the left, agree=0.833, adj=0.538, (0 split)
## 577 < 174.5 to the left, agree=0.833, adj=0.538, (0 split)
##
## Node number 639: 312 observations
## predicted class=8 expected loss=0.02564103 P(node) =0.0123785
## class counts: 1 1 1 1 1 0 1 1 304
1
## probabilities: 0.003 0.003 0.003 0.003 0.003 0.000 0.003 0.003 0.974
0.003
##
## Node number 640: 32 observations
## predicted class=1 expected loss=0.03125 P(node) =0.001269589
## class counts: 0 31 0 0 0 1 0 0 0
0
## probabilities: 0.000 0.969 0.000 0.000 0.000 0.031 0.000 0.000 0.000
0.000
##
## Node number 641: 7 observations
## predicted class=2 expected loss=0.5714286 P(node) =0.0002777227
## class counts: 0 2 3 0 0 0 0 2 0
0
## probabilities: 0.000 0.286 0.429 0.000 0.000 0.000 0.000 0.286 0.000
0.000
##
## Node number 642: 18 observations
## predicted class=3 expected loss=0 P(node) =0.000714144
## class counts: 0 0 0 18 0 0 0 0 0
0
## probabilities: 0.000 0.000 0.000 1.000 0.000 0.000 0.000 0.000 0.000
0.000

```

```

##
## Node number 643: 7 observations
## predicted class=7 expected loss=0.5714286 P(node) =0.0002777227
## class counts:      0      0      0      2      0      0      0      3      2
0
## probabilities: 0.000 0.000 0.000 0.286 0.000 0.000 0.000 0.429 0.286
0.000
##
## Node number 644: 1370 observations, complexity param=0.0002456015
## predicted class=3 expected loss=0.02773723 P(node) =0.05435429
## class counts:      0      2     10    1332      0     14      0      0     12
0
## probabilities: 0.000 0.001 0.007 0.972 0.000 0.010 0.000 0.000 0.009
0.000
## left son=1288 (1360 obs) right son=1289 (10 obs)
## Primary splits:
## 487 < 148 to the left, improve=14.791020, (0 missing)
## 488 < 58.5 to the left, improve=13.689060, (0 missing)
## 341 < 70 to the left, improve=12.826310, (0 missing)
## 342 < 147.5 to the left, improve=10.885130, (0 missing)
## 313 < 154 to the left, improve= 9.880721, (0 missing)
## Surrogate splits:
## 488 < 63 to the left, agree=0.997, adj=0.6, (0 split)
## 515 < 248.5 to the left, agree=0.996, adj=0.4, (0 split)
##
## Node number 645: 23 observations, complexity param=0.0002232741
## predicted class=5 expected loss=0.6086957 P(node) =0.0009125174
## class counts:      0      0      0      5      0      9      0      0      4
5
## probabilities: 0.000 0.000 0.000 0.217 0.000 0.391 0.000 0.000 0.174
0.217
## left son=1290 (16 obs) right son=1291 (7 obs)
## Primary splits:
## 524 < 20 to the right, improve=4.090839, (0 missing)
## 496 < 36 to the right, improve=3.958696, (0 missing)
## 296 < 16 to the left, improve=3.701003, (0 missing)
## 580 < 1 to the right, improve=3.558696, (0 missing)
## 294 < 109.5 to the right, improve=3.555124, (0 missing)
## Surrogate splits:
## 496 < 36 to the right, agree=0.957, adj=0.857, (0 split)
## 552 < 23.5 to the right, agree=0.957, adj=0.857, (0 split)
## 205 < 66 to the right, agree=0.870, adj=0.571, (0 split)
## 468 < 36 to the right, agree=0.870, adj=0.571, (0 split)
## 492 < 29 to the left, agree=0.870, adj=0.571, (0 split)
##
## Node number 646: 16 observations
## predicted class=3 expected loss=0.1875 P(node) =0.0006347947
## class counts:      0      0      0     13      0      0      0      1      2
0
## probabilities: 0.000 0.000 0.000 0.813 0.000 0.000 0.000 0.062 0.125

```



```

0.000
##
## Node number 647: 29 observations,      complexity param=0.0002456015
## predicted class=5 expected loss=0.4827586 P(node) =0.001150565
## class counts:      0      6      0      4      0      15      0      1      3
0
## probabilities: 0.000 0.207 0.000 0.138 0.000 0.517 0.000 0.034 0.103
0.000
## left son=1294 (12 obs) right son=1295 (17 obs)
## Primary splits:
##      185 < 63.5 to the left, improve=8.074037, (0 missing)
##      213 < 0.5  to the left, improve=6.834218, (0 missing)
##      466 < 27.5 to the left, improve=6.752799, (0 missing)
##      628 < 16.5 to the left, improve=6.752799, (0 missing)
##      629 < 27   to the left, improve=6.752799, (0 missing)
## Surrogate splits:
##      213 < 0.5  to the left, agree=0.966, adj=0.917, (0 split)
##      157 < 9     to the left, agree=0.931, adj=0.833, (0 split)
##      158 < 4     to the left, agree=0.931, adj=0.833, (0 split)
##      186 < 18    to the left, agree=0.931, adj=0.833, (0 split)
##      156 < 8     to the left, agree=0.897, adj=0.750, (0 split)
##
## Node number 652: 13 observations
## predicted class=3 expected loss=0.07692308 P(node) =0.0005157707
## class counts:      1      0      0      12      0      0      0      0      0
0
## probabilities: 0.077 0.000 0.000 0.923 0.000 0.000 0.000 0.000 0.000
0.000
##
## Node number 653: 12 observations
## predicted class=5 expected loss=0.5833333 P(node) =0.000476096
## class counts:      1      0      0      0      0      5      1      0      4
1
## probabilities: 0.083 0.000 0.000 0.000 0.000 0.417 0.083 0.000 0.333
0.083
##
## Node number 656: 9 observations
## predicted class=2 expected loss=0.5555556 P(node) =0.000357072
## class counts:      1      0      4      2      0      1      0      0      1
0
## probabilities: 0.111 0.000 0.444 0.222 0.000 0.111 0.000 0.000 0.111
0.000
##
## Node number 657: 193 observations
## predicted class=3 expected loss=0.03626943 P(node) =0.007657211
## class counts:      1      1      0      186      0      1      0      0      3
1
## probabilities: 0.005 0.005 0.000 0.964 0.000 0.005 0.000 0.000 0.016
0.005
##

```

```

## Node number 658: 29 observations,    complexity param=0.0001339645
##   predicted class=3   expected loss=0.3103448   P(node) =0.001150565
##   class counts:      0      3      1      20      0      2      3      0      0
##   probabilities: 0.000 0.103 0.034 0.690 0.000 0.069 0.103 0.000 0.000
##   0.000
##   left son=1316 (7 obs) right son=1317 (22 obs)
##   Primary splits:
##       486 < 1      to the right, improve=5.829378, (0 missing)
##       325 < 11     to the right, improve=4.719056, (0 missing)
##       352 < 111.5  to the right, improve=4.699507, (0 missing)
##       353 < 72.5   to the right, improve=4.413793, (0 missing)
##       459 < 46     to the left,  improve=4.102105, (0 missing)
##   Surrogate splits:
##       352 < 23     to the left,  agree=0.931, adj=0.714, (0 split)
##       459 < 46     to the right, agree=0.931, adj=0.714, (0 split)
##       460 < 189    to the right, agree=0.931, adj=0.714, (0 split)
##       487 < 94.5   to the right, agree=0.931, adj=0.714, (0 split)
##       488 < 74.5   to the right, agree=0.931, adj=0.714, (0 split)
##
## Node number 659: 30 observations,    complexity param=0.0002232741
##   predicted class=5   expected loss=0.3666667   P(node) =0.00119024
##   class counts:      5      0      0      2      0      19      0      3      1
##   probabilities: 0.167 0.000 0.000 0.067 0.000 0.633 0.000 0.100 0.033
##   0.000
##   left son=1318 (7 obs) right son=1319 (23 obs)
##   Primary splits:
##       412 < 5.5    to the right, improve=6.480331, (0 missing)
##       384 < 6       to the right, improve=5.536232, (0 missing)
##       356 < 8.5     to the right, improve=5.416667, (0 missing)
##       357 < 2.5     to the right, improve=5.416667, (0 missing)
##       440 < 15.5   to the right, improve=5.089027, (0 missing)
##   Surrogate splits:
##       330 < 239.5  to the right, agree=0.967, adj=0.857, (0 split)
##       357 < 111.5  to the right, agree=0.967, adj=0.857, (0 split)
##       384 < 70.5   to the right, agree=0.967, adj=0.857, (0 split)
##       385 < 40.5   to the right, agree=0.967, adj=0.857, (0 split)
##       413 < 95.5   to the right, agree=0.967, adj=0.857, (0 split)
##
## Node number 660: 18 observations
##   predicted class=0   expected loss=0   P(node) =0.000714144
##   class counts:      18      0      0      0      0      0      0      0      0
##   probabilities: 1.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
##   0.000
##
## Node number 661: 7 observations
##   predicted class=8   expected loss=0.5714286   P(node) =0.0002777227
##   class counts:      1      0      0      0      0      1      2      0      3

```

```

0
## probabilities: 0.143 0.000 0.000 0.000 0.000 0.143 0.286 0.000 0.429
0.000
##
## Node number 662: 30 observations, complexity param=0.0002232741
## predicted class=3 expected loss=0.4333333 P(node) =0.00119024
## class counts: 0 0 0 17 0 5 2 1 2
3
## probabilities: 0.000 0.000 0.000 0.567 0.000 0.167 0.067 0.033 0.067
0.100
## left son=1324 (22 obs) right son=1325 (8 obs)
## Primary splits:
## 324 < 153.5 to the right, improve=6.228788, (0 missing)
## 352 < 239 to the right, improve=6.058333, (0 missing)
## 187 < 208.5 to the right, improve=5.403922, (0 missing)
## 439 < 26.5 to the right, improve=5.403922, (0 missing)
## 353 < 117 to the right, improve=5.333333, (0 missing)
## Surrogate splits:
## 323 < 120.5 to the right, agree=0.933, adj=0.750, (0 split)
## 325 < 66.5 to the right, agree=0.933, adj=0.750, (0 split)
## 236 < 3.5 to the right, agree=0.900, adj=0.625, (0 split)
## 247 < 60.5 to the left, agree=0.900, adj=0.625, (0 split)
## 274 < 187 to the left, agree=0.900, adj=0.625, (0 split)
##
## Node number 663: 101 observations, complexity param=0.0002232741
## predicted class=5 expected loss=0.1089109 P(node) =0.004007141
## class counts: 0 0 0 8 0 90 1 0 2
0
## probabilities: 0.000 0.000 0.000 0.079 0.000 0.891 0.010 0.000 0.020
0.000
## left son=1326 (8 obs) right son=1327 (93 obs)
## Primary splits:
## 124 < 83 to the right, improve=9.105371, (0 missing)
## 125 < 130 to the right, improve=6.255909, (0 missing)
## 97 < 12.5 to the right, improve=4.693280, (0 missing)
## 440 < 252.5 to the right, improve=4.693280, (0 missing)
## 552 < 170 to the right, improve=4.693280, (0 missing)
## Surrogate splits:
## 122 < 0.5 to the right, agree=0.98, adj=0.750, (0 split)
## 123 < 60 to the right, agree=0.98, adj=0.750, (0 split)
## 96 < 43 to the right, agree=0.97, adj=0.625, (0 split)
## 152 < 116.5 to the right, agree=0.97, adj=0.625, (0 split)
## 94 < 61.5 to the right, agree=0.96, adj=0.500, (0 split)
##
## Node number 664: 77 observations
## predicted class=1 expected loss=0 P(node) =0.003054949
## class counts: 0 77 0 0 0 0 0 0 0
0
## probabilities: 0.000 1.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000

```

```

##
## Node number 665: 8 observations
## predicted class=7 expected loss=0.5 P(node) =0.0003173973
## class counts: 0 2 0 0 1 0 1 4 0
0
## probabilities: 0.000 0.250 0.000 0.000 0.125 0.000 0.125 0.500 0.000
0.000
##
## Node number 668: 7 observations
## predicted class=0 expected loss=0.2857143 P(node) =0.0002777227
## class counts: 5 0 0 2 0 0 0 0 0
0
## probabilities: 0.714 0.000 0.000 0.286 0.000 0.000 0.000 0.000 0.000
0.000
##
## Node number 669: 51 observations, complexity param=8.930964e-05
## predicted class=5 expected loss=0.1568627 P(node) =0.002023408
## class counts: 0 0 1 4 0 43 1 1 1
0
## probabilities: 0.000 0.000 0.020 0.078 0.000 0.843 0.020 0.020 0.020
0.000
## left son=1338 (7 obs) right son=1339 (44 obs)
## Primary splits:
## 352 < 251.5 to the right, improve=4.625668, (0 missing)
## 184 < 138.5 to the right, improve=4.625668, (0 missing)
## 326 < 171.5 to the right, improve=3.899283, (0 missing)
## 327 < 69.5 to the right, improve=3.412032, (0 missing)
## 183 < 138 to the right, improve=3.378915, (0 missing)
## Surrogate splits:
## 353 < 242 to the right, agree=0.922, adj=0.429, (0 split)
## 507 < 5.5 to the right, agree=0.922, adj=0.429, (0 split)
## 508 < 252.5 to the right, agree=0.922, adj=0.429, (0 split)
## 535 < 2 to the right, agree=0.922, adj=0.429, (0 split)
## 221 < 166 to the right, agree=0.902, adj=0.286, (0 split)
##
## Node number 670: 43 observations, complexity param=0.0002456015
## predicted class=4 expected loss=0.3953488 P(node) =0.001706011
## class counts: 0 0 0 6 26 0 1 10 0
0
## probabilities: 0.000 0.000 0.000 0.140 0.605 0.000 0.023 0.233 0.000
0.000
## left son=1340 (23 obs) right son=1341 (20 obs)
## Primary splits:
## 231 < 13 to the right, improve=8.879980, (0 missing)
## 203 < 3 to the right, improve=7.843023, (0 missing)
## 259 < 5 to the right, improve=7.584251, (0 missing)
## 204 < 9.5 to the right, improve=7.133023, (0 missing)
## 322 < 136 to the left, improve=6.586236, (0 missing)
## Surrogate splits:
## 259 < 5 to the right, agree=0.977, adj=0.95, (0 split)

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```

##      232 < 13.5  to the right, agree=0.930, adj=0.85, (0 split)
##      260 < 11.5  to the right, agree=0.930, adj=0.85, (0 split)
##      287 < 60.5  to the right, agree=0.930, adj=0.85, (0 split)
##      203 < 3      to the right, agree=0.907, adj=0.80, (0 split)
##
## Node number 671: 70 observations,      complexity param=0.0003125837
##   predicted class=9   expected loss=0.5571429   P(node) =0.002777227
##   class counts:      0      7      0      10      4      5      6      1      6
31
##   probabilities: 0.000 0.100 0.000 0.143 0.057 0.071 0.086 0.014 0.086
0.443
##   left son=1342 (27 obs) right son=1343 (43 obs)
##   Primary splits:
##       325 < 5      to the left,  improve=11.360110, (0 missing)
##       182 < 5      to the right, improve=10.020820, (0 missing)
##       324 < 167.5  to the left,  improve= 8.603102, (0 missing)
##       155 < 60.5   to the right, improve= 8.141367, (0 missing)
##       353 < 42     to the left,  improve= 8.109524, (0 missing)
##   Surrogate splits:
##       324 < 80.5   to the left,  agree=0.900, adj=0.741, (0 split)
##       297 < 11     to the left,  agree=0.871, adj=0.667, (0 split)
##       353 < 31.5   to the left,  agree=0.871, adj=0.667, (0 split)
##       352 < 127.5  to the left,  agree=0.843, adj=0.593, (0 split)
##       155 < 25.5   to the right, agree=0.814, adj=0.519, (0 split)
##
## Node number 676: 101 observations,      complexity param=0.0001339645
##   predicted class=3   expected loss=0.1485149   P(node) =0.004007141
##   class counts:      0      0      0      86      0      3      0      0      6
6
##   probabilities: 0.000 0.000 0.000 0.851 0.000 0.030 0.000 0.000 0.059
0.059
##   left son=1352 (94 obs) right son=1353 (7 obs)
##   Primary splits:
##       488 < 57.5   to the left,  improve=5.666346, (0 missing)
##       515 < 194    to the left,  improve=5.666346, (0 missing)
##       487 < 45     to the left,  improve=4.790190, (0 missing)
##       380 < 205    to the right, improve=4.469740, (0 missing)
##       381 < 25     to the right, improve=4.060609, (0 missing)
##   Surrogate splits:
##       487 < 45     to the left,  agree=0.99, adj=0.857, (0 split)
##       515 < 194    to the left,  agree=0.98, adj=0.714, (0 split)
##       516 < 137.5  to the left,  agree=0.98, adj=0.714, (0 split)
##       460 < 243.5  to the left,  agree=0.97, adj=0.571, (0 split)
##       543 < 248    to the left,  agree=0.96, adj=0.429, (0 split)
##
## Node number 677: 11 observations
##   predicted class=8   expected loss=0.09090909   P(node) =0.0004364213
##   class counts:      0      0      0      0      0      1      0      0      10
0
##   probabilities: 0.000 0.000 0.000 0.000 0.000 0.091 0.000 0.000 0.909

```

```

0.000
##
## Node number 678: 40 observations,    complexity param=0.0001786193
## predicted class=3 expected loss=0.2 P(node) =0.001586987
## class counts:    0    0    0   32    0    6    0    0    2
0
## probabilities: 0.000 0.000 0.000 0.800 0.000 0.150 0.000 0.000 0.050
0.000
## left son=1356 (32 obs) right son=1357 (8 obs)
## Primary splits:
##      288 < 216 to the left, improve=7.212500, (0 missing)
##      260 < 176.5 to the left, improve=6.131183, (0 missing)
##      289 < 234.5 to the left, improve=5.642424, (0 missing)
##      261 < 168.5 to the left, improve=5.337500, (0 missing)
##      287 < 29.5 to the left, improve=5.266667, (0 missing)
## Surrogate splits:
##      289 < 234.5 to the left, agree=0.975, adj=0.875, (0 split)
##      287 < 29.5 to the left, agree=0.950, adj=0.750, (0 split)
##      260 < 110 to the left, agree=0.925, adj=0.625, (0 split)
##      316 < 239 to the left, agree=0.900, adj=0.500, (0 split)
##      428 < 222.5 to the left, agree=0.900, adj=0.500, (0 split)
##
## Node number 679: 140 observations,    complexity param=0.0004465482
## predicted class=5 expected loss=0.5785714 P(node) =0.005554453
## class counts:    5    1    1   27    0   59    2    3   19
23
## probabilities: 0.036 0.007 0.007 0.193 0.000 0.421 0.014 0.021 0.136
0.164
## left son=1358 (102 obs) right son=1359 (38 obs)
## Primary splits:
##      294 < 3 to the right, improve=11.174260, (0 missing)
##      293 < 70 to the right, improve=11.042710, (0 missing)
##      320 < 182.5 to the right, improve=10.150730, (0 missing)
##      247 < 16.5 to the right, improve=10.000000, (0 missing)
##      596 < 15 to the right, improve= 9.077527, (0 missing)
## Surrogate splits:
##      295 < 32 to the right, agree=0.914, adj=0.684, (0 split)
##      293 < 42 to the right, agree=0.907, adj=0.658, (0 split)
##      322 < 192 to the right, agree=0.864, adj=0.500, (0 split)
##      321 < 166 to the right, agree=0.843, adj=0.421, (0 split)
##      320 < 164 to the right, agree=0.829, adj=0.368, (0 split)
##
## Node number 684: 23 observations
## predicted class=3 expected loss=0.08695652 P(node) =0.0009125174
## class counts:    0    0    0   21    0    0    0    0    1
1
## probabilities: 0.000 0.000 0.000 0.913 0.000 0.000 0.000 0.000 0.043
0.043
##
## Node number 685: 10 observations

```

```

## predicted class=5 expected loss=0.5 P(node) =0.0003967467
## class counts: 2 0 0 1 0 5 1 0 1
0
## probabilities: 0.200 0.000 0.000 0.100 0.000 0.500 0.100 0.000 0.100
0.000
##
## Node number 686: 18 observations
## predicted class=3 expected loss=0.2777778 P(node) =0.000714144
## class counts: 0 0 0 13 0 4 0 0 1
0
## probabilities: 0.000 0.000 0.000 0.722 0.000 0.222 0.000 0.000 0.056
0.000
##
## Node number 687: 422 observations, complexity param=0.0001488494
## predicted class=5 expected loss=0.05924171 P(node) =0.01674271
## class counts: 0 0 0 15 0 397 5 0 3
2
## probabilities: 0.000 0.000 0.000 0.036 0.000 0.941 0.012 0.000 0.007
0.005
## left son=1374 (37 obs) right son=1375 (385 obs)
## Primary splits:
## 235 < 1 to the left, improve=6.854948, (0 missing)
## 262 < 12.5 to the left, improve=6.151673, (0 missing)
## 299 < 67 to the left, improve=4.890571, (0 missing)
## 234 < 7.5 to the left, improve=3.863683, (0 missing)
## 293 < 167 to the right, improve=3.715413, (0 missing)
## Surrogate splits:
## 262 < 0.5 to the left, agree=0.924, adj=0.135, (0 split)
## 266 < 253.5 to the right, agree=0.922, adj=0.108, (0 split)
## 499 < 252.5 to the right, agree=0.919, adj=0.081, (0 split)
## 500 < 48 to the right, agree=0.919, adj=0.081, (0 split)
## 528 < 32 to the right, agree=0.919, adj=0.081, (0 split)
##
## Node number 688: 63 observations
## predicted class=4 expected loss=0.0952381 P(node) =0.002499504
## class counts: 0 0 0 1 57 0 0 2 0
3
## probabilities: 0.000 0.000 0.000 0.016 0.905 0.000 0.000 0.032 0.000
0.048
##
## Node number 689: 7 observations
## predicted class=6 expected loss=0.4285714 P(node) =0.0002777227
## class counts: 0 0 0 0 0 3 4 0 0
0
## probabilities: 0.000 0.000 0.000 0.000 0.000 0.429 0.571 0.000 0.000
0.000
##
## Node number 696: 52 observations
## predicted class=5 expected loss=0.1923077 P(node) =0.002063083
## class counts: 0 0 0 5 0 42 3 0 0

```

```

2
## probabilities: 0.000 0.000 0.000 0.096 0.000 0.808 0.058 0.000 0.000
0.038
##
## Node number 697: 11 observations
## predicted class=4 expected loss=0.6363636 P(node) =0.0004364213
## class counts: 0 0 0 0 4 1 0 1 1
4
## probabilities: 0.000 0.000 0.000 0.000 0.364 0.091 0.000 0.091 0.091
0.364
##
## Node number 698: 9 observations
## predicted class=3 expected loss=0 P(node) =0.000357072
## class counts: 0 0 0 9 0 0 0 0 0
0
## probabilities: 0.000 0.000 0.000 1.000 0.000 0.000 0.000 0.000 0.000
0.000
##
## Node number 699: 28 observations, complexity param=0.0001339645
## predicted class=9 expected loss=0.5 P(node) =0.001110891
## class counts: 0 2 0 2 6 1 0 1 2
14
## probabilities: 0.000 0.071 0.000 0.071 0.214 0.036 0.000 0.036 0.071
0.500
## left son=1398 (17 obs) right son=1399 (11 obs)
## Primary splits:
## 294 < 197.5 to the right, improve=5.684874, (0 missing)
## 660 < 155 to the right, improve=4.123377, (0 missing)
## 462 < 205.5 to the right, improve=3.964286, (0 missing)
## 632 < 134.5 to the right, improve=3.785714, (0 missing)
## 152 < 5.5 to the right, improve=3.690476, (0 missing)
## Surrogate splits:
## 632 < 10.5 to the right, agree=0.857, adj=0.636, (0 split)
## 660 < 1 to the right, agree=0.857, adj=0.636, (0 split)
## 267 < 228 to the right, agree=0.821, adj=0.545, (0 split)
## 319 < 1.5 to the right, agree=0.821, adj=0.545, (0 split)
## 320 < 37 to the right, agree=0.821, adj=0.545, (0 split)
##
## Node number 702: 9 observations
## predicted class=8 expected loss=0.4444444 P(node) =0.000357072
## class counts: 2 0 2 0 0 0 0 0 5
0
## probabilities: 0.222 0.000 0.222 0.000 0.000 0.000 0.000 0.000 0.556
0.000
##
## Node number 703: 238 observations, complexity param=8.930964e-05
## predicted class=9 expected loss=0.1008403 P(node) =0.009442571
## class counts: 1 0 0 4 8 1 0 10 0
214
## probabilities: 0.004 0.000 0.000 0.017 0.034 0.004 0.000 0.042 0.000

```



```

0.899
## left son=1406 (16 obs) right son=1407 (222 obs)
## Primary splits:
## 377 < 21.5 to the left, improve=8.451387, (0 missing)
## 203 < 11 to the right, improve=7.080038, (0 missing)
## 294 < 249 to the right, improve=6.083107, (0 missing)
## 378 < 16.5 to the left, improve=6.047269, (0 missing)
## 232 < 244.5 to the right, improve=6.011555, (0 missing)
## Surrogate splits:
## 376 < 1 to the left, agree=0.945, adj=0.187, (0 split)
## 201 < 18 to the right, agree=0.941, adj=0.125, (0 split)
## 228 < 11.5 to the right, agree=0.941, adj=0.125, (0 split)
## 229 < 190.5 to the right, agree=0.941, adj=0.125, (0 split)
## 509 < 126 to the right, agree=0.941, adj=0.125, (0 split)
##
## Node number 712: 14 observations
## predicted class=1 expected loss=0.07142857 P(node) =0.0005554453
## class counts: 0 13 0 0 0 0 1 0 0
0
## probabilities: 0.000 0.929 0.000 0.000 0.000 0.000 0.071 0.000 0.000
0.000
##
## Node number 713: 25 observations, complexity param=0.0003125837
## predicted class=4 expected loss=0.68 P(node) =0.0009918667
## class counts: 0 1 0 0 8 7 6 0 2
1
## probabilities: 0.000 0.040 0.000 0.000 0.320 0.280 0.240 0.000 0.080
0.040
## left son=1426 (17 obs) right son=1427 (8 obs)
## Primary splits:
## 293 < 127.5 to the left, improve=6.108824, (0 missing)
## 572 < 19.5 to the left, improve=5.319481, (0 missing)
## 294 < 94 to the left, improve=5.235897, (0 missing)
## 320 < 22.5 to the left, improve=5.235897, (0 missing)
## 321 < 63 to the left, improve=5.235897, (0 missing)
## Surrogate splits:
## 273 < 155 to the left, agree=0.92, adj=0.750, (0 split)
## 274 < 20.5 to the left, agree=0.92, adj=0.750, (0 split)
## 292 < 20.5 to the left, agree=0.92, adj=0.750, (0 split)
## 246 < 18.5 to the left, agree=0.88, adj=0.625, (0 split)
## 265 < 14.5 to the left, agree=0.88, adj=0.625, (0 split)
##
## Node number 714: 9 observations
## predicted class=0 expected loss=0.1111111 P(node) =0.000357072
## class counts: 8 0 0 0 0 0 1 0 0
0
## probabilities: 0.889 0.000 0.000 0.000 0.000 0.000 0.111 0.000 0.000
0.000
##
## Node number 715: 35 observations, complexity param=0.0004018934

```

```

## predicted class=8 expected loss=0.6 P(node) =0.001388613
## class counts: 1 0 12 3 1 0 2 0 14
2
## probabilities: 0.029 0.000 0.343 0.086 0.029 0.000 0.057 0.000 0.400
0.057
## left son=1430 (16 obs) right son=1431 (19 obs)
## Primary splits:
## 550 < 139 to the right, improve=6.933647, (0 missing)
## 577 < 205.5 to the right, improve=6.177640, (0 missing)
## 551 < 219.5 to the right, improve=5.885714, (0 missing)
## 552 < 217.5 to the right, improve=5.134161, (0 missing)
## 545 < 59.5 to the right, improve=5.004295, (0 missing)
## Surrogate splits:
## 551 < 41 to the right, agree=0.943, adj=0.875, (0 split)
## 578 < 3.5 to the right, agree=0.886, adj=0.750, (0 split)
## 579 < 21.5 to the right, agree=0.886, adj=0.750, (0 split)
## 464 < 1.5 to the left, agree=0.829, adj=0.625, (0 split)
## 523 < 37.5 to the right, agree=0.829, adj=0.625, (0 split)
##
## Node number 732: 14 observations
## predicted class=5 expected loss=0.2857143 P(node) =0.0005554453
## class counts: 0 0 0 3 0 10 1 0 0
0
## probabilities: 0.000 0.000 0.000 0.214 0.000 0.714 0.071 0.000 0.000
0.000
##
## Node number 733: 7 observations
## predicted class=6 expected loss=0 P(node) =0.0002777227
## class counts: 0 0 0 0 0 0 7 0 0
0
## probabilities: 0.000 0.000 0.000 0.000 0.000 0.000 1.000 0.000 0.000
0.000
##
## Node number 734: 7 observations
## predicted class=8 expected loss=0.5714286 P(node) =0.0002777227
## class counts: 2 0 0 1 0 1 0 0 3
0
## probabilities: 0.286 0.000 0.000 0.143 0.000 0.143 0.000 0.000 0.429
0.000
##
## Node number 735: 165 observations
## predicted class=6 expected loss=0.05454545 P(node) =0.00654632
## class counts: 0 0 7 0 0 1 156 0 1
0
## probabilities: 0.000 0.000 0.042 0.000 0.000 0.006 0.945 0.000 0.006
0.000
##
## Node number 746: 16 observations
## predicted class=5 expected loss=0.375 P(node) =0.0006347947
## class counts: 0 0 0 2 0 10 1 0 3

```

```

0
## probabilities: 0.000 0.000 0.000 0.125 0.000 0.625 0.062 0.000 0.188
0.000
##
## Node number 747: 12 observations
## predicted class=8 expected loss=0.25 P(node) =0.000476096
## class counts: 0 0 0 2 0 0 1 0 9
0
## probabilities: 0.000 0.000 0.000 0.167 0.000 0.000 0.083 0.000 0.750
0.000
##
## Node number 764: 24 observations, complexity param=0.0001786193
## predicted class=2 expected loss=0.2916667 P(node) =0.000952192
## class counts: 0 0 17 1 0 0 1 0 5
0
## probabilities: 0.000 0.000 0.708 0.042 0.000 0.000 0.042 0.000 0.208
0.000
## left son=1528 (17 obs) right son=1529 (7 obs)
## Primary splits:
## 602 < 175 to the right, improve=5.808123, (0 missing)
## 212 < 2 to the right, improve=4.708333, (0 missing)
## 574 < 0.5 to the right, improve=4.708333, (0 missing)
## 603 < 251.5 to the right, improve=4.708333, (0 missing)
## 347 < 36.5 to the left, improve=4.665266, (0 missing)
## Surrogate splits:
## 574 < 0.5 to the right, agree=0.958, adj=0.857, (0 split)
## 603 < 207.5 to the right, agree=0.958, adj=0.857, (0 split)
## 184 < 160 to the right, agree=0.917, adj=0.714, (0 split)
## 486 < 246 to the right, agree=0.917, adj=0.714, (0 split)
## 575 < 25 to the right, agree=0.917, adj=0.714, (0 split)
##
## Node number 765: 33 observations
## predicted class=8 expected loss=0.1818182 P(node) =0.001309264
## class counts: 1 0 1 2 0 1 0 1 27
0
## probabilities: 0.030 0.000 0.030 0.061 0.000 0.030 0.000 0.030 0.818
0.000
##
## Node number 766: 36 observations, complexity param=0.0001786193
## predicted class=8 expected loss=0.5 P(node) =0.001428288
## class counts: 0 0 0 10 0 5 2 0 18
1
## probabilities: 0.000 0.000 0.000 0.278 0.000 0.139 0.056 0.000 0.500
0.028
## left son=1532 (11 obs) right son=1533 (25 obs)
## Primary splits:
## 289 < 1.5 to the left, improve=7.614343, (0 missing)
## 260 < 30 to the left, improve=6.635642, (0 missing)
## 288 < 8.5 to the left, improve=6.539391, (0 missing)
## 298 < 5.5 to the left, improve=5.462963, (0 missing)

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##      268 < 147.5 to the right, improve=5.388889, (0 missing)
##      Surrogate splits:
##      261 < 2      to the left,  agree=0.944, adj=0.818, (0 split)
##      288 < 8.5   to the left,  agree=0.944, adj=0.818, (0 split)
##      268 < 147.5 to the right, agree=0.889, adj=0.636, (0 split)
##      290 < 19    to the left,  agree=0.889, adj=0.636, (0 split)
##      295 < 232   to the right, agree=0.889, adj=0.636, (0 split)
##
## Node number 767: 309 observations,      complexity param=8.930964e-05
## predicted class=8 expected loss=0.04530744 P(node) =0.01225947
## class counts:      1      0      0      2      0      1      8      0      295
2
## probabilities: 0.003 0.000 0.000 0.006 0.000 0.003 0.026 0.000 0.955
0.006
## left son=1534 (37 obs) right son=1535 (272 obs)
## Primary splits:
##      406 < 171.5 to the left,  improve=2.811428, (0 missing)
##      428 < 119   to the right, improve=2.227015, (0 missing)
##      433 < 71.5  to the left,  improve=2.180759, (0 missing)
##      405 < 183.5 to the left,  improve=1.994410, (0 missing)
##      181 < 1     to the left,  improve=1.987110, (0 missing)
## Surrogate splits:
##      434 < 7      to the left,  agree=0.935, adj=0.459, (0 split)
##      405 < 85     to the left,  agree=0.909, adj=0.243, (0 split)
##      407 < 66     to the left,  agree=0.906, adj=0.216, (0 split)
##      433 < 1      to the left,  agree=0.903, adj=0.189, (0 split)
##      378 < 222    to the left,  agree=0.900, adj=0.162, (0 split)
##
## Node number 768: 1603 observations,      complexity param=2.232741e-05
## predicted class=0 expected loss=0.007485964 P(node) =0.06359849
## class counts: 1591      0      1      0      1      2      7      0      0
1
## probabilities: 0.993 0.000 0.001 0.000 0.001 0.001 0.004 0.000 0.000
0.001
## left son=1536 (1578 obs) right son=1537 (25 obs)
## Primary splits:
##      101 < 189   to the left,  improve=1.5957920, (0 missing)
##      102 < 1.5   to the left,  improve=1.3138310, (0 missing)
##      405 < 76.5  to the left,  improve=1.0415200, (0 missing)
##      100 < 53    to the left,  improve=1.0322220, (0 missing)
##      492 < 253.5 to the left,  improve=0.9408491, (0 missing)
## Surrogate splits:
##      102 < 22    to the left,  agree=0.99, adj=0.36, (0 split)
##
## Node number 769: 20 observations,      complexity param=6.698223e-05
## predicted class=0 expected loss=0.25 P(node) =0.0007934934
## class counts:  15      0      0      0      0      0      5      0      0
0
## probabilities: 0.750 0.000 0.000 0.000 0.000 0.000 0.250 0.000 0.000
0.000

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## left son=1538 (13 obs) right son=1539 (7 obs)
## Primary splits:
##      183 < 24.5 to the right, improve=4.642857, (0 missing)
##      184 < 4     to the right, improve=4.642857, (0 missing)
##      185 < 3.5  to the right, improve=4.642857, (0 missing)
##      212 < 63   to the right, improve=4.642857, (0 missing)
##      213 < 82.5 to the right, improve=4.642857, (0 missing)
## Surrogate splits:
##      184 < 63.5 to the right, agree=0.95, adj=0.857, (0 split)
##      212 < 31   to the right, agree=0.95, adj=0.857, (0 split)
##      213 < 16   to the right, agree=0.95, adj=0.857, (0 split)
##      156 < 13.5 to the right, agree=0.90, adj=0.714, (0 split)
##      157 < 7    to the right, agree=0.90, adj=0.714, (0 split)
##
## Node number 770: 299 observations, complexity param=0.0001786193
## predicted class=0 expected loss=0.1170569 P(node) =0.01186273
## class counts: 264 0 9 7 0 14 3 1 0
1
## probabilities: 0.883 0.000 0.030 0.023 0.000 0.047 0.010 0.003 0.000
0.003
## left son=1540 (267 obs) right son=1541 (32 obs)
## Primary splits:
##      296 < 135 to the left, improve=14.112060, (0 missing)
##      295 < 40.5 to the left, improve=10.053470, (0 missing)
##      323 < 37   to the left, improve= 8.928094, (0 missing)
##      324 < 29.5 to the left, improve= 8.732347, (0 missing)
##      214 < 0.5  to the right, improve= 8.321044, (0 missing)
## Surrogate splits:
##      324 < 29.5 to the left, agree=0.963, adj=0.656, (0 split)
##      295 < 237.5 to the left, agree=0.950, adj=0.531, (0 split)
##      323 < 37   to the left, agree=0.936, adj=0.406, (0 split)
##      268 < 248  to the left, agree=0.926, adj=0.313, (0 split)
##      563 < 11.5 to the left, agree=0.913, adj=0.187, (0 split)
##
## Node number 771: 33 observations, complexity param=0.0001786193
## predicted class=2 expected loss=0.5151515 P(node) =0.001309264
## class counts: 12 0 16 0 0 0 2 3 0
0
## probabilities: 0.364 0.000 0.485 0.000 0.000 0.000 0.061 0.091 0.000
0.000
## left son=1542 (11 obs) right son=1543 (22 obs)
## Primary splits:
##      455 < 4     to the right, improve=7.666667, (0 missing)
##      482 < 13.5  to the right, improve=7.666667, (0 missing)
##      483 < 76    to the right, improve=7.666667, (0 missing)
##      214 < 158   to the right, improve=7.521613, (0 missing)
##      369 < 40.5  to the right, improve=6.884848, (0 missing)
## Surrogate splits:
##      483 < 76    to the right, agree=1.000, adj=1.000, (0 split)
##      482 < 45.5  to the right, agree=0.970, adj=0.909, (0 split)

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##      511 < 207.5 to the right, agree=0.970, adj=0.909, (0 split)
##      510 < 172.5 to the right, agree=0.939, adj=0.818, (0 split)
##      454 < 3      to the right, agree=0.909, adj=0.727, (0 split)
##
## Node number 780: 11 observations
## predicted class=0 expected loss=0.6363636 P(node) =0.0004364213
## class counts:    4      0      1      2      0      4      0      0      0
##
## probabilities: 0.364 0.000 0.091 0.182 0.000 0.364 0.000 0.000 0.000
0.000
##
## Node number 781: 19 observations
## predicted class=3 expected loss=0 P(node) =0.0007538187
## class counts:    0      0      0     19      0      0      0      0      0
##
## probabilities: 0.000 0.000 0.000 1.000 0.000 0.000 0.000 0.000 0.000
0.000
##
## Node number 782: 7 observations
## predicted class=6 expected loss=0.5714286 P(node) =0.0002777227
## class counts:    1      0      1      0      0      2      3      0      0
##
## probabilities: 0.143 0.000 0.143 0.000 0.000 0.286 0.429 0.000 0.000
0.000
##
## Node number 783: 20 observations
## predicted class=5 expected loss=0.1 P(node) =0.0007934934
## class counts:    0      0      0      2      0     18      0      0      0
##
## probabilities: 0.000 0.000 0.000 0.100 0.000 0.900 0.000 0.000 0.000
0.000
##
## Node number 792: 11 observations
## predicted class=2 expected loss=0.4545455 P(node) =0.0004364213
## class counts:    1      1      6      0      0      2      1      0      0
##
## probabilities: 0.091 0.091 0.545 0.000 0.000 0.182 0.091 0.000 0.000
0.000
##
## Node number 793: 44 observations, complexity param=0.0001339645
## predicted class=3 expected loss=0.2954545 P(node) =0.001745685
## class counts:    2      0      4     31      0      5      0      2      0
##
## probabilities: 0.045 0.000 0.091 0.705 0.000 0.114 0.000 0.045 0.000
0.000
## left son=1586 (36 obs) right son=1587 (8 obs)
## Primary splits:
##      544 < 35      to the left, improve=5.351010, (0 missing)
##      351 < 8.5     to the left, improve=5.045455, (0 missing)
##      571 < 209.5 to the left, improve=4.651632, (0 missing)

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##      572 < 246.5 to the left,  improve=4.651632, (0 missing)
##      211 < 227.5 to the left,  improve=4.400574, (0 missing)
##  Surrogate splits:
##      571 < 209.5 to the left,  agree=0.977, adj=0.875, (0 split)
##      572 < 246.5 to the left,  agree=0.977, adj=0.875, (0 split)
##      543 < 48    to the left,  agree=0.955, adj=0.750, (0 split)
##      545 < 168.5 to the left,  agree=0.955, adj=0.750, (0 split)
##      546 < 232.5 to the left,  agree=0.955, adj=0.750, (0 split)
##
## Node number 796: 13 observations
##   predicted class=0   expected loss=0.6923077   P(node) =0.0005157707
##   class counts:      4      0      1      4      0      1      0      0      0
##   3
##   probabilities: 0.308 0.000 0.077 0.308 0.000 0.077 0.000 0.000 0.000
##   0.231
##
## Node number 797: 8 observations
##   predicted class=5   expected loss=0.375   P(node) =0.0003173973
##   class counts:      0      0      0      0      0      5      1      0      2
##   0
##   probabilities: 0.000 0.000 0.000 0.000 0.000 0.625 0.125 0.000 0.250
##   0.000
##
## Node number 798: 7 observations
##   predicted class=3   expected loss=0.2857143   P(node) =0.0002777227
##   class counts:      0      0      0      5      0      2      0      0      0
##   0
##   probabilities: 0.000 0.000 0.000 0.714 0.000 0.286 0.000 0.000 0.000
##   0.000
##
## Node number 799: 46 observations
##   predicted class=5   expected loss=0.04347826   P(node) =0.001825035
##   class counts:      0      0      0      2      0      44      0      0      0
##   0
##   probabilities: 0.000 0.000 0.000 0.043 0.000 0.957 0.000 0.000 0.000
##   0.000
##
## Node number 824: 34 observations,      complexity param=0.0002976988
##   predicted class=5   expected loss=0.7058824   P(node) =0.001348939
##   class counts:      4      0      8      3      1      10      5      0      3
##   0
##   probabilities: 0.118 0.000 0.235 0.088 0.029 0.294 0.147 0.000 0.088
##   0.000
##   left son=1648 (10 obs) right son=1649 (24 obs)
##   Primary splits:
##      580 < 144    to the right, improve=4.645098, (0 missing)
##      554 < 19     to the right, improve=4.438220, (0 missing)
##      582 < 7.5    to the right, improve=4.438220, (0 missing)
##      247 < 3      to the left,  improve=4.200226, (0 missing)
##      579 < 69     to the right, improve=4.189542, (0 missing)

```

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## Surrogate splits:
##      581 < 28      to the right, agree=0.971, adj=0.9, (0 split)
##      552 < 116.5 to the right, agree=0.941, adj=0.8, (0 split)
##      553 < 20.5  to the right, agree=0.941, adj=0.8, (0 split)
##      554 < 19    to the right, agree=0.912, adj=0.7, (0 split)
##      582 < 7.5   to the right, agree=0.912, adj=0.7, (0 split)
##
## Node number 825: 10 observations
##   predicted class=8   expected loss=0.1   P(node) =0.0003967467
##   class counts:      0      0      0      0      0      0      1      0      9
##   0
##   probabilities: 0.000 0.000 0.000 0.000 0.000 0.000 0.100 0.000 0.900
##   0.000
##
## Node number 836: 8 observations
##   predicted class=0   expected loss=0   P(node) =0.0003173973
##   class counts:      8      0      0      0      0      0      0      0      0
##   0
##   probabilities: 1.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
##   0.000
##
## Node number 837: 17 observations
##   predicted class=5   expected loss=0.2941176   P(node) =0.0006744694
##   class counts:      0      0      0      1      0      12      3      0      1
##   0
##   probabilities: 0.000 0.000 0.000 0.059 0.000 0.706 0.176 0.000 0.059
##   0.000
##
## Node number 838: 19 observations
##   predicted class=2   expected loss=0.3157895   P(node) =0.0007538187
##   class counts:      2      0      13      1      2      0      0      0      0
##   1
##   probabilities: 0.105 0.000 0.684 0.053 0.105 0.000 0.000 0.000 0.000
##   0.053
##
## Node number 839: 14 observations
##   predicted class=9   expected loss=0.1428571   P(node) =0.0005554453
##   class counts:      0      0      0      0      1      0      0      1      0
##   12
##   probabilities: 0.000 0.000 0.000 0.000 0.071 0.000 0.000 0.071 0.000
##   0.857
##
## Node number 846: 8 observations
##   predicted class=2   expected loss=0.375   P(node) =0.0003173973
##   class counts:      0      0      5      0      0      0      3      0      0
##   0
##   probabilities: 0.000 0.000 0.625 0.000 0.000 0.000 0.375 0.000 0.000
##   0.000
##
## Node number 847: 120 observations,      complexity param=4.465482e-05

```



```

## predicted class=6 expected loss=0.06666667 P(node) =0.00476096
## class counts:      0      0      2      0      4      2     112      0      0
0
## probabilities: 0.000 0.000 0.017 0.000 0.033 0.017 0.933 0.000 0.000
0.000
## left son=1694 (7 obs) right son=1695 (113 obs)
## Primary splits:
##      657 < 4.5   to the right, improve=4.515718, (0 missing)
##      427 < 210   to the right, improve=4.059459, (0 missing)
##      300 < 143.5 to the right, improve=4.050485, (0 missing)
##      301 < 123.5 to the right, improve=4.050485, (0 missing)
##      302 < 3.5   to the right, improve=3.480952, (0 missing)
## Surrogate splits:
##      658 < 54.5  to the right, agree=0.992, adj=0.857, (0 split)
##      659 < 102.5 to the right, agree=0.983, adj=0.714, (0 split)
##      190 < 119.5 to the right, agree=0.967, adj=0.429, (0 split)
##      628 < 240   to the right, agree=0.967, adj=0.429, (0 split)
##      656 < 47.5  to the right, agree=0.967, adj=0.429, (0 split)
##
## Node number 858: 25 observations,      complexity param=0.000111637
## predicted class=3 expected loss=0.8 P(node) =0.0009918667
## class counts:      4      0      4      5      1      0      4      1      1
5
## probabilities: 0.160 0.000 0.160 0.200 0.040 0.000 0.160 0.040 0.040
0.200
## left son=1716 (7 obs) right son=1717 (18 obs)
## Primary splits:
##      324 < 5.5   to the right, improve=3.483810, (0 missing)
##      570 < 82.5  to the right, improve=3.268824, (0 missing)
##      571 < 25    to the right, improve=3.268824, (0 missing)
##      598 < 32    to the right, improve=3.268824, (0 missing)
##      599 < 78.5  to the right, improve=3.268824, (0 missing)
## Surrogate splits:
##      325 < 60.5  to the right, agree=0.92, adj=0.714, (0 split)
##      326 < 213   to the right, agree=0.92, adj=0.714, (0 split)
##      353 < 156   to the right, agree=0.92, adj=0.714, (0 split)
##      296 < 124.5 to the right, agree=0.88, adj=0.571, (0 split)
##      298 < 64.5  to the right, agree=0.88, adj=0.571, (0 split)
##
## Node number 859: 9 observations
## predicted class=5 expected loss=0.3333333 P(node) =0.000357072
## class counts:      0      0      0      0      0      6      0      3      0
0
## probabilities: 0.000 0.000 0.000 0.000 0.000 0.667 0.000 0.333 0.000
0.000
##
## Node number 860: 17 observations
## predicted class=4 expected loss=0.05882353 P(node) =0.0006744694
## class counts:      0      0      0      0     16      0      0      0      0
1

```

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## probabilities: 0.000 0.000 0.000 0.000 0.941 0.000 0.000 0.000 0.000
0.059
##
## Node number 861: 7 observations
## predicted class=7 expected loss=0.7142857 P(node) =0.0002777227
## class counts: 1 0 1 0 1 0 0 2 0
2
## probabilities: 0.143 0.000 0.143 0.000 0.143 0.000 0.000 0.286 0.000
0.286
##
## Node number 862: 9 observations
## predicted class=4 expected loss=0.5555556 P(node) =0.000357072
## class counts: 0 0 1 0 4 0 0 2 1
1
## probabilities: 0.000 0.000 0.111 0.000 0.444 0.000 0.000 0.222 0.111
0.111
##
## Node number 863: 73 observations, complexity param=4.465482e-05
## predicted class=9 expected loss=0.1780822 P(node) =0.002896251
## class counts: 0 0 1 0 2 0 1 9 0
60
## probabilities: 0.000 0.000 0.014 0.000 0.027 0.000 0.014 0.123 0.000
0.822
## left son=1726 (11 obs) right son=1727 (62 obs)
## Primary splits:
## 408 < 130.5 to the right, improve=4.070863, (0 missing)
## 179 < 252.5 to the right, improve=4.066228, (0 missing)
## 520 < 252.5 to the right, improve=3.483465, (0 missing)
## 436 < 135.5 to the right, improve=3.392456, (0 missing)
## 457 < 12 to the left, improve=3.226289, (0 missing)
## Surrogate splits:
## 436 < 135.5 to the right, agree=0.918, adj=0.455, (0 split)
## 211 < 64.5 to the left, agree=0.904, adj=0.364, (0 split)
## 212 < 4.5 to the left, agree=0.890, adj=0.273, (0 split)
## 747 < 177.5 to the right, agree=0.890, adj=0.273, (0 split)
## 179 < 254.5 to the right, agree=0.877, adj=0.182, (0 split)
##
## Node number 866: 28 observations, complexity param=0.0001786193
## predicted class=6 expected loss=0.7142857 P(node) =0.001110891
## class counts: 1 7 0 4 0 6 8 0 0
2
## probabilities: 0.036 0.250 0.000 0.143 0.000 0.214 0.286 0.000 0.000
0.071
## left son=1732 (18 obs) right son=1733 (10 obs)
## Primary splits:
## 515 < 28.5 to the left, improve=5.084127, (0 missing)
## 544 < 196.5 to the left, improve=4.978571, (0 missing)
## 657 < 96 to the left, improve=4.747285, (0 missing)
## 188 < 14.5 to the right, improve=4.678571, (0 missing)
## 656 < 8.5 to the left, improve=4.602368, (0 missing)

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## Surrogate splits:
##      516 < 173.5 to the left,  agree=0.964, adj=0.9, (0 split)
##      487 < 16    to the left,  agree=0.929, adj=0.8, (0 split)
##      488 < 203.5 to the left,  agree=0.929, adj=0.8, (0 split)
##      544 < 12    to the left,  agree=0.929, adj=0.8, (0 split)
##      543 < 22    to the left,  agree=0.893, adj=0.7, (0 split)
##
## Node number 867: 9 observations
##   predicted class=5   expected loss=0   P(node) =0.000357072
##   class counts:      0      0      0      0      0      9      0      0      0
##
##   probabilities: 0.000 0.000 0.000 0.000 0.000 1.000 0.000 0.000 0.000
##   0.000
##
## Node number 894: 7 observations
##   predicted class=0   expected loss=0.5714286   P(node) =0.0002777227
##   class counts:      3      0      0      0      2      2      0      0      0
##
##   probabilities: 0.429 0.000 0.000 0.000 0.286 0.286 0.000 0.000 0.000
##   0.000
##
## Node number 895: 622 observations,   complexity param=8.930964e-05
##   predicted class=7   expected loss=0.02572347   P(node) =0.02467764
##   class counts:      2      0      1      2      2      1      3    606      0
##   5
##   probabilities: 0.003 0.000 0.002 0.003 0.003 0.002 0.005 0.974 0.000
##   0.008
##   left son=1790 (8 obs) right son=1791 (614 obs)
##   Primary splits:
##      542 < 123    to the right, improve=7.430635, (0 missing)
##      541 < 102    to the right, improve=6.569800, (0 missing)
##      513 < 101.5  to the right, improve=5.881189, (0 missing)
##      514 < 4.5    to the right, improve=5.713208, (0 missing)
##      512 < 205    to the right, improve=5.317830, (0 missing)
##   Surrogate splits:
##      541 < 102    to the right, agree=0.998, adj=0.875, (0 split)
##      514 < 4.5    to the right, agree=0.997, adj=0.750, (0 split)
##      569 < 10     to the right, agree=0.995, adj=0.625, (0 split)
##      570 < 10.5   to the right, agree=0.995, adj=0.625, (0 split)
##      443 < 140.5  to the right, agree=0.994, adj=0.500, (0 split)
##
## Node number 896: 912 observations,   complexity param=0.0001339645
##   predicted class=2   expected loss=0.03399123   P(node) =0.0361833
##   class counts:      0      0    881    15      0      0      0    12      4
##   0
##   probabilities: 0.000 0.000 0.966 0.016 0.000 0.000 0.000 0.013 0.004
##   0.000
##   left son=1792 (869 obs) right son=1793 (43 obs)
##   Primary splits:
##      681 < 37     to the left,  improve=6.530813, (0 missing)

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##      680 < 41    to the left,  improve=5.938896, (0 missing)
##      678 < 104   to the left,  improve=5.706384, (0 missing)
##      679 < 10.5  to the left,  improve=5.044293, (0 missing)
##      682 < 10    to the left,  improve=4.922556, (0 missing)
##  Surrogate splits:
##      680 < 3     to the left,  agree=0.987, adj=0.721, (0 split)
##      682 < 6.5   to the left,  agree=0.986, adj=0.698, (0 split)
##      679 < 0.5   to the left,  agree=0.975, adj=0.465, (0 split)
##      683 < 21.5  to the left,  agree=0.975, adj=0.465, (0 split)
##      678 < 0.5   to the left,  agree=0.964, adj=0.233, (0 split)
##
## Node number 897: 10 observations
##   predicted class=8   expected loss=0.3   P(node) =0.0003967467
##   class counts:      0      0      1      0      0      1      0      0      7
1
##   probabilities: 0.000 0.000 0.100 0.000 0.000 0.100 0.000 0.000 0.700
0.100
##
## Node number 900: 22 observations,      complexity param=4.465482e-05
##   predicted class=2   expected loss=0.2272727   P(node) =0.0008728427
##   class counts:      3      0      17      0      0      0      2      0      0
0
##   probabilities: 0.136 0.000 0.773 0.000 0.000 0.000 0.091 0.000 0.000
0.000
##   left son=1800 (15 obs) right son=1801 (7 obs)
##   Primary splits:
##      372 < 138    to the left,  improve=3.701299, (0 missing)
##      428 < 9      to the left,  improve=3.701299, (0 missing)
##      440 < 29.5   to the left,  improve=3.701299, (0 missing)
##      455 < 7.5    to the left,  improve=3.701299, (0 missing)
##      468 < 89     to the left,  improve=3.701299, (0 missing)
##   Surrogate splits:
##      183 < 193    to the right, agree=0.909, adj=0.714, (0 split)
##      399 < 57     to the left,  agree=0.909, adj=0.714, (0 split)
##      400 < 65     to the left,  agree=0.909, adj=0.714, (0 split)
##      427 < 79     to the left,  agree=0.909, adj=0.714, (0 split)
##      455 < 86.5   to the left,  agree=0.909, adj=0.714, (0 split)
##
## Node number 901: 13 observations
##   predicted class=9   expected loss=0.1538462   P(node) =0.0005157707
##   class counts:      0      0      0      0      2      0      0      0      0
11
##   probabilities: 0.000 0.000 0.000 0.000 0.154 0.000 0.000 0.000 0.000
0.846
##
## Node number 902: 7 observations
##   predicted class=2   expected loss=0.7142857   P(node) =0.0002777227
##   class counts:      0      0      2      1      0      1      0      0      1
2
##   probabilities: 0.000 0.000 0.286 0.143 0.000 0.143 0.000 0.000 0.143

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0.286
##
## Node number 903: 43 observations
## predicted class=8 expected loss=0.06976744 P(node) =0.001706011
## class counts:      0      0      1      0      0      0      0      0      40
2
## probabilities: 0.000 0.000 0.023 0.000 0.000 0.000 0.000 0.000 0.930
0.047
##
## Node number 904: 135 observations, complexity param=0.0005805126
## predicted class=1 expected loss=0.2592593 P(node) =0.00535608
## class counts:      0    100     17      1      2      3      6      6      0
0
## probabilities: 0.000 0.741 0.126 0.007 0.015 0.022 0.044 0.044 0.000
0.000
## left son=1808 (107 obs) right son=1809 (28 obs)
## Primary splits:
##      520 < 3      to the left, improve=23.79034, (0 missing)
##      351 < 79      to the right, improve=23.07407, (0 missing)
##      519 < 49.5    to the left, improve=23.00462, (0 missing)
##      510 < 2.5     to the left, improve=22.79906, (0 missing)
##      352 < 194     to the right, improve=22.79529, (0 missing)
## Surrogate splits:
##      519 < 69.5    to the left, agree=0.963, adj=0.821, (0 split)
##      547 < 2.5     to the left, agree=0.956, adj=0.786, (0 split)
##      492 < 71      to the left, agree=0.948, adj=0.750, (0 split)
##      521 < 3       to the left, agree=0.941, adj=0.714, (0 split)
##      464 < 139.5   to the left, agree=0.933, adj=0.679, (0 split)
##
## Node number 905: 111 observations, complexity param=0.001384299
## predicted class=4 expected loss=0.4774775 P(node) =0.004403888
## class counts:      0      0      2      0     58      2     42      2      3
2
## probabilities: 0.000 0.000 0.018 0.000 0.523 0.018 0.378 0.018 0.027
0.018
## left son=1810 (72 obs) right son=1811 (39 obs)
## Primary splits:
##      573 < 221     to the left, improve=26.92487, (0 missing)
##      216 < 3.5     to the right, improve=26.23956, (0 missing)
##      438 < 73      to the right, improve=24.46467, (0 missing)
##      574 < 101     to the left, improve=23.81049, (0 missing)
##      488 < 105.5   to the right, improve=23.70271, (0 missing)
## Surrogate splits:
##      572 < 142     to the left, agree=0.883, adj=0.667, (0 split)
##      574 < 142.5   to the left, agree=0.865, adj=0.615, (0 split)
##      601 < 70.5    to the left, agree=0.865, adj=0.615, (0 split)
##      488 < 43.5    to the right, agree=0.847, adj=0.564, (0 split)
##      459 < 5       to the right, agree=0.829, adj=0.513, (0 split)
##
## Node number 906: 150 observations, complexity param=0.000982406

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## predicted class=2 expected loss=0.46 P(node) =0.0059512
## class counts: 0 2 81 5 1 0 0 46 6
9
## probabilities: 0.000 0.013 0.540 0.033 0.007 0.000 0.000 0.307 0.040
0.060
## left son=1812 (127 obs) right son=1813 (23 obs)
## Primary splits:
## 678 < 45.5 to the left, improve=19.60675, (0 missing)
## 566 < 74 to the right, improve=17.50022, (0 missing)
## 706 < 3.5 to the left, improve=16.47333, (0 missing)
## 538 < 25 to the right, improve=16.11102, (0 missing)
## 679 < 102.5 to the left, improve=15.70316, (0 missing)
## Surrogate splits:
## 677 < 3 to the left, agree=0.973, adj=0.826, (0 split)
## 706 < 3.5 to the left, agree=0.967, adj=0.783, (0 split)
## 650 < 50.5 to the left, agree=0.960, adj=0.739, (0 split)
## 705 < 8 to the left, agree=0.960, adj=0.739, (0 split)
## 679 < 0.5 to the left, agree=0.953, adj=0.696, (0 split)
##
## Node number 907: 91 observations, complexity param=0.0004465482
## predicted class=9 expected loss=0.3076923 P(node) =0.003610395
## class counts: 2 0 4 0 1 5 0 3 13
63
## probabilities: 0.022 0.000 0.044 0.000 0.011 0.055 0.000 0.033 0.143
0.692
## left son=1814 (28 obs) right son=1815 (63 obs)
## Primary splits:
## 599 < 6.5 to the right, improve=18.85958, (0 missing)
## 627 < 74.5 to the right, improve=14.62795, (0 missing)
## 598 < 26 to the right, improve=14.29277, (0 missing)
## 626 < 29.5 to the right, improve=14.18974, (0 missing)
## 403 < 0.5 to the right, improve=13.52410, (0 missing)
## Surrogate splits:
## 598 < 26 to the right, agree=0.945, adj=0.821, (0 split)
## 627 < 74.5 to the right, agree=0.934, adj=0.786, (0 split)
## 600 < 4 to the right, agree=0.923, adj=0.750, (0 split)
## 626 < 29.5 to the right, agree=0.923, adj=0.750, (0 split)
## 570 < 36.5 to the right, agree=0.912, adj=0.714, (0 split)
##
## Node number 912: 13 observations
## predicted class=0 expected loss=0.6153846 P(node) =0.0005157707
## class counts: 5 0 5 0 0 0 3 0 0
0
## probabilities: 0.385 0.000 0.385 0.000 0.000 0.000 0.231 0.000 0.000
0.000
##
## Node number 913: 7 observations
## predicted class=8 expected loss=0.1428571 P(node) =0.0002777227
## class counts: 0 0 0 0 1 0 0 0 6
0

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## probabilities: 0.000 0.000 0.000 0.000 0.143 0.000 0.000 0.000 0.857
0.000
##
## Node number 914: 7 observations
## predicted class=2 expected loss=0.7142857 P(node) =0.0002777227
## class counts: 0 0 2 0 2 1 0 0 2
0
## probabilities: 0.000 0.000 0.286 0.000 0.286 0.143 0.000 0.000 0.286
0.000
##
## Node number 915: 94 observations
## predicted class=5 expected loss=0.0106383 P(node) =0.003729419
## class counts: 0 0 0 0 0 93 1 0 0
0
## probabilities: 0.000 0.000 0.000 0.000 0.000 0.989 0.011 0.000 0.000
0.000
##
## Node number 916: 132 observations, complexity param=0.0004018934
## predicted class=4 expected loss=0.1969697 P(node) =0.005237056
## class counts: 0 0 10 0 106 1 13 0 2
0
## probabilities: 0.000 0.000 0.076 0.000 0.803 0.008 0.098 0.000 0.015
0.000
## left son=1832 (18 obs) right son=1833 (114 obs)
## Primary splits:
## 127 < 2.5 to the right, improve=19.72116, (0 missing)
## 126 < 6.5 to the left, improve=19.47208, (0 missing)
## 125 < 34 to the left, improve=18.35517, (0 missing)
## 97 < 2 to the left, improve=16.73281, (0 missing)
## 128 < 6.5 to the right, improve=15.73523, (0 missing)
## Surrogate splits:
## 99 < 1 to the right, agree=0.970, adj=0.778, (0 split)
## 128 < 6.5 to the right, agree=0.970, adj=0.778, (0 split)
## 126 < 6.5 to the right, agree=0.962, adj=0.722, (0 split)
## 129 < 19 to the right, agree=0.947, adj=0.611, (0 split)
## 98 < 68.5 to the right, agree=0.939, adj=0.556, (0 split)
##
## Node number 917: 23 observations, complexity param=0.0002232741
## predicted class=7 expected loss=0.4347826 P(node) =0.0009125174
## class counts: 0 0 3 0 0 0 0 13 5
2
## probabilities: 0.000 0.000 0.130 0.000 0.000 0.000 0.000 0.565 0.217
0.087
## left son=1834 (8 obs) right son=1835 (15 obs)
## Primary splits:
## 486 < 162.5 to the right, improve=6.783333, (0 missing)
## 376 < 55 to the left, improve=6.283333, (0 missing)
## 430 < 5.5 to the left, improve=6.267857, (0 missing)
## 458 < 56 to the right, improve=6.150000, (0 missing)
## 290 < 13.5 to the right, improve=5.732143, (0 missing)

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## Surrogate splits:
##      485 < 50      to the right, agree=0.957, adj=0.875, (0 split)
##      513 < 132    to the right, agree=0.957, adj=0.875, (0 split)
##      458 < 56     to the right, agree=0.913, adj=0.750, (0 split)
##      459 < 187.5  to the right, agree=0.913, adj=0.750, (0 split)
##      460 < 247.5  to the right, agree=0.913, adj=0.750, (0 split)
##
## Node number 918: 85 observations,      complexity param=0.0008037867
## predicted class=2 expected loss=0.4823529 P(node) =0.003372347
## class counts:      12      0      44      0      1      1      1      2      23
1
## probabilities: 0.141 0.000 0.518 0.000 0.012 0.012 0.012 0.024 0.271
0.012
## left son=1836 (56 obs) right son=1837 (29 obs)
## Primary splits:
##      654 < 33     to the left, improve=16.81152, (0 missing)
##      653 < 28.5   to the left, improve=14.56957, (0 missing)
##      655 < 20     to the left, improve=14.16532, (0 missing)
##      348 < 206.5  to the left, improve=13.32259, (0 missing)
##      525 < 33.5   to the right, improve=12.24566, (0 missing)
## Surrogate splits:
##      653 < 28.5   to the left, agree=0.953, adj=0.862, (0 split)
##      655 < 4.5    to the left, agree=0.953, adj=0.862, (0 split)
##      652 < 56.5   to the left, agree=0.906, adj=0.724, (0 split)
##      656 < 5.5    to the left, agree=0.906, adj=0.724, (0 split)
##      627 < 180.5  to the left, agree=0.871, adj=0.621, (0 split)
##
## Node number 919: 124 observations,      complexity param=0.0007591319
## predicted class=9 expected loss=0.5967742 P(node) =0.004919659
## class counts:      2      0      9      0      18      0      1      33      11
50
## probabilities: 0.016 0.000 0.073 0.000 0.145 0.000 0.008 0.266 0.089
0.403
## left son=1838 (71 obs) right son=1839 (53 obs)
## Primary splits:
##      458 < 5      to the left, improve=13.01018, (0 missing)
##      457 < 5.5    to the right, improve=12.63663, (0 missing)
##      429 < 9.5    to the left, improve=12.35484, (0 missing)
##      681 < 233.5  to the right, improve=11.61812, (0 missing)
##      709 < 168.5  to the left, improve=11.53778, (0 missing)
## Surrogate splits:
##      457 < 17.5   to the left, agree=0.919, adj=0.811, (0 split)
##      459 < 13.5   to the left, agree=0.895, adj=0.755, (0 split)
##      429 < 20.5   to the left, agree=0.879, adj=0.717, (0 split)
##      456 < 5.5    to the left, agree=0.863, adj=0.679, (0 split)
##      430 < 88.5   to the left, agree=0.855, adj=0.660, (0 split)
##
## Node number 922: 36 observations,      complexity param=0.0004465482
## predicted class=8 expected loss=0.6388889 P(node) =0.001428288
## class counts:      10      0      1      0      0      8      4      0      13

```



```

0
## probabilities: 0.278 0.000 0.028 0.000 0.000 0.222 0.111 0.000 0.361
0.000
## left son=1844 (14 obs) right son=1845 (22 obs)
## Primary splits:
## 266 < 251.5 to the right, improve=7.745310, (0 missing)
## 434 < 5 to the left, improve=7.349206, (0 missing)
## 382 < 7 to the right, improve=6.699182, (0 missing)
## 293 < 218 to the right, improve=6.102778, (0 missing)
## 354 < 29.5 to the right, improve=5.940115, (0 missing)
## Surrogate splits:
## 293 < 218 to the right, agree=0.889, adj=0.714, (0 split)
## 294 < 223 to the right, agree=0.889, adj=0.714, (0 split)
## 574 < 225 to the right, agree=0.889, adj=0.714, (0 split)
## 295 < 21 to the right, agree=0.861, adj=0.643, (0 split)
## 322 < 3 to the right, agree=0.861, adj=0.643, (0 split)
##
## Node number 923: 17 observations
## predicted class=9 expected loss=0.2352941 P(node) =0.0006744694
## class counts: 0 0 0 0 2 1 1 0 0
13
## probabilities: 0.000 0.000 0.000 0.000 0.118 0.059 0.059 0.000 0.000
0.765
##
## Node number 924: 20 observations, complexity param=0.0001786193
## predicted class=5 expected loss=0.45 P(node) =0.0007934934
## class counts: 4 0 0 2 1 11 0 1 0
1
## probabilities: 0.200 0.000 0.000 0.100 0.050 0.550 0.000 0.050 0.000
0.050
## left son=1848 (8 obs) right son=1849 (12 obs)
## Primary splits:
## 327 < 46.5 to the right, improve=5.716667, (0 missing)
## 355 < 30.5 to the right, improve=5.716667, (0 missing)
## 382 < 12 to the right, improve=5.200000, (0 missing)
## 435 < 204.5 to the left, improve=4.975824, (0 missing)
## 354 < 58 to the right, improve=4.966667, (0 missing)
## Surrogate splits:
## 355 < 30.5 to the right, agree=1.00, adj=1.000, (0 split)
## 328 < 26.5 to the right, agree=0.95, adj=0.875, (0 split)
## 289 < 20 to the left, agree=0.90, adj=0.750, (0 split)
## 354 < 58 to the right, agree=0.90, adj=0.750, (0 split)
## 382 < 12 to the right, agree=0.90, adj=0.750, (0 split)
##
## Node number 925: 27 observations
## predicted class=8 expected loss=0.1481481 P(node) =0.001071216
## class counts: 0 0 0 0 0 1 1 1 23
1
## probabilities: 0.000 0.000 0.000 0.000 0.000 0.037 0.037 0.037 0.852
0.037

```

```

##
## Node number 926: 33 observations,      complexity param=0.000111637
## predicted class=8 expected loss=0.5151515 P(node) =0.001309264
## class counts:      1      0      4      1      0      1      1      6      16
3
## probabilities: 0.030 0.000 0.121 0.030 0.000 0.030 0.030 0.182 0.485
0.091
## left son=1852 (15 obs) right son=1853 (18 obs)
## Primary splits:
##      294 < 13      to the right, improve=7.139394, (0 missing)
##      297 < 238.5 to the right, improve=6.545455, (0 missing)
##      265 < 244      to the right, improve=6.103610, (0 missing)
##      241 < 170.5 to the right, improve=5.795804, (0 missing)
##      293 < 169      to the right, improve=5.753930, (0 missing)
## Surrogate splits:
##      293 < 181      to the right, agree=0.939, adj=0.867, (0 split)
##      241 < 170.5 to the right, agree=0.879, adj=0.733, (0 split)
##      268 < 2        to the right, agree=0.879, adj=0.733, (0 split)
##      295 < 41.5     to the right, agree=0.879, adj=0.733, (0 split)
##      297 < 238.5 to the right, agree=0.879, adj=0.733, (0 split)
##
## Node number 927: 555 observations
## predicted class=8 expected loss=0.01801802 P(node) =0.02201944
## class counts:      2      0      0      2      2      1      2      0      545
1
## probabilities: 0.004 0.000 0.000 0.004 0.004 0.002 0.004 0.000 0.982
0.002
##
## Node number 928: 24 observations
## predicted class=1 expected loss=0.08333333 P(node) =0.000952192
## class counts:      0      22      0      0      1      0      0      0      1
0
## probabilities: 0.000 0.917 0.000 0.000 0.042 0.000 0.000 0.000 0.042
0.000
##
## Node number 929: 8 observations
## predicted class=2 expected loss=0.125 P(node) =0.0003173973
## class counts:      1      0      7      0      0      0      0      0      0
0
## probabilities: 0.125 0.000 0.875 0.000 0.000 0.000 0.000 0.000 0.000
0.000
##
## Node number 930: 275 observations,      complexity param=0.0001786193
## predicted class=2 expected loss=0.08 P(node) =0.01091053
## class counts:      1      3      253      2      3      0      1      9      3
0
## probabilities: 0.004 0.011 0.920 0.007 0.011 0.000 0.004 0.033 0.011
0.000
## left son=1860 (268 obs) right son=1861 (7 obs)
## Primary splits:

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##      681 < 13      to the left,  improve=7.816926, (0 missing)
##      348 < 41      to the left,  improve=6.281745, (0 missing)
##      349 < 37.5    to the left,  improve=6.281745, (0 missing)
##      320 < 35.5    to the left,  improve=6.132054, (0 missing)
##      321 < 12.5    to the left,  improve=5.425455, (0 missing)
## Surrogate splits:
##      680 < 11.5    to the left,  agree=0.985, adj=0.429, (0 split)
##      682 < 42.5    to the left,  agree=0.985, adj=0.429, (0 split)
##      679 < 56      to the left,  agree=0.982, adj=0.286, (0 split)
##      708 < 26.5    to the left,  agree=0.982, adj=0.286, (0 split)
##      709 < 77.5    to the left,  agree=0.982, adj=0.286, (0 split)
##
## Node number 931: 11 observations
## predicted class=9 expected loss=0.5454545 P(node) =0.0004364213
## class counts:      0      0      0      0      4      0      2      0      0
5
## probabilities: 0.000 0.000 0.000 0.000 0.364 0.000 0.182 0.000 0.000
0.455
##
## Node number 936: 27 observations,      complexity param=8.930964e-05
## predicted class=4 expected loss=0.2222222 P(node) =0.001071216
## class counts:      0      0      1      0      21      0      0      0      0
5
## probabilities: 0.000 0.000 0.037 0.000 0.778 0.000 0.000 0.000 0.000
0.185
## left son=1872 (18 obs) right son=1873 (9 obs)
## Primary splits:
##      209 < 225.5 to the left,  improve=4.592593, (0 missing)
##      208 < 72.5  to the left,  improve=3.370370, (0 missing)
##      185 < 83    to the right, improve=3.340067, (0 missing)
##      406 < 5     to the left,  improve=3.058967, (0 missing)
##      407 < 153.5 to the left,  improve=3.058967, (0 missing)
## Surrogate splits:
##      208 < 40     to the left,  agree=0.889, adj=0.667, (0 split)
##      181 < 37.5   to the left,  agree=0.852, adj=0.556, (0 split)
##      182 < 236    to the left,  agree=0.852, adj=0.556, (0 split)
##      210 < 242.5  to the left,  agree=0.852, adj=0.556, (0 split)
##      235 < 237    to the left,  agree=0.815, adj=0.444, (0 split)
##
## Node number 937: 21 observations,      complexity param=0.0001339645
## predicted class=9 expected loss=0.7142857 P(node) =0.000833168
## class counts:      0      1      4      0      3      1      0      2      4
6
## probabilities: 0.000 0.048 0.190 0.000 0.143 0.048 0.000 0.095 0.190
0.286
## left son=1874 (10 obs) right son=1875 (11 obs)
## Primary splits:
##      429 < 5      to the left,  improve=2.720346, (0 missing)
##      240 < 81     to the right, improve=2.619048, (0 missing)
##      599 < 81.5   to the right, improve=2.451465, (0 missing)

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##      627 < 10.5  to the right, improve=2.451465, (0 missing)
##      488 < 86   to the right, improve=2.429437, (0 missing)
## Surrogate splits:
##      401 < 45.5 to the left,  agree=0.905, adj=0.8, (0 split)
##      402 < 2    to the left,  agree=0.905, adj=0.8, (0 split)
##      430 < 11   to the left,  agree=0.905, adj=0.8, (0 split)
##      458 < 13.5 to the left,  agree=0.905, adj=0.8, (0 split)
##      457 < 23.5 to the left,  agree=0.857, adj=0.7, (0 split)
##
## Node number 938: 7 observations
## predicted class=2 expected loss=0.4285714 P(node) =0.0002777227
## class counts:      0      0      4      0      0      0      1      2      0
##
## probabilities: 0.000 0.000 0.571 0.000 0.000 0.000 0.143 0.286 0.000
0.000
##
## Node number 939: 18 observations
## predicted class=6 expected loss=0 P(node) =0.000714144
## class counts:      0      0      0      0      0      0      18      0      0
##
## probabilities: 0.000 0.000 0.000 0.000 0.000 0.000 1.000 0.000 0.000
0.000
##
## Node number 946: 12 observations
## predicted class=4 expected loss=0.1666667 P(node) =0.000476096
## class counts:      0      0      0      0      10      1      0      0      1
##
## probabilities: 0.000 0.000 0.000 0.000 0.833 0.083 0.000 0.000 0.083
0.000
##
## Node number 947: 32 observations, complexity param=0.0003572385
## predicted class=6 expected loss=0.625 P(node) =0.001269589
## class counts:      0      1      2      0      2      0      12      1      9
5
## probabilities: 0.000 0.031 0.062 0.000 0.062 0.000 0.375 0.031 0.281
0.156
## left son=1894 (15 obs) right son=1895 (17 obs)
## Primary splits:
##      494 < 33.5 to the right, improve=6.282843, (0 missing)
##      456 < 30.5 to the right, improve=5.583502, (0 missing)
##      484 < 131.5 to the right, improve=5.583502, (0 missing)
##      415 < 5    to the right, improve=5.087121, (0 missing)
##      442 < 40.5 to the right, improve=5.087121, (0 missing)
## Surrogate splits:
##      467 < 13   to the right, agree=0.906, adj=0.800, (0 split)
##      468 < 3.5  to the right, agree=0.906, adj=0.800, (0 split)
##      495 < 3.5  to the right, agree=0.906, adj=0.800, (0 split)
##      428 < 121.5 to the right, agree=0.875, adj=0.733, (0 split)
##      455 < 43.5 to the right, agree=0.875, adj=0.733, (0 split)
##

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## Node number 948: 10 observations
##   predicted class=2   expected loss=0.4   P(node) =0.0003967467
##   class counts:      0      0      6      0      2      0      0      1      1
##   0
##   probabilities: 0.000 0.000 0.600 0.000 0.200 0.000 0.000 0.100 0.100
##   0.000
##
## Node number 949: 10 observations
##   predicted class=8   expected loss=0.1   P(node) =0.0003967467
##   class counts:      0      0      0      0      1      0      0      0      9
##   0
##   probabilities: 0.000 0.000 0.000 0.000 0.100 0.000 0.000 0.000 0.900
##   0.000
##
## Node number 954: 18 observations
##   predicted class=5   expected loss=0.2777778   P(node) =0.000714144
##   class counts:      0      0      0      0      0      13      2      0      2
##   1
##   probabilities: 0.000 0.000 0.000 0.000 0.000 0.722 0.111 0.000 0.111
##   0.056
##
## Node number 955: 1485 observations,   complexity param=0.0001786193
##   predicted class=6   expected loss=0.02289562   P(node) =0.05891688
##   class counts:      0      0      4      1      2      14 1451      0      7
##   6
##   probabilities: 0.000 0.000 0.003 0.001 0.001 0.009 0.977 0.000 0.005
##   0.004
##   left son=1910 (1478 obs) right son=1911 (7 obs)
##   Primary splits:
##       662 < 2      to the left,   improve=9.656883, (0 missing)
##       651 < 2      to the left,   improve=6.903935, (0 missing)
##       652 < 132.5  to the left,   improve=6.903935, (0 missing)
##       653 < 122    to the left,   improve=6.903935, (0 missing)
##       624 < 225.5  to the left,   improve=4.762589, (0 missing)
##   Surrogate splits:
##       661 < 3      to the left,   agree=0.999, adj=0.857, (0 split)
##       690 < 9.5    to the left,   agree=0.998, adj=0.571, (0 split)
##       660 < 1      to the left,   agree=0.997, adj=0.429, (0 split)
##       663 < 30     to the left,   agree=0.997, adj=0.429, (0 split)
##       689 < 4      to the left,   agree=0.997, adj=0.429, (0 split)
##
## Node number 956: 58 observations
##   predicted class=5   expected loss=0.05172414   P(node) =0.002301131
##   class counts:      0      0      0      2      0      55      0      0      1
##   0
##   probabilities: 0.000 0.000 0.000 0.034 0.000 0.948 0.000 0.000 0.017
##   0.000
##
## Node number 957: 9 observations
##   predicted class=6   expected loss=0.3333333   P(node) =0.000357072

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##      class counts:      0      0      0      0      1      1      6      0      1
0
##      probabilities: 0.000 0.000 0.000 0.000 0.111 0.111 0.667 0.000 0.111
0.000
##
## Node number 958: 34 observations,      complexity param=0.0001339645
##      predicted class=6      expected loss=0.2647059      P(node) =0.001348939
##      class counts:      0      0      0      0      0      3      25      0      4
2
##      probabilities: 0.000 0.000 0.000 0.000 0.000 0.088 0.735 0.000 0.118
0.059
##      left son=1916 (27 obs) right son=1917 (7 obs)
##      Primary splits:
##          243 < 11.5 to the left,      improve=6.489574, (0 missing)
##          215 < 195.5 to the left,      improve=4.574230, (0 missing)
##          357 < 12 to the left,      improve=3.727669, (0 missing)
##          402 < 18.5 to the right,      improve=3.653595, (0 missing)
##          382 < 241.5 to the left,      improve=3.156240, (0 missing)
##      Surrogate splits:
##          215 < 215.5 to the left,      agree=0.971, adj=0.857, (0 split)
##          542 < 51 to the right,      agree=0.941, adj=0.714, (0 split)
##          599 < 27 to the right,      agree=0.941, adj=0.714, (0 split)
##          600 < 45 to the right,      agree=0.941, adj=0.714, (0 split)
##          684 < 26 to the left,      agree=0.941, adj=0.714, (0 split)
##
## Node number 959: 62 observations,      complexity param=0.0003125837
##      predicted class=8      expected loss=0.4677419      P(node) =0.002459829
##      class counts:      0      0      2      2      0      16      6      1      33
2
##      probabilities: 0.000 0.000 0.032 0.032 0.000 0.258 0.097 0.016 0.532
0.032
##      left son=1918 (29 obs) right son=1919 (33 obs)
##      Primary splits:
##          354 < 0.5 to the left,      improve=8.548522, (0 missing)
##          355 < 30.5 to the left,      improve=8.537137, (0 missing)
##          467 < 5.5 to the right,      improve=8.294507, (0 missing)
##          488 < 0.5 to the left,      improve=7.360993, (0 missing)
##          466 < 218.5 to the right,      improve=6.812832, (0 missing)
##      Surrogate splits:
##          355 < 3.5 to the left,      agree=0.984, adj=0.966, (0 split)
##          356 < 1.5 to the left,      agree=0.919, adj=0.828, (0 split)
##          382 < 137.5 to the left,      agree=0.903, adj=0.793, (0 split)
##          381 < 30 to the left,      agree=0.855, adj=0.690, (0 split)
##          383 < 1 to the left,      agree=0.839, adj=0.655, (0 split)
##
## Node number 962: 15 observations
##      predicted class=3      expected loss=0      P(node) =0.00059512
##      class counts:      0      0      0      15      0      0      0      0      0
0
##      probabilities: 0.000 0.000 0.000 1.000 0.000 0.000 0.000 0.000 0.000

```

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0.000
##
## Node number 963: 7 observations
## predicted class=8 expected loss=0.2857143 P(node) =0.0002777227
## class counts: 0 0 2 0 0 0 0 0 5
0
## probabilities: 0.000 0.000 0.286 0.000 0.000 0.000 0.000 0.000 0.714
0.000
##
## Node number 964: 9 observations
## predicted class=3 expected loss=0.5555556 P(node) =0.000357072
## class counts: 0 0 2 4 0 3 0 0 0
0
## probabilities: 0.000 0.000 0.222 0.444 0.000 0.333 0.000 0.000 0.000
0.000
##
## Node number 965: 78 observations
## predicted class=5 expected loss=0.03846154 P(node) =0.003094624
## class counts: 0 0 0 1 0 75 1 0 1
0
## probabilities: 0.000 0.000 0.000 0.013 0.000 0.962 0.013 0.000 0.013
0.000
##
## Node number 966: 7 observations
## predicted class=4 expected loss=0.4285714 P(node) =0.0002777227
## class counts: 0 0 2 1 4 0 0 0 0
0
## probabilities: 0.000 0.000 0.286 0.143 0.571 0.000 0.000 0.000 0.000
0.000
##
## Node number 967: 18 observations
## predicted class=8 expected loss=0.1666667 P(node) =0.000714144
## class counts: 0 0 0 1 0 1 1 0 15
0
## probabilities: 0.000 0.000 0.000 0.056 0.000 0.056 0.056 0.000 0.833
0.000
##
## Node number 968: 1344 observations, complexity param=0.0004018934
## predicted class=4 expected loss=0.05208333 P(node) =0.05332275
## class counts: 0 6 8 9 1274 2 14 10 5
16
## probabilities: 0.000 0.004 0.006 0.007 0.948 0.001 0.010 0.007 0.004
0.012
## left son=1936 (1325 obs) right son=1937 (19 obs)
## Primary splits:
## 295 < 222 to the left, improve=21.51074, (0 missing)
## 294 < 222.5 to the left, improve=20.11547, (0 missing)
## 322 < 47 to the left, improve=16.49136, (0 missing)
## 95 < 32 to the left, improve=15.59351, (0 missing)
## 96 < 2 to the left, improve=15.59351, (0 missing)

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## Surrogate splits:
##      294 < 245.5 to the left,  agree=0.992, adj=0.421, (0 split)
##      322 < 210.5 to the left,  agree=0.992, adj=0.421, (0 split)
##      323 < 253.5 to the left,  agree=0.987, adj=0.105, (0 split)
##      740 < 159   to the left,  agree=0.987, adj=0.105, (0 split)
##      255 < 222   to the left,  agree=0.987, adj=0.053, (0 split)
##
## Node number 969: 71 observations,  complexity param=0.0005358578
## predicted class=8 expected loss=0.6338028 P(node) =0.002816901
## class counts:      0      0      6      7      8      19      1      0      26
4
## probabilities: 0.000 0.000 0.085 0.099 0.113 0.268 0.014 0.000 0.366
0.056
## left son=1938 (48 obs) right son=1939 (23 obs)
## Primary splits:
##      516 < 47    to the left,  improve=11.28641, (0 missing)
##      544 < 95.5  to the left,  improve=10.56403, (0 missing)
##      517 < 20    to the left,  improve=10.35095, (0 missing)
##      572 < 46    to the left,  improve=10.16924, (0 missing)
##      489 < 177.5 to the left,  improve=10.07118, (0 missing)
## Surrogate splits:
##      544 < 131.5 to the left,  agree=0.958, adj=0.870, (0 split)
##      489 < 177.5 to the left,  agree=0.930, adj=0.783, (0 split)
##      543 < 16.5  to the left,  agree=0.930, adj=0.783, (0 split)
##      517 < 28.5  to the left,  agree=0.901, adj=0.696, (0 split)
##      515 < 3     to the left,  agree=0.887, adj=0.652, (0 split)
##
## Node number 972: 21 observations
## predicted class=5 expected loss=0.2380952 P(node) =0.000833168
## class counts:      0      0      0      0      2      16      0      0      1
2
## probabilities: 0.000 0.000 0.000 0.000 0.095 0.762 0.000 0.000 0.048
0.095
##
## Node number 973: 72 observations,  complexity param=0.0006251675
## predicted class=9 expected loss=0.4861111 P(node) =0.002856576
## class counts:      0      0      2      2      22      4      0      5      0
37
## probabilities: 0.000 0.000 0.028 0.028 0.306 0.056 0.000 0.069 0.000
0.514
## left son=1946 (32 obs) right son=1947 (40 obs)
## Primary splits:
##      237 < 23.5  to the left,  improve=12.383330, (0 missing)
##      238 < 158.5 to the left,  improve=10.583330, (0 missing)
##      375 < 35.5  to the right, improve= 9.861111, (0 missing)
##      186 < 4     to the right, improve= 8.873974, (0 missing)
##      263 < 5.5   to the left,  improve= 8.694444, (0 missing)
## Surrogate splits:
##      238 < 142.5 to the left,  agree=0.944, adj=0.875, (0 split)
##      236 < 2     to the left,  agree=0.917, adj=0.812, (0 split)

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##      263 < 15    to the left,  agree=0.861, adj=0.688, (0 split)
##      347 < 137.5 to the right, agree=0.861, adj=0.688, (0 split)
##      265 < 235   to the left,  agree=0.847, adj=0.656, (0 split)
##
## Node number 974: 36 observations
##   predicted class=7   expected loss=0.1944444   P(node) =0.001428288
##   class counts:      0      0      2      2      0      0      0      29      2
1
##   probabilities: 0.000 0.000 0.056 0.056 0.000 0.000 0.000 0.806 0.056
0.028
##
## Node number 975: 11 observations
##   predicted class=9   expected loss=0.3636364   P(node) =0.0004364213
##   class counts:      0      0      3      0      0      1      0      0      0
7
##   probabilities: 0.000 0.000 0.273 0.000 0.000 0.091 0.000 0.000 0.000
0.636
##
## Node number 976: 494 observations,      complexity param=0.0003572385
##   predicted class=5   expected loss=0.1093117   P(node) =0.01959929
##   class counts:      0      0      1      35      1      440      0      1      0
16
##   probabilities: 0.000 0.000 0.002 0.071 0.002 0.891 0.000 0.002 0.000
0.032
##   left son=1952 (24 obs) right son=1953 (470 obs)
##   Primary splits:
##       322 < 187.5 to the right, improve=16.81794, (0 missing)
##       217 < 1      to the left,  improve=15.29740, (0 missing)
##       216 < 1.5    to the left,  improve=15.15130, (0 missing)
##       188 < 2      to the left,  improve=14.52128, (0 missing)
##       263 < 8.5    to the left,  improve=14.33422, (0 missing)
##   Surrogate splits:
##       321 < 252.5 to the right, agree=0.962, adj=0.208, (0 split)
##       323 < 62.5  to the right, agree=0.957, adj=0.125, (0 split)
##       649 < 245   to the right, agree=0.957, adj=0.125, (0 split)
##       203 < 253.5 to the right, agree=0.953, adj=0.042, (0 split)
##       324 < 117.5 to the right, agree=0.953, adj=0.042, (0 split)
##
## Node number 977: 27 observations
##   predicted class=6   expected loss=0.1111111   P(node) =0.001071216
##   class counts:      0      0      0      0      0      2      24      0      0
1
##   probabilities: 0.000 0.000 0.000 0.000 0.000 0.074 0.889 0.000 0.000
0.037
##
## Node number 978: 25 observations,      complexity param=0.0002679289
##   predicted class=2   expected loss=0.48   P(node) =0.0009918667
##   class counts:      3      0      13      1      0      0      2      0      6
0
##   probabilities: 0.120 0.000 0.520 0.040 0.000 0.000 0.080 0.000 0.240

```

```

0.000
## left son=1956 (18 obs) right son=1957 (7 obs)
## Primary splits:
##      685 < 1.5 to the left, improve=6.636825, (0 missing)
##      684 < 3 to the left, improve=6.414603, (0 missing)
##      683 < 8.5 to the left, improve=6.401765, (0 missing)
##      358 < 61.5 to the left, improve=6.084156, (0 missing)
##      466 < 239 to the right, improve=5.483590, (0 missing)
## Surrogate splits:
##      436 < 252.5 to the left, agree=0.96, adj=0.857, (0 split)
##      683 < 8.5 to the left, agree=0.96, adj=0.857, (0 split)
##      684 < 7 to the left, agree=0.96, adj=0.857, (0 split)
##      232 < 2.5 to the left, agree=0.92, adj=0.714, (0 split)
##      233 < 58 to the left, agree=0.92, adj=0.714, (0 split)
##
## Node number 979: 35 observations, complexity param=0.0001786193
## predicted class=9 expected loss=0.3428571 P(node) =0.001388613
## class counts: 0 0 0 1 5 3 0 0 3
23
## probabilities: 0.000 0.000 0.000 0.029 0.143 0.086 0.000 0.000 0.086
0.657
## left son=1958 (11 obs) right son=1959 (24 obs)
## Primary splits:
##      242 < 14.5 to the left, improve=7.424026, (0 missing)
##      347 < 176.5 to the right, improve=6.867888, (0 missing)
##      243 < 0.5 to the left, improve=6.508571, (0 missing)
##      155 < 24 to the right, improve=5.841534, (0 missing)
##      320 < 144.5 to the right, improve=5.708571, (0 missing)
## Surrogate splits:
##      243 < 0.5 to the left, agree=0.971, adj=0.909, (0 split)
##      241 < 2 to the left, agree=0.943, adj=0.818, (0 split)
##      347 < 221 to the right, agree=0.914, adj=0.727, (0 split)
##      154 < 7 to the right, agree=0.857, adj=0.545, (0 split)
##      213 < 57 to the left, agree=0.857, adj=0.545, (0 split)
##
## Node number 980: 71 observations
## predicted class=4 expected loss=0.07042254 P(node) =0.002816901
## class counts: 0 1 1 1 66 0 0 0 1
1
## probabilities: 0.000 0.014 0.014 0.014 0.930 0.000 0.000 0.000 0.014
0.014
##
## Node number 981: 8 observations
## predicted class=7 expected loss=0.5 P(node) =0.0003173973
## class counts: 0 0 0 0 2 0 0 4 0
2
## probabilities: 0.000 0.000 0.000 0.000 0.250 0.000 0.000 0.500 0.000
0.250
##
## Node number 982: 127 observations, complexity param=0.0007144771

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```

## predicted class=9 expected loss=0.6141732 P(node) =0.005038683
## class counts: 0 1 3 16 20 0 1 28 9
49
## probabilities: 0.000 0.008 0.024 0.126 0.157 0.000 0.008 0.220 0.071
0.386
## left son=1964 (60 obs) right son=1965 (67 obs)
## Primary splits:
## 373 < 9.5 to the left, improve=14.28025, (0 missing)
## 345 < 4 to the left, improve=14.01165, (0 missing)
## 346 < 1 to the left, improve=13.03548, (0 missing)
## 205 < 46 to the right, improve=11.38308, (0 missing)
## 318 < 1 to the left, improve=11.35079, (0 missing)
## Surrogate splits:
## 345 < 4 to the left, agree=0.929, adj=0.850, (0 split)
## 401 < 30.5 to the left, agree=0.874, adj=0.733, (0 split)
## 317 < 1 to the left, agree=0.858, adj=0.700, (0 split)
## 374 < 55 to the left, agree=0.835, adj=0.650, (0 split)
## 346 < 1 to the left, agree=0.811, adj=0.600, (0 split)
##
## Node number 983: 21 observations
## predicted class=8 expected loss=0.1428571 P(node) =0.000833168
## class counts: 0 0 1 1 0 0 1 0 18
0
## probabilities: 0.000 0.000 0.048 0.048 0.000 0.000 0.048 0.000 0.857
0.000
##
## Node number 984: 99 observations, complexity param=0.0002679289
## predicted class=3 expected loss=0.2323232 P(node) =0.003927792
## class counts: 1 0 2 76 1 7 0 0 2
10
## probabilities: 0.010 0.000 0.020 0.768 0.010 0.071 0.000 0.000 0.020
0.101
## left son=1968 (77 obs) right son=1969 (22 obs)
## Primary splits:
## 373 < 63 to the left, improve=15.06349, (0 missing)
## 318 < 22 to the left, improve=13.10780, (0 missing)
## 346 < 167.5 to the left, improve=12.38503, (0 missing)
## 345 < 13 to the left, improve=12.08025, (0 missing)
## 319 < 116.5 to the left, improve=11.25532, (0 missing)
## Surrogate splits:
## 345 < 13 to the left, agree=0.949, adj=0.773, (0 split)
## 374 < 209 to the left, agree=0.949, adj=0.773, (0 split)
## 346 < 83.5 to the left, agree=0.919, adj=0.636, (0 split)
## 372 < 16 to the left, agree=0.909, adj=0.591, (0 split)
## 402 < 251.5 to the left, agree=0.909, adj=0.591, (0 split)
##
## Node number 985: 79 observations, complexity param=0.0009377512
## predicted class=2 expected loss=0.4683544 P(node) =0.003134299
## class counts: 1 0 42 6 0 1 3 0 25
1

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```

## probabilities: 0.013 0.000 0.532 0.076 0.000 0.013 0.038 0.000 0.316
0.013
## left son=1970 (46 obs) right son=1971 (33 obs)
## Primary splits:
## 465 < 96.5 to the right, improve=20.78167, (0 missing)
## 521 < 6.5 to the right, improve=19.34563, (0 missing)
## 492 < 114.5 to the right, improve=18.17561, (0 missing)
## 379 < 146.5 to the left, improve=17.94013, (0 missing)
## 599 < 126.5 to the right, improve=17.68251, (0 missing)
## Surrogate splits:
## 493 < 41 to the right, agree=0.937, adj=0.848, (0 split)
## 437 < 121 to the right, agree=0.911, adj=0.788, (0 split)
## 492 < 59.5 to the right, agree=0.899, adj=0.758, (0 split)
## 464 < 99 to the right, agree=0.886, adj=0.727, (0 split)
## 520 < 86.5 to the right, agree=0.861, adj=0.667, (0 split)
##
## Node number 986: 138 observations, complexity param=0.0004465482
## predicted class=4 expected loss=0.3333333 P(node) =0.005475104
## class counts: 0 0 5 7 92 2 1 0 5
26
## probabilities: 0.000 0.000 0.036 0.051 0.667 0.014 0.007 0.000 0.036
0.188
## left son=1972 (90 obs) right son=1973 (48 obs)
## Primary splits:
## 207 < 10 to the left, improve=19.72005, (0 missing)
## 181 < 126 to the left, improve=18.83848, (0 missing)
## 180 < 1.5 to the left, improve=18.44868, (0 missing)
## 208 < 31 to the left, improve=17.91859, (0 missing)
## 179 < 6 to the left, improve=15.51269, (0 missing)
## Surrogate splits:
## 208 < 88.5 to the left, agree=0.942, adj=0.833, (0 split)
## 180 < 1.5 to the left, agree=0.920, adj=0.771, (0 split)
## 179 < 2.5 to the left, agree=0.913, adj=0.750, (0 split)
## 235 < 109 to the left, agree=0.899, adj=0.708, (0 split)
## 181 < 152.5 to the left, agree=0.891, adj=0.687, (0 split)
##
## Node number 987: 90 observations, complexity param=0.0004465482
## predicted class=8 expected loss=0.5 P(node) =0.00357072
## class counts: 1 0 4 9 9 2 0 1 45
19
## probabilities: 0.011 0.000 0.044 0.100 0.100 0.022 0.000 0.011 0.500
0.211
## left son=1974 (50 obs) right son=1975 (40 obs)
## Primary splits:
## 544 < 147 to the left, improve=17.02444, (0 missing)
## 516 < 55 to the left, improve=14.42222, (0 missing)
## 517 < 192.5 to the left, improve=12.81599, (0 missing)
## 543 < 12 to the left, improve=11.52738, (0 missing)
## 545 < 131 to the left, improve=10.43108, (0 missing)
## Surrogate splits:

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##      516 < 55      to the left,  agree=0.900, adj=0.775, (0 split)
##      543 < 12      to the left,  agree=0.900, adj=0.775, (0 split)
##      572 < 239.5  to the left,  agree=0.878, adj=0.725, (0 split)
##      517 < 149    to the left,  agree=0.867, adj=0.700, (0 split)
##      571 < 52      to the left,  agree=0.867, adj=0.700, (0 split)
##
## Node number 988: 176 observations,      complexity param=0.0006698223
##   predicted class=9  expected loss=0.6931818  P(node) =0.006982742
##   class counts:      1      0      17      51      8      0      0      39      6
54
##   probabilities: 0.006 0.000 0.097 0.290 0.045 0.000 0.000 0.222 0.034
0.307
##   left son=1976 (119 obs) right son=1977 (57 obs)
##   Primary splits:
##       342 < 10      to the left,  improve=36.80002, (0 missing)
##       371 < 3        to the left,  improve=36.32649, (0 missing)
##       370 < 2.5     to the left,  improve=33.43193, (0 missing)
##       399 < 5.5     to the left,  improve=33.30885, (0 missing)
##       315 < 51      to the left,  improve=32.74784, (0 missing)
##   Surrogate splits:
##       371 < 3        to the left,  agree=0.972, adj=0.912, (0 split)
##       370 < 2.5     to the left,  agree=0.960, adj=0.877, (0 split)
##       314 < 5.5     to the left,  agree=0.949, adj=0.842, (0 split)
##       343 < 10      to the left,  agree=0.949, adj=0.842, (0 split)
##       315 < 32      to the left,  agree=0.938, adj=0.807, (0 split)
##
## Node number 989: 117 observations,      complexity param=0.0003572385
##   predicted class=9  expected loss=0.2393162  P(node) =0.004641936
##   class counts:      0      0      0      1      15      1      0      4      7
89
##   probabilities: 0.000 0.000 0.000 0.009 0.128 0.009 0.000 0.034 0.060
0.761
##   left son=1978 (20 obs) right son=1979 (97 obs)
##   Primary splits:
##       428 < 71.5    to the right, improve=13.05703, (0 missing)
##       456 < 1        to the right, improve=11.83117, (0 missing)
##       213 < 3.5     to the left,  improve=11.66334, (0 missing)
##       212 < 83      to the left,  improve=11.41880, (0 missing)
##       427 < 0.5     to the right, improve=10.77495, (0 missing)
##   Surrogate splits:
##       400 < 12      to the right, agree=0.966, adj=0.80, (0 split)
##       427 < 0.5     to the right, agree=0.966, adj=0.80, (0 split)
##       456 < 2.5     to the right, agree=0.949, adj=0.70, (0 split)
##       401 < 244.5   to the right, agree=0.940, adj=0.65, (0 split)
##       455 < 16      to the right, agree=0.932, adj=0.60, (0 split)
##
## Node number 990: 66 observations,      complexity param=0.0006698223
##   predicted class=4  expected loss=0.4848485  P(node) =0.002618528
##   class counts:      0      0      0      0      34      0      0      1      2
29

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```

## probabilities: 0.000 0.000 0.000 0.000 0.515 0.000 0.000 0.015 0.030
0.439
## left son=1980 (31 obs) right son=1981 (35 obs)
## Primary splits:
## 319 < 195 to the right, improve=23.27404, (0 missing)
## 206 < 5.5 to the left, improve=22.77634, (0 missing)
## 261 < 29 to the left, improve=21.84444, (0 missing)
## 291 < 141.5 to the right, improve=21.32479, (0 missing)
## 234 < 142 to the left, improve=21.27350, (0 missing)
## Surrogate splits:
## 292 < 99.5 to the right, agree=0.939, adj=0.871, (0 split)
## 320 < 6 to the right, agree=0.939, adj=0.871, (0 split)
## 346 < 235.5 to the right, agree=0.939, adj=0.871, (0 split)
## 347 < 33.5 to the right, agree=0.939, adj=0.871, (0 split)
## 261 < 29 to the left, agree=0.924, adj=0.839, (0 split)
##
## Node number 991: 1086 observations, complexity param=0.0003125837
## predicted class=9 expected loss=0.08655617 P(node) =0.04308669
## class counts: 0 0 1 10 35 6 0 10 32
992
## probabilities: 0.000 0.000 0.001 0.009 0.032 0.006 0.000 0.009 0.029
0.913
## left son=1982 (72 obs) right son=1983 (1014 obs)
## Primary splits:
## 204 < 10.5 to the right, improve=12.80996, (0 missing)
## 437 < 2.5 to the left, improve=12.02509, (0 missing)
## 203 < 12 to the right, improve=11.64847, (0 missing)
## 232 < 132.5 to the right, improve=11.64608, (0 missing)
## 177 < 119 to the right, improve=11.10262, (0 missing)
## Surrogate splits:
## 232 < 212.5 to the right, agree=0.977, adj=0.653, (0 split)
## 205 < 91.5 to the right, agree=0.975, adj=0.625, (0 split)
## 231 < 16.5 to the right, agree=0.969, adj=0.528, (0 split)
## 203 < 0.5 to the right, agree=0.967, adj=0.500, (0 split)
## 259 < 195 to the right, agree=0.966, adj=0.486, (0 split)
##
## Node number 992: 26 observations
## predicted class=3 expected loss=0.07692308 P(node) =0.001031541
## class counts: 0 0 0 24 1 1 0 0 0
0
## probabilities: 0.000 0.000 0.000 0.923 0.038 0.038 0.000 0.000 0.000
0.000
##
## Node number 993: 14 observations
## predicted class=1 expected loss=0.5714286 P(node) =0.0005554453
## class counts: 1 6 0 0 2 3 1 0 0
1
## probabilities: 0.071 0.429 0.000 0.000 0.143 0.214 0.071 0.000 0.000
0.071
##

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## Node number 994: 25 observations,    complexity param=0.0002679289
##   predicted class=3   expected loss=0.52   P(node) =0.0009918667
##   class counts:      0      1      2      12      0      9      0      0      1
0
##   probabilities: 0.000 0.040 0.080 0.480 0.000 0.360 0.000 0.000 0.040
0.000
##   left son=1988 (16 obs) right son=1989 (9 obs)
##   Primary splits:
##       233 < 6      to the left,   improve=9.135000, (0 missing)
##       261 < 11.5   to the left,   improve=8.893333, (0 missing)
##       234 < 58.5   to the left,   improve=7.357222, (0 missing)
##       289 < 21     to the left,   improve=7.305455, (0 missing)
##       262 < 83.5   to the left,   improve=6.315556, (0 missing)
##   Surrogate splits:
##       261 < 11.5   to the left,   agree=0.96, adj=0.889, (0 split)
##       234 < 58.5   to the left,   agree=0.92, adj=0.778, (0 split)
##       262 < 83.5   to the left,   agree=0.92, adj=0.778, (0 split)
##       289 < 21     to the left,   agree=0.92, adj=0.778, (0 split)
##       205 < 227.5 to the left,   agree=0.88, adj=0.667, (0 split)
##
## Node number 995: 110 observations
##   predicted class=5   expected loss=0.07272727   P(node) =0.004364213
##   class counts:      0      0      2      4      0    102      1      0      0
1
##   probabilities: 0.000 0.000 0.018 0.036 0.000 0.927 0.009 0.000 0.000
0.009
##
## Node number 996: 18 observations
##   predicted class=3   expected loss=0.5   P(node) =0.000714144
##   class counts:      0      5      0      9      0      0      0      3      0
1
##   probabilities: 0.000 0.278 0.000 0.500 0.000 0.000 0.000 0.167 0.000
0.056
##
## Node number 997: 28 observations
##   predicted class=8   expected loss=0.07142857   P(node) =0.001110891
##   class counts:      0      0      2      0      0      0      0      0      26
0
##   probabilities: 0.000 0.000 0.071 0.000 0.000 0.000 0.000 0.000 0.929
0.000
##
## Node number 998: 32 observations
##   predicted class=4   expected loss=0.3125   P(node) =0.001269589
##   class counts:      0      0      1      2      22      1      0      3      0
3
##   probabilities: 0.000 0.000 0.031 0.062 0.688 0.031 0.000 0.094 0.000
0.094
##
## Node number 999: 60 observations,    complexity param=0.0002232741
##   predicted class=9   expected loss=0.2833333   P(node) =0.00238048

```

```

##      class counts:      0      0      1      6      5      0      0      2      3
43
##      probabilities: 0.000 0.000 0.017 0.100 0.083 0.000 0.000 0.033 0.050
0.717
##      left son=1998 (7 obs) right son=1999 (53 obs)
##      Primary splits:
##          623 < 10      to the right, improve=7.237916, (0 missing)
##          375 < 20.5    to the left,  improve=6.194771, (0 missing)
##          624 < 9       to the right, improve=6.194771, (0 missing)
##          567 < 11.5    to the right, improve=5.809344, (0 missing)
##          595 < 33.5    to the right, improve=5.809344, (0 missing)
##      Surrogate splits:
##          157 < 96      to the right, agree=0.983, adj=0.857, (0 split)
##          158 < 25      to the right, agree=0.983, adj=0.857, (0 split)
##          376 < 47.5    to the left,  agree=0.967, adj=0.714, (0 split)
##          494 < 248.5   to the right, agree=0.967, adj=0.714, (0 split)
##          567 < 11.5    to the right, agree=0.967, adj=0.714, (0 split)
##
## Node number 1000: 39 observations
##      predicted class=1 expected loss=0.02564103 P(node) =0.001547312
##      class counts:      0      38      0      0      0      1      0      0      0
0
##      probabilities: 0.000 0.974 0.000 0.000 0.000 0.026 0.000 0.000 0.000
0.000
##
## Node number 1001: 15 observations
##      predicted class=6 expected loss=0.2666667 P(node) =0.00059512
##      class counts:      2      0      0      1      0      1      11      0      0
0
##      probabilities: 0.133 0.000 0.000 0.067 0.000 0.067 0.733 0.000 0.000
0.000
##
## Node number 1002: 25 observations
##      predicted class=2 expected loss=0.12 P(node) =0.0009918667
##      class counts:      0      1      22      0      0      0      0      2      0
0
##      probabilities: 0.000 0.040 0.880 0.000 0.000 0.000 0.000 0.080 0.000
0.000
##
## Node number 1003: 14 observations
##      predicted class=3 expected loss=0.7142857 P(node) =0.0005554453
##      class counts:      2      2      2      4      0      0      1      3      0
0
##      probabilities: 0.143 0.143 0.143 0.286 0.000 0.000 0.071 0.214 0.000
0.000
##
## Node number 1004: 12 observations
##      predicted class=2 expected loss=0.1666667 P(node) =0.000476096
##      class counts:      0      0      10      2      0      0      0      0      0
0

```



```

## probabilities: 0.000 0.000 0.833 0.167 0.000 0.000 0.000 0.000 0.000
0.000
##
## Node number 1005: 11 observations
## predicted class=6 expected loss=0.5454545 P(node) =0.0004364213
## class counts: 0 3 0 0 1 0 5 1 1
0
## probabilities: 0.000 0.273 0.000 0.000 0.091 0.000 0.455 0.091 0.091
0.000
##
## Node number 1006: 10 observations
## predicted class=1 expected loss=0.2 P(node) =0.0003967467
## class counts: 2 8 0 0 0 0 0 0 0
0
## probabilities: 0.200 0.800 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000
##
## Node number 1007: 1327 observations, complexity param=2.232741e-05
## predicted class=7 expected loss=0.02411454 P(node) =0.05264828
## class counts: 0 1 11 4 3 0 2 1295 0
11
## probabilities: 0.000 0.001 0.008 0.003 0.002 0.000 0.002 0.976 0.000
0.008
## left son=2014 (13 obs) right son=2015 (1314 obs)
## Primary splits:
## 553 < 6 to the right, improve=5.010716, (0 missing)
## 608 < 40.5 to the right, improve=5.009198, (0 missing)
## 552 < 87.5 to the right, improve=4.674842, (0 missing)
## 525 < 93 to the right, improve=4.285472, (0 missing)
## 609 < 50 to the right, improve=4.220859, (0 missing)
## Surrogate splits:
## 552 < 87.5 to the right, agree=0.998, adj=0.769, (0 split)
## 581 < 1 to the right, agree=0.997, adj=0.692, (0 split)
## 525 < 18.5 to the right, agree=0.996, adj=0.615, (0 split)
## 580 < 161 to the right, agree=0.995, adj=0.538, (0 split)
## 524 < 146 to the right, agree=0.995, adj=0.462, (0 split)
##
## Node number 1008: 11 observations
## predicted class=4 expected loss=0.09090909 P(node) =0.0004364213
## class counts: 1 0 0 0 10 0 0 0 0
0
## probabilities: 0.091 0.000 0.000 0.000 0.909 0.000 0.000 0.000 0.000
0.000
##
## Node number 1009: 18 observations
## predicted class=2 expected loss=0.5555556 P(node) =0.000714144
## class counts: 0 1 8 0 1 1 3 1 1
2
## probabilities: 0.000 0.056 0.444 0.000 0.056 0.056 0.167 0.056 0.056
0.111

```

```

##
## Node number 1010: 96 observations
## predicted class=4 expected loss=0.04166667 P(node) =0.003808768
## class counts: 0 0 0 0 92 0 3 0 0
1
## probabilities: 0.000 0.000 0.000 0.000 0.958 0.000 0.031 0.000 0.000
0.010
##
## Node number 1011: 7 observations
## predicted class=9 expected loss=0.4285714 P(node) =0.0002777227
## class counts: 0 0 0 0 3 0 0 0 0
4
## probabilities: 0.000 0.000 0.000 0.000 0.429 0.000 0.000 0.000 0.000
0.571
##
## Node number 1016: 8 observations
## predicted class=2 expected loss=0.5 P(node) =0.0003173973
## class counts: 0 0 4 0 1 0 0 1 0
2
## probabilities: 0.000 0.000 0.500 0.000 0.125 0.000 0.000 0.125 0.000
0.250
##
## Node number 1017: 16 observations
## predicted class=7 expected loss=0.0625 P(node) =0.0006347947
## class counts: 0 0 0 0 1 0 0 15 0
0
## probabilities: 0.000 0.000 0.000 0.000 0.062 0.000 0.000 0.937 0.000
0.000
##
## Node number 1018: 12 observations
## predicted class=4 expected loss=0.25 P(node) =0.000476096
## class counts: 0 0 0 0 9 0 0 0 2
1
## probabilities: 0.000 0.000 0.000 0.000 0.750 0.000 0.000 0.000 0.167
0.083
##
## Node number 1019: 14 observations
## predicted class=9 expected loss=0.1428571 P(node) =0.0005554453
## class counts: 0 0 0 0 1 0 0 0 1
12
## probabilities: 0.000 0.000 0.000 0.000 0.071 0.000 0.000 0.000 0.071
0.857
##
## Node number 1020: 17 observations
## predicted class=4 expected loss=0.1764706 P(node) =0.0006744694
## class counts: 0 0 1 0 14 0 0 1 0
1
## probabilities: 0.000 0.000 0.059 0.000 0.824 0.000 0.000 0.059 0.000
0.059
##

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```

## Node number 1021: 8 observations
## predicted class=9 expected loss=0 P(node) =0.0003173973
## class counts: 0 0 0 0 0 0 0 0 0
8
## probabilities: 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
1.000
##
## Node number 1024: 2237 observations, complexity param=7.44247e-05
## predicted class=1 expected loss=0.01430487 P(node) =0.08875223
## class counts: 0 2205 1 2 1 4 4 5 14
1
## probabilities: 0.000 0.986 0.000 0.001 0.000 0.002 0.002 0.002 0.006
0.000
## left son=2048 (2230 obs) right son=2049 (7 obs)
## Primary splits:
## 219 < 22.5 to the left, improve=4.458432, (0 missing)
## 493 < 64.5 to the left, improve=3.891068, (0 missing)
## 492 < 253.5 to the left, improve=3.614926, (0 missing)
## 538 < 5 to the left, improve=3.600392, (0 missing)
## 539 < 97.5 to the left, improve=3.600392, (0 missing)
## Surrogate splits:
## 191 < 79 to the left, agree=1.000, adj=0.857, (0 split)
## 220 < 2 to the left, agree=0.999, adj=0.714, (0 split)
## 192 < 64 to the left, agree=0.999, adj=0.571, (0 split)
## 164 < 1.5 to the left, agree=0.998, adj=0.429, (0 split)
## 190 < 225.5 to the left, agree=0.998, adj=0.429, (0 split)
##
## Node number 1025: 12 observations
## predicted class=8 expected loss=0.5833333 P(node) =0.000476096
## class counts: 0 3 1 0 0 0 0 3 5
0
## probabilities: 0.000 0.250 0.083 0.000 0.000 0.000 0.000 0.250 0.417
0.000
##
## Node number 1088: 16 observations
## predicted class=1 expected loss=0.1875 P(node) =0.0006347947
## class counts: 0 13 1 0 2 0 0 0 0
0
## probabilities: 0.000 0.813 0.062 0.000 0.125 0.000 0.000 0.000 0.000
0.000
##
## Node number 1089: 9 observations
## predicted class=3 expected loss=0.4444444 P(node) =0.000357072
## class counts: 0 0 2 5 0 1 0 1 0
0
## probabilities: 0.000 0.000 0.222 0.556 0.000 0.111 0.000 0.111 0.000
0.000
##
## Node number 1090: 12 observations
## predicted class=0 expected loss=0.4166667 P(node) =0.000476096

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##      class counts:      7      0      1      1      0      1      2      0      0
0
##      probabilities: 0.583 0.000 0.083 0.083 0.000 0.083 0.167 0.000 0.000
0.000
##
## Node number 1091: 56 observations,      complexity param=0.0001339645
##      predicted class=6      expected loss=0.1428571      P(node) =0.002221781
##      class counts:      0      0      5      0      1      1      48      0      0
1
##      probabilities: 0.000 0.000 0.089 0.000 0.018 0.018 0.857 0.000 0.000
0.018
##      left son=2182 (7 obs) right son=2183 (49 obs)
##      Primary splits:
##          95 < 41      to the right, improve=5.744898, (0 missing)
##          122 < 243.5 to the right, improve=5.744898, (0 missing)
##          123 < 124      to the right, improve=5.744898, (0 missing)
##          150 < 193      to the right, improve=5.744898, (0 missing)
##          151 < 71      to the right, improve=5.744898, (0 missing)
##      Surrogate splits:
##          94 < 32      to the right, agree=0.982, adj=0.857, (0 split)
##          121 < 117      to the right, agree=0.982, adj=0.857, (0 split)
##          122 < 157      to the right, agree=0.982, adj=0.857, (0 split)
##          123 < 192.5 to the right, agree=0.982, adj=0.857, (0 split)
##          150 < 134.5 to the right, agree=0.982, adj=0.857, (0 split)
##
## Node number 1092: 13 observations
##      predicted class=2      expected loss=0      P(node) =0.0005157707
##      class counts:      0      0      13      0      0      0      0      0      0
0
##      probabilities: 0.000 0.000 1.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000
##
## Node number 1093: 54 observations,      complexity param=0.0002456015
##      predicted class=5      expected loss=0.6481481      P(node) =0.002142432
##      class counts:      5      6      8      6      4      19      1      0      5
0
##      probabilities: 0.093 0.111 0.148 0.111 0.074 0.352 0.019 0.000 0.093
0.000
##      left son=2186 (31 obs) right son=2187 (23 obs)
##      Primary splits:
##          458 < 16.5      to the right, improve=7.384448, (0 missing)
##          459 < 70.5      to the right, improve=7.209402, (0 missing)
##          460 < 205      to the right, improve=7.043791, (0 missing)
##          431 < 134.5 to the right, improve=5.979118, (0 missing)
##          430 < 113.5 to the right, improve=5.956678, (0 missing)
##      Surrogate splits:
##          459 < 27      to the right, agree=0.907, adj=0.783, (0 split)
##          486 < 209.5 to the right, agree=0.889, adj=0.739, (0 split)
##          457 < 11      to the right, agree=0.870, adj=0.696, (0 split)
##          460 < 40.5      to the right, agree=0.833, adj=0.609, (0 split)

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##      485 < 171.5 to the right, agree=0.833, adj=0.609, (0 split)
##
## Node number 1094: 22 observations
##   predicted class=4   expected loss=0.09090909   P(node) =0.0008728427
##   class counts:      0      0      0      1     20      0      0      1      0
##   probabilities: 0.000 0.000 0.000 0.045 0.909 0.000 0.000 0.045 0.000
##   0.000
##
## Node number 1095: 70 observations,      complexity param=0.0003125837
##   predicted class=9   expected loss=0.5857143   P(node) =0.002777227
##   class counts:      0     14      1      1     13      2      3      6      1
##   29
##   probabilities: 0.000 0.200 0.014 0.014 0.186 0.029 0.043 0.086 0.014
##   0.414
##   left son=2190 (37 obs) right son=2191 (33 obs)
##   Primary splits:
##       381 < 210.5 to the left,   improve=7.800889, (0 missing)
##       321 < 230   to the right,  improve=7.766667, (0 missing)
##       237 < 75    to the left,   improve=7.444655, (0 missing)
##       322 < 217   to the right,  improve=7.150018, (0 missing)
##       681 < 72    to the left,   improve=7.022782, (0 missing)
##   Surrogate splits:
##       353 < 249.5 to the left,   agree=0.900, adj=0.788, (0 split)
##       354 < 109   to the left,   agree=0.886, adj=0.758, (0 split)
##       382 < 15.5  to the left,   agree=0.871, adj=0.727, (0 split)
##       326 < 129.5 to the left,   agree=0.857, adj=0.697, (0 split)
##       408 < 230   to the left,   agree=0.843, adj=0.667, (0 split)
##
## Node number 1110: 7 observations
##   predicted class=5   expected loss=0.1428571   P(node) =0.0002777227
##   class counts:      0      0      0      1      0      6      0      0      0
##   0
##   probabilities: 0.000 0.000 0.000 0.143 0.000 0.857 0.000 0.000 0.000
##   0.000
##
## Node number 1111: 21 observations,      complexity param=0.0001786193
##   predicted class=8   expected loss=0.6190476   P(node) =0.000833168
##   class counts:      2      1      0      2      1      0      2      0      8
##   5
##   probabilities: 0.095 0.048 0.000 0.095 0.048 0.000 0.095 0.000 0.381
##   0.238
##   left son=2222 (10 obs) right son=2223 (11 obs)
##   Primary splits:
##       653 < 111.5 to the right,  improve=3.477056, (0 missing)
##       625 < 80    to the right,  improve=3.383700, (0 missing)
##       487 < 134   to the right,  improve=3.373016, (0 missing)
##       330 < 2.5   to the right,  improve=3.095238, (0 missing)
##       566 < 79.5  to the right,  improve=3.095238, (0 missing)
##   Surrogate splits:

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##      623 < 19    to the right, agree=0.952, adj=0.9, (0 split)
##      624 < 189   to the right, agree=0.952, adj=0.9, (0 split)
##      625 < 151.5 to the right, agree=0.952, adj=0.9, (0 split)
##      651 < 0.5   to the right, agree=0.952, adj=0.9, (0 split)
##      652 < 53    to the right, agree=0.952, adj=0.9, (0 split)
##
## Node number 1112: 19 observations
##   predicted class=3   expected loss=0.3157895   P(node) =0.0007538187
##   class counts:      0      1      1      13      2      1      0      0      0
1
##   probabilities: 0.000 0.053 0.053 0.684 0.105 0.053 0.000 0.000 0.000
0.053
##
## Node number 1113: 18 observations
##   predicted class=8   expected loss=0.3333333   P(node) =0.000714144
##   class counts:      1      0      0      0      3      1      0      1      12
0
##   probabilities: 0.056 0.000 0.000 0.000 0.167 0.056 0.000 0.056 0.667
0.000
##
## Node number 1114: 8 observations
##   predicted class=4   expected loss=0.5   P(node) =0.0003173973
##   class counts:      0      0      0      1      4      0      0      0      3
0
##   probabilities: 0.000 0.000 0.000 0.125 0.500 0.000 0.000 0.000 0.375
0.000
##
## Node number 1115: 79 observations
##   predicted class=8   expected loss=0.06329114   P(node) =0.003134299
##   class counts:      0      2      0      1      0      1      0      0      74
1
##   probabilities: 0.000 0.025 0.000 0.013 0.000 0.013 0.000 0.000 0.937
0.013
##
## Node number 1172: 16 observations
##   predicted class=2   expected loss=0.3125   P(node) =0.0006347947
##   class counts:      0      0      11      1      0      0      3      1      0
0
##   probabilities: 0.000 0.000 0.688 0.062 0.000 0.000 0.188 0.062 0.000
0.000
##
## Node number 1173: 8 observations
##   predicted class=8   expected loss=0.25   P(node) =0.0003173973
##   class counts:      0      0      2      0      0      0      0      0      6
0
##   probabilities: 0.000 0.000 0.250 0.000 0.000 0.000 0.000 0.000 0.750
0.000
##
## Node number 1224: 24 observations
##   predicted class=2   expected loss=0.04166667   P(node) =0.000952192

```

```

##      class counts:      0      0      23      0      0      0      0      0      1
0
##      probabilities: 0.000 0.000 0.958 0.000 0.000 0.000 0.000 0.000 0.042
0.000
##
## Node number 1225: 10 observations
##      predicted class=3      expected loss=0.2      P(node) =0.0003967467
##      class counts:      0      1      1      8      0      0      0      0      0
0
##      probabilities: 0.000 0.100 0.100 0.800 0.000 0.000 0.000 0.000 0.000
0.000
##
## Node number 1248: 14 observations
##      predicted class=1      expected loss=0.07142857      P(node) =0.0005554453
##      class counts:      0      13      0      0      0      0      0      0      1
0
##      probabilities: 0.000 0.929 0.000 0.000 0.000 0.000 0.000 0.000 0.071
0.000
##
## Node number 1249: 12 observations
##      predicted class=8      expected loss=0.3333333      P(node) =0.000476096
##      class counts:      0      0      0      3      0      1      0      0      8
0
##      probabilities: 0.000 0.000 0.000 0.250 0.000 0.083 0.000 0.000 0.667
0.000
##
## Node number 1276: 13 observations
##      predicted class=4      expected loss=0.5384615      P(node) =0.0005157707
##      class counts:      0      0      0      1      6      0      1      1      2
2
##      probabilities: 0.000 0.000 0.000 0.077 0.462 0.000 0.077 0.077 0.154
0.154
##
## Node number 1277: 23 observations
##      predicted class=8      expected loss=0.1304348      P(node) =0.0009125174
##      class counts:      0      0      0      1      1      1      0      0      20
0
##      probabilities: 0.000 0.000 0.000 0.043 0.043 0.043 0.000 0.000 0.870
0.000
##
## Node number 1288: 1360 observations,      complexity param=0.0002456015
##      predicted class=3      expected loss=0.02058824      P(node) =0.05395755
##      class counts:      0      2      8      1332      0      13      0      0      5
0
##      probabilities: 0.000 0.001 0.006 0.979 0.000 0.010 0.000 0.000 0.004
0.000
##      left son=2576 (1350 obs) right son=2577 (10 obs)
##      Primary splits:
##          341 < 70      to the left,      improve=12.981990, (0 missing)
##          342 < 147.5 to the left,      improve=11.016070, (0 missing)

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##      313 < 154   to the left,  improve=10.020510, (0 missing)
##      369 < 98    to the left,  improve= 8.555135, (0 missing)
##      314 < 160.5 to the left,  improve= 8.256068, (0 missing)
## Surrogate splits:
##      313 < 154   to the left,  agree=0.999, adj=0.8, (0 split)
##      369 < 98    to the left,  agree=0.998, adj=0.7, (0 split)
##      314 < 160.5 to the left,  agree=0.997, adj=0.6, (0 split)
##      342 < 147.5 to the left,  agree=0.997, adj=0.6, (0 split)
##      340 < 5     to the left,  agree=0.996, adj=0.5, (0 split)
##
## Node number 1289: 10 observations
## predicted class=8 expected loss=0.3 P(node) =0.0003967467
## class counts:      0      0      2      0      0      1      0      0      7
##
## probabilities: 0.000 0.000 0.200 0.000 0.000 0.100 0.000 0.000 0.700
## 0.000
##
## Node number 1290: 16 observations
## predicted class=5 expected loss=0.4375 P(node) =0.0006347947
## class counts:      0      0      0      4      0      9      0      0      3
##
## probabilities: 0.000 0.000 0.000 0.250 0.000 0.562 0.000 0.000 0.188
## 0.000
##
## Node number 1291: 7 observations
## predicted class=9 expected loss=0.2857143 P(node) =0.0002777227
## class counts:      0      0      0      1      0      0      0      0      1
## 5
## probabilities: 0.000 0.000 0.000 0.143 0.000 0.000 0.000 0.000 0.143
## 0.714
##
## Node number 1294: 12 observations
## predicted class=1 expected loss=0.5 P(node) =0.000476096
## class counts:      0      6      0      4      0      0      0      1      1
## 0
## probabilities: 0.000 0.500 0.000 0.333 0.000 0.000 0.000 0.083 0.083
## 0.000
##
## Node number 1295: 17 observations
## predicted class=5 expected loss=0.1176471 P(node) =0.0006744694
## class counts:      0      0      0      0      0      15      0      0      2
## 0
## probabilities: 0.000 0.000 0.000 0.000 0.000 0.882 0.000 0.000 0.118
## 0.000
##
## Node number 1316: 7 observations
## predicted class=1 expected loss=0.5714286 P(node) =0.0002777227
## class counts:      0      3      1      0      0      1      2      0      0
## 0
## probabilities: 0.000 0.429 0.143 0.000 0.000 0.143 0.286 0.000 0.000

```



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0.000
##
## Node number 1317: 22 observations
## predicted class=3 expected loss=0.09090909 P(node) =0.0008728427
## class counts: 0 0 0 20 0 1 1 0 0
0
## probabilities: 0.000 0.000 0.000 0.909 0.000 0.045 0.045 0.000 0.000
0.000
##
## Node number 1318: 7 observations
## predicted class=0 expected loss=0.2857143 P(node) =0.0002777227
## class counts: 5 0 0 1 0 0 0 1 0
0
## probabilities: 0.714 0.000 0.000 0.143 0.000 0.000 0.000 0.143 0.000
0.000
##
## Node number 1319: 23 observations
## predicted class=5 expected loss=0.173913 P(node) =0.0009125174
## class counts: 0 0 0 1 0 19 0 2 1
0
## probabilities: 0.000 0.000 0.000 0.043 0.000 0.826 0.000 0.087 0.043
0.000
##
## Node number 1324: 22 observations
## predicted class=3 expected loss=0.2272727 P(node) =0.0008728427
## class counts: 0 0 0 17 0 0 2 0 2
1
## probabilities: 0.000 0.000 0.000 0.773 0.000 0.000 0.091 0.000 0.091
0.045
##
## Node number 1325: 8 observations
## predicted class=5 expected loss=0.375 P(node) =0.0003173973
## class counts: 0 0 0 0 0 5 0 1 0
2
## probabilities: 0.000 0.000 0.000 0.000 0.000 0.625 0.000 0.125 0.000
0.250
##
## Node number 1326: 8 observations
## predicted class=3 expected loss=0.25 P(node) =0.0003173973
## class counts: 0 0 0 6 0 1 0 0 1
0
## probabilities: 0.000 0.000 0.000 0.750 0.000 0.125 0.000 0.000 0.125
0.000
##
## Node number 1327: 93 observations
## predicted class=5 expected loss=0.04301075 P(node) =0.003689744
## class counts: 0 0 0 2 0 89 1 0 1
0
## probabilities: 0.000 0.000 0.000 0.022 0.000 0.957 0.011 0.000 0.011
0.000

```

```

##
## Node number 1338: 7 observations
## predicted class=3 expected loss=0.4285714 P(node) =0.0002777227
## class counts: 0 0 0 4 0 2 0 0 1
0
## probabilities: 0.000 0.000 0.000 0.571 0.000 0.286 0.000 0.000 0.143
0.000
##
## Node number 1339: 44 observations
## predicted class=5 expected loss=0.06818182 P(node) =0.001745685
## class counts: 0 0 1 0 0 41 1 1 0
0
## probabilities: 0.000 0.000 0.023 0.000 0.000 0.932 0.023 0.023 0.000
0.000
##
## Node number 1340: 23 observations
## predicted class=4 expected loss=0.04347826 P(node) =0.0009125174
## class counts: 0 0 0 0 22 0 0 1 0
0
## probabilities: 0.000 0.000 0.000 0.000 0.957 0.000 0.000 0.043 0.000
0.000
##
## Node number 1341: 20 observations, complexity param=0.0002456015
## predicted class=7 expected loss=0.55 P(node) =0.0007934934
## class counts: 0 0 0 6 4 0 1 9 0
0
## probabilities: 0.000 0.000 0.000 0.300 0.200 0.000 0.050 0.450 0.000
0.000
## left son=2682 (11 obs) right son=2683 (9 obs)
## Primary splits:
## 345 < 12 to the left, improve=7.118182, (0 missing)
## 346 < 93 to the left, improve=6.700000, (0 missing)
## 183 < 18 to the right, improve=6.047253, (0 missing)
## 327 < 13.5 to the left, improve=5.800000, (0 missing)
## 328 < 2.5 to the left, improve=5.800000, (0 missing)
## Surrogate splits:
## 327 < 13.5 to the left, agree=0.95, adj=0.889, (0 split)
## 328 < 2.5 to the left, agree=0.95, adj=0.889, (0 split)
## 343 < 18 to the left, agree=0.95, adj=0.889, (0 split)
## 344 < 42.5 to the left, agree=0.95, adj=0.889, (0 split)
## 346 < 93 to the left, agree=0.95, adj=0.889, (0 split)
##
## Node number 1342: 27 observations, complexity param=0.0002232741
## predicted class=1 expected loss=0.7407407 P(node) =0.001071216
## class counts: 0 7 0 3 2 5 6 0 4
0
## probabilities: 0.000 0.259 0.000 0.111 0.074 0.185 0.222 0.000 0.148
0.000
## left son=2684 (13 obs) right son=2685 (14 obs)
## Primary splits:

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##      154 < 20    to the right, improve=4.016687, (0 missing)
##      521 < 3.5  to the left,  improve=4.016687, (0 missing)
##      214 < 19.5 to the left,  improve=3.962963, (0 missing)
##      465 < 3    to the left,  improve=3.862841, (0 missing)
##      572 < 142  to the left,  improve=3.806397, (0 missing)
## Surrogate splits:
##      465 < 3    to the left,  agree=0.926, adj=0.846, (0 split)
##      182 < 97.5 to the right, agree=0.889, adj=0.769, (0 split)
##      437 < 11   to the left,  agree=0.889, adj=0.769, (0 split)
##      493 < 17   to the left,  agree=0.852, adj=0.692, (0 split)
##      155 < 75   to the right, agree=0.815, adj=0.615, (0 split)
##
## Node number 1343: 43 observations,    complexity param=0.0001562919
## predicted class=9 expected loss=0.2790698 P(node) =0.001706011
## class counts:      0      0      0      7      2      0      0      1      2
31
## probabilities: 0.000 0.000 0.000 0.163 0.047 0.000 0.000 0.023 0.047
0.721
## left son=2686 (22 obs) right son=2687 (21 obs)
## Primary splits:
##      288 < 117  to the left,  improve=4.484144, (0 missing)
##      289 < 9    to the left,  improve=4.084934, (0 missing)
##      263 < 103  to the right, improve=3.881813, (0 missing)
##      316 < 1.5  to the left,  improve=3.774187, (0 missing)
##      345 < 23.5 to the left,  improve=3.774187, (0 missing)
## Surrogate splits:
##      289 < 9    to the left,  agree=0.977, adj=0.952, (0 split)
##      316 < 1.5  to the left,  agree=0.977, adj=0.952, (0 split)
##      261 < 133.5 to the left, agree=0.953, adj=0.905, (0 split)
##      208 < 178.5 to the left, agree=0.907, adj=0.810, (0 split)
##      260 < 21.5 to the left,  agree=0.907, adj=0.810, (0 split)
##
## Node number 1352: 94 observations
## predicted class=3 expected loss=0.106383 P(node) =0.003729419
## class counts:      0      0      0      84      0      3      0      0      1
6
## probabilities: 0.000 0.000 0.000 0.894 0.000 0.032 0.000 0.000 0.011
0.064
##
## Node number 1353: 7 observations
## predicted class=8 expected loss=0.2857143 P(node) =0.0002777227
## class counts:      0      0      0      2      0      0      0      0      5
0
## probabilities: 0.000 0.000 0.000 0.286 0.000 0.000 0.000 0.000 0.714
0.000
##
## Node number 1356: 32 observations
## predicted class=3 expected loss=0.03125 P(node) =0.001269589
## class counts:      0      0      0      31      0      1      0      0      0
0

```

```

## probabilities: 0.000 0.000 0.000 0.969 0.000 0.031 0.000 0.000 0.000
0.000
##
## Node number 1357: 8 observations
## predicted class=5 expected loss=0.375 P(node) =0.0003173973
## class counts: 0 0 0 1 0 5 0 0 2
0
## probabilities: 0.000 0.000 0.000 0.125 0.000 0.625 0.000 0.000 0.250
0.000
##
## Node number 1358: 102 observations, complexity param=0.0004465482
## predicted class=5 expected loss=0.4803922 P(node) =0.004046816
## class counts: 5 1 1 25 0 53 2 3 3
9
## probabilities: 0.049 0.010 0.010 0.245 0.000 0.520 0.020 0.029 0.029
0.088
## left son=2716 (25 obs) right son=2717 (77 obs)
## Primary splits:
## 125 < 40.5 to the right, improve=8.196486, (0 missing)
## 535 < 1.5 to the right, improve=7.889258, (0 missing)
## 124 < 62.5 to the right, improve=7.225490, (0 missing)
## 247 < 16.5 to the left, improve=7.091031, (0 missing)
## 263 < 52.5 to the left, improve=6.857765, (0 missing)
## Surrogate splits:
## 124 < 0.5 to the right, agree=0.961, adj=0.84, (0 split)
## 126 < 40 to the right, agree=0.922, adj=0.68, (0 split)
## 123 < 8.5 to the right, agree=0.902, adj=0.60, (0 split)
## 153 < 222 to the right, agree=0.892, adj=0.56, (0 split)
## 127 < 163.5 to the right, agree=0.882, adj=0.52, (0 split)
##
## Node number 1359: 38 observations, complexity param=0.0003572385
## predicted class=8 expected loss=0.5789474 P(node) =0.001507637
## class counts: 0 0 0 2 0 6 0 0 16
14
## probabilities: 0.000 0.000 0.000 0.053 0.000 0.158 0.000 0.000 0.421
0.368
## left son=2718 (30 obs) right son=2719 (8 obs)
## Primary splits:
## 545 < 45.5 to the left, improve=6.119298, (0 missing)
## 546 < 170 to the left, improve=6.119298, (0 missing)
## 157 < 11 to the left, improve=5.778785, (0 missing)
## 156 < 77.5 to the left, improve=5.692632, (0 missing)
## 431 < 13 to the left, improve=5.684211, (0 missing)
## Surrogate splits:
## 546 < 170 to the left, agree=1.000, adj=1.000, (0 split)
## 490 < 41 to the left, agree=0.974, adj=0.875, (0 split)
## 518 < 32 to the left, agree=0.974, adj=0.875, (0 split)
## 573 < 186 to the left, agree=0.974, adj=0.875, (0 split)
## 464 < 247.5 to the left, agree=0.947, adj=0.750, (0 split)
##

```

```

## Node number 1374: 37 observations,    complexity param=0.0001488494
##   predicted class=5   expected loss=0.3513514   P(node) =0.001467963
##   class counts:      0      0      0      12      0      24      1      0      0
##   probabilities: 0.000 0.000 0.000 0.324 0.000 0.649 0.027 0.000 0.000
##   left son=2748 (20 obs) right son=2749 (17 obs)
##   Primary splits:
##       293 < 176   to the right, improve=7.213514, (0 missing)
##       265 < 162.5 to the right, improve=6.465894, (0 missing)
##       267 < 113.5 to the right, improve=6.407923, (0 missing)
##       238 < 40.5  to the right, improve=5.786241, (0 missing)
##       239 < 36    to the right, improve=5.786241, (0 missing)
##   Surrogate splits:
##       292 < 128   to the right, agree=0.892, adj=0.765, (0 split)
##       320 < 202   to the right, agree=0.892, adj=0.765, (0 split)
##       239 < 148   to the right, agree=0.865, adj=0.706, (0 split)
##       264 < 3.5   to the right, agree=0.865, adj=0.706, (0 split)
##       265 < 162.5 to the right, agree=0.865, adj=0.706, (0 split)
##
## Node number 1375: 385 observations,    complexity param=4.465482e-05
##   predicted class=5   expected loss=0.03116883   P(node) =0.01527475
##   class counts:      0      0      0      3      0      373      4      0      3
##   probabilities: 0.000 0.000 0.000 0.008 0.000 0.969 0.010 0.000 0.008
##   left son=2750 (378 obs) right son=2751 (7 obs)
##   Primary splits:
##       299 < 67     to the left,  improve=5.151611, (0 missing)
##       298 < 14.5   to the left,  improve=3.524606, (0 missing)
##       300 < 6      to the left,  improve=3.524606, (0 missing)
##       484 < 252    to the left,  improve=3.172775, (0 missing)
##       456 < 253.5  to the left,  improve=3.005389, (0 missing)
##   Surrogate splits:
##       300 < 58.5   to the left,  agree=0.997, adj=0.857, (0 split)
##       271 < 253.5  to the left,  agree=0.992, adj=0.571, (0 split)
##       272 < 252.5  to the left,  agree=0.990, adj=0.429, (0 split)
##       298 < 14.5   to the left,  agree=0.987, adj=0.286, (0 split)
##       327 < 253    to the left,  agree=0.987, adj=0.286, (0 split)
##
## Node number 1398: 17 observations
##   predicted class=4   expected loss=0.6470588   P(node) =0.0006744694
##   class counts:      0      2      0      2      6      1      0      1      2
##   probabilities: 0.000 0.118 0.000 0.118 0.353 0.059 0.000 0.059 0.118
##   left son=2750 (378 obs) right son=2751 (7 obs)
##
## Node number 1399: 11 observations
##   predicted class=9   expected loss=0           P(node) =0.0004364213
##   class counts:      0      0      0      0      0      0      0      0      0

```

```

11
## probabilities: 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
1.000
##
## Node number 1406: 16 observations
## predicted class=7 expected loss=0.5 P(node) =0.0006347947
## class counts: 1 0 0 0 0 1 0 8 0
6
## probabilities: 0.062 0.000 0.000 0.000 0.000 0.062 0.000 0.500 0.000
0.375
##
## Node number 1407: 222 observations
## predicted class=9 expected loss=0.06306306 P(node) =0.008807776
## class counts: 0 0 0 4 8 0 0 2 0
208
## probabilities: 0.000 0.000 0.000 0.018 0.036 0.000 0.000 0.009 0.000
0.937
##
## Node number 1426: 17 observations
## predicted class=4 expected loss=0.5294118 P(node) =0.0006744694
## class counts: 0 1 0 0 8 0 6 0 1
1
## probabilities: 0.000 0.059 0.000 0.000 0.471 0.000 0.353 0.000 0.059
0.059
##
## Node number 1427: 8 observations
## predicted class=5 expected loss=0.125 P(node) =0.0003173973
## class counts: 0 0 0 0 0 7 0 0 1
0
## probabilities: 0.000 0.000 0.000 0.000 0.000 0.875 0.000 0.000 0.125
0.000
##
## Node number 1430: 16 observations
## predicted class=2 expected loss=0.3125 P(node) =0.0006347947
## class counts: 0 0 11 1 1 0 1 0 1
1
## probabilities: 0.000 0.000 0.688 0.062 0.062 0.000 0.062 0.000 0.062
0.062
##
## Node number 1431: 19 observations
## predicted class=8 expected loss=0.3157895 P(node) =0.0007538187
## class counts: 1 0 1 2 0 0 1 0 13
1
## probabilities: 0.053 0.000 0.053 0.105 0.000 0.000 0.053 0.000 0.684
0.053
##
## Node number 1528: 17 observations
## predicted class=2 expected loss=0.05882353 P(node) =0.0006744694
## class counts: 0 0 16 0 0 0 1 0 0
0

```

```

## probabilities: 0.000 0.000 0.941 0.000 0.000 0.000 0.059 0.000 0.000
0.000
##
## Node number 1529: 7 observations
## predicted class=8 expected loss=0.2857143 P(node) =0.0002777227
## class counts: 0 0 1 1 0 0 0 0 5
0
## probabilities: 0.000 0.000 0.143 0.143 0.000 0.000 0.000 0.000 0.714
0.000
##
## Node number 1532: 11 observations
## predicted class=3 expected loss=0.1818182 P(node) =0.0004364213
## class counts: 0 0 0 9 0 0 1 0 1
0
## probabilities: 0.000 0.000 0.000 0.818 0.000 0.000 0.091 0.000 0.091
0.000
##
## Node number 1533: 25 observations, complexity param=0.0001786193
## predicted class=8 expected loss=0.32 P(node) =0.0009918667
## class counts: 0 0 0 1 0 5 1 0 17
1
## probabilities: 0.000 0.000 0.000 0.040 0.000 0.200 0.040 0.000 0.680
0.040
## left son=3066 (8 obs) right son=3067 (17 obs)
## Primary splits:
## 270 < 126 to the left, improve=5.937647, (0 missing)
## 130 < 11 to the right, improve=5.510476, (0 missing)
## 297 < 48 to the left, improve=5.510476, (0 missing)
## 298 < 23.5 to the left, improve=5.510476, (0 missing)
## 158 < 203.5 to the right, improve=4.889444, (0 missing)
## Surrogate splits:
## 298 < 180 to the left, agree=0.96, adj=0.875, (0 split)
## 130 < 40.5 to the right, agree=0.92, adj=0.750, (0 split)
## 129 < 80.5 to the right, agree=0.88, adj=0.625, (0 split)
## 131 < 6 to the right, agree=0.88, adj=0.625, (0 split)
## 242 < 112.5 to the left, agree=0.88, adj=0.625, (0 split)
##
## Node number 1534: 37 observations, complexity param=8.930964e-05
## predicted class=8 expected loss=0.2432432 P(node) =0.001467963
## class counts: 1 0 0 0 0 0 7 0 28
1
## probabilities: 0.027 0.000 0.000 0.000 0.000 0.000 0.189 0.000 0.757
0.027
## left son=3068 (7 obs) right son=3069 (30 obs)
## Primary splits:
## 131 < 50 to the right, improve=5.756242, (0 missing)
## 403 < 252.5 to the right, improve=5.254655, (0 missing)
## 375 < 251.5 to the right, improve=4.861004, (0 missing)
## 130 < 33 to the right, improve=4.665191, (0 missing)
## 347 < 159 to the right, improve=4.361920, (0 missing)

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## Surrogate splits:
##      130 < 33    to the right, agree=0.973, adj=0.857, (0 split)
##      132 < 0.5   to the right, agree=0.919, adj=0.571, (0 split)
##      159 < 246   to the right, agree=0.919, adj=0.571, (0 split)
##      129 < 163.5 to the right, agree=0.892, adj=0.429, (0 split)
##      161 < 64.5  to the right, agree=0.892, adj=0.429, (0 split)
##
## Node number 1535: 272 observations
## predicted class=8 expected loss=0.01838235 P(node) =0.01079151
## class counts:      0      0      0      2      0      1      1      0      267
1
## probabilities: 0.000 0.000 0.000 0.007 0.000 0.004 0.004 0.000 0.982
0.004
##
## Node number 1536: 1578 observations
## predicted class=0 expected loss=0.004435995 P(node) =0.06260663
## class counts: 1571      0      0      0      1      2      3      0      0
1
## probabilities: 0.996 0.000 0.000 0.000 0.001 0.001 0.002 0.000 0.000
0.001
##
## Node number 1537: 25 observations, complexity param=2.232741e-05
## predicted class=0 expected loss=0.2 P(node) =0.0009918667
## class counts:  20      0      1      0      0      0      4      0      0
0
## probabilities: 0.800 0.000 0.040 0.000 0.000 0.000 0.160 0.000 0.000
0.000
## left son=3074 (18 obs) right son=3075 (7 obs)
## Primary splits:
##      244 < 5.5   to the right, improve=3.00254, (0 missing)
##      272 < 26.5  to the right, improve=3.00254, (0 missing)
##      300 < 26.5  to the right, improve=3.00254, (0 missing)
##      301 < 3.5   to the right, improve=3.00254, (0 missing)
##      329 < 87    to the right, improve=3.00254, (0 missing)
## Surrogate splits:
##      216 < 23.5  to the right, agree=0.92, adj=0.714, (0 split)
##      272 < 54    to the right, agree=0.88, adj=0.571, (0 split)
##      492 < 194.5 to the left,  agree=0.88, adj=0.571, (0 split)
##      496 < 74.5  to the right, agree=0.88, adj=0.571, (0 split)
##      606 < 252.5 to the left,  agree=0.88, adj=0.571, (0 split)
##
## Node number 1538: 13 observations
## predicted class=0 expected loss=0 P(node) =0.0005157707
## class counts:  13      0      0      0      0      0      0      0      0
0
## probabilities: 1.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000
##
## Node number 1539: 7 observations
## predicted class=6 expected loss=0.2857143 P(node) =0.0002777227

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##      class counts:      2      0      0      0      0      0      5      0      0
0
##      probabilities: 0.286 0.000 0.000 0.000 0.000 0.000 0.714 0.000 0.000
0.000
##
## Node number 1540: 267 observations,      complexity param=0.000111637
##      predicted class=0      expected loss=0.05617978      P(node) =0.01059314
##      class counts:      252      0      7      1      0      2      3      1      0
1
##      probabilities: 0.944 0.000 0.026 0.004 0.000 0.007 0.011 0.004 0.000
0.004
##      left son=3080 (201 obs) right son=3081 (66 obs)
##      Primary splits:
##          244 < 1      to the right, improve=2.428557, (0 missing)
##          149 < 3      to the left,  improve=2.381101, (0 missing)
##          102 < 71.5   to the left,  improve=2.254517, (0 missing)
##          273 < 1.5    to the right, improve=2.247191, (0 missing)
##          272 < 48.5   to the right, improve=2.134487, (0 missing)
##      Surrogate splits:
##          215 < 10.5   to the right, agree=0.873, adj=0.485, (0 split)
##          272 < 27.5   to the right, agree=0.873, adj=0.485, (0 split)
##          273 < 4      to the right, agree=0.858, adj=0.424, (0 split)
##          216 < 1.5    to the right, agree=0.839, adj=0.348, (0 split)
##          326 < 131.5  to the left,  agree=0.835, adj=0.333, (0 split)
##
## Node number 1541: 32 observations,      complexity param=0.0001786193
##      predicted class=0      expected loss=0.625      P(node) =0.001269589
##      class counts:      12      0      2      6      0      12      0      0      0
0
##      probabilities: 0.375 0.000 0.062 0.188 0.000 0.375 0.000 0.000 0.000
0.000
##      left son=3082 (18 obs) right son=3083 (14 obs)
##      Primary splits:
##          239 < 145    to the right, improve=8.511905, (0 missing)
##          241 < 21     to the right, improve=8.250000, (0 missing)
##          238 < 157    to the right, improve=7.750000, (0 missing)
##          240 < 1.5    to the right, improve=6.816667, (0 missing)
##          267 < 251    to the right, improve=6.575397, (0 missing)
##      Surrogate splits:
##          212 < 30.5   to the right, agree=0.938, adj=0.857, (0 split)
##          238 < 157    to the right, agree=0.938, adj=0.857, (0 split)
##          240 < 61.5   to the right, agree=0.906, adj=0.786, (0 split)
##          211 < 30     to the right, agree=0.875, adj=0.714, (0 split)
##          241 < 26.5   to the right, agree=0.844, adj=0.643, (0 split)
##
## Node number 1542: 11 observations
##      predicted class=0      expected loss=0.09090909      P(node) =0.0004364213
##      class counts:      10      0      1      0      0      0      0      0      0
0
##      probabilities: 0.909 0.000 0.091 0.000 0.000 0.000 0.000 0.000 0.000

```

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0.000
##
## Node number 1543: 22 observations,    complexity param=4.465482e-05
## predicted class=2 expected loss=0.3181818 P(node) =0.0008728427
## class counts:      2      0      15      0      0      0      2      3      0
0
## probabilities: 0.091 0.000 0.682 0.000 0.000 0.000 0.091 0.136 0.000
0.000
## left son=3086 (14 obs) right son=3087 (8 obs)
## Primary splits:
##      544 < 170 to the right, improve=3.392857, (0 missing)
##      152 < 20.5 to the right, improve=3.000000, (0 missing)
##      265 < 23.5 to the left, improve=3.000000, (0 missing)
##      291 < 41.5 to the left, improve=3.000000, (0 missing)
##      292 < 11.5 to the left, improve=3.000000, (0 missing)
## Surrogate splits:
##      545 < 250.5 to the right, agree=0.909, adj=0.750, (0 split)
##      543 < 21.5 to the right, agree=0.864, adj=0.625, (0 split)
##      579 < 3 to the right, agree=0.864, adj=0.625, (0 split)
##      183 < 253.5 to the left, agree=0.818, adj=0.500, (0 split)
##      357 < 244.5 to the left, agree=0.818, adj=0.500, (0 split)
##
## Node number 1586: 36 observations,    complexity param=4.465482e-05
## predicted class=3 expected loss=0.1666667 P(node) =0.001428288
## class counts:      2      0      0      30      0      4      0      0      0
0
## probabilities: 0.056 0.000 0.000 0.833 0.000 0.111 0.000 0.000 0.000
0.000
## left son=3172 (27 obs) right son=3173 (9 obs)
## Primary splits:
##      538 < 56 to the left, improve=4.666667, (0 missing)
##      189 < 25.5 to the left, improve=4.044444, (0 missing)
##      217 < 11.5 to the left, improve=4.044444, (0 missing)
##      510 < 1.5 to the left, improve=4.044444, (0 missing)
##      509 < 64 to the right, improve=3.941981, (0 missing)
## Surrogate splits:
##      510 < 1.5 to the left, agree=0.972, adj=0.889, (0 split)
##      509 < 64 to the left, agree=0.944, adj=0.778, (0 split)
##      537 < 140.5 to the left, agree=0.944, adj=0.778, (0 split)
##      481 < 36.5 to the left, agree=0.917, adj=0.667, (0 split)
##      566 < 169.5 to the left, agree=0.917, adj=0.667, (0 split)
##
## Node number 1587: 8 observations
## predicted class=2 expected loss=0.5 P(node) =0.0003173973
## class counts:      0      0      4      1      0      1      0      2      0
0
## probabilities: 0.000 0.000 0.500 0.125 0.000 0.125 0.000 0.250 0.000
0.000
##
## Node number 1648: 10 observations

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## predicted class=2 expected loss=0.3 P(node) =0.0003967467
## class counts: 0 0 7 1 0 0 2 0 0
0
## probabilities: 0.000 0.000 0.700 0.100 0.000 0.000 0.200 0.000 0.000
0.000
##
## Node number 1649: 24 observations, complexity param=0.0001786193
## predicted class=5 expected loss=0.5833333 P(node) =0.000952192
## class counts: 4 0 1 2 1 10 3 0 3
0
## probabilities: 0.167 0.000 0.042 0.083 0.042 0.417 0.125 0.000 0.125
0.000
## left son=3298 (10 obs) right son=3299 (14 obs)
## Primary splits:
## 627 < 242 to the right, improve=4.195238, (0 missing)
## 247 < 3 to the left, improve=4.049020, (0 missing)
## 184 < 227 to the right, improve=4.000000, (0 missing)
## 430 < 193.5 to the right, improve=3.528011, (0 missing)
## 183 < 137.5 to the right, improve=3.131702, (0 missing)
## Surrogate splits:
## 214 < 148.5 to the right, agree=0.917, adj=0.8, (0 split)
## 403 < 240 to the right, agree=0.917, adj=0.8, (0 split)
## 184 < 240.5 to the right, agree=0.875, adj=0.7, (0 split)
## 431 < 108.5 to the right, agree=0.875, adj=0.7, (0 split)
## 183 < 219.5 to the right, agree=0.833, adj=0.6, (0 split)
##
## Node number 1694: 7 observations
## predicted class=4 expected loss=0.5714286 P(node) =0.0002777227
## class counts: 0 0 1 0 3 1 2 0 0
0
## probabilities: 0.000 0.000 0.143 0.000 0.429 0.143 0.286 0.000 0.000
0.000
##
## Node number 1695: 113 observations
## predicted class=6 expected loss=0.02654867 P(node) =0.004483237
## class counts: 0 0 1 0 1 1 110 0 0
0
## probabilities: 0.000 0.000 0.009 0.000 0.009 0.009 0.973 0.000 0.000
0.000
##
## Node number 1716: 7 observations
## predicted class=3 expected loss=0.2857143 P(node) =0.0002777227
## class counts: 0 0 0 5 1 0 0 0 0
1
## probabilities: 0.000 0.000 0.000 0.714 0.143 0.000 0.000 0.000 0.000
0.143
##
## Node number 1717: 18 observations
## predicted class=0 expected loss=0.7777778 P(node) =0.000714144
## class counts: 4 0 4 0 0 0 4 1 1

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4
## probabilities: 0.222 0.000 0.222 0.000 0.000 0.000 0.222 0.056 0.056
0.222
##
## Node number 1726: 11 observations
## predicted class=7 expected loss=0.4545455 P(node) =0.0004364213
## class counts: 0 0 0 0 0 0 0 6 0
5
## probabilities: 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.545 0.000
0.455
##
## Node number 1727: 62 observations
## predicted class=9 expected loss=0.1129032 P(node) =0.002459829
## class counts: 0 0 1 0 2 0 1 3 0
55
## probabilities: 0.000 0.000 0.016 0.000 0.032 0.000 0.016 0.048 0.000
0.887
##
## Node number 1732: 18 observations
## predicted class=1 expected loss=0.6666667 P(node) =0.000714144
## class counts: 1 6 0 4 0 5 0 0 0
2
## probabilities: 0.056 0.333 0.000 0.222 0.000 0.278 0.000 0.000 0.000
0.111
##
## Node number 1733: 10 observations
## predicted class=6 expected loss=0.2 P(node) =0.0003967467
## class counts: 0 1 0 0 0 1 8 0 0
0
## probabilities: 0.000 0.100 0.000 0.000 0.000 0.100 0.800 0.000 0.000
0.000
##
## Node number 1790: 8 observations
## predicted class=6 expected loss=0.625 P(node) =0.0003173973
## class counts: 1 0 0 0 1 1 3 1 0
1
## probabilities: 0.125 0.000 0.000 0.000 0.125 0.125 0.375 0.125 0.000
0.125
##
## Node number 1791: 614 observations
## predicted class=7 expected loss=0.01465798 P(node) =0.02436025
## class counts: 1 0 1 2 1 0 0 605 0
4
## probabilities: 0.002 0.000 0.002 0.003 0.002 0.000 0.000 0.985 0.000
0.007
##
## Node number 1792: 869 observations, complexity param=8.930964e-05
## predicted class=2 expected loss=0.01841197 P(node) =0.03447729
## class counts: 0 0 853 12 0 0 0 3 1
0

```

```

## probabilities: 0.000 0.000 0.982 0.014 0.000 0.000 0.000 0.003 0.001
0.000
## left son=3584 (801 obs) right son=3585 (68 obs)
## Primary splits:
## 488 < 1.5 to the right, improve=2.531792, (0 missing)
## 515 < 4.5 to the right, improve=2.489658, (0 missing)
## 516 < 1.5 to the right, improve=2.454042, (0 missing)
## 323 < 239 to the left, improve=1.846059, (0 missing)
## 487 < 8 to the right, improve=1.798154, (0 missing)
## Surrogate splits:
## 489 < 1.5 to the right, agree=0.936, adj=0.176, (0 split)
## 487 < 1 to the right, agree=0.930, adj=0.103, (0 split)
## 377 < 254 to the left, agree=0.924, adj=0.029, (0 split)
## 389 < 63.5 to the left, agree=0.924, adj=0.029, (0 split)
## 416 < 242 to the left, agree=0.924, adj=0.029, (0 split)
##
## Node number 1793: 43 observations, complexity param=0.0001339645
## predicted class=2 expected loss=0.3488372 P(node) =0.001706011
## class counts: 0 0 28 3 0 0 0 9 3
0
## probabilities: 0.000 0.000 0.651 0.070 0.000 0.000 0.000 0.209 0.070
0.000
## left son=3586 (28 obs) right son=3587 (15 obs)
## Primary splits:
## 206 < 235.5 to the right, improve=8.298450, (0 missing)
## 234 < 62 to the right, improve=7.864131, (0 missing)
## 233 < 4.5 to the right, improve=7.731783, (0 missing)
## 232 < 33.5 to the right, improve=6.922259, (0 missing)
## 205 < 106 to the right, improve=6.775461, (0 missing)
## Surrogate splits:
## 232 < 33.5 to the right, agree=0.953, adj=0.867, (0 split)
## 207 < 197 to the right, agree=0.930, adj=0.800, (0 split)
## 233 < 38 to the right, agree=0.930, adj=0.800, (0 split)
## 234 < 62 to the right, agree=0.930, adj=0.800, (0 split)
## 204 < 2 to the right, agree=0.884, adj=0.667, (0 split)
##
## Node number 1800: 15 observations
## predicted class=2 expected loss=0 P(node) =0.00059512
## class counts: 0 0 15 0 0 0 0 0 0
0
## probabilities: 0.000 0.000 1.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000
##
## Node number 1801: 7 observations
## predicted class=0 expected loss=0.5714286 P(node) =0.0002777227
## class counts: 3 0 2 0 0 0 2 0 0
0
## probabilities: 0.429 0.000 0.286 0.000 0.000 0.000 0.286 0.000 0.000
0.000
##

```

```

## Node number 1808: 107 observations,    complexity param=0.0001339645
##   predicted class=1 expected loss=0.07476636 P(node) =0.004245189
##   class counts:      0    99    3    0    1    1    0    3    0
##   probabilities: 0.000 0.925 0.028 0.000 0.009 0.009 0.000 0.028 0.000
##   left son=3616 (100 obs) right son=3617 (7 obs)
##   Primary splits:
##       411 < 14.5 to the left, improve=8.949239, (0 missing)
##       412 < 2.5  to the left, improve=8.949239, (0 missing)
##       437 < 122.5 to the left, improve=8.949239, (0 missing)
##       438 < 30.5 to the left, improve=8.949239, (0 missing)
##       439 < 25   to the left, improve=8.949239, (0 missing)
##   Surrogate splits:
##       412 < 2.5  to the left, agree=1.000, adj=1.000, (0 split)
##       437 < 122.5 to the left, agree=1.000, adj=1.000, (0 split)
##       438 < 30.5 to the left, agree=1.000, adj=1.000, (0 split)
##       439 < 25   to the left, agree=1.000, adj=1.000, (0 split)
##       410 < 161  to the left, agree=0.991, adj=0.857, (0 split)
##
## Node number 1809: 28 observations,    complexity param=0.0001786193
##   predicted class=2 expected loss=0.5 P(node) =0.001110891
##   class counts:      0    1   14    1    1    2    6    3    0
##   probabilities: 0.000 0.036 0.500 0.036 0.036 0.071 0.214 0.107 0.000
##   left son=3618 (14 obs) right son=3619 (14 obs)
##   Primary splits:
##       431 < 8.5  to the right, improve=5.428571, (0 missing)
##       410 < 3    to the right, improve=5.346066, (0 missing)
##       331 < 48   to the left, improve=5.238095, (0 missing)
##       359 < 14.5 to the left, improve=5.238095, (0 missing)
##       387 < 42   to the left, improve=5.238095, (0 missing)
##   Surrogate splits:
##       430 < 32.5 to the right, agree=0.964, adj=0.929, (0 split)
##       429 < 11.5 to the right, agree=0.929, adj=0.857, (0 split)
##       432 < 11.5 to the right, agree=0.893, adj=0.786, (0 split)
##       458 < 149.5 to the right, agree=0.893, adj=0.786, (0 split)
##       459 < 216  to the right, agree=0.893, adj=0.786, (0 split)
##
## Node number 1810: 72 observations,    complexity param=0.0001786193
##   predicted class=4 expected loss=0.25 P(node) =0.002856576
##   class counts:      0    0    2    0   54    2    7    2    3
##   probabilities: 0.000 0.000 0.028 0.000 0.750 0.028 0.097 0.028 0.042
##   left son=3620 (63 obs) right son=3621 (9 obs)
##   Primary splits:
##       292 < 124  to the left, improve=7.678571, (0 missing)
##       293 < 96   to the left, improve=7.678571, (0 missing)

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##      294 < 33.5  to the left,  improve=7.678571, (0 missing)
##      265 < 89    to the left,  improve=7.456349, (0 missing)
##      266 < 56.5  to the left,  improve=7.456349, (0 missing)
##  Surrogate splits:
##      293 < 96    to the left,  agree=1.000, adj=1.000, (0 split)
##      294 < 33.5  to the left,  agree=1.000, adj=1.000, (0 split)
##      320 < 14.5  to the left,  agree=0.986, adj=0.889, (0 split)
##      321 < 7.5   to the left,  agree=0.986, adj=0.889, (0 split)
##      265 < 89    to the left,  agree=0.972, adj=0.778, (0 split)
##
## Node number 1811: 39 observations,      complexity param=4.465482e-05
## predicted class=6 expected loss=0.1025641 P(node) =0.001547312
## class counts:      0      0      0      0      4      0      35      0      0
##
## probabilities: 0.000 0.000 0.000 0.000 0.103 0.000 0.897 0.000 0.000
0.000
## left son=3622 (7 obs) right son=3623 (32 obs)
## Primary splits:
##      576 < 114   to the left,  improve=3.750916, (0 missing)
##      628 < 38    to the right, improve=3.750916, (0 missing)
##      244 < 161.5 to the right, improve=3.179487, (0 missing)
##      263 < 76.5  to the right, improve=3.179487, (0 missing)
##      358 < 6.5   to the left,  improve=2.735043, (0 missing)
## Surrogate splits:
##      550 < 39.5  to the left,  agree=0.974, adj=0.857, (0 split)
##      188 < 6      to the right, agree=0.949, adj=0.714, (0 split)
##      189 < 56     to the right, agree=0.949, adj=0.714, (0 split)
##      190 < 4.5    to the right, agree=0.949, adj=0.714, (0 split)
##      215 < 35     to the right, agree=0.949, adj=0.714, (0 split)
##
## Node number 1812: 127 observations,      complexity param=0.0005805126
## predicted class=2 expected loss=0.3622047 P(node) =0.005038683
## class counts:      0      2      81      5      0      0      0      24      6
9
## probabilities: 0.000 0.016 0.638 0.039 0.000 0.000 0.000 0.189 0.047
0.071
## left son=3624 (109 obs) right son=3625 (18 obs)
## Primary splits:
##      712 < 40.5  to the left,  improve=14.50879, (0 missing)
##      713 < 7      to the left,  improve=13.22317, (0 missing)
##      568 < 142.5 to the right, improve=11.55354, (0 missing)
##      569 < 17     to the right, improve=11.38362, (0 missing)
##      566 < 74     to the right, improve=10.29529, (0 missing)
## Surrogate splits:
##      711 < 21.5  to the left,  agree=0.953, adj=0.667, (0 split)
##      710 < 1.5   to the left,  agree=0.945, adj=0.611, (0 split)
##      684 < 94.5  to the left,  agree=0.937, adj=0.556, (0 split)
##      713 < 149   to the left,  agree=0.937, adj=0.556, (0 split)
##      683 < 224.5 to the left,  agree=0.921, adj=0.444, (0 split)
##

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## Node number 1813: 23 observations
##   predicted class=7   expected loss=0.04347826   P(node) =0.0009125174
##   class counts:      0      0      0      0      1      0      0      22      0
##   probabilities: 0.000 0.000 0.000 0.000 0.043 0.000 0.000 0.957 0.000
##   0.000
##
## Node number 1814: 28 observations,   complexity param=0.0001786193
##   predicted class=8   expected loss=0.5357143   P(node) =0.001110891
##   class counts:      2      0      2      0      1      5      0      2      13
##   3
##   probabilities: 0.071 0.000 0.071 0.000 0.036 0.179 0.000 0.071 0.464
##   0.107
##   left son=3628 (14 obs) right son=3629 (14 obs)
##   Primary splits:
##       467 < 4      to the right, improve=5.571429, (0 missing)
##       398 < 105.5 to the right, improve=4.663492, (0 missing)
##       487 < 1      to the left,  improve=4.535714, (0 missing)
##       496 < 49.5  to the right, improve=4.374603, (0 missing)
##       426 < 17.5  to the right, improve=4.157059, (0 missing)
##   Surrogate splits:
##       440 < 14.5  to the right, agree=0.893, adj=0.786, (0 split)
##       468 < 16.5  to the right, agree=0.893, adj=0.786, (0 split)
##       398 < 105.5 to the right, agree=0.857, adj=0.714, (0 split)
##       439 < 12    to the right, agree=0.857, adj=0.714, (0 split)
##       496 < 13.5  to the right, agree=0.857, adj=0.714, (0 split)
##
## Node number 1815: 63 observations
##   predicted class=9   expected loss=0.04761905   P(node) =0.002499504
##   class counts:      0      0      2      0      0      0      0      1      0
##   60
##   probabilities: 0.000 0.000 0.032 0.000 0.000 0.000 0.000 0.016 0.000
##   0.952
##
## Node number 1832: 18 observations
##   predicted class=2   expected loss=0.5   P(node) =0.000714144
##   class counts:      0      0      9      0      0      0      8      0      1
##   0
##   probabilities: 0.000 0.000 0.500 0.000 0.000 0.000 0.444 0.000 0.056
##   0.000
##
## Node number 1833: 114 observations,   complexity param=0.0001339645
##   predicted class=4   expected loss=0.07017544   P(node) =0.004522912
##   class counts:      0      0      1      0     106      1      5      0      1
##   0
##   probabilities: 0.000 0.000 0.009 0.000 0.930 0.009 0.044 0.000 0.009
##   0.000
##   left son=3666 (107 obs) right son=3667 (7 obs)
##   Primary splits:
##       124 < 172    to the left,  improve=6.447989, (0 missing)

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##      152 < 239   to the left,   improve=4.862824, (0 missing)
##      123 < 71.5  to the left,   improve=3.477296, (0 missing)
##      153 < 137   to the left,   improve=3.381662, (0 missing)
##      574 < 243   to the left,   improve=3.157948, (0 missing)
## Surrogate splits:
##      95 < 36     to the left,   agree=0.991, adj=0.857, (0 split)
##      96 < 20     to the left,   agree=0.991, adj=0.857, (0 split)
##     125 < 4      to the left,   agree=0.991, adj=0.857, (0 split)
##      97 < 2      to the left,   agree=0.982, adj=0.714, (0 split)
##      94 < 9.5    to the left,   agree=0.974, adj=0.571, (0 split)
##
## Node number 1834: 8 observations
## predicted class=8 expected loss=0.375 P(node) =0.0003173973
## class counts:      0      0      3      0      0      0      0      0      5
0
## probabilities: 0.000 0.000 0.375 0.000 0.000 0.000 0.000 0.000 0.625
0.000
##
## Node number 1835: 15 observations
## predicted class=7 expected loss=0.1333333 P(node) =0.00059512
## class counts:      0      0      0      0      0      0      0      13      0
2
## probabilities: 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.867 0.000
0.133
##
## Node number 1836: 56 observations,      complexity param=8.930964e-05
## predicted class=2 expected loss=0.25 P(node) =0.002221781
## class counts:      6      0      42      0      1      1      1      1      3
1
## probabilities: 0.107 0.000 0.750 0.000 0.018 0.018 0.018 0.018 0.054
0.018
## left son=3672 (43 obs) right son=3673 (13 obs)
## Primary splits:
##      346 < 236.5 to the left,   improve=7.163493, (0 missing)
##      347 < 227.5 to the left,   improve=6.166492, (0 missing)
##      435 < 109.5 to the left,   improve=4.709184, (0 missing)
##      294 < 231.5 to the right,  improve=3.818525, (0 missing)
##      321 < 124   to the right,  improve=3.818525, (0 missing)
## Surrogate splits:
##      347 < 227.5 to the left,   agree=0.893, adj=0.538, (0 split)
##      331 < 34.5   to the left,   agree=0.857, adj=0.385, (0 split)
##      358 < 163    to the left,   agree=0.857, adj=0.385, (0 split)
##      359 < 18     to the left,   agree=0.857, adj=0.385, (0 split)
##      385 < 236    to the left,   agree=0.857, adj=0.385, (0 split)
##
## Node number 1837: 29 observations,      complexity param=0.0002679289
## predicted class=8 expected loss=0.3103448 P(node) =0.001150565
## class counts:      6      0      2      0      0      0      0      1      20
0
## probabilities: 0.207 0.000 0.069 0.000 0.000 0.000 0.000 0.034 0.690

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```

0.000
## left son=3674 (9 obs) right son=3675 (20 obs)
## Primary splits:
## 492 < 236 to the right, improve=9.348659, (0 missing)
## 464 < 251.5 to the right, improve=8.888342, (0 missing)
## 520 < 247 to the right, improve=8.888342, (0 missing)
## 406 < 18 to the left, improve=8.638342, (0 missing)
## 438 < 232 to the right, improve=8.638342, (0 missing)
## Surrogate splits:
## 406 < 18 to the left, agree=0.966, adj=0.889, (0 split)
## 438 < 232 to the right, agree=0.966, adj=0.889, (0 split)
## 464 < 242.5 to the right, agree=0.966, adj=0.889, (0 split)
## 520 < 247 to the right, agree=0.966, adj=0.889, (0 split)
## 433 < 95.5 to the left, agree=0.931, adj=0.778, (0 split)
##
## Node number 1838: 71 observations, complexity param=0.000491203
## predicted class=7 expected loss=0.5352113 P(node) =0.002816901
## class counts: 1 0 6 0 5 0 1 33 9
16
## probabilities: 0.014 0.000 0.085 0.000 0.070 0.000 0.014 0.465 0.127
0.225
## left son=3676 (43 obs) right son=3677 (28 obs)
## Primary splits:
## 404 < 25 to the left, improve=12.44179, (0 missing)
## 709 < 4 to the left, improve=11.68334, (0 missing)
## 708 < 1 to the left, improve=11.53947, (0 missing)
## 405 < 123.5 to the left, improve=10.77252, (0 missing)
## 710 < 7.5 to the left, improve=10.09426, (0 missing)
## Surrogate splits:
## 376 < 40 to the left, agree=0.958, adj=0.893, (0 split)
## 405 < 123.5 to the left, agree=0.958, adj=0.893, (0 split)
## 377 < 15.5 to the left, agree=0.944, adj=0.857, (0 split)
## 403 < 43 to the left, agree=0.930, adj=0.821, (0 split)
## 432 < 13 to the left, agree=0.930, adj=0.821, (0 split)
##
## Node number 1839: 53 observations, complexity param=0.0002456015
## predicted class=9 expected loss=0.3584906 P(node) =0.002102757
## class counts: 1 0 3 0 13 0 0 0 2
34
## probabilities: 0.019 0.000 0.057 0.000 0.245 0.000 0.000 0.000 0.038
0.642
## left son=3678 (24 obs) right son=3679 (29 obs)
## Primary splits:
## 402 < 234.5 to the right, improve=8.051941, (0 missing)
## 237 < 21 to the left, improve=7.578157, (0 missing)
## 264 < 34 to the left, improve=7.493425, (0 missing)
## 375 < 166.5 to the right, improve=6.766152, (0 missing)
## 349 < 13 to the right, improve=6.300890, (0 missing)
## Surrogate splits:
## 375 < 60.5 to the right, agree=0.887, adj=0.750, (0 split)

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##      403 < 63.5 to the right, agree=0.868, adj=0.708, (0 split)
##      374 < 227.5 to the right, agree=0.849, adj=0.667, (0 split)
##      347 < 152.5 to the right, agree=0.830, adj=0.625, (0 split)
##      376 < 9 to the right, agree=0.830, adj=0.625, (0 split)
##
## Node number 1844: 14 observations
## predicted class=0 expected loss=0.2857143 P(node) =0.0005554453
## class counts: 10 0 0 0 0 4 0 0 0
0
## probabilities: 0.714 0.000 0.000 0.000 0.000 0.286 0.000 0.000 0.000
0.000
##
## Node number 1845: 22 observations, complexity param=0.0001339645
## predicted class=8 expected loss=0.4090909 P(node) =0.0008728427
## class counts: 0 0 1 0 0 4 4 0 13
0
## probabilities: 0.000 0.000 0.045 0.000 0.000 0.182 0.182 0.000 0.591
0.000
## left son=3690 (9 obs) right son=3691 (13 obs)
## Primary splits:
## 272 < 158.5 to the left, improve=4.972028, (0 missing)
## 382 < 7 to the left, improve=4.972028, (0 missing)
## 596 < 44.5 to the left, improve=4.139610, (0 missing)
## 625 < 71.5 to the left, improve=4.139610, (0 missing)
## 300 < 119.5 to the left, improve=3.984848, (0 missing)
## Surrogate splits:
## 273 < 151.5 to the left, agree=0.909, adj=0.778, (0 split)
## 301 < 4.5 to the left, agree=0.909, adj=0.778, (0 split)
## 382 < 7 to the left, agree=0.909, adj=0.778, (0 split)
## 262 < 235.5 to the left, agree=0.864, adj=0.667, (0 split)
## 271 < 109.5 to the left, agree=0.864, adj=0.667, (0 split)
##
## Node number 1848: 8 observations
## predicted class=0 expected loss=0.5 P(node) =0.0003173973
## class counts: 4 0 0 2 0 0 0 1 0
1
## probabilities: 0.500 0.000 0.000 0.250 0.000 0.000 0.000 0.125 0.000
0.125
##
## Node number 1849: 12 observations
## predicted class=5 expected loss=0.08333333 P(node) =0.000476096
## class counts: 0 0 0 0 1 11 0 0 0
0
## probabilities: 0.000 0.000 0.000 0.000 0.083 0.917 0.000 0.000 0.000
0.000
##
## Node number 1852: 15 observations
## predicted class=7 expected loss=0.6 P(node) =0.00059512
## class counts: 0 0 4 1 0 0 0 6 1
3

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```

## probabilities: 0.000 0.000 0.267 0.067 0.000 0.000 0.000 0.400 0.067
0.200
##
## Node number 1853: 18 observations
## predicted class=8 expected loss=0.1666667 P(node) =0.000714144
## class counts: 1 0 0 0 0 1 1 0 15
0
## probabilities: 0.056 0.000 0.000 0.000 0.000 0.056 0.056 0.000 0.833
0.000
##
## Node number 1860: 268 observations, complexity param=4.465482e-05
## predicted class=2 expected loss=0.05970149 P(node) =0.01063281
## class counts: 0 3 252 2 3 0 1 4 3
0
## probabilities: 0.000 0.011 0.940 0.007 0.011 0.000 0.004 0.015 0.011
0.000
## left son=3720 (260 obs) right son=3721 (8 obs)
## Primary splits:
## 320 < 35.5 to the left, improve=5.607979, (0 missing)
## 321 < 12.5 to the left, improve=4.915436, (0 missing)
## 349 < 20.5 to the left, improve=4.876619, (0 missing)
## 660 < 152 to the left, improve=3.514416, (0 missing)
## 292 < 162 to the left, improve=3.054819, (0 missing)
## Surrogate splits:
## 321 < 12.5 to the left, agree=0.996, adj=0.875, (0 split)
## 293 < 247 to the left, agree=0.989, adj=0.625, (0 split)
## 348 < 84 to the left, agree=0.989, adj=0.625, (0 split)
## 349 < 37.5 to the left, agree=0.989, adj=0.625, (0 split)
## 292 < 162 to the left, agree=0.985, adj=0.500, (0 split)
##
## Node number 1861: 7 observations
## predicted class=7 expected loss=0.2857143 P(node) =0.0002777227
## class counts: 1 0 1 0 0 0 0 5 0
0
## probabilities: 0.143 0.000 0.143 0.000 0.000 0.000 0.000 0.714 0.000
0.000
##
## Node number 1872: 18 observations
## predicted class=4 expected loss=0 P(node) =0.000714144
## class counts: 0 0 0 0 18 0 0 0 0
0
## probabilities: 0.000 0.000 0.000 0.000 1.000 0.000 0.000 0.000 0.000
0.000
##
## Node number 1873: 9 observations
## predicted class=9 expected loss=0.4444444 P(node) =0.000357072
## class counts: 0 0 1 0 3 0 0 0 0
5
## probabilities: 0.000 0.000 0.111 0.000 0.333 0.000 0.000 0.000 0.000
0.556

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```

##
## Node number 1874: 10 observations
## predicted class=2 expected loss=0.7 P(node) =0.0003967467
## class counts: 0 1 3 0 0 1 0 2 3
0
## probabilities: 0.000 0.100 0.300 0.000 0.000 0.100 0.000 0.200 0.300
0.000
##
## Node number 1875: 11 observations
## predicted class=9 expected loss=0.4545455 P(node) =0.0004364213
## class counts: 0 0 1 0 3 0 0 0 1
6
## probabilities: 0.000 0.000 0.091 0.000 0.273 0.000 0.000 0.000 0.091
0.545
##
## Node number 1894: 15 observations
## predicted class=6 expected loss=0.2666667 P(node) =0.00059512
## class counts: 0 0 1 0 2 0 11 0 0
1
## probabilities: 0.000 0.000 0.067 0.000 0.133 0.000 0.733 0.000 0.000
0.067
##
## Node number 1895: 17 observations
## predicted class=8 expected loss=0.4705882 P(node) =0.0006744694
## class counts: 0 1 1 0 0 0 1 1 9
4
## probabilities: 0.000 0.059 0.059 0.000 0.000 0.000 0.059 0.059 0.529
0.235
##
## Node number 1910: 1478 observations, complexity param=0.0001339645
## predicted class=6 expected loss=0.01826793 P(node) =0.05863916
## class counts: 0 0 4 1 1 12 1451 0 7
2
## probabilities: 0.000 0.000 0.003 0.001 0.001 0.008 0.982 0.000 0.005
0.001
## left son=3820 (1471 obs) right son=3821 (7 obs)
## Primary splits:
## 651 < 2 to the left, improve=6.948752, (0 missing)
## 652 < 132.5 to the left, improve=6.948752, (0 missing)
## 653 < 122 to the left, improve=6.948752, (0 missing)
## 624 < 225.5 to the left, improve=4.806803, (0 missing)
## 654 < 73.5 to the left, improve=4.806803, (0 missing)
## Surrogate splits:
## 652 < 63 to the left, agree=0.999, adj=0.857, (0 split)
## 653 < 122 to the left, agree=0.999, adj=0.714, (0 split)
## 624 < 225.5 to the left, agree=0.997, adj=0.286, (0 split)
## 650 < 23 to the left, agree=0.997, adj=0.286, (0 split)
## 654 < 73.5 to the left, agree=0.997, adj=0.286, (0 split)
##
## Node number 1911: 7 observations

```

```

## predicted class=9 expected loss=0.4285714 P(node) =0.0002777227
## class counts: 0 0 0 0 1 2 0 0 0
4
## probabilities: 0.000 0.000 0.000 0.000 0.143 0.286 0.000 0.000 0.000
0.571
##
## Node number 1916: 27 observations
## predicted class=6 expected loss=0.07407407 P(node) =0.001071216
## class counts: 0 0 0 0 0 0 25 0 2
0
## probabilities: 0.000 0.000 0.000 0.000 0.000 0.000 0.926 0.000 0.074
0.000
##
## Node number 1917: 7 observations
## predicted class=5 expected loss=0.5714286 P(node) =0.0002777227
## class counts: 0 0 0 0 0 3 0 0 2
2
## probabilities: 0.000 0.000 0.000 0.000 0.000 0.429 0.000 0.000 0.286
0.286
##
## Node number 1918: 29 observations, complexity param=0.0002232741
## predicted class=5 expected loss=0.5517241 P(node) =0.001150565
## class counts: 0 0 1 2 0 13 6 1 6
0
## probabilities: 0.000 0.000 0.034 0.069 0.000 0.448 0.207 0.034 0.207
0.000
## left son=3836 (13 obs) right son=3837 (16 obs)
## Primary splits:
## 186 < 160 to the left, improve=5.098143, (0 missing)
## 346 < 142 to the right, improve=4.416092, (0 missing)
## 187 < 3 to the right, improve=4.412052, (0 missing)
## 374 < 133 to the right, improve=4.319297, (0 missing)
## 128 < 127 to the left, improve=4.261706, (0 missing)
## Surrogate splits:
## 214 < 41 to the left, agree=0.897, adj=0.769, (0 split)
## 187 < 130 to the left, agree=0.862, adj=0.692, (0 split)
## 374 < 133 to the left, agree=0.862, adj=0.692, (0 split)
## 185 < 157 to the left, agree=0.828, adj=0.615, (0 split)
## 402 < 132.5 to the left, agree=0.828, adj=0.615, (0 split)
##
## Node number 1919: 33 observations
## predicted class=8 expected loss=0.1818182 P(node) =0.001309264
## class counts: 0 0 1 0 0 3 0 0 27
2
## probabilities: 0.000 0.000 0.030 0.000 0.000 0.091 0.000 0.000 0.818
0.061
##
## Node number 1936: 1325 observations, complexity param=0.0003572385
## predicted class=4 expected loss=0.03924528 P(node) =0.05256893
## class counts: 0 6 5 7 1273 0 14 0 5

```

```

15
## probabilities: 0.000 0.005 0.004 0.005 0.961 0.000 0.011 0.000 0.004
0.011
## left son=3872 (1313 obs) right son=3873 (12 obs)
## Primary splits:
## 95 < 32 to the left, improve=15.836140, (0 missing)
## 96 < 2 to the left, improve=15.836140, (0 missing)
## 94 < 3.5 to the left, improve=10.278060, (0 missing)
## 437 < 1 to the right, improve=10.010500, (0 missing)
## 123 < 251.5 to the left, improve= 9.190573, (0 missing)
## Surrogate splits:
## 94 < 3.5 to the left, agree=0.998, adj=0.750, (0 split)
## 96 < 39 to the left, agree=0.998, adj=0.750, (0 split)
## 67 < 11 to the left, agree=0.995, adj=0.500, (0 split)
## 68 < 47 to the left, agree=0.995, adj=0.417, (0 split)
## 123 < 251.5 to the left, agree=0.994, adj=0.333, (0 split)
##
## Node number 1937: 19 observations
## predicted class=7 expected loss=0.4736842 P(node) =0.0007538187
## class counts: 0 0 3 2 1 2 0 10 0
1
## probabilities: 0.000 0.000 0.158 0.105 0.053 0.105 0.000 0.526 0.000
0.053
##
## Node number 1938: 48 observations, complexity param=0.0002232741
## predicted class=5 expected loss=0.625 P(node) =0.001904384
## class counts: 0 0 5 7 8 18 0 0 6
4
## probabilities: 0.000 0.000 0.104 0.146 0.167 0.375 0.000 0.000 0.125
0.083
## left son=3876 (24 obs) right son=3877 (24 obs)
## Primary splits:
## 354 < 4 to the left, improve=6.458333, (0 missing)
## 215 < 11 to the right, improve=6.229167, (0 missing)
## 492 < 53.5 to the left, improve=6.136111, (0 missing)
## 326 < 43 to the left, improve=5.991667, (0 missing)
## 327 < 9.5 to the right, improve=5.901467, (0 missing)
## Surrogate splits:
## 326 < 43 to the left, agree=0.917, adj=0.833, (0 split)
## 327 < 32 to the left, agree=0.875, adj=0.750, (0 split)
## 382 < 23 to the left, agree=0.875, adj=0.750, (0 split)
## 381 < 31 to the left, agree=0.854, adj=0.708, (0 split)
## 298 < 5 to the left, agree=0.833, adj=0.667, (0 split)
##
## Node number 1939: 23 observations
## predicted class=8 expected loss=0.1304348 P(node) =0.0009125174
## class counts: 0 0 1 0 0 1 1 0 20
0
## probabilities: 0.000 0.000 0.043 0.000 0.000 0.043 0.043 0.000 0.870
0.000

```

```

##
## Node number 1946: 32 observations,    complexity param=0.0002232741
## predicted class=4 expected loss=0.34375 P(node) =0.001269589
## class counts:    0    0    1    1    21    2    0    0    0
7
## probabilities: 0.000 0.000 0.031 0.031 0.656 0.062 0.000 0.000 0.000
0.219
## left son=3892 (24 obs) right son=3893 (8 obs)
## Primary splits:
## 323 < 1 to the right, improve=6.083333, (0 missing)
## 244 < 73.5 to the left, improve=5.435065, (0 missing)
## 324 < 39 to the right, improve=4.884314, (0 missing)
## 300 < 6.5 to the left, improve=4.833333, (0 missing)
## 245 < 14 to the left, improve=4.637143, (0 missing)
## Surrogate splits:
## 295 < 90.5 to the right, agree=0.938, adj=0.750, (0 split)
## 296 < 17 to the right, agree=0.938, adj=0.750, (0 split)
## 244 < 73.5 to the left, agree=0.906, adj=0.625, (0 split)
## 245 < 14 to the left, agree=0.906, adj=0.625, (0 split)
## 265 < 186 to the left, agree=0.906, adj=0.625, (0 split)
##
## Node number 1947: 40 observations,    complexity param=8.930964e-05
## predicted class=9 expected loss=0.25 P(node) =0.001586987
## class counts:    0    0    1    1    1    2    0    5    0
30
## probabilities: 0.000 0.000 0.025 0.025 0.025 0.050 0.000 0.125 0.000
0.750
## left son=3894 (9 obs) right son=3895 (31 obs)
## Primary splits:
## 468 < 101 to the right, improve=4.864875, (0 missing)
## 373 < 47.5 to the left, improve=4.262724, (0 missing)
## 441 < 27.5 to the right, improve=4.137500, (0 missing)
## 442 < 2.5 to the right, improve=4.137500, (0 missing)
## 470 < 14 to the right, improve=4.137500, (0 missing)
## Surrogate splits:
## 258 < 7 to the right, agree=0.925, adj=0.667, (0 split)
## 286 < 154 to the right, agree=0.925, adj=0.667, (0 split)
## 467 < 210 to the right, agree=0.925, adj=0.667, (0 split)
## 469 < 5 to the right, agree=0.925, adj=0.667, (0 split)
## 497 < 79.5 to the right, agree=0.925, adj=0.667, (0 split)
##
## Node number 1952: 24 observations,    complexity param=0.0003125837
## predicted class=3 expected loss=0.3333333 P(node) =0.000952192
## class counts:    0    0    0    16    0    8    0    0    0
0
## probabilities: 0.000 0.000 0.000 0.667 0.000 0.333 0.000 0.000 0.000
0.000
## left son=3904 (15 obs) right son=3905 (9 obs)
## Primary splits:
## 265 < 169.5 to the left, improve=8.888889, (0 missing)

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##      179 < 3.5   to the right, improve=8.784314, (0 missing)
##      180 < 3.5   to the right, improve=8.784314, (0 missing)
##      217 < 48.5  to the left,  improve=8.784314, (0 missing)
##      218 < 38.5  to the left,  improve=8.784314, (0 missing)
## Surrogate splits:
##      264 < 8.5   to the left,  agree=0.958, adj=0.889, (0 split)
##      573 < 56    to the left,  agree=0.958, adj=0.889, (0 split)
##      574 < 126   to the left,  agree=0.958, adj=0.889, (0 split)
##      179 < 3.5   to the right, agree=0.917, adj=0.778, (0 split)
##      180 < 3.5   to the right, agree=0.917, adj=0.778, (0 split)
##
## Node number 1953: 470 observations,      complexity param=0.0002232741
## predicted class=5 expected loss=0.08085106 P(node) =0.01864709
## class counts:      0      0      1      19      1      432      0      1      0
16
## probabilities: 0.000 0.000 0.002 0.040 0.002 0.919 0.000 0.002 0.000
0.034
## left son=3906 (9 obs) right son=3907 (461 obs)
## Primary splits:
##      123 < 180.5 to the right, improve=9.456185, (0 missing)
##      718 < 37    to the left,  improve=8.900252, (0 missing)
##      188 < 2     to the right, improve=8.580909, (0 missing)
##      215 < 27    to the left,  improve=8.377046, (0 missing)
##      216 < 1.5   to the left,  improve=7.969778, (0 missing)
## Surrogate splits:
##      122 < 11    to the right, agree=0.998, adj=0.889, (0 split)
##      124 < 251.5 to the right, agree=0.994, adj=0.667, (0 split)
##      121 < 13    to the right, agree=0.991, adj=0.556, (0 split)
##      125 < 121.5 to the right, agree=0.991, adj=0.556, (0 split)
##      120 < 1.5   to the right, agree=0.989, adj=0.444, (0 split)
##
## Node number 1956: 18 observations
## predicted class=2 expected loss=0.2777778 P(node) =0.000714144
## class counts:      3      0      13      0      0      0      2      0      0
0
## probabilities: 0.167 0.000 0.722 0.000 0.000 0.000 0.111 0.000 0.000
0.000
##
## Node number 1957: 7 observations
## predicted class=8 expected loss=0.1428571 P(node) =0.0002777227
## class counts:      0      0      0      1      0      0      0      0      6
0
## probabilities: 0.000 0.000 0.000 0.143 0.000 0.000 0.000 0.000 0.857
0.000
##
## Node number 1958: 11 observations
## predicted class=4 expected loss=0.5454545 P(node) =0.0004364213
## class counts:      0      0      0      0      5      2      0      0      3
1
## probabilities: 0.000 0.000 0.000 0.000 0.455 0.182 0.000 0.000 0.273

```

```

0.091
##
## Node number 1959: 24 observations
## predicted class=9 expected loss=0.08333333 P(node) =0.000952192
## class counts:      0      0      0      1      0      1      0      0      0
22
## probabilities: 0.000 0.000 0.000 0.042 0.000 0.042 0.000 0.000 0.000
0.917
##
## Node number 1964: 60 observations, complexity param=0.000491203
## predicted class=7 expected loss=0.5666667 P(node) =0.00238048
## class counts:      0      1      3      14      1      0      1      26      4
10
## probabilities: 0.000 0.017 0.050 0.233 0.017 0.000 0.017 0.433 0.067
0.167
## left son=3928 (23 obs) right son=3929 (37 obs)
## Primary splits:
## 377 < 4 to the right, improve=10.137090, (0 missing)
## 406 < 243 to the right, improve= 9.846812, (0 missing)
## 405 < 95.5 to the right, improve= 9.406748, (0 missing)
## 574 < 18.5 to the left, improve= 8.147813, (0 missing)
## 546 < 8 to the left, improve= 7.998405, (0 missing)
## Surrogate splits:
## 405 < 163 to the right, agree=0.917, adj=0.783, (0 split)
## 378 < 142.5 to the right, agree=0.867, adj=0.652, (0 split)
## 406 < 223.5 to the right, agree=0.867, adj=0.652, (0 split)
## 376 < 17.5 to the right, agree=0.850, adj=0.609, (0 split)
## 461 < 124 to the left, agree=0.833, adj=0.565, (0 split)
##
## Node number 1965: 67 observations, complexity param=0.0005805126
## predicted class=9 expected loss=0.4179104 P(node) =0.002658203
## class counts:      0      0      0      2      19      0      0      2      5
39
## probabilities: 0.000 0.000 0.000 0.030 0.284 0.000 0.000 0.030 0.075
0.582
## left son=3930 (13 obs) right son=3931 (54 obs)
## Primary splits:
## 454 < 2 to the right, improve=13.86235, (0 missing)
## 455 < 101.5 to the right, improve=13.86235, (0 missing)
## 483 < 11.5 to the right, improve=13.86235, (0 missing)
## 482 < 3 to the right, improve=12.56336, (0 missing)
## 456 < 226.5 to the right, improve=12.10794, (0 missing)
## Surrogate splits:
## 455 < 101.5 to the right, agree=1.000, adj=1.000, (0 split)
## 483 < 11.5 to the right, agree=1.000, adj=1.000, (0 split)
## 456 < 226.5 to the right, agree=0.985, adj=0.923, (0 split)
## 482 < 3 to the right, agree=0.985, adj=0.923, (0 split)
## 484 < 82.5 to the right, agree=0.970, adj=0.846, (0 split)
##
## Node number 1968: 77 observations

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## predicted class=3 expected loss=0.05194805 P(node) =0.003054949
## class counts: 0 0 1 73 0 0 0 0 1
2
## probabilities: 0.000 0.000 0.013 0.948 0.000 0.000 0.000 0.000 0.013
0.026
##
## Node number 1969: 22 observations, complexity param=0.0002679289
## predicted class=9 expected loss=0.6363636 P(node) =0.0008728427
## class counts: 1 0 1 3 1 7 0 0 1
8
## probabilities: 0.045 0.000 0.045 0.136 0.045 0.318 0.000 0.000 0.045
0.364
## left son=3938 (14 obs) right son=3939 (8 obs)
## Primary splits:
## 188 < 3.5 to the right, improve=6.701299, (0 missing)
## 376 < 110 to the right, improve=6.187257, (0 missing)
## 160 < 85.5 to the right, improve=5.951299, (0 missing)
## 467 < 194 to the right, improve=5.951299, (0 missing)
## 161 < 68.5 to the right, improve=5.708625, (0 missing)
## Surrogate splits:
## 376 < 110 to the right, agree=0.955, adj=0.875, (0 split)
## 681 < 6.5 to the left, agree=0.955, adj=0.875, (0 split)
## 158 < 65 to the right, agree=0.909, adj=0.750, (0 split)
## 159 < 16 to the right, agree=0.909, adj=0.750, (0 split)
## 187 < 96 to the right, agree=0.909, adj=0.750, (0 split)
##
## Node number 1970: 46 observations, complexity param=8.930964e-05
## predicted class=2 expected loss=0.1521739 P(node) =0.001825035
## class counts: 0 0 39 4 0 1 0 0 1
1
## probabilities: 0.000 0.000 0.848 0.087 0.000 0.022 0.000 0.000 0.022
0.022
## left son=3940 (38 obs) right son=3941 (8 obs)
## Primary splits:
## 351 < 9 to the left, improve=5.324371, (0 missing)
## 380 < 249.5 to the left, improve=5.324371, (0 missing)
## 379 < 226.5 to the left, improve=4.675585, (0 missing)
## 680 < 15.5 to the left, improve=4.675585, (0 missing)
## 681 < 21 to the left, improve=4.675585, (0 missing)
## Surrogate splits:
## 379 < 155 to the left, agree=0.978, adj=0.875, (0 split)
## 350 < 3.5 to the left, agree=0.957, adj=0.750, (0 split)
## 380 < 236 to the left, agree=0.957, adj=0.750, (0 split)
## 655 < 250.5 to the left, agree=0.957, adj=0.750, (0 split)
## 656 < 173.5 to the left, agree=0.957, adj=0.750, (0 split)
##
## Node number 1971: 33 observations, complexity param=4.465482e-05
## predicted class=8 expected loss=0.2727273 P(node) =0.001309264
## class counts: 1 0 3 2 0 0 3 0 24
0

```

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## probabilities: 0.030 0.000 0.091 0.061 0.000 0.000 0.091 0.000 0.727
0.000
## left son=3942 (10 obs) right son=3943 (23 obs)
## Primary splits:
## 549 < 71 to the right, improve=5.535441, (0 missing)
## 522 < 67.5 to the right, improve=5.338485, (0 missing)
## 550 < 113.5 to the right, improve=5.338485, (0 missing)
## 377 < 85.5 to the left, improve=4.848485, (0 missing)
## 576 < 71 to the right, improve=4.757576, (0 missing)
## Surrogate splits:
## 521 < 6.5 to the right, agree=0.970, adj=0.9, (0 split)
## 577 < 119.5 to the right, agree=0.970, adj=0.9, (0 split)
## 522 < 67.5 to the right, agree=0.939, adj=0.8, (0 split)
## 550 < 113.5 to the right, agree=0.939, adj=0.8, (0 split)
## 376 < 42.5 to the left, agree=0.909, adj=0.7, (0 split)
##
## Node number 1972: 90 observations
## predicted class=4 expected loss=0.1 P(node) =0.00357072
## class counts: 0 0 3 0 81 0 1 0 0
5
## probabilities: 0.000 0.000 0.033 0.000 0.900 0.000 0.011 0.000 0.000
0.056
##
## Node number 1973: 48 observations, complexity param=0.0003572385
## predicted class=9 expected loss=0.5625 P(node) =0.001904384
## class counts: 0 0 2 7 11 2 0 0 5
21
## probabilities: 0.000 0.000 0.042 0.146 0.229 0.042 0.000 0.000 0.104
0.438
## left son=3946 (10 obs) right son=3947 (38 obs)
## Primary splits:
## 183 < 239 to the left, improve=6.762281, (0 missing)
## 403 < 157 to the right, improve=6.670290, (0 missing)
## 376 < 2.5 to the right, improve=5.578042, (0 missing)
## 372 < 11.5 to the left, improve=5.352564, (0 missing)
## 178 < 250 to the right, improve=5.238386, (0 missing)
## Surrogate splits:
## 182 < 34.5 to the left, agree=0.896, adj=0.5, (0 split)
## 181 < 15.5 to the left, agree=0.875, adj=0.4, (0 split)
## 155 < 33 to the left, agree=0.854, adj=0.3, (0 split)
## 156 < 9 to the left, agree=0.854, adj=0.3, (0 split)
## 208 < 31.5 to the left, agree=0.854, adj=0.3, (0 split)
##
## Node number 1974: 50 observations, complexity param=0.0003572385
## predicted class=9 expected loss=0.64 P(node) =0.001983733
## class counts: 0 0 3 9 9 2 0 1 8
18
## probabilities: 0.000 0.000 0.060 0.180 0.180 0.040 0.000 0.020 0.160
0.360
## left son=3948 (14 obs) right son=3949 (36 obs)

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## Primary splits:
## 374 < 58 to the left, improve=5.950159, (0 missing)
## 407 < 139.5 to the left, improve=5.825263, (0 missing)
## 179 < 239 to the right, improve=5.676341, (0 missing)
## 151 < 8 to the right, improve=5.131765, (0 missing)
## 178 < 62.5 to the right, improve=5.131765, (0 missing)
## Surrogate splits:
## 346 < 8 to the left, agree=0.98, adj=0.929, (0 split)
## 318 < 4 to the left, agree=0.94, adj=0.786, (0 split)
## 375 < 4 to the left, agree=0.94, adj=0.786, (0 split)
## 347 < 3.5 to the left, agree=0.90, adj=0.643, (0 split)
## 402 < 2.5 to the left, agree=0.90, adj=0.643, (0 split)
##
## Node number 1975: 40 observations
## predicted class=8 expected loss=0.075 P(node) =0.001586987
## class counts: 1 0 1 0 0 0 0 0 37
1
## probabilities: 0.025 0.000 0.025 0.000 0.000 0.000 0.000 0.000 0.925
0.025
##
## Node number 1976: 119 observations, complexity param=0.0006698223
## predicted class=3 expected loss=0.5798319 P(node) =0.004721285
## class counts: 1 0 16 50 6 0 0 39 2
5
## probabilities: 0.008 0.000 0.134 0.420 0.050 0.000 0.000 0.328 0.017
0.042
## left son=3952 (66 obs) right son=3953 (53 obs)
## Primary splits:
## 518 < 96.5 to the left, improve=20.87927, (0 missing)
## 545 < 130.5 to the left, improve=18.94055, (0 missing)
## 573 < 90.5 to the left, improve=18.81878, (0 missing)
## 577 < 10.5 to the right, improve=18.25678, (0 missing)
## 550 < 3 to the right, improve=18.11945, (0 missing)
## Surrogate splits:
## 546 < 101 to the left, agree=0.924, adj=0.830, (0 split)
## 517 < 1.5 to the left, agree=0.882, adj=0.736, (0 split)
## 490 < 217.5 to the left, agree=0.874, adj=0.717, (0 split)
## 545 < 7.5 to the left, agree=0.866, adj=0.698, (0 split)
## 573 < 160 to the left, agree=0.824, adj=0.604, (0 split)
##
## Node number 1977: 57 observations, complexity param=4.465482e-05
## predicted class=9 expected loss=0.1403509 P(node) =0.002261456
## class counts: 0 0 1 1 2 0 0 0 4
49
## probabilities: 0.000 0.000 0.018 0.018 0.035 0.000 0.000 0.000 0.070
0.860
## left son=3954 (10 obs) right son=3955 (47 obs)
## Primary splits:
## 546 < 49 to the right, improve=5.333781, (0 missing)
## 519 < 57.5 to the right, improve=4.716525, (0 missing)

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##      518 < 35.5 to the right, improve=4.202339, (0 missing)
##      374 < 168.5 to the right, improve=4.171784, (0 missing)
##      375 < 130.5 to the right, improve=4.159799, (0 missing)
## Surrogate splits:
##      518 < 79 to the right, agree=0.982, adj=0.9, (0 split)
##      519 < 57.5 to the right, agree=0.982, adj=0.9, (0 split)
##      517 < 134 to the right, agree=0.965, adj=0.8, (0 split)
##      545 < 34.5 to the right, agree=0.947, adj=0.7, (0 split)
##      574 < 53.5 to the right, agree=0.947, adj=0.7, (0 split)
##
## Node number 1978: 20 observations, complexity param=0.0001339645
## predicted class=4 expected loss=0.35 P(node) =0.0007934934
## class counts: 0 0 0 1 13 1 0 0 0
5
## probabilities: 0.000 0.000 0.000 0.050 0.650 0.050 0.000 0.000 0.000
0.250
## left son=3956 (11 obs) right son=3957 (9 obs)
## Primary splits:
##      213 < 128 to the left, improve=4.644444, (0 missing)
##      214 < 111.5 to the left, improve=4.068132, (0 missing)
##      463 < 187.5 to the right, improve=4.068132, (0 missing)
##      491 < 201.5 to the right, improve=4.068132, (0 missing)
##      466 < 35.5 to the right, improve=3.270707, (0 missing)
## Surrogate splits:
##      214 < 69 to the left, agree=0.95, adj=0.889, (0 split)
##      185 < 52 to the left, agree=0.90, adj=0.778, (0 split)
##      186 < 72 to the left, agree=0.90, adj=0.778, (0 split)
##      212 < 179.5 to the left, agree=0.90, adj=0.778, (0 split)
##      240 < 144.5 to the left, agree=0.90, adj=0.778, (0 split)
##
## Node number 1979: 97 observations, complexity param=0.0001339645
## predicted class=9 expected loss=0.1340206 P(node) =0.003848443
## class counts: 0 0 0 0 2 0 0 4 7
84
## probabilities: 0.000 0.000 0.000 0.000 0.021 0.000 0.000 0.041 0.072
0.866
## left son=3958 (12 obs) right son=3959 (85 obs)
## Primary splits:
##      436 < 152 to the left, improve=7.540509, (0 missing)
##      464 < 25 to the left, improve=7.106645, (0 missing)
##      218 < 20 to the right, improve=6.037965, (0 missing)
##      485 < 89.5 to the right, improve=5.667027, (0 missing)
##      437 < 2 to the left, improve=5.221091, (0 missing)
## Surrogate splits:
##      464 < 6 to the left, agree=0.969, adj=0.750, (0 split)
##      483 < 1 to the right, agree=0.928, adj=0.417, (0 split)
##      484 < 47 to the right, agree=0.928, adj=0.417, (0 split)
##      511 < 42 to the right, agree=0.928, adj=0.417, (0 split)
##      512 < 8 to the right, agree=0.928, adj=0.417, (0 split)
##

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## Node number 1980: 31 observations
##   predicted class=4   expected loss=0.03225806   P(node) =0.001229915
##   class counts:      0      0      0      0      30      0      0      0      1
0
##   probabilities: 0.000 0.000 0.000 0.000 0.968 0.000 0.000 0.000 0.032
0.000
##
## Node number 1981: 35 observations,   complexity param=4.465482e-05
##   predicted class=9   expected loss=0.1714286   P(node) =0.001388613
##   class counts:      0      0      0      0      4      0      0      1      1
29
##   probabilities: 0.000 0.000 0.000 0.000 0.114 0.000 0.000 0.029 0.029
0.829
##   left son=3962 (7 obs) right son=3963 (28 obs)
##   Primary splits:
##       518 < 79.5   to the right, improve=3.671429, (0 missing)
##       384 < 47     to the right, improve=3.242857, (0 missing)
##       411 < 221    to the right, improve=3.242857, (0 missing)
##       412 < 4.5    to the right, improve=3.242857, (0 missing)
##       546 < 101    to the right, improve=3.031217, (0 missing)
##   Surrogate splits:
##       546 < 79     to the right, agree=0.943, adj=0.714, (0 split)
##       190 < 1.5    to the right, agree=0.914, adj=0.571, (0 split)
##       218 < 66.5   to the right, agree=0.914, adj=0.571, (0 split)
##       233 < 8      to the left,  agree=0.914, adj=0.571, (0 split)
##       266 < 8.5    to the left,  agree=0.914, adj=0.571, (0 split)
##
## Node number 1982: 72 observations,   complexity param=0.0003125837
##   predicted class=9   expected loss=0.4305556   P(node) =0.002856576
##   class counts:      0      0      0      4      5      2      0      3      17
41
##   probabilities: 0.000 0.000 0.000 0.056 0.069 0.028 0.000 0.042 0.236
0.569
##   left son=3964 (24 obs) right son=3965 (48 obs)
##   Primary splits:
##       438 < 130.5  to the left,  improve=15.34722, (0 missing)
##       400 < 25     to the left,  improve=14.57825, (0 missing)
##       544 < 138    to the left,  improve=14.19766, (0 missing)
##       429 < 19.5   to the left,  improve=13.87868, (0 missing)
##       517 < 198    to the right, improve=13.83532, (0 missing)
##   Surrogate splits:
##       410 < 165    to the left,  agree=0.875, adj=0.625, (0 split)
##       466 < 75     to the left,  agree=0.875, adj=0.625, (0 split)
##       544 < 107.5  to the right, agree=0.861, adj=0.583, (0 split)
##       411 < 13.5   to the left,  agree=0.847, adj=0.542, (0 split)
##       430 < 45.5   to the left,  agree=0.847, adj=0.542, (0 split)
##
## Node number 1983: 1014 observations,   complexity param=0.0001339645
##   predicted class=9   expected loss=0.06213018   P(node) =0.04023011
##   class counts:      0      0      1      6      30      4      0      7      15

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951
## probabilities: 0.000 0.000 0.001 0.006 0.030 0.004 0.000 0.007 0.015
0.938
## left son=3966 (7 obs) right son=3967 (1007 obs)
## Primary splits:
## 595 < 21.5 to the right, improve=8.816440, (0 missing)
## 623 < 69 to the right, improve=8.816440, (0 missing)
## 219 < 193 to the right, improve=6.776719, (0 missing)
## 348 < 250.5 to the right, improve=6.691927, (0 missing)
## 470 < 5 to the right, improve=6.633264, (0 missing)
## Surrogate splits:
## 623 < 69 to the right, agree=1.000, adj=1.000, (0 split)
## 596 < 36.5 to the right, agree=0.999, adj=0.857, (0 split)
## 567 < 38 to the right, agree=0.998, adj=0.714, (0 split)
## 568 < 17.5 to the right, agree=0.998, adj=0.714, (0 split)
## 594 < 4 to the right, agree=0.998, adj=0.714, (0 split)
##
## Node number 1988: 16 observations
## predicted class=3 expected loss=0.25 P(node) =0.0006347947
## class counts: 0 1 2 12 0 0 0 0 1
0
## probabilities: 0.000 0.062 0.125 0.750 0.000 0.000 0.000 0.000 0.062
0.000
##
## Node number 1989: 9 observations
## predicted class=5 expected loss=0 P(node) =0.000357072
## class counts: 0 0 0 0 0 9 0 0 0
0
## probabilities: 0.000 0.000 0.000 0.000 0.000 1.000 0.000 0.000 0.000
0.000
##
## Node number 1998: 7 observations
## predicted class=3 expected loss=0.1428571 P(node) =0.0002777227
## class counts: 0 0 0 6 0 0 0 0 0
1
## probabilities: 0.000 0.000 0.000 0.857 0.000 0.000 0.000 0.000 0.000
0.143
##
## Node number 1999: 53 observations, complexity param=4.465482e-05
## predicted class=9 expected loss=0.2075472 P(node) =0.002102757
## class counts: 0 0 1 0 5 0 0 2 3
42
## probabilities: 0.000 0.000 0.019 0.000 0.094 0.000 0.000 0.038 0.057
0.792
## left son=3998 (7 obs) right son=3999 (46 obs)
## Primary splits:
## 379 < 57 to the left, improve=4.335169, (0 missing)
## 320 < 198.5 to the right, improve=3.708405, (0 missing)
## 214 < 41 to the left, improve=3.136557, (0 missing)
## 213 < 51 to the left, improve=3.109510, (0 missing)

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##      181 < 18      to the right, improve=3.023556, (0 missing)
##      Surrogate splits:
##      378 < 110     to the left,  agree=0.925, adj=0.429, (0 split)
##      428 < 120     to the right, agree=0.925, adj=0.429, (0 split)
##      149 < 1.5     to the right, agree=0.906, adj=0.286, (0 split)
##      150 < 38.5    to the right, agree=0.906, adj=0.286, (0 split)
##      151 < 105.5   to the right, agree=0.906, adj=0.286, (0 split)
##
## Node number 2014: 13 observations
##      predicted class=7 expected loss=0.5384615 P(node) =0.0005157707
##      class counts:      0      0      4      2      0      0      0      6      0
1
##      probabilities: 0.000 0.000 0.308 0.154 0.000 0.000 0.000 0.462 0.000
0.077
##
## Node number 2015: 1314 observations,      complexity param=2.232741e-05
##      predicted class=7 expected loss=0.01902588 P(node) =0.05213251
##      class counts:      0      1      7      2      3      0      2 1289      0
10
##      probabilities: 0.000 0.001 0.005 0.002 0.002 0.000 0.002 0.981 0.000
0.008
##      left son=4030 (7 obs) right son=4031 (1307 obs)
##      Primary splits:
##      482 < 134.5 to the right, improve=1.888461, (0 missing)
##      265 < 10.5  to the left,  improve=1.728205, (0 missing)
##      488 < 106   to the right, improve=1.711924, (0 missing)
##      512 < 2     to the left,  improve=1.628118, (0 missing)
##      664 < 3.5   to the right, improve=1.623524, (0 missing)
##      Surrogate splits:
##      483 < 252.5 to the right, agree=0.998, adj=0.571, (0 split)
##      510 < 24.5  to the right, agree=0.998, adj=0.571, (0 split)
##      454 < 217.5 to the right, agree=0.997, adj=0.429, (0 split)
##      481 < 68    to the right, agree=0.997, adj=0.429, (0 split)
##      509 < 24.5  to the right, agree=0.997, adj=0.429, (0 split)
##
## Node number 2048: 2230 observations,      complexity param=7.44247e-05
##      predicted class=1 expected loss=0.01255605 P(node) =0.08847451
##      class counts:      0 2202      1      2      1      0      4      5      14
1
##      probabilities: 0.000 0.987 0.000 0.001 0.000 0.000 0.002 0.002 0.006
0.000
##      left son=4096 (2198 obs) right son=4097 (32 obs)
##      Primary splits:
##      493 < 64.5  to the left,  improve=3.924876, (0 missing)
##      492 < 253.5 to the left,  improve=3.631965, (0 missing)
##      494 < 9     to the left,  improve=3.600578, (0 missing)
##      300 < 1     to the left,  improve=3.237390, (0 missing)
##      433 < 2.5   to the right, improve=3.201928, (0 missing)
##      Surrogate splits:
##      521 < 56    to the left,  agree=0.995, adj=0.625, (0 split)

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##      465 < 56      to the left,  agree=0.993, adj=0.500, (0 split)
##      492 < 252.5 to the left,  agree=0.991, adj=0.375, (0 split)
##      549 < 146.5 to the left,  agree=0.989, adj=0.219, (0 split)
##      494 < 21.5  to the left,  agree=0.988, adj=0.188, (0 split)
##
## Node number 2049: 7 observations
##   predicted class=5  expected loss=0.4285714  P(node) =0.0002777227
##   class counts:      0      3      0      0      0      4      0      0      0
##   0
##   probabilities: 0.000 0.429 0.000 0.000 0.000 0.571 0.000 0.000 0.000
##   0.000
##
## Node number 2182: 7 observations
##   predicted class=2  expected loss=0.2857143  P(node) =0.0002777227
##   class counts:      0      0      5      0      0      0      2      0      0
##   0
##   probabilities: 0.000 0.000 0.714 0.000 0.000 0.000 0.286 0.000 0.000
##   0.000
##
## Node number 2183: 49 observations
##   predicted class=6  expected loss=0.06122449  P(node) =0.001944059
##   class counts:      0      0      0      0      1      1      46      0      0
##   1
##   probabilities: 0.000 0.000 0.000 0.000 0.020 0.020 0.939 0.000 0.000
##   0.020
##
## Node number 2186: 31 observations,      complexity param=0.0002456015
##   predicted class=2  expected loss=0.7741935  P(node) =0.001229915
##   class counts:      4      6      7      3      4      2      1      0      4
##   0
##   probabilities: 0.129 0.194 0.226 0.097 0.129 0.065 0.032 0.000 0.129
##   0.000
##   left son=4372 (20 obs) right son=4373 (11 obs)
##   Primary splits:
##       652 < 147      to the left,  improve=4.476246, (0 missing)
##       653 < 128.5 to the left,  improve=4.476246, (0 missing)
##       654 < 14       to the left,  improve=4.476246, (0 missing)
##       160 < 49.5    to the left,  improve=4.155500, (0 missing)
##       626 < 149     to the left,  improve=4.126486, (0 missing)
##   Surrogate splits:
##       653 < 128.5 to the left,  agree=1.000, adj=1.000, (0 split)
##       654 < 14       to the left,  agree=1.000, adj=1.000, (0 split)
##       626 < 149     to the left,  agree=0.968, adj=0.909, (0 split)
##       160 < 49.5    to the left,  agree=0.935, adj=0.818, (0 split)
##       651 < 34       to the left,  agree=0.935, adj=0.818, (0 split)
##
## Node number 2187: 23 observations,      complexity param=8.930964e-05
##   predicted class=5  expected loss=0.2608696  P(node) =0.0009125174
##   class counts:      1      0      1      3      0      17      0      0      1
##   0

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## probabilities: 0.043 0.000 0.043 0.130 0.000 0.739 0.000 0.000 0.043
0.000
## left son=4374 (7 obs) right son=4375 (16 obs)
## Primary splits:
## 157 < 20.5 to the right, improve=4.770186, (0 missing)
## 158 < 9 to the right, improve=4.770186, (0 missing)
## 155 < 20.5 to the right, improve=3.180901, (0 missing)
## 184 < 22 to the right, improve=2.713043, (0 missing)
## 185 < 57 to the right, improve=2.713043, (0 missing)
## Surrogate splits:
## 158 < 9 to the right, agree=1.000, adj=1.000, (0 split)
## 155 < 20.5 to the right, agree=0.913, adj=0.714, (0 split)
## 156 < 165.5 to the right, agree=0.913, adj=0.714, (0 split)
## 159 < 14 to the right, agree=0.913, adj=0.714, (0 split)
## 125 < 10.5 to the right, agree=0.870, adj=0.571, (0 split)
##
## Node number 2190: 37 observations, complexity param=0.0003125837
## predicted class=1 expected loss=0.6756757 P(node) =0.001467963
## class counts: 0 12 1 1 8 2 3 5 0
5
## probabilities: 0.000 0.324 0.027 0.027 0.216 0.054 0.081 0.135 0.000
0.135
## left son=4380 (15 obs) right son=4381 (22 obs)
## Primary splits:
## 405 < 205.5 to the right, improve=6.039803, (0 missing)
## 377 < 245 to the right, improve=5.747548, (0 missing)
## 349 < 248 to the right, improve=5.137150, (0 missing)
## 321 < 189.5 to the right, improve=4.770690, (0 missing)
## 375 < 155 to the left, improve=4.407336, (0 missing)
## Surrogate splits:
## 377 < 62 to the right, agree=0.838, adj=0.600, (0 split)
## 180 < 54 to the right, agree=0.811, adj=0.533, (0 split)
## 433 < 240.5 to the right, agree=0.811, adj=0.533, (0 split)
## 153 < 159.5 to the right, agree=0.784, adj=0.467, (0 split)
## 181 < 97.5 to the right, agree=0.784, adj=0.467, (0 split)
##
## Node number 2191: 33 observations, complexity param=4.465482e-05
## predicted class=9 expected loss=0.2727273 P(node) =0.001309264
## class counts: 0 2 0 0 5 0 0 1 1
24
## probabilities: 0.000 0.061 0.000 0.000 0.152 0.000 0.000 0.030 0.030
0.727
## left son=4382 (9 obs) right son=4383 (24 obs)
## Primary splits:
## 238 < 175.5 to the left, improve=4.050505, (0 missing)
## 237 < 81 to the left, improve=3.869797, (0 missing)
## 212 < 23 to the left, improve=3.452214, (0 missing)
## 213 < 110.5 to the left, improve=3.452214, (0 missing)
## 211 < 42 to the left, improve=2.671995, (0 missing)
## Surrogate splits:

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##      211 < 98      to the left,  agree=0.909, adj=0.667, (0 split)
##      237 < 52.5    to the left,  agree=0.909, adj=0.667, (0 split)
##      239 < 21      to the left,  agree=0.909, adj=0.667, (0 split)
##      212 < 23      to the left,  agree=0.879, adj=0.556, (0 split)
##      264 < 66.5    to the left,  agree=0.879, adj=0.556, (0 split)
##
## Node number 2222: 10 observations
##   predicted class=8   expected loss=0.3   P(node) =0.0003967467
##   class counts:      1      1      0      0      1      0      0      0      7
##   0
##   probabilities: 0.100 0.100 0.000 0.000 0.100 0.000 0.000 0.000 0.700
##   0.000
##
## Node number 2223: 11 observations
##   predicted class=9   expected loss=0.5454545   P(node) =0.0004364213
##   class counts:      1      0      0      2      0      0      2      0      1
##   5
##   probabilities: 0.091 0.000 0.000 0.182 0.000 0.000 0.182 0.000 0.091
##   0.455
##
## Node number 2576: 1350 observations
##   predicted class=3   expected loss=0.01407407   P(node) =0.0535608
##   class counts:      0      2      8 1331      0      6      0      0      3
##   0
##   probabilities: 0.000 0.001 0.006 0.986 0.000 0.004 0.000 0.000 0.002
##   0.000
##
## Node number 2577: 10 observations
##   predicted class=5   expected loss=0.3   P(node) =0.0003967467
##   class counts:      0      0      0      1      0      7      0      0      2
##   0
##   probabilities: 0.000 0.000 0.000 0.100 0.000 0.700 0.000 0.000 0.200
##   0.000
##
## Node number 2682: 11 observations
##   predicted class=3   expected loss=0.4545455   P(node) =0.0004364213
##   class counts:      0      0      0      6      4      0      1      0      0
##   0
##   probabilities: 0.000 0.000 0.000 0.545 0.364 0.000 0.091 0.000 0.000
##   0.000
##
## Node number 2683: 9 observations
##   predicted class=7   expected loss=0   P(node) =0.000357072
##   class counts:      0      0      0      0      0      0      0      9      0
##   0
##   probabilities: 0.000 0.000 0.000 0.000 0.000 0.000 0.000 1.000 0.000
##   0.000
##
## Node number 2684: 13 observations
##   predicted class=1   expected loss=0.4615385   P(node) =0.0005157707

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##      class counts:      0      7      0      0      0      0      2      0      4
0
##      probabilities: 0.000 0.538 0.000 0.000 0.000 0.000 0.154 0.000 0.308
0.000
##
## Node number 2685: 14 observations
##      predicted class=5 expected loss=0.6428571 P(node) =0.0005554453
##      class counts:      0      0      0      3      2      5      4      0      0
0
##      probabilities: 0.000 0.000 0.000 0.214 0.143 0.357 0.286 0.000 0.000
0.000
##
## Node number 2686: 22 observations,      complexity param=0.0001562919
##      predicted class=9 expected loss=0.5454545 P(node) =0.0008728427
##      class counts:      0      0      0      7      2      0      0      1      2
10
##      probabilities: 0.000 0.000 0.000 0.318 0.091 0.000 0.000 0.045 0.091
0.455
##      left son=5372 (9 obs) right son=5373 (13 obs)
##      Primary splits:
##          292 < 132 to the left, improve=6.783994, (0 missing)
##          491 < 243.5 to the left, improve=6.783994, (0 missing)
##          518 < 73.5 to the left, improve=6.718182, (0 missing)
##          291 < 60.5 to the left, improve=6.639610, (0 missing)
##          319 < 57 to the left, improve=6.639610, (0 missing)
##      Surrogate splits:
##          491 < 243.5 to the left, agree=1.000, adj=1.000, (0 split)
##          208 < 56 to the right, agree=0.955, adj=0.889, (0 split)
##          235 < 83.5 to the right, agree=0.955, adj=0.889, (0 split)
##          291 < 60.5 to the left, agree=0.955, adj=0.889, (0 split)
##          318 < 3 to the left, agree=0.955, adj=0.889, (0 split)
##
## Node number 2687: 21 observations
##      predicted class=9 expected loss=0 P(node) =0.000833168
##      class counts:      0      0      0      0      0      0      0      0      0
21
##      probabilities: 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
1.000
##
## Node number 2716: 25 observations,      complexity param=0.0002232741
##      predicted class=3 expected loss=0.36 P(node) =0.0009918667
##      class counts:      0      1      1      16      0      6      0      0      1
0
##      probabilities: 0.000 0.040 0.040 0.640 0.000 0.240 0.000 0.000 0.040
0.000
##      left son=5432 (16 obs) right son=5433 (9 obs)
##      Primary splits:
##          270 < 13.5 to the right, improve=6.658333, (0 missing)
##          269 < 88.5 to the right, improve=6.302941, (0 missing)
##          262 < 248 to the left, improve=6.302941, (0 missing)

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##      268 < 65.5  to the right, improve=6.152381, (0 missing)
##      242 < 122  to the right, improve=5.533333, (0 missing)
##      Surrogate splits:
##      242 < 122  to the right, agree=0.96, adj=0.889, (0 split)
##      269 < 88.5  to the right, agree=0.96, adj=0.889, (0 split)
##      261 < 103   to the left,  agree=0.92, adj=0.778, (0 split)
##      268 < 65.5  to the right, agree=0.92, adj=0.778, (0 split)
##      296 < 233.5 to the right, agree=0.92, adj=0.778, (0 split)
##
## Node number 2717: 77 observations,      complexity param=0.0002232741
## predicted class=5 expected loss=0.3896104 P(node) =0.003054949
## class counts:      5      0      0      9      0      47      2      3      2
9
## probabilities: 0.065 0.000 0.000 0.117 0.000 0.610 0.026 0.039 0.026
0.117
## left son=5434 (8 obs) right son=5435 (69 obs)
## Primary splits:
##      455 < 193.5 to the right, improve=6.716685, (0 missing)
##      329 < 218.5 to the right, improve=6.662338, (0 missing)
##      358 < 11    to the right, improve=6.509649, (0 missing)
##      482 < 197   to the right, improve=6.348052, (0 missing)
##      597 < 38.5  to the right, improve=6.068789, (0 missing)
##      Surrogate splits:
##      456 < 196.5 to the right, agree=0.987, adj=0.875, (0 split)
##      428 < 246.5 to the right, agree=0.974, adj=0.750, (0 split)
##      454 < 80     to the right, agree=0.961, adj=0.625, (0 split)
##      483 < 167.5 to the right, agree=0.961, adj=0.625, (0 split)
##      484 < 251.5 to the right, agree=0.961, adj=0.625, (0 split)
##
## Node number 2718: 30 observations,      complexity param=0.0001786193
## predicted class=8 expected loss=0.4666667 P(node) =0.00119024
## class counts:      0      0      0      2      0      6      0      0      16
6
## probabilities: 0.000 0.000 0.000 0.067 0.000 0.200 0.000 0.000 0.533
0.200
## left son=5436 (14 obs) right son=5437 (16 obs)
## Primary splits:
##      431 < 10.5  to the left,  improve=5.719048, (0 missing)
##      433 < 9     to the left,  improve=4.869985, (0 missing)
##      432 < 92    to the left,  improve=4.851885, (0 missing)
##      405 < 194.5 to the left,  improve=4.560128, (0 missing)
##      466 < 105.5 to the right, improve=4.526094, (0 missing)
##      Surrogate splits:
##      432 < 27.5  to the left,  agree=0.867, adj=0.714, (0 split)
##      402 < 249.5 to the left,  agree=0.833, adj=0.643, (0 split)
##      403 < 161.5 to the left,  agree=0.833, adj=0.643, (0 split)
##      430 < 160   to the left,  agree=0.833, adj=0.643, (0 split)
##      458 < 13    to the left,  agree=0.833, adj=0.643, (0 split)
##
## Node number 2719: 8 observations

```

```

## predicted class=9 expected loss=0 P(node) =0.0003173973
## class counts: 0 0 0 0 0 0 0 0 0
8
## probabilities: 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
1.000
##
## Node number 2748: 20 observations, complexity param=0.0001488494
## predicted class=3 expected loss=0.4 P(node) =0.0007934934
## class counts: 0 0 0 12 0 7 1 0 0
0
## probabilities: 0.000 0.000 0.000 0.600 0.000 0.350 0.050 0.000 0.000
0.000
## left son=5496 (13 obs) right son=5497 (7 obs)
## Primary splits:
## 551 < 62.5 to the right, improve=5.047253, (0 missing)
## 601 < 160 to the left, improve=3.800000, (0 missing)
## 578 < 83.5 to the right, improve=3.800000, (0 missing)
## 152 < 10.5 to the right, improve=3.772527, (0 missing)
## 153 < 58.5 to the right, improve=3.772527, (0 missing)
## Surrogate splits:
## 374 < 240 to the left, agree=0.9, adj=0.714, (0 split)
## 492 < 32 to the left, agree=0.9, adj=0.714, (0 split)
## 493 < 181.5 to the left, agree=0.9, adj=0.714, (0 split)
## 520 < 126.5 to the left, agree=0.9, adj=0.714, (0 split)
## 578 < 134 to the right, agree=0.9, adj=0.714, (0 split)
##
## Node number 2749: 17 observations
## predicted class=5 expected loss=0 P(node) =0.0006744694
## class counts: 0 0 0 0 0 17 0 0 0
0
## probabilities: 0.000 0.000 0.000 0.000 0.000 1.000 0.000 0.000 0.000
0.000
##
## Node number 2750: 378 observations
## predicted class=5 expected loss=0.01851852 P(node) =0.01499702
## class counts: 0 0 0 3 0 371 4 0 0
0
## probabilities: 0.000 0.000 0.000 0.008 0.000 0.981 0.011 0.000 0.000
0.000
##
## Node number 2751: 7 observations
## predicted class=8 expected loss=0.5714286 P(node) =0.0002777227
## class counts: 0 0 0 0 0 2 0 0 3
2
## probabilities: 0.000 0.000 0.000 0.000 0.000 0.286 0.000 0.000 0.429
0.286
##
## Node number 3066: 8 observations
## predicted class=5 expected loss=0.375 P(node) =0.0003173973
## class counts: 0 0 0 0 0 5 1 0 1

```

```

1
## probabilities: 0.000 0.000 0.000 0.000 0.000 0.625 0.125 0.000 0.125
0.125
##
## Node number 3067: 17 observations
## predicted class=8 expected loss=0.05882353 P(node) =0.0006744694
## class counts: 0 0 0 1 0 0 0 0 16
0
## probabilities: 0.000 0.000 0.000 0.059 0.000 0.000 0.000 0.000 0.941
0.000
##
## Node number 3068: 7 observations
## predicted class=6 expected loss=0.2857143 P(node) =0.0002777227
## class counts: 1 0 0 0 0 0 5 0 1
0
## probabilities: 0.143 0.000 0.000 0.000 0.000 0.000 0.714 0.000 0.143
0.000
##
## Node number 3069: 30 observations
## predicted class=8 expected loss=0.1 P(node) =0.00119024
## class counts: 0 0 0 0 0 0 2 0 27
1
## probabilities: 0.000 0.000 0.000 0.000 0.000 0.000 0.067 0.000 0.900
0.033
##
## Node number 3074: 18 observations
## predicted class=0 expected loss=0.05555556 P(node) =0.000714144
## class counts: 17 0 1 0 0 0 0 0 0
0
## probabilities: 0.944 0.000 0.056 0.000 0.000 0.000 0.000 0.000 0.000
0.000
##
## Node number 3075: 7 observations
## predicted class=6 expected loss=0.4285714 P(node) =0.0002777227
## class counts: 3 0 0 0 0 0 4 0 0
0
## probabilities: 0.429 0.000 0.000 0.000 0.000 0.000 0.571 0.000 0.000
0.000
##
## Node number 3080: 201 observations
## predicted class=0 expected loss=0.009950249 P(node) =0.007974608
## class counts: 199 0 0 0 0 1 0 1 0
0
## probabilities: 0.990 0.000 0.000 0.000 0.000 0.005 0.000 0.005 0.000
0.000
##
## Node number 3081: 66 observations, complexity param=0.000111637
## predicted class=0 expected loss=0.1969697 P(node) =0.002618528
## class counts: 53 0 7 1 0 1 3 0 0
1

```



```

## probabilities: 0.803 0.000 0.106 0.015 0.000 0.015 0.045 0.000 0.000
0.015
## left son=6162 (56 obs) right son=6163 (10 obs)
## Primary splits:
## 149 < 10.5 to the left, improve=8.979437, (0 missing)
## 176 < 55 to the left, improve=6.457040, (0 missing)
## 203 < 17.5 to the left, improve=6.457040, (0 missing)
## 177 < 158 to the left, improve=5.836789, (0 missing)
## 150 < 43.5 to the left, improve=5.824955, (0 missing)
## Surrogate splits:
## 122 < 14.5 to the left, agree=0.955, adj=0.7, (0 split)
## 123 < 92.5 to the left, agree=0.939, adj=0.6, (0 split)
## 150 < 131.5 to the left, agree=0.939, adj=0.6, (0 split)
## 148 < 2 to the left, agree=0.924, adj=0.5, (0 split)
## 177 < 114 to the left, agree=0.924, adj=0.5, (0 split)
##
## Node number 3082: 18 observations
## predicted class=0 expected loss=0.3888889 P(node) =0.000714144
## class counts: 11 0 2 5 0 0 0 0 0
0
## probabilities: 0.611 0.000 0.111 0.278 0.000 0.000 0.000 0.000 0.000
0.000
##
## Node number 3083: 14 observations
## predicted class=5 expected loss=0.1428571 P(node) =0.0005554453
## class counts: 1 0 0 1 0 12 0 0 0
0
## probabilities: 0.071 0.000 0.000 0.071 0.000 0.857 0.000 0.000 0.000
0.000
##
## Node number 3086: 14 observations
## predicted class=2 expected loss=0.07142857 P(node) =0.0005554453
## class counts: 1 0 13 0 0 0 0 0 0
0
## probabilities: 0.071 0.000 0.929 0.000 0.000 0.000 0.000 0.000 0.000
0.000
##
## Node number 3087: 8 observations
## predicted class=7 expected loss=0.625 P(node) =0.0003173973
## class counts: 1 0 2 0 0 0 2 3 0
0
## probabilities: 0.125 0.000 0.250 0.000 0.000 0.000 0.250 0.375 0.000
0.000
##
## Node number 3172: 27 observations
## predicted class=3 expected loss=0 P(node) =0.001071216
## class counts: 0 0 0 27 0 0 0 0 0
0
## probabilities: 0.000 0.000 0.000 1.000 0.000 0.000 0.000 0.000 0.000
0.000

```

```

##
## Node number 3173: 9 observations
## predicted class=5 expected loss=0.5555556 P(node) =0.000357072
## class counts: 2 0 0 3 0 4 0 0 0
0
## probabilities: 0.222 0.000 0.000 0.333 0.000 0.444 0.000 0.000 0.000
0.000
##
## Node number 3298: 10 observations
## predicted class=0 expected loss=0.6 P(node) =0.0003967467
## class counts: 4 0 1 1 0 0 2 0 2
0
## probabilities: 0.400 0.000 0.100 0.100 0.000 0.000 0.200 0.000 0.200
0.000
##
## Node number 3299: 14 observations
## predicted class=5 expected loss=0.2857143 P(node) =0.0005554453
## class counts: 0 0 0 1 1 10 1 0 1
0
## probabilities: 0.000 0.000 0.000 0.071 0.071 0.714 0.071 0.000 0.071
0.000
##
## Node number 3584: 801 observations
## predicted class=2 expected loss=0.007490637 P(node) =0.03177941
## class counts: 0 0 795 2 0 0 0 3 1
0
## probabilities: 0.000 0.000 0.993 0.002 0.000 0.000 0.000 0.004 0.001
0.000
##
## Node number 3585: 68 observations, complexity param=8.930964e-05
## predicted class=2 expected loss=0.1470588 P(node) =0.002697877
## class counts: 0 0 58 10 0 0 0 0 0
0
## probabilities: 0.000 0.000 0.853 0.147 0.000 0.000 0.000 0.000 0.000
0.000
## left son=7170 (56 obs) right son=7171 (12 obs)
## Primary splits:
## 351 < 38.5 to the left, improve=7.868347, (0 missing)
## 352 < 222.5 to the left, improve=7.868347, (0 missing)
## 379 < 213 to the left, improve=7.868347, (0 missing)
## 380 < 170 to the left, improve=6.582633, (0 missing)
## 601 < 244 to the left, improve=6.149733, (0 missing)
## Surrogate splits:
## 379 < 165 to the left, agree=0.985, adj=0.917, (0 split)
## 350 < 8.5 to the left, agree=0.941, adj=0.667, (0 split)
## 352 < 108 to the left, agree=0.941, adj=0.667, (0 split)
## 380 < 243 to the left, agree=0.941, adj=0.667, (0 split)
## 323 < 19 to the left, agree=0.897, adj=0.417, (0 split)
##
## Node number 3586: 28 observations

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```

## predicted class=2 expected loss=0.1071429 P(node) =0.001110891
## class counts: 0 0 25 2 0 0 0 0 1
0
## probabilities: 0.000 0.000 0.893 0.071 0.000 0.000 0.000 0.000 0.036
0.000
##
## Node number 3587: 15 observations
## predicted class=7 expected loss=0.4 P(node) =0.00059512
## class counts: 0 0 3 1 0 0 0 9 2
0
## probabilities: 0.000 0.000 0.200 0.067 0.000 0.000 0.000 0.600 0.133
0.000
##
## Node number 3616: 100 observations
## predicted class=1 expected loss=0.01 P(node) =0.003967467
## class counts: 0 99 0 0 0 1 0 0 0
0
## probabilities: 0.000 0.990 0.000 0.000 0.000 0.010 0.000 0.000 0.000
0.000
##
## Node number 3617: 7 observations
## predicted class=2 expected loss=0.5714286 P(node) =0.0002777227
## class counts: 0 0 3 0 1 0 0 3 0
0
## probabilities: 0.000 0.000 0.429 0.000 0.143 0.000 0.000 0.429 0.000
0.000
##
## Node number 3618: 14 observations
## predicted class=2 expected loss=0.1428571 P(node) =0.0005554453
## class counts: 0 0 12 1 1 0 0 0 0
0
## probabilities: 0.000 0.000 0.857 0.071 0.071 0.000 0.000 0.000 0.000
0.000
##
## Node number 3619: 14 observations
## predicted class=6 expected loss=0.5714286 P(node) =0.0005554453
## class counts: 0 1 2 0 0 2 6 3 0
0
## probabilities: 0.000 0.071 0.143 0.000 0.000 0.143 0.429 0.214 0.000
0.000
##
## Node number 3620: 63 observations, complexity param=0.0001786193
## predicted class=4 expected loss=0.1428571 P(node) =0.002499504
## class counts: 0 0 1 0 54 0 7 0 0
1
## probabilities: 0.000 0.000 0.016 0.000 0.857 0.000 0.111 0.000 0.000
0.016
## left son=7240 (56 obs) right son=7241 (7 obs)
## Primary splits:
## 94 < 7.5 to the left, improve=8.404762, (0 missing)

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##      438 < 65      to the right, improve=5.231293, (0 missing)
##      121 < 54      to the left,  improve=4.680986, (0 missing)
##      410 < 16.5    to the right, improve=4.640147, (0 missing)
##      489 < 80.5    to the right, improve=4.554762, (0 missing)
## Surrogate splits:
##      93 < 1.5      to the left,  agree=0.984, adj=0.857, (0 split)
##      95 < 19       to the left,  agree=0.984, adj=0.857, (0 split)
##      542 < 252.5    to the left,  agree=0.952, adj=0.571, (0 split)
##      39 < 55       to the left,  agree=0.937, adj=0.429, (0 split)
##      40 < 5        to the left,  agree=0.937, adj=0.429, (0 split)
##
## Node number 3621: 9 observations
## predicted class=8 expected loss=0.6666667 P(node) =0.000357072
## class counts:      0      0      1      0      0      2      0      2      3
1
## probabilities: 0.000 0.000 0.111 0.000 0.000 0.222 0.000 0.222 0.333
0.111
##
## Node number 3622: 7 observations
## predicted class=4 expected loss=0.4285714 P(node) =0.0002777227
## class counts:      0      0      0      0      4      0      3      0      0
0
## probabilities: 0.000 0.000 0.000 0.000 0.571 0.000 0.429 0.000 0.000
0.000
##
## Node number 3623: 32 observations
## predicted class=6 expected loss=0 P(node) =0.001269589
## class counts:      0      0      0      0      0      0      32      0      0
0
## probabilities: 0.000 0.000 0.000 0.000 0.000 0.000 1.000 0.000 0.000
0.000
##
## Node number 3624: 109 observations, complexity param=0.0001339645
## predicted class=2 expected loss=0.266055 P(node) =0.004324539
## class counts:      0      2      80      5      0      0      0      10      4
8
## probabilities: 0.000 0.018 0.734 0.046 0.000 0.000 0.000 0.092 0.037
0.073
## left son=7248 (78 obs) right son=7249 (31 obs)
## Primary splits:
##      569 < 4.5      to the right, improve=7.479462, (0 missing)
##      715 < 29.5     to the left,  improve=7.120306, (0 missing)
##      570 < 7.5      to the right, improve=6.973724, (0 missing)
##      372 < 115      to the left,  improve=6.386580, (0 missing)
##      716 < 30       to the left,  improve=6.316467, (0 missing)
## Surrogate splits:
##      570 < 7.5      to the right, agree=0.917, adj=0.710, (0 split)
##      568 < 20.5     to the right, agree=0.890, adj=0.613, (0 split)
##      715 < 1.5      to the left,  agree=0.807, adj=0.323, (0 split)
##      716 < 0.5      to the left,  agree=0.807, adj=0.323, (0 split)

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##      571 < 3.5   to the right, agree=0.798, adj=0.290, (0 split)
##
## Node number 3625: 18 observations
##   predicted class=7   expected loss=0.2222222   P(node) =0.000714144
##   class counts:      0      0      1      0      0      0      0      14      2
1
##   probabilities: 0.000 0.000 0.056 0.000 0.000 0.000 0.000 0.778 0.111
0.056
##
## Node number 3628: 14 observations
##   predicted class=5   expected loss=0.6428571   P(node) =0.0005554453
##   class counts:      2      0      1      0      1      5      0      2      1
2
##   probabilities: 0.143 0.000 0.071 0.000 0.071 0.357 0.000 0.143 0.071
0.143
##
## Node number 3629: 14 observations
##   predicted class=8   expected loss=0.1428571   P(node) =0.0005554453
##   class counts:      0      0      1      0      0      0      0      0      12
1
##   probabilities: 0.000 0.000 0.071 0.000 0.000 0.000 0.000 0.000 0.857
0.071
##
## Node number 3666: 107 observations
##   predicted class=4   expected loss=0.02803738   P(node) =0.004245189
##   class counts:      0      0      1      0      104      1      0      0      1
0
##   probabilities: 0.000 0.000 0.009 0.000 0.972 0.009 0.000 0.000 0.009
0.000
##
## Node number 3667: 7 observations
##   predicted class=6   expected loss=0.2857143   P(node) =0.0002777227
##   class counts:      0      0      0      0      2      0      5      0      0
0
##   probabilities: 0.000 0.000 0.000 0.000 0.286 0.000 0.714 0.000 0.000
0.000
##
## Node number 3672: 43 observations
##   predicted class=2   expected loss=0.06976744   P(node) =0.001706011
##   class counts:      2      0      40      0      0      0      0      0      1
0
##   probabilities: 0.047 0.000 0.930 0.000 0.000 0.000 0.000 0.000 0.023
0.000
##
## Node number 3673: 13 observations
##   predicted class=0   expected loss=0.6923077   P(node) =0.0005157707
##   class counts:      4      0      2      0      1      1      1      1      2
1
##   probabilities: 0.308 0.000 0.154 0.000 0.077 0.077 0.077 0.077 0.154
0.077

```

```

##
## Node number 3674: 9 observations
## predicted class=0 expected loss=0.3333333 P(node) =0.000357072
## class counts:      6      0      2      0      0      0      0      1      0
0
## probabilities: 0.667 0.000 0.222 0.000 0.000 0.000 0.000 0.111 0.000
0.000
##
## Node number 3675: 20 observations
## predicted class=8 expected loss=0 P(node) =0.0007934934
## class counts:      0      0      0      0      0      0      0      0      20
0
## probabilities: 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 1.000
0.000
##
## Node number 3676: 43 observations, complexity param=0.0001786193
## predicted class=7 expected loss=0.255814 P(node) =0.001706011
## class counts:      1      0      4      0      1      0      1      32      0
4
## probabilities: 0.023 0.000 0.093 0.000 0.023 0.000 0.023 0.744 0.000
0.093
## left son=7352 (10 obs) right son=7353 (33 obs)
## Primary splits:
##      680 < 83 to the left, improve=9.232699, (0 missing)
##      708 < 1 to the left, improve=8.162943, (0 missing)
##      513 < 26 to the right, improve=8.162943, (0 missing)
##      540 < 25 to the right, improve=8.162943, (0 missing)
##      709 < 4 to the left, improve=7.014517, (0 missing)
## Surrogate splits:
##      708 < 1 to the left, agree=0.977, adj=0.9, (0 split)
##      709 < 4 to the left, agree=0.953, adj=0.8, (0 split)
##      513 < 26 to the right, agree=0.930, adj=0.7, (0 split)
##      540 < 25 to the right, agree=0.930, adj=0.7, (0 split)
##      154 < 1.5 to the right, agree=0.907, adj=0.6, (0 split)
##
## Node number 3677: 28 observations, complexity param=0.0003572385
## predicted class=9 expected loss=0.5714286 P(node) =0.001110891
## class counts:      0      0      2      0      4      0      0      1      9
12
## probabilities: 0.000 0.000 0.071 0.000 0.143 0.000 0.000 0.036 0.321
0.429
## left son=7354 (15 obs) right son=7355 (13 obs)
## Primary splits:
##      655 < 18.5 to the right, improve=6.875824, (0 missing)
##      706 < 57.5 to the left, improve=6.056391, (0 missing)
##      707 < 23.5 to the left, improve=5.839286, (0 missing)
##      651 < 14.5 to the left, improve=5.642857, (0 missing)
##      683 < 35.5 to the left, improve=5.564286, (0 missing)
## Surrogate splits:
##      627 < 117 to the right, agree=0.964, adj=0.923, (0 split)

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##      654 < 196   to the right, agree=0.929, adj=0.846, (0 split)
##      182 < 1.5   to the right, agree=0.893, adj=0.769, (0 split)
##      183 < 92.5  to the right, agree=0.893, adj=0.769, (0 split)
##      679 < 35.5  to the left,  agree=0.857, adj=0.692, (0 split)
##
## Node number 3678: 24 observations,      complexity param=0.0002456015
##   predicted class=4   expected loss=0.4583333   P(node) =0.000952192
##   class counts:      1      0      1      0      13      0      0      0      1
8
##   probabilities: 0.042 0.000 0.042 0.000 0.542 0.000 0.000 0.000 0.042
0.333
##   left son=7356 (15 obs) right son=7357 (9 obs)
##   Primary splits:
##       456 < 71      to the right, improve=5.633333, (0 missing)
##       455 < 68.5    to the right, improve=5.117716, (0 missing)
##       427 < 6.5     to the right, improve=4.628205, (0 missing)
##       428 < 180.5   to the right, improve=4.628205, (0 missing)
##       485 < 54      to the right, improve=4.423810, (0 missing)
##   Surrogate splits:
##       428 < 91.5    to the right, agree=0.958, adj=0.889, (0 split)
##       429 < 245.5   to the right, agree=0.958, adj=0.889, (0 split)
##       455 < 8.5     to the right, agree=0.958, adj=0.889, (0 split)
##       400 < 14.5    to the right, agree=0.917, adj=0.778, (0 split)
##       401 < 191     to the right, agree=0.917, adj=0.778, (0 split)
##
## Node number 3679: 29 observations
##   predicted class=9   expected loss=0.1034483   P(node) =0.001150565
##   class counts:      0      0      2      0      0      0      0      0      1
26
##   probabilities: 0.000 0.000 0.069 0.000 0.000 0.000 0.000 0.000 0.034
0.897
##
## Node number 3690: 9 observations
##   predicted class=5   expected loss=0.5555556   P(node) =0.000357072
##   class counts:      0      0      1      0      0      4      3      0      1
0
##   probabilities: 0.000 0.000 0.111 0.000 0.000 0.444 0.333 0.000 0.111
0.000
##
## Node number 3691: 13 observations
##   predicted class=8   expected loss=0.07692308   P(node) =0.0005157707
##   class counts:      0      0      0      0      0      0      1      0      12
0
##   probabilities: 0.000 0.000 0.000 0.000 0.000 0.000 0.077 0.000 0.923
0.000
##
## Node number 3720: 260 observations
##   predicted class=2   expected loss=0.03846154   P(node) =0.01031541
##   class counts:      0      3      250      1      1      0      1      4      0
0

```

```

## probabilities: 0.000 0.012 0.962 0.004 0.004 0.000 0.004 0.015 0.000
0.000
##
## Node number 3721: 8 observations
## predicted class=8 expected loss=0.625 P(node) =0.0003173973
## class counts: 0 0 2 1 2 0 0 0 3
0
## probabilities: 0.000 0.000 0.250 0.125 0.250 0.000 0.000 0.000 0.375
0.000
##
## Node number 3820: 1471 observations
## predicted class=6 expected loss=0.01495581 P(node) =0.05836144
## class counts: 0 0 4 1 1 12 1449 0 2
2
## probabilities: 0.000 0.000 0.003 0.001 0.001 0.008 0.985 0.000 0.001
0.001
##
## Node number 3821: 7 observations
## predicted class=8 expected loss=0.2857143 P(node) =0.0002777227
## class counts: 0 0 0 0 0 0 2 0 5
0
## probabilities: 0.000 0.000 0.000 0.000 0.000 0.000 0.286 0.000 0.714
0.000
##
## Node number 3836: 13 observations
## predicted class=6 expected loss=0.5384615 P(node) =0.0005157707
## class counts: 0 0 1 2 0 1 6 1 2
0
## probabilities: 0.000 0.000 0.077 0.154 0.000 0.077 0.462 0.077 0.154
0.000
##
## Node number 3837: 16 observations
## predicted class=5 expected loss=0.25 P(node) =0.0006347947
## class counts: 0 0 0 0 0 12 0 0 4
0
## probabilities: 0.000 0.000 0.000 0.000 0.000 0.750 0.000 0.000 0.250
0.000
##
## Node number 3872: 1313 observations, complexity param=8.930964e-05
## predicted class=4 expected loss=0.03198781 P(node) =0.05209284
## class counts: 0 6 5 7 1271 0 4 0 5
15
## probabilities: 0.000 0.005 0.004 0.005 0.968 0.000 0.003 0.000 0.004
0.011
## left son=7744 (1269 obs) right son=7745 (44 obs)
## Primary splits:
## 437 < 1 to the right, improve=8.008192, (0 missing)
## 349 < 225.5 to the right, improve=6.747305, (0 missing)
## 436 < 49.5 to the right, improve=5.412877, (0 missing)
## 464 < 1 to the right, improve=4.583927, (0 missing)

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##      322 < 88      to the left,  improve=4.414886, (0 missing)
##      Surrogate splits:
##      436 < 4       to the right,  agree=0.970, adj=0.114, (0 split)
##      92  < 88      to the left,   agree=0.968, adj=0.045, (0 split)
##      349 < 252.5   to the left,   agree=0.967, adj=0.023, (0 split)
##
## Node number 3873: 12 observations
##      predicted class=6  expected loss=0.1666667  P(node) =0.000476096
##      class counts:      0      0      0      0      2      0      10      0      0
##
##      probabilities: 0.000 0.000 0.000 0.000 0.167 0.000 0.833 0.000 0.000
##      0.000
##
## Node number 3876: 24 observations,      complexity param=4.465482e-05
##      predicted class=5  expected loss=0.2916667  P(node) =0.000952192
##      class counts:      0      0      1      2      2      17      0      0      1
##      1
##      probabilities: 0.000 0.000 0.042 0.083 0.083 0.708 0.000 0.000 0.042
##      0.042
##      left son=7752 (17 obs) right son=7753 (7 obs)
##      Primary splits:
##      658 < 50.5   to the right,  improve=3.903361, (0 missing)
##      659 < 22.5   to the right,  improve=3.125000, (0 missing)
##      631 < 104.5  to the left,   improve=2.954545, (0 missing)
##      214 < 6.5    to the left,   improve=2.542017, (0 missing)
##      656 < 26     to the right,  improve=2.542017, (0 missing)
##      Surrogate splits:
##      657 < 80     to the right,  agree=0.958, adj=0.857, (0 split)
##      659 < 22.5   to the right,  agree=0.958, adj=0.857, (0 split)
##      656 < 1      to the right,  agree=0.917, adj=0.714, (0 split)
##      520 < 241    to the left,   agree=0.875, adj=0.571, (0 split)
##      216 < 169.5  to the left,   agree=0.833, adj=0.429, (0 split)
##
## Node number 3877: 24 observations,      complexity param=0.0002232741
##      predicted class=4  expected loss=0.75  P(node) =0.000952192
##      class counts:      0      0      4      5      6      1      0      0      5
##      3
##      probabilities: 0.000 0.000 0.167 0.208 0.250 0.042 0.000 0.000 0.208
##      0.125
##      left son=7754 (7 obs) right son=7755 (17 obs)
##      Primary splits:
##      461 < 201.5  to the right,  improve=4.677871, (0 missing)
##      460 < 94     to the right,  improve=4.333333, (0 missing)
##      378 < 199.5  to the right,  improve=4.123249, (0 missing)
##      186 < 26.5   to the left,   improve=4.083333, (0 missing)
##      351 < 17     to the right,  improve=3.958333, (0 missing)
##      Surrogate splits:
##      185 < 71     to the left,   agree=0.917, adj=0.714, (0 split)
##      186 < 29     to the left,   agree=0.917, adj=0.714, (0 split)
##      207 < 5      to the left,   agree=0.917, adj=0.714, (0 split)

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##      488 < 14.5  to the right, agree=0.917, adj=0.714, (0 split)
##      153 < 43   to the left,  agree=0.875, adj=0.571, (0 split)
##
## Node number 3892: 24 observations
##   predicted class=4  expected loss=0.1666667  P(node) =0.000952192
##   class counts:      0      0      1      1     20      1      0      0      0
1
##   probabilities: 0.000 0.000 0.042 0.042 0.833 0.042 0.000 0.000 0.000
0.042
##
## Node number 3893: 8 observations
##   predicted class=9  expected loss=0.25  P(node) =0.0003173973
##   class counts:      0      0      0      0      1      1      0      0      0
6
##   probabilities: 0.000 0.000 0.000 0.000 0.125 0.125 0.000 0.000 0.000
0.750
##
## Node number 3894: 9 observations
##   predicted class=7  expected loss=0.5555556  P(node) =0.000357072
##   class counts:      0      0      0      1      0      2      0      4      0
2
##   probabilities: 0.000 0.000 0.000 0.111 0.000 0.222 0.000 0.444 0.000
0.222
##
## Node number 3895: 31 observations
##   predicted class=9  expected loss=0.09677419  P(node) =0.001229915
##   class counts:      0      0      1      0      1      0      0      1      0
28
##   probabilities: 0.000 0.000 0.032 0.000 0.032 0.000 0.000 0.032 0.000
0.903
##
## Node number 3904: 15 observations
##   predicted class=3  expected loss=0  P(node) =0.00059512
##   class counts:      0      0      0     15      0      0      0      0      0
0
##   probabilities: 0.000 0.000 0.000 1.000 0.000 0.000 0.000 0.000 0.000
0.000
##
## Node number 3905: 9 observations
##   predicted class=5  expected loss=0.1111111  P(node) =0.000357072
##   class counts:      0      0      0      1      0      8      0      0      0
0
##   probabilities: 0.000 0.000 0.000 0.111 0.000 0.889 0.000 0.000 0.000
0.000
##
## Node number 3906: 9 observations
##   predicted class=3  expected loss=0.2222222  P(node) =0.000357072
##   class counts:      0      0      0      7      0      2      0      0      0
0
##   probabilities: 0.000 0.000 0.000 0.778 0.000 0.222 0.000 0.000 0.000

```

```

0.000
##
## Node number 3907: 461 observations,    complexity param=0.0001786193
## predicted class=5 expected loss=0.06724512 P(node) =0.01829002
## class counts:    0    0    1    12    1    430    0    1    0
16
## probabilities: 0.000 0.000 0.002 0.026 0.002 0.933 0.000 0.002 0.000
0.035
## left son=7814 (450 obs) right son=7815 (11 obs)
## Primary splits:
## 718 < 37 to the left, improve=9.084851, (0 missing)
## 326 < 7.5 to the left, improve=7.839553, (0 missing)
## 717 < 195.5 to the left, improve=6.760310, (0 missing)
## 628 < 0.5 to the right, improve=6.449194, (0 missing)
## 627 < 0.5 to the right, improve=6.242185, (0 missing)
## Surrogate splits:
## 717 < 195.5 to the left, agree=0.993, adj=0.727, (0 split)
## 719 < 15 to the left, agree=0.989, adj=0.545, (0 split)
## 326 < 163.5 to the left, agree=0.980, adj=0.182, (0 split)
## 691 < 252.5 to the left, agree=0.980, adj=0.182, (0 split)
## 720 < 14 to the left, agree=0.980, adj=0.182, (0 split)
##
## Node number 3928: 23 observations,    complexity param=0.0002679289
## predicted class=3 expected loss=0.5217391 P(node) =0.0009125174
## class counts:    0    1    0    11    1    0    1    0    2
7
## probabilities: 0.000 0.043 0.000 0.478 0.043 0.000 0.043 0.000 0.087
0.304
## left son=7856 (11 obs) right son=7857 (12 obs)
## Primary splits:
## 180 < 95 to the right, improve=5.986166, (0 missing)
## 179 < 36 to the right, improve=4.888963, (0 missing)
## 347 < 13 to the left, improve=4.748792, (0 missing)
## 350 < 42.5 to the right, improve=4.713439, (0 missing)
## 292 < 5 to the left, improve=4.531621, (0 missing)
## Surrogate splits:
## 179 < 36 to the right, agree=0.957, adj=0.909, (0 split)
## 292 < 5 to the left, agree=0.957, adj=0.909, (0 split)
## 181 < 110.5 to the right, agree=0.913, adj=0.818, (0 split)
## 265 < 22 to the left, agree=0.913, adj=0.818, (0 split)
## 152 < 2 to the right, agree=0.870, adj=0.727, (0 split)
##
## Node number 3929: 37 observations
## predicted class=7 expected loss=0.2972973 P(node) =0.001467963
## class counts:    0    0    3    3    0    0    0    26    2
3
## probabilities: 0.000 0.000 0.081 0.081 0.000 0.000 0.000 0.703 0.054
0.081
##
## Node number 3930: 13 observations

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```

## predicted class=4 expected loss=0 P(node) =0.0005157707
## class counts: 0 0 0 0 13 0 0 0 0
0
## probabilities: 0.000 0.000 0.000 0.000 1.000 0.000 0.000 0.000 0.000
0.000
##
## Node number 3931: 54 observations
## predicted class=9 expected loss=0.2777778 P(node) =0.002142432
## class counts: 0 0 0 2 6 0 0 2 5
39
## probabilities: 0.000 0.000 0.000 0.037 0.111 0.000 0.000 0.037 0.093
0.722
##
## Node number 3938: 14 observations
## predicted class=5 expected loss=0.5 P(node) =0.0005554453
## class counts: 1 0 1 3 1 7 0 0 1
0
## probabilities: 0.071 0.000 0.071 0.214 0.071 0.500 0.000 0.000 0.071
0.000
##
## Node number 3939: 8 observations
## predicted class=9 expected loss=0 P(node) =0.0003173973
## class counts: 0 0 0 0 0 0 0 0 0
8
## probabilities: 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
1.000
##
## Node number 3940: 38 observations
## predicted class=2 expected loss=0.02631579 P(node) =0.001507637
## class counts: 0 0 37 0 0 0 0 0 0
1
## probabilities: 0.000 0.000 0.974 0.000 0.000 0.000 0.000 0.000 0.000
0.026
##
## Node number 3941: 8 observations
## predicted class=3 expected loss=0.5 P(node) =0.0003173973
## class counts: 0 0 2 4 0 1 0 0 1
0
## probabilities: 0.000 0.000 0.250 0.500 0.000 0.125 0.000 0.000 0.125
0.000
##
## Node number 3942: 10 observations
## predicted class=2 expected loss=0.7 P(node) =0.0003967467
## class counts: 0 0 3 2 0 0 3 0 2
0
## probabilities: 0.000 0.000 0.300 0.200 0.000 0.000 0.300 0.000 0.200
0.000
##
## Node number 3943: 23 observations
## predicted class=8 expected loss=0.04347826 P(node) =0.0009125174

```

```

##      class counts:      1      0      0      0      0      0      0      0      22
0
##      probabilities: 0.043 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.957
0.000
##
## Node number 3946: 10 observations
##      predicted class=4 expected loss=0.2 P(node) =0.0003967467
##      class counts:      0      0      1      1      8      0      0      0      0
0
##      probabilities: 0.000 0.000 0.100 0.100 0.800 0.000 0.000 0.000 0.000
0.000
##
## Node number 3947: 38 observations,      complexity param=0.0002679289
##      predicted class=9 expected loss=0.4473684 P(node) =0.001507637
##      class counts:      0      0      1      6      3      2      0      0      5
21
##      probabilities: 0.000 0.000 0.026 0.158 0.079 0.053 0.000 0.000 0.132
0.553
##      left son=7894 (8 obs) right son=7895 (30 obs)
##      Primary splits:
##          372 < 11.5 to the left, improve=6.837719, (0 missing)
##          378 < 85.5 to the right, improve=6.051305, (0 missing)
##          178 < 250 to the right, improve=5.951007, (0 missing)
##          151 < 9.5 to the right, improve=5.861529, (0 missing)
##          316 < 22 to the left, improve=5.740918, (0 missing)
##      Surrogate splits:
##          400 < 35.5 to the left, agree=0.974, adj=0.875, (0 split)
##          316 < 22 to the left, agree=0.921, adj=0.625, (0 split)
##          317 < 32 to the left, agree=0.921, adj=0.625, (0 split)
##          344 < 10 to the left, agree=0.921, adj=0.625, (0 split)
##          345 < 18.5 to the left, agree=0.921, adj=0.625, (0 split)
##
## Node number 3948: 14 observations
##      predicted class=3 expected loss=0.4285714 P(node) =0.0005554453
##      class counts:      0      0      2      8      1      0      0      1      2
0
##      probabilities: 0.000 0.000 0.143 0.571 0.071 0.000 0.000 0.071 0.143
0.000
##
## Node number 3949: 36 observations,      complexity param=0.0003125837
##      predicted class=9 expected loss=0.5 P(node) =0.001428288
##      class counts:      0      0      1      1      8      2      0      0      6
18
##      probabilities: 0.000 0.000 0.028 0.028 0.222 0.056 0.000 0.000 0.167
0.500
##      left son=7898 (9 obs) right son=7899 (27 obs)
##      Primary splits:
##          407 < 122 to the left, improve=6.796296, (0 missing)
##          379 < 5.5 to the left, improve=5.553737, (0 missing)
##          353 < 227.5 to the left, improve=5.236508, (0 missing)

```

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##      242 < 2      to the left,  improve=5.081530, (0 missing)
##      297 < 28     to the left,  improve=4.893651, (0 missing)
##  Surrogate splits:
##      379 < 5.5    to the left,  agree=0.944, adj=0.778, (0 split)
##      212 < 85.5   to the left,  agree=0.889, adj=0.556, (0 split)
##      380 < 116    to the left,  agree=0.889, adj=0.556, (0 split)
##      408 < 188    to the left,  agree=0.889, adj=0.556, (0 split)
##      184 < 166    to the left,  agree=0.861, adj=0.444, (0 split)
##
## Node number 3952: 66 observations,      complexity param=0.000491203
## predicted class=3 expected loss=0.3484848 P(node) =0.002618528
## class counts:      0      0      14      43      1      0      0      3      1
4
## probabilities: 0.000 0.000 0.212 0.652 0.015 0.000 0.000 0.045 0.015
0.061
## left son=7904 (12 obs) right son=7905 (54 obs)
## Primary splits:
##      512 < 30     to the right, improve=13.66162, (0 missing)
##      658 < 0.5    to the right, improve=11.47786, (0 missing)
##      685 < 8      to the right, improve=10.72371, (0 missing)
##      513 < 19.5   to the right, improve=10.60606, (0 missing)
##      511 < 3      to the right, improve=10.55051, (0 missing)
## Surrogate splits:
##      513 < 19.5   to the right, agree=0.970, adj=0.833, (0 split)
##      511 < 10.5   to the right, agree=0.955, adj=0.750, (0 split)
##      485 < 175    to the right, agree=0.939, adj=0.667, (0 split)
##      539 < 25.5   to the right, agree=0.924, adj=0.583, (0 split)
##      540 < 24     to the right, agree=0.924, adj=0.583, (0 split)
##
## Node number 3953: 53 observations,      complexity param=0.0002232741
## predicted class=7 expected loss=0.3207547 P(node) =0.002102757
## class counts:      1      0      2      7      5      0      0      36      1
1
## probabilities: 0.019 0.000 0.038 0.132 0.094 0.000 0.000 0.679 0.019
0.019
## left son=7906 (9 obs) right son=7907 (44 obs)
## Primary splits:
##      209 < 29     to the left,  improve=7.831999, (0 missing)
##      348 < 108    to the right, improve=7.496646, (0 missing)
##      349 < 38     to the right, improve=7.496646, (0 missing)
##      320 < 66     to the right, improve=7.223837, (0 missing)
##      321 < 125    to the right, improve=7.223837, (0 missing)
## Surrogate splits:
##      348 < 108    to the right, agree=0.981, adj=0.889, (0 split)
##      349 < 38     to the right, agree=0.981, adj=0.889, (0 split)
##      320 < 66     to the right, agree=0.962, adj=0.778, (0 split)
##      321 < 125    to the right, agree=0.962, adj=0.778, (0 split)
##      347 < 52.5   to the right, agree=0.962, adj=0.778, (0 split)
##
## Node number 3954: 10 observations

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```

## predicted class=8 expected loss=0.6 P(node) =0.0003967467
## class counts: 0 0 1 1 1 0 0 0 4
3
## probabilities: 0.000 0.000 0.100 0.100 0.100 0.000 0.000 0.000 0.400
0.300
##
## Node number 3955: 47 observations
## predicted class=9 expected loss=0.0212766 P(node) =0.001864709
## class counts: 0 0 0 0 1 0 0 0 0
46
## probabilities: 0.000 0.000 0.000 0.000 0.021 0.000 0.000 0.000 0.000
0.979
##
## Node number 3956: 11 observations
## predicted class=4 expected loss=0 P(node) =0.0004364213
## class counts: 0 0 0 0 11 0 0 0 0
0
## probabilities: 0.000 0.000 0.000 0.000 1.000 0.000 0.000 0.000 0.000
0.000
##
## Node number 3957: 9 observations
## predicted class=9 expected loss=0.4444444 P(node) =0.000357072
## class counts: 0 0 0 1 2 1 0 0 0
5
## probabilities: 0.000 0.000 0.000 0.111 0.222 0.111 0.000 0.000 0.000
0.556
##
## Node number 3958: 12 observations
## predicted class=8 expected loss=0.4166667 P(node) =0.000476096
## class counts: 0 0 0 0 1 0 0 0 7
4
## probabilities: 0.000 0.000 0.000 0.000 0.083 0.000 0.000 0.000 0.583
0.333
##
## Node number 3959: 85 observations
## predicted class=9 expected loss=0.05882353 P(node) =0.003372347
## class counts: 0 0 0 0 1 0 0 4 0
80
## probabilities: 0.000 0.000 0.000 0.000 0.012 0.000 0.000 0.047 0.000
0.941
##
## Node number 3962: 7 observations
## predicted class=4 expected loss=0.5714286 P(node) =0.0002777227
## class counts: 0 0 0 0 3 0 0 1 1
2
## probabilities: 0.000 0.000 0.000 0.000 0.429 0.000 0.000 0.143 0.143
0.286
##
## Node number 3963: 28 observations
## predicted class=9 expected loss=0.03571429 P(node) =0.001110891

```

```

##      class counts:      0      0      0      0      1      0      0      0      0
27
##      probabilities: 0.000 0.000 0.000 0.000 0.036 0.000 0.000 0.000 0.000
0.964
##
## Node number 3964: 24 observations,      complexity param=4.465482e-05
##      predicted class=8      expected loss=0.3333333      P(node) =0.000952192
##      class counts:      0      0      0      2      3      0      0      1      16
2
##      probabilities: 0.000 0.000 0.000 0.083 0.125 0.000 0.000 0.042 0.667
0.083
##      left son=7928 (10 obs) right son=7929 (14 obs)
##      Primary splits:
##          544 < 138      to the left,      improve=4.783333, (0 missing)
##          268 < 245.5 to the right, improve=4.196779, (0 missing)
##          271 < 33      to the left,      improve=4.196779, (0 missing)
##          295 < 62.5 to the right, improve=4.196779, (0 missing)
##          296 < 209.5 to the right, improve=4.196779, (0 missing)
##      Surrogate splits:
##          516 < 22      to the left,      agree=0.958, adj=0.9, (0 split)
##          572 < 67      to the left,      agree=0.958, adj=0.9, (0 split)
##          600 < 16      to the left,      agree=0.958, adj=0.9, (0 split)
##          657 < 73.5 to the left,      agree=0.958, adj=0.9, (0 split)
##          214 < 38      to the left,      agree=0.917, adj=0.8, (0 split)
##
## Node number 3965: 48 observations,      complexity param=4.465482e-05
##      predicted class=9      expected loss=0.1875      P(node) =0.001904384
##      class counts:      0      0      0      2      2      2      0      2      1
39
##      probabilities: 0.000 0.000 0.000 0.042 0.042 0.042 0.000 0.042 0.021
0.812
##      left son=7930 (8 obs) right son=7931 (40 obs)
##      Primary splits:
##          400 < 26      to the left,      improve=5.608333, (0 missing)
##          315 < 29.5 to the left,      improve=4.822445, (0 missing)
##          343 < 15      to the left,      improve=4.778846, (0 missing)
##          318 < 189.5 to the right, improve=4.778846, (0 missing)
##          429 < 19.5 to the left,      improve=4.058333, (0 missing)
##      Surrogate splits:
##          344 < 51      to the left,      agree=0.958, adj=0.750, (0 split)
##          372 < 64      to the left,      agree=0.938, adj=0.625, (0 split)
##          316 < 23      to the left,      agree=0.917, adj=0.500, (0 split)
##          371 < 1.5      to the left,      agree=0.917, adj=0.500, (0 split)
##          401 < 71      to the left,      agree=0.917, adj=0.500, (0 split)
##
## Node number 3966: 7 observations
##      predicted class=5      expected loss=0.5714286      P(node) =0.0002777227
##      class counts:      0      0      0      1      0      3      0      0      3
0
##      probabilities: 0.000 0.000 0.000 0.143 0.000 0.429 0.000 0.000 0.429

```



```

0.000
##
## Node number 3967: 1007 observations,    complexity param=3.721235e-05
## predicted class=9 expected loss=0.05561072 P(node) =0.03995239
## class counts:    0    0    1    5    30    1    0    7    12
951
## probabilities: 0.000 0.000 0.001 0.005 0.030 0.001 0.000 0.007 0.012
0.944
## left son=7934 (18 obs) right son=7935 (989 obs)
## Primary splits:
## 470 < 5      to the right, improve=6.184662, (0 missing)
## 415 < 2      to the right, improve=6.140252, (0 missing)
## 516 < 232    to the right, improve=5.854557, (0 missing)
## 469 < 43.5   to the right, improve=5.795852, (0 missing)
## 409 < 32     to the left,  improve=5.627309, (0 missing)
## Surrogate splits:
## 498 < 12.5   to the right, agree=0.995, adj=0.722, (0 split)
## 442 < 12     to the right, agree=0.994, adj=0.667, (0 split)
## 471 < 0.5    to the right, agree=0.990, adj=0.444, (0 split)
## 414 < 94     to the right, agree=0.988, adj=0.333, (0 split)
## 441 < 183.5 to the right, agree=0.988, adj=0.333, (0 split)
##
## Node number 3998: 7 observations
## predicted class=4 expected loss=0.7142857 P(node) =0.0002777227
## class counts:    0    0    1    0    2    0    0    1    2
1
## probabilities: 0.000 0.000 0.143 0.000 0.286 0.000 0.000 0.143 0.286
0.143
##
## Node number 3999: 46 observations
## predicted class=9 expected loss=0.1086957 P(node) =0.001825035
## class counts:    0    0    0    0    3    0    0    1    1
41
## probabilities: 0.000 0.000 0.000 0.000 0.065 0.000 0.000 0.022 0.022
0.891
##
## Node number 4030: 7 observations
## predicted class=7 expected loss=0.4285714 P(node) =0.0002777227
## class counts:    0    0    0    0    1    0    2    4    0
0
## probabilities: 0.000 0.000 0.000 0.000 0.143 0.000 0.286 0.571 0.000
0.000
##
## Node number 4031: 1307 observations,    complexity param=2.232741e-05
## predicted class=7 expected loss=0.01683244 P(node) =0.05185479
## class counts:    0    1    7    2    2    0    0 1285    0
10
## probabilities: 0.000 0.001 0.005 0.002 0.002 0.000 0.000 0.983 0.000
0.008
## left son=8062 (22 obs) right son=8063 (1285 obs)

```

```

## Primary splits:
## 488 < 106 to the right, improve=1.732287, (0 missing)
## 664 < 3.5 to the right, improve=1.637552, (0 missing)
## 461 < 206.5 to the right, improve=1.451330, (0 missing)
## 265 < 10.5 to the left, improve=1.405136, (0 missing)
## 182 < 181 to the right, improve=1.336482, (0 missing)
## Surrogate splits:
## 487 < 4 to the right, agree=0.989, adj=0.318, (0 split)
## 460 < 12.5 to the right, agree=0.988, adj=0.273, (0 split)
## 516 < 250 to the right, agree=0.985, adj=0.136, (0 split)
## 515 < 20.5 to the right, agree=0.985, adj=0.091, (0 split)
## 496 < 196.5 to the right, agree=0.984, adj=0.045, (0 split)
##
## Node number 4096: 2198 observations, complexity param=4.465482e-05
## predicted class=1 expected loss=0.008189263 P(node) =0.08720492
## class counts: 0 2180 1 2 1 0 1 2 10
1
## probabilities: 0.000 0.992 0.000 0.001 0.000 0.000 0.000 0.001 0.005
0.000
## left son=8192 (2190 obs) right son=8193 (8 obs)
## Primary splits:
## 433 < 2.5 to the right, improve=2.431318, (0 missing)
## 300 < 1 to the left, improve=2.396220, (0 missing)
## 271 < 246 to the left, improve=1.707422, (0 missing)
## 430 < 132 to the left, improve=1.666540, (0 missing)
## 378 < 141.5 to the right, improve=1.660150, (0 missing)
## Surrogate splits:
## 461 < 16.5 to the right, agree=0.998, adj=0.375, (0 split)
## 317 < 13 to the left, agree=0.997, adj=0.250, (0 split)
## 318 < 76.5 to the left, agree=0.997, adj=0.250, (0 split)
## 346 < 26.5 to the left, agree=0.997, adj=0.250, (0 split)
## 262 < 22.5 to the left, agree=0.997, adj=0.125, (0 split)
##
## Node number 4097: 32 observations, complexity param=7.44247e-05
## predicted class=1 expected loss=0.3125 P(node) =0.001269589
## class counts: 0 22 0 0 0 0 3 3 4
0
## probabilities: 0.000 0.688 0.000 0.000 0.000 0.000 0.094 0.094 0.125
0.000
## left son=8194 (24 obs) right son=8195 (8 obs)
## Primary splits:
## 546 < 193.5 to the right, improve=7.395833, (0 missing)
## 490 < 151 to the right, improve=7.103929, (0 missing)
## 518 < 153 to the right, improve=7.103929, (0 missing)
## 574 < 164.5 to the right, improve=7.103929, (0 missing)
## 463 < 243 to the right, improve=5.851147, (0 missing)
## Surrogate splits:
## 574 < 164.5 to the right, agree=0.969, adj=0.875, (0 split)
## 294 < 242.5 to the right, agree=0.906, adj=0.625, (0 split)
## 295 < 93.5 to the right, agree=0.906, adj=0.625, (0 split)

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##      463 < 243   to the right, agree=0.906, adj=0.625, (0 split)
##      491 < 207   to the right, agree=0.906, adj=0.625, (0 split)
##
## Node number 4372: 20 observations,      complexity param=0.0001786193
## predicted class=2 expected loss=0.65 P(node) =0.0007934934
## class counts:      3      0      7      3      4      2      1      0      0
##
## probabilities: 0.150 0.000 0.350 0.150 0.200 0.100 0.050 0.000 0.000
0.000
## left son=8744 (8 obs) right son=8745 (12 obs)
## Primary splits:
##      405 < 210   to the right, improve=4.683333, (0 missing)
##      266 < 187   to the left,  improve=3.400000, (0 missing)
##      321 < 228   to the left,  improve=3.400000, (0 missing)
##      349 < 252.5 to the left,  improve=3.400000, (0 missing)
##      432 < 63    to the right, improve=3.400000, (0 missing)
## Surrogate splits:
##      265 < 4     to the left,  agree=0.9, adj=0.75, (0 split)
##      266 < 156.5 to the left,  agree=0.9, adj=0.75, (0 split)
##      293 < 65    to the left,  agree=0.9, adj=0.75, (0 split)
##      321 < 124.5 to the left,  agree=0.9, adj=0.75, (0 split)
##      349 < 252.5 to the left,  agree=0.9, adj=0.75, (0 split)
##
## Node number 4373: 11 observations
## predicted class=1 expected loss=0.4545455 P(node) =0.0004364213
## class counts:      1      6      0      0      0      0      0      0      4
##
## probabilities: 0.091 0.545 0.000 0.000 0.000 0.000 0.000 0.000 0.364
0.000
##
## Node number 4374: 7 observations
## predicted class=3 expected loss=0.5714286 P(node) =0.0002777227
## class counts:      1      0      1      3      0      1      0      0      1
##
## probabilities: 0.143 0.000 0.143 0.429 0.000 0.143 0.000 0.000 0.143
0.000
##
## Node number 4375: 16 observations
## predicted class=5 expected loss=0 P(node) =0.0006347947
## class counts:      0      0      0      0      0      16      0      0      0
##
## probabilities: 0.000 0.000 0.000 0.000 0.000 1.000 0.000 0.000 0.000
0.000
##
## Node number 4380: 15 observations
## predicted class=1 expected loss=0.2666667 P(node) =0.00059512
## class counts:      0      11      0      0      0      0      2      0      0
2
## probabilities: 0.000 0.733 0.000 0.000 0.000 0.000 0.133 0.000 0.000
0.133

```

```

##
## Node number 4381: 22 observations,      complexity param=0.0001339645
## predicted class=4 expected loss=0.6363636 P(node) =0.0008728427
## class counts:      0      1      1      1      8      2      1      5      0
3
## probabilities: 0.000 0.045 0.045 0.045 0.364 0.091 0.045 0.227 0.000
0.136
## left son=8762 (7 obs) right son=8763 (15 obs)
## Primary splits:
## 403 < 204.5 to the right, improve=3.334199, (0 missing)
## 375 < 120.5 to the left, improve=3.250194, (0 missing)
## 431 < 212 to the right, improve=3.233100, (0 missing)
## 321 < 202 to the right, improve=2.818182, (0 missing)
## 316 < 1 to the left, improve=2.646104, (0 missing)
## Surrogate splits:
## 431 < 212 to the right, agree=0.909, adj=0.714, (0 split)
## 459 < 125 to the right, agree=0.909, adj=0.714, (0 split)
## 292 < 40 to the left, agree=0.864, adj=0.571, (0 split)
## 319 < 76 to the left, agree=0.864, adj=0.571, (0 split)
## 375 < 217 to the right, agree=0.864, adj=0.571, (0 split)
##
## Node number 4382: 9 observations
## predicted class=4 expected loss=0.6666667 P(node) =0.000357072
## class counts:      0      2      0      0      3      0      0      1      1
2
## probabilities: 0.000 0.222 0.000 0.000 0.333 0.000 0.000 0.111 0.111
0.222
##
## Node number 4383: 24 observations
## predicted class=9 expected loss=0.08333333 P(node) =0.000952192
## class counts:      0      0      0      0      2      0      0      0      0
22
## probabilities: 0.000 0.000 0.000 0.000 0.083 0.000 0.000 0.000 0.000
0.917
##
## Node number 5372: 9 observations
## predicted class=3 expected loss=0.2222222 P(node) =0.000357072
## class counts:      0      0      0      7      0      0      0      0      2
0
## probabilities: 0.000 0.000 0.000 0.778 0.000 0.000 0.000 0.000 0.222
0.000
##
## Node number 5373: 13 observations
## predicted class=9 expected loss=0.2307692 P(node) =0.0005157707
## class counts:      0      0      0      0      2      0      0      1      0
10
## probabilities: 0.000 0.000 0.000 0.000 0.154 0.000 0.000 0.077 0.000
0.769
##
## Node number 5432: 16 observations

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## predicted class=3 expected loss=0.0625 P(node) =0.0006347947
## class counts: 0 0 1 15 0 0 0 0 0
0
## probabilities: 0.000 0.000 0.062 0.937 0.000 0.000 0.000 0.000 0.000
0.000
##
## Node number 5433: 9 observations
## predicted class=5 expected loss=0.3333333 P(node) =0.000357072
## class counts: 0 1 0 1 0 6 0 0 1
0
## probabilities: 0.000 0.111 0.000 0.111 0.000 0.667 0.000 0.000 0.111
0.000
##
## Node number 5434: 8 observations
## predicted class=0 expected loss=0.375 P(node) =0.0003173973
## class counts: 5 0 0 0 0 0 2 0 0
1
## probabilities: 0.625 0.000 0.000 0.000 0.000 0.000 0.250 0.000 0.000
0.125
##
## Node number 5435: 69 observations, complexity param=0.0001786193
## predicted class=5 expected loss=0.3188406 P(node) =0.002737552
## class counts: 0 0 0 9 0 47 0 3 2
8
## probabilities: 0.000 0.000 0.000 0.130 0.000 0.681 0.000 0.043 0.029
0.116
## left son=10870 (54 obs) right son=10871 (15 obs)
## Primary splits:
## 597 < 38.5 to the right, improve=7.369726, (0 missing)
## 598 < 61 to the right, improve=7.113953, (0 missing)
## 596 < 2.5 to the right, improve=6.577728, (0 missing)
## 568 < 77 to the right, improve=5.824031, (0 missing)
## 570 < 7 to the right, improve=5.577185, (0 missing)
## Surrogate splits:
## 596 < 2.5 to the right, agree=0.928, adj=0.667, (0 split)
## 568 < 2.5 to the right, agree=0.913, adj=0.600, (0 split)
## 625 < 74 to the right, agree=0.913, adj=0.600, (0 split)
## 598 < 32 to the right, agree=0.899, adj=0.533, (0 split)
## 710 < 158.5 to the left, agree=0.884, adj=0.467, (0 split)
##
## Node number 5436: 14 observations
## predicted class=9 expected loss=0.5714286 P(node) =0.0005554453
## class counts: 0 0 0 2 0 4 0 0 2
6
## probabilities: 0.000 0.000 0.000 0.143 0.000 0.286 0.000 0.000 0.143
0.429
##
## Node number 5437: 16 observations
## predicted class=8 expected loss=0.125 P(node) =0.0006347947
## class counts: 0 0 0 0 0 2 0 0 14

```

```

0
## probabilities: 0.000 0.000 0.000 0.000 0.000 0.125 0.000 0.000 0.875
0.000
##
## Node number 5496: 13 observations
## predicted class=3 expected loss=0.1538462 P(node) =0.0005157707
## class counts: 0 0 0 11 0 1 1 0 0
0
## probabilities: 0.000 0.000 0.000 0.846 0.000 0.077 0.077 0.000 0.000
0.000
##
## Node number 5497: 7 observations
## predicted class=5 expected loss=0.1428571 P(node) =0.0002777227
## class counts: 0 0 0 1 0 6 0 0 0
0
## probabilities: 0.000 0.000 0.000 0.143 0.000 0.857 0.000 0.000 0.000
0.000
##
## Node number 6162: 56 observations
## predicted class=0 expected loss=0.07142857 P(node) =0.002221781
## class counts: 52 0 1 0 0 0 3 0 0
0
## probabilities: 0.929 0.000 0.018 0.000 0.000 0.000 0.054 0.000 0.000
0.000
##
## Node number 6163: 10 observations
## predicted class=2 expected loss=0.4 P(node) =0.0003967467
## class counts: 1 0 6 1 0 1 0 0 0
1
## probabilities: 0.100 0.000 0.600 0.100 0.000 0.100 0.000 0.000 0.000
0.100
##
## Node number 7170: 56 observations
## predicted class=2 expected loss=0.03571429 P(node) =0.002221781
## class counts: 0 0 54 2 0 0 0 0 0
0
## probabilities: 0.000 0.000 0.964 0.036 0.000 0.000 0.000 0.000 0.000
0.000
##
## Node number 7171: 12 observations
## predicted class=3 expected loss=0.3333333 P(node) =0.000476096
## class counts: 0 0 4 8 0 0 0 0 0
0
## probabilities: 0.000 0.000 0.333 0.667 0.000 0.000 0.000 0.000 0.000
0.000
##
## Node number 7240: 56 observations
## predicted class=4 expected loss=0.05357143 P(node) =0.002221781
## class counts: 0 0 1 0 53 0 1 0 0
1

```

```

## probabilities: 0.000 0.000 0.018 0.000 0.946 0.000 0.018 0.000 0.000
0.018
##
## Node number 7241: 7 observations
## predicted class=6 expected loss=0.1428571 P(node) =0.0002777227
## class counts: 0 0 0 0 1 0 6 0 0
0
## probabilities: 0.000 0.000 0.000 0.000 0.143 0.000 0.857 0.000 0.000
0.000
##
## Node number 7248: 78 observations
## predicted class=2 expected loss=0.1282051 P(node) =0.003094624
## class counts: 0 2 68 3 0 0 0 2 2
1
## probabilities: 0.000 0.026 0.872 0.038 0.000 0.000 0.000 0.026 0.026
0.013
##
## Node number 7249: 31 observations, complexity param=0.0001339645
## predicted class=2 expected loss=0.6129032 P(node) =0.001229915
## class counts: 0 0 12 2 0 0 0 8 2
7
## probabilities: 0.000 0.000 0.387 0.065 0.000 0.000 0.000 0.258 0.065
0.226
## left son=14498 (19 obs) right son=14499 (12 obs)
## Primary splits:
## 575 < 111.5 to the left, improve=5.504244, (0 missing)
## 602 < 16 to the left, improve=5.504244, (0 missing)
## 630 < 5 to the left, improve=5.504244, (0 missing)
## 603 < 105 to the left, improve=5.232315, (0 missing)
## 263 < 131 to the left, improve=5.216319, (0 missing)
## Surrogate splits:
## 547 < 229 to the left, agree=0.903, adj=0.750, (0 split)
## 574 < 69.5 to the left, agree=0.903, adj=0.750, (0 split)
## 231 < 105 to the left, agree=0.871, adj=0.667, (0 split)
## 603 < 45.5 to the left, agree=0.871, adj=0.667, (0 split)
## 232 < 44 to the left, agree=0.839, adj=0.583, (0 split)
##
## Node number 7352: 10 observations
## predicted class=2 expected loss=0.6 P(node) =0.0003967467
## class counts: 1 0 4 0 1 0 1 0 0
3
## probabilities: 0.100 0.000 0.400 0.000 0.100 0.000 0.100 0.000 0.000
0.300
##
## Node number 7353: 33 observations
## predicted class=7 expected loss=0.03030303 P(node) =0.001309264
## class counts: 0 0 0 0 0 0 0 32 0
1
## probabilities: 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.970 0.000
0.030

```

```

##
## Node number 7354: 15 observations
## predicted class=8 expected loss=0.4 P(node) =0.00059512
## class counts: 0 0 1 0 3 0 0 1 9
1
## probabilities: 0.000 0.000 0.067 0.000 0.200 0.000 0.000 0.067 0.600
0.067
##
## Node number 7355: 13 observations
## predicted class=9 expected loss=0.1538462 P(node) =0.0005157707
## class counts: 0 0 1 0 1 0 0 0 0
11
## probabilities: 0.000 0.000 0.077 0.000 0.077 0.000 0.000 0.000 0.000
0.846
##
## Node number 7356: 15 observations
## predicted class=4 expected loss=0.2 P(node) =0.00059512
## class counts: 1 0 1 0 12 0 0 0 0
1
## probabilities: 0.067 0.000 0.067 0.000 0.800 0.000 0.000 0.000 0.000
0.067
##
## Node number 7357: 9 observations
## predicted class=9 expected loss=0.2222222 P(node) =0.000357072
## class counts: 0 0 0 0 1 0 0 0 1
7
## probabilities: 0.000 0.000 0.000 0.000 0.111 0.000 0.000 0.000 0.111
0.778
##
## Node number 7744: 1269 observations
## predicted class=4 expected loss=0.01891253 P(node) =0.05034715
## class counts: 0 0 5 5 1245 0 1 0 2
11
## probabilities: 0.000 0.000 0.004 0.004 0.981 0.000 0.001 0.000 0.002
0.009
##
## Node number 7745: 44 observations, complexity param=8.930964e-05
## predicted class=4 expected loss=0.4090909 P(node) =0.001745685
## class counts: 0 6 0 2 26 0 3 0 3
4
## probabilities: 0.000 0.136 0.000 0.045 0.591 0.000 0.068 0.000 0.068
0.091
## left son=15490 (16 obs) right son=15491 (28 obs)
## Primary splits:
## 402 < 20 to the left, improve=7.365260, (0 missing)
## 374 < 53.5 to the right, improve=7.204545, (0 missing)
## 401 < 8.5 to the left, improve=6.475243, (0 missing)
## 431 < 1 to the left, improve=5.982323, (0 missing)
## 430 < 8.5 to the left, improve=5.793831, (0 missing)
## Surrogate splits:

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##      401 < 8.5   to the left,  agree=0.932, adj=0.812, (0 split)
##      430 < 26.5  to the left,  agree=0.932, adj=0.812, (0 split)
##      373 < 12    to the left,  agree=0.886, adj=0.688, (0 split)
##      374 < 14.5  to the left,  agree=0.886, adj=0.688, (0 split)
##      403 < 3     to the left,  agree=0.864, adj=0.625, (0 split)
##
## Node number 7752: 17 observations
##   predicted class=5   expected loss=0.05882353   P(node) =0.0006744694
##   class counts:      0      0      0      1      0      16      0      0      0
##   0
##   probabilities: 0.000 0.000 0.000 0.059 0.000 0.941 0.000 0.000 0.000
##   0.000
##
## Node number 7753: 7 observations
##   predicted class=4   expected loss=0.7142857   P(node) =0.0002777227
##   class counts:      0      0      1      1      2      1      0      0      1
##   1
##   probabilities: 0.000 0.000 0.143 0.143 0.286 0.143 0.000 0.000 0.143
##   0.143
##
## Node number 7754: 7 observations
##   predicted class=4   expected loss=0.1428571   P(node) =0.0002777227
##   class counts:      0      0      1      0      6      0      0      0      0
##   0
##   probabilities: 0.000 0.000 0.143 0.000 0.857 0.000 0.000 0.000 0.000
##   0.000
##
## Node number 7755: 17 observations
##   predicted class=3   expected loss=0.7058824   P(node) =0.0006744694
##   class counts:      0      0      3      5      0      1      0      0      5
##   3
##   probabilities: 0.000 0.000 0.176 0.294 0.000 0.059 0.000 0.000 0.294
##   0.176
##
## Node number 7814: 450 observations,   complexity param=8.930964e-05
##   predicted class=5   expected loss=0.05111111   P(node) =0.0178536
##   class counts:      0      0      1      12      1      427      0      0      0
##   9
##   probabilities: 0.000 0.000 0.002 0.027 0.002 0.949 0.000 0.000 0.000
##   0.020
##   left son=15628 (433 obs) right son=15629 (17 obs)
##   Primary splits:
##       714 < 237   to the left,  improve=4.274897, (0 missing)
##       353 < 9.5   to the left,  improve=4.092332, (0 missing)
##       176 < 19    to the right, improve=4.071495, (0 missing)
##       201 < 34    to the right, improve=4.038155, (0 missing)
##       229 < 119   to the right, improve=4.038155, (0 missing)
##   Surrogate splits:
##       715 < 119   to the left,  agree=0.982, adj=0.529, (0 split)
##       716 < 3.5   to the left,  agree=0.976, adj=0.353, (0 split)

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##      713 < 249   to the left,  agree=0.967, adj=0.118, (0 split)
##      177 < 254.5 to the left,  agree=0.964, adj=0.059, (0 split)
##      718 < 3.5   to the left,  agree=0.964, adj=0.059, (0 split)
##
## Node number 7815: 11 observations
##   predicted class=9   expected loss=0.3636364   P(node) =0.0004364213
##   class counts:      0      0      0      0      0      3      0      1      0
7
##   probabilities: 0.000 0.000 0.000 0.000 0.000 0.273 0.000 0.091 0.000
0.636
##
## Node number 7856: 11 observations
##   predicted class=3   expected loss=0.09090909   P(node) =0.0004364213
##   class counts:      0      0      0     10      0      0      0      0      1
0
##   probabilities: 0.000 0.000 0.000 0.909 0.000 0.000 0.000 0.000 0.091
0.000
##
## Node number 7857: 12 observations
##   predicted class=9   expected loss=0.4166667   P(node) =0.000476096
##   class counts:      0      1      0      1      1      0      1      0      1
7
##   probabilities: 0.000 0.083 0.000 0.083 0.083 0.000 0.083 0.000 0.083
0.583
##
## Node number 7894: 8 observations
##   predicted class=3   expected loss=0.25   P(node) =0.0003173973
##   class counts:      0      0      1      6      0      0      0      0      1
0
##   probabilities: 0.000 0.000 0.125 0.750 0.000 0.000 0.000 0.000 0.125
0.000
##
## Node number 7895: 30 observations,      complexity param=8.930964e-05
##   predicted class=9   expected loss=0.3   P(node) =0.00119024
##   class counts:      0      0      0      0      3      2      0      0      4
21
##   probabilities: 0.000 0.000 0.000 0.000 0.100 0.067 0.000 0.000 0.133
0.700
##   left son=15790 (8 obs) right son=15791 (22 obs)
##   Primary splits:
##       152 < 117   to the right, improve=4.151515, (0 missing)
##       375 < 53.5  to the right, improve=4.047619, (0 missing)
##       376 < 3.5   to the right, improve=4.047619, (0 missing)
##       238 < 201   to the right, improve=3.997930, (0 missing)
##       403 < 159   to the right, improve=3.952381, (0 missing)
##   Surrogate splits:
##       151 < 3     to the right, agree=0.967, adj=0.875, (0 split)
##       179 < 233   to the right, agree=0.967, adj=0.875, (0 split)
##       177 < 29.5  to the right, agree=0.933, adj=0.750, (0 split)
##       178 < 30    to the right, agree=0.933, adj=0.750, (0 split)

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##      205 < 168.5 to the right, agree=0.933, adj=0.750, (0 split)
##
## Node number 7898: 9 observations
## predicted class=4 expected loss=0.2222222 P(node) =0.000357072
## class counts:      0      0      0      0      7      1      0      0      1
0
## probabilities: 0.000 0.000 0.000 0.000 0.778 0.111 0.000 0.000 0.111
0.000
##
## Node number 7899: 27 observations,      complexity param=0.0001786193
## predicted class=9 expected loss=0.3333333 P(node) =0.001071216
## class counts:      0      0      1      1      1      1      0      0      5
18
## probabilities: 0.000 0.000 0.037 0.037 0.037 0.037 0.000 0.000 0.185
0.667
## left son=15798 (8 obs) right son=15799 (19 obs)
## Primary splits:
##      551 < 139 to the right, improve=5.741715, (0 missing)
##      552 < 7.5 to the right, improve=5.741715, (0 missing)
##      579 < 150 to the right, improve=5.741715, (0 missing)
##      580 < 7.5 to the right, improve=5.741715, (0 missing)
##      495 < 29.5 to the right, improve=5.383069, (0 missing)
## Surrogate splits:
##      552 < 7.5 to the right, agree=1.000, adj=1.000, (0 split)
##      579 < 150 to the right, agree=1.000, adj=1.000, (0 split)
##      580 < 7.5 to the right, agree=1.000, adj=1.000, (0 split)
##      205 < 123.5 to the right, agree=0.963, adj=0.875, (0 split)
##      495 < 29.5 to the right, agree=0.963, adj=0.875, (0 split)
##
## Node number 7904: 12 observations
## predicted class=2 expected loss=0.08333333 P(node) =0.000476096
## class counts:      0      0      11      0      0      0      0      0      1
0
## probabilities: 0.000 0.000 0.917 0.000 0.000 0.000 0.000 0.000 0.083
0.000
##
## Node number 7905: 54 observations,      complexity param=4.465482e-05
## predicted class=3 expected loss=0.2037037 P(node) =0.002142432
## class counts:      0      0      3      43      1      0      0      3      0
4
## probabilities: 0.000 0.000 0.056 0.796 0.019 0.000 0.000 0.056 0.000
0.074
## left son=15810 (41 obs) right son=15811 (13 obs)
## Primary splits:
##      405 < 138.5 to the right, improve=7.467584, (0 missing)
##      406 < 111 to the right, improve=6.429293, (0 missing)
##      658 < 0.5 to the right, improve=6.287582, (0 missing)
##      404 < 7 to the right, improve=6.089372, (0 missing)
##      379 < 9.5 to the right, improve=5.377778, (0 missing)
## Surrogate splits:

```

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##      406 < 146.5 to the right, agree=0.963, adj=0.846, (0 split)
##      379 < 27    to the right, agree=0.944, adj=0.769, (0 split)
##      404 < 51.5 to the right, agree=0.926, adj=0.692, (0 split)
##      378 < 0.5  to the right, agree=0.907, adj=0.615, (0 split)
##      380 < 176  to the right, agree=0.889, adj=0.538, (0 split)
##
## Node number 7906: 9 observations
## predicted class=4 expected loss=0.4444444 P(node) =0.000357072
## class counts:      1      0      1      0      5      0      0      0      1
1
## probabilities: 0.111 0.000 0.111 0.000 0.556 0.000 0.000 0.000 0.111
0.111
##
## Node number 7907: 44 observations, complexity param=0.0001786193
## predicted class=7 expected loss=0.1818182 P(node) =0.001745685
## class counts:      0      0      1      7      0      0      0      36      0
0
## probabilities: 0.000 0.000 0.023 0.159 0.000 0.000 0.000 0.818 0.000
0.000
## left son=15814 (9 obs) right son=15815 (35 obs)
## Primary splits:
##      437 < 4      to the left, improve=7.021789, (0 missing)
##      464 < 12.5  to the left, improve=6.482450, (0 missing)
##      436 < 201   to the left, improve=6.067914, (0 missing)
##      576 < 152.5 to the right, improve=6.067914, (0 missing)
##      463 < 212.5 to the left, improve=5.381313, (0 missing)
## Surrogate splits:
##      436 < 201   to the left, agree=0.977, adj=0.889, (0 split)
##      464 < 38.5  to the left, agree=0.977, adj=0.889, (0 split)
##      463 < 235   to the left, agree=0.955, adj=0.778, (0 split)
##      410 < 3      to the left, agree=0.932, adj=0.667, (0 split)
##      438 < 12.5  to the left, agree=0.932, adj=0.667, (0 split)
##
## Node number 7928: 10 observations
## predicted class=4 expected loss=0.7 P(node) =0.0003967467
## class counts:      0      0      0      2      3      0      0      1      2
2
## probabilities: 0.000 0.000 0.000 0.200 0.300 0.000 0.000 0.100 0.200
0.200
##
## Node number 7929: 14 observations
## predicted class=8 expected loss=0 P(node) =0.0005554453
## class counts:      0      0      0      0      0      0      0      0      14
0
## probabilities: 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 1.000
0.000
##
## Node number 7930: 8 observations
## predicted class=3 expected loss=0.75 P(node) =0.0003173973
## class counts:      0      0      0      2      1      1      0      2      1

```

```

1
## probabilities: 0.000 0.000 0.000 0.250 0.125 0.125 0.000 0.250 0.125
0.125
##
## Node number 7931: 40 observations
## predicted class=9 expected loss=0.05 P(node) =0.001586987
## class counts: 0 0 0 0 1 1 0 0 0
38
## probabilities: 0.000 0.000 0.000 0.000 0.025 0.025 0.000 0.000 0.000
0.950
##
## Node number 7934: 18 observations
## predicted class=9 expected loss=0.5 P(node) =0.000714144
## class counts: 0 0 0 0 7 0 0 2 0
9
## probabilities: 0.000 0.000 0.000 0.000 0.389 0.000 0.000 0.111 0.000
0.500
##
## Node number 7935: 989 observations, complexity param=3.721235e-05
## predicted class=9 expected loss=0.04752275 P(node) =0.03923825
## class counts: 0 0 1 5 23 1 0 5 12
942
## probabilities: 0.000 0.000 0.001 0.005 0.023 0.001 0.000 0.005 0.012
0.952
## left son=15870 (18 obs) right son=15871 (971 obs)
## Primary splits:
## 409 < 32 to the left, improve=5.765945, (0 missing)
## 320 < 253.5 to the right, improve=5.291096, (0 missing)
## 437 < 2.5 to the left, improve=5.152832, (0 missing)
## 219 < 179 to the right, improve=4.625875, (0 missing)
## 516 < 232 to the right, improve=4.593280, (0 missing)
## Surrogate splits:
## 437 < 2.5 to the left, agree=0.984, adj=0.111, (0 split)
## 381 < 3 to the left, agree=0.983, adj=0.056, (0 split)
##
## Node number 8062: 22 observations, complexity param=2.232741e-05
## predicted class=7 expected loss=0.2272727 P(node) =0.0008728427
## class counts: 0 0 4 1 0 0 0 17 0
0
## probabilities: 0.000 0.000 0.182 0.045 0.000 0.000 0.000 0.773 0.000
0.000
## left son=16124 (7 obs) right son=16125 (15 obs)
## Primary splits:
## 182 < 59 to the right, improve=4.090909, (0 missing)
## 183 < 20.5 to the right, improve=4.090909, (0 missing)
## 295 < 27 to the left, improve=4.090909, (0 missing)
## 180 < 14.5 to the right, improve=3.340909, (0 missing)
## 181 < 71 to the right, improve=3.340909, (0 missing)
## Surrogate splits:
## 183 < 20.5 to the right, agree=1.000, adj=1.000, (0 split)

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##      180 < 14.5  to the right, agree=0.955, adj=0.857, (0 split)
##      181 < 71   to the right, agree=0.955, adj=0.857, (0 split)
##      208 < 231  to the right, agree=0.955, adj=0.857, (0 split)
##      184 < 6    to the right, agree=0.909, adj=0.714, (0 split)
##
## Node number 8063: 1285 observations,      complexity param=1.11637e-05
##   predicted class=7  expected loss=0.01322957  P(node) =0.05098195
##   class counts:      0      1      3      1      2      0      0 1268      0
10
##   probabilities: 0.000 0.001 0.002 0.001 0.002 0.000 0.000 0.987 0.000
0.008
##   left son=16126 (8 obs) right son=16127 (1277 obs)
##   Primary splits:
##       664 < 3.5   to the right, improve=1.670529, (0 missing)
##       691 < 13    to the right, improve=1.344728, (0 missing)
##       321 < 253.5 to the left,  improve=1.175881, (0 missing)
##       720 < 35    to the right, improve=1.088241, (0 missing)
##       270 < 26.5  to the left,  improve=1.052566, (0 missing)
##   Surrogate splits:
##       636 < 2.5   to the right, agree=0.997, adj=0.500, (0 split)
##       635 < 133.5 to the right, agree=0.996, adj=0.375, (0 split)
##       663 < 188   to the right, agree=0.996, adj=0.375, (0 split)
##       692 < 168.5 to the right, agree=0.996, adj=0.375, (0 split)
##       608 < 11.5  to the right, agree=0.995, adj=0.250, (0 split)
##
## Node number 8192: 2190 observations,      complexity param=4.465482e-05
##   predicted class=1  expected loss=0.006392694  P(node) =0.08688752
##   class counts:      0 2176      1      1      0      0      1      2      9
0
##   probabilities: 0.000 0.994 0.000 0.000 0.000 0.000 0.000 0.001 0.004
0.000
##   left son=16384 (2170 obs) right son=16385 (20 obs)
##   Primary splits:
##       300 < 1     to the left,  improve=2.418246, (0 missing)
##       271 < 251.5 to the left,  improve=1.642583, (0 missing)
##       299 < 169   to the left,  improve=1.211290, (0 missing)
##       406 < 117   to the right, improve=1.104794, (0 missing)
##       326 < 221   to the left,  improve=1.034851, (0 missing)
##   Surrogate splits:
##       271 < 250   to the left,  agree=0.993, adj=0.20, (0 split)
##       272 < 150   to the left,  agree=0.992, adj=0.10, (0 split)
##       539 < 107.5 to the left,  agree=0.992, adj=0.10, (0 split)
##       327 < 180   to the left,  agree=0.991, adj=0.05, (0 split)
##       621 < 135   to the left,  agree=0.991, adj=0.05, (0 split)
##
## Node number 8193: 8 observations
##   predicted class=1  expected loss=0.5  P(node) =0.0003173973
##   class counts:      0      4      0      1      1      0      0      0      1
1
##   probabilities: 0.000 0.500 0.000 0.125 0.125 0.000 0.000 0.000 0.125

```

```

0.125
##
## Node number 8194: 24 observations
## predicted class=1 expected loss=0.08333333 P(node) =0.000952192
## class counts: 0 22 0 0 0 0 2 0 0
0
## probabilities: 0.000 0.917 0.000 0.000 0.000 0.000 0.083 0.000 0.000
0.000
##
## Node number 8195: 8 observations
## predicted class=8 expected loss=0.5 P(node) =0.0003173973
## class counts: 0 0 0 0 0 0 1 3 4
0
## probabilities: 0.000 0.000 0.000 0.000 0.000 0.000 0.125 0.375 0.500
0.000
##
## Node number 8744: 8 observations
## predicted class=2 expected loss=0.125 P(node) =0.0003173973
## class counts: 0 0 7 1 0 0 0 0 0
0
## probabilities: 0.000 0.000 0.875 0.125 0.000 0.000 0.000 0.000 0.000
0.000
##
## Node number 8745: 12 observations
## predicted class=4 expected loss=0.6666667 P(node) =0.000476096
## class counts: 3 0 0 2 4 2 1 0 0
0
## probabilities: 0.250 0.000 0.000 0.167 0.333 0.167 0.083 0.000 0.000
0.000
##
## Node number 8762: 7 observations
## predicted class=4 expected loss=0.1428571 P(node) =0.0002777227
## class counts: 0 0 0 0 6 1 0 0 0
0
## probabilities: 0.000 0.000 0.000 0.000 0.857 0.143 0.000 0.000 0.000
0.000
##
## Node number 8763: 15 observations
## predicted class=7 expected loss=0.6666667 P(node) =0.00059512
## class counts: 0 1 1 1 2 1 1 5 0
3
## probabilities: 0.000 0.067 0.067 0.067 0.133 0.067 0.067 0.333 0.000
0.200
##
## Node number 10870: 54 observations
## predicted class=5 expected loss=0.1851852 P(node) =0.002142432
## class counts: 0 0 0 8 0 44 0 0 1
1
## probabilities: 0.000 0.000 0.000 0.148 0.000 0.815 0.000 0.000 0.019
0.019

```

```

##
## Node number 10871: 15 observations
## predicted class=9 expected loss=0.5333333 P(node) =0.00059512
## class counts:    0    0    0    1    0    3    0    3    1
7
## probabilities: 0.000 0.000 0.000 0.067 0.000 0.200 0.000 0.200 0.067
0.467
##
## Node number 14498: 19 observations
## predicted class=2 expected loss=0.4736842 P(node) =0.0007538187
## class counts:    0    0   10    0    0    0    0    0    2
7
## probabilities: 0.000 0.000 0.526 0.000 0.000 0.000 0.000 0.000 0.105
0.368
##
## Node number 14499: 12 observations
## predicted class=7 expected loss=0.3333333 P(node) =0.000476096
## class counts:    0    0    2    2    0    0    0    8    0
0
## probabilities: 0.000 0.000 0.167 0.167 0.000 0.000 0.000 0.667 0.000
0.000
##
## Node number 15490: 16 observations
## predicted class=1 expected loss=0.625 P(node) =0.0006347947
## class counts:    0    6    0    2    2    0    1    0    2
3
## probabilities: 0.000 0.375 0.000 0.125 0.125 0.000 0.062 0.000 0.125
0.188
##
## Node number 15491: 28 observations
## predicted class=4 expected loss=0.1428571 P(node) =0.001110891
## class counts:    0    0    0    0   24    0    2    0    1
1
## probabilities: 0.000 0.000 0.000 0.000 0.857 0.000 0.071 0.000 0.036
0.036
##
## Node number 15628: 433 observations, complexity param=8.930964e-05
## predicted class=5 expected loss=0.0369515 P(node) =0.01717913
## class counts:    0    0    1   11    1  417    0    0    0
3
## probabilities: 0.000 0.000 0.002 0.025 0.002 0.963 0.000 0.000 0.000
0.007
## left son=31256 (26 obs) right son=31257 (407 obs)
## Primary splits:
## 176 < 19 to the right, improve=4.233391, (0 missing)
## 175 < 134 to the right, improve=3.140614, (0 missing)
## 229 < 4 to the right, improve=3.140614, (0 missing)
## 470 < 17 to the right, improve=2.763267, (0 missing)
## 178 < 227 to the right, improve=2.596915, (0 missing)
## Surrogate splits:

```



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##      204 < 200   to the right, agree=0.986, adj=0.769, (0 split)
##      175 < 5.5   to the right, agree=0.977, adj=0.615, (0 split)
##      177 < 213   to the right, agree=0.977, adj=0.615, (0 split)
##      148 < 8.5   to the right, agree=0.972, adj=0.538, (0 split)
##      205 < 237.5 to the right, agree=0.972, adj=0.538, (0 split)
##
## Node number 15629: 17 observations
##   predicted class=5   expected loss=0.4117647   P(node) =0.0006744694
##   class counts:      0      0      0      1      0      10      0      0      0
6
##   probabilities: 0.000 0.000 0.000 0.059 0.000 0.588 0.000 0.000 0.000
0.353
##
## Node number 15790: 8 observations
##   predicted class=8   expected loss=0.5   P(node) =0.0003173973
##   class counts:      0      0      0      0      0      2      0      0      4
2
##   probabilities: 0.000 0.000 0.000 0.000 0.000 0.250 0.000 0.000 0.500
0.250
##
## Node number 15791: 22 observations
##   predicted class=9   expected loss=0.1363636   P(node) =0.0008728427
##   class counts:      0      0      0      0      3      0      0      0      0
19
##   probabilities: 0.000 0.000 0.000 0.000 0.136 0.000 0.000 0.000 0.000
0.864
##
## Node number 15798: 8 observations
##   predicted class=8   expected loss=0.375   P(node) =0.0003173973
##   class counts:      0      0      0      1      0      1      0      0      5
1
##   probabilities: 0.000 0.000 0.000 0.125 0.000 0.125 0.000 0.000 0.625
0.125
##
## Node number 15799: 19 observations
##   predicted class=9   expected loss=0.1052632   P(node) =0.0007538187
##   class counts:      0      0      1      0      1      0      0      0      0
17
##   probabilities: 0.000 0.000 0.053 0.000 0.053 0.000 0.000 0.000 0.000
0.895
##
## Node number 15810: 41 observations
##   predicted class=3   expected loss=0.02439024   P(node) =0.001626661
##   class counts:      0      0      0      40      1      0      0      0      0
0
##   probabilities: 0.000 0.000 0.000 0.976 0.024 0.000 0.000 0.000 0.000
0.000
##
## Node number 15811: 13 observations
##   predicted class=9   expected loss=0.6923077   P(node) =0.0005157707

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##      class counts:      0      0      3      3      0      0      0      3      0
4
##      probabilities: 0.000 0.000 0.231 0.231 0.000 0.000 0.000 0.231 0.000
0.308
##
## Node number 15814: 9 observations
##      predicted class=3 expected loss=0.3333333 P(node) =0.000357072
##      class counts:      0      0      1      6      0      0      0      2      0
0
##      probabilities: 0.000 0.000 0.111 0.667 0.000 0.000 0.000 0.222 0.000
0.000
##
## Node number 15815: 35 observations
##      predicted class=7 expected loss=0.02857143 P(node) =0.001388613
##      class counts:      0      0      0      1      0      0      0      34      0
0
##      probabilities: 0.000 0.000 0.000 0.029 0.000 0.000 0.000 0.971 0.000
0.000
##
## Node number 15870: 18 observations
##      predicted class=9 expected loss=0.5 P(node) =0.000714144
##      class counts:      0      0      0      1      1      1      0      0      6
9
##      probabilities: 0.000 0.000 0.000 0.056 0.056 0.056 0.000 0.000 0.333
0.500
##
## Node number 15871: 971 observations,      complexity param=3.721235e-05
##      predicted class=9 expected loss=0.03913491 P(node) =0.0385241
##      class counts:      0      0      1      4      22      0      0      5      6
933
##      probabilities: 0.000 0.000 0.001 0.004 0.023 0.000 0.000 0.005 0.006
0.961
##      left son=31742 (13 obs) right son=31743 (958 obs)
##      Primary splits:
##          320 < 253.5 to the right, improve=4.890087, (0 missing)
##          219 < 179   to the right, improve=4.720953, (0 missing)
##          263 < 65.5  to the left,  improve=4.558863, (0 missing)
##          248 < 108   to the right, improve=4.121700, (0 missing)
##          220 < 2     to the right, improve=3.996210, (0 missing)
##      Surrogate splits:
##          293 < 254.5 to the right, agree=0.992, adj=0.385, (0 split)
##          347 < 254.5 to the right, agree=0.992, adj=0.385, (0 split)
##          247 < 253.5 to the right, agree=0.991, adj=0.308, (0 split)
##          321 < 253.5 to the right, agree=0.991, adj=0.308, (0 split)
##          294 < 254.5 to the right, agree=0.990, adj=0.231, (0 split)
##
## Node number 16124: 7 observations
##      predicted class=2 expected loss=0.4285714 P(node) =0.0002777227
##      class counts:      0      0      4      1      0      0      0      2      0
0

```

```

## probabilities: 0.000 0.000 0.571 0.143 0.000 0.000 0.000 0.286 0.000
0.000
##
## Node number 16125: 15 observations
## predicted class=7 expected loss=0 P(node) =0.00059512
## class counts: 0 0 0 0 0 0 0 15 0
0
## probabilities: 0.000 0.000 0.000 0.000 0.000 0.000 0.000 1.000 0.000
0.000
##
## Node number 16126: 8 observations
## predicted class=7 expected loss=0.375 P(node) =0.0003173973
## class counts: 0 0 2 0 1 0 0 5 0
0
## probabilities: 0.000 0.000 0.250 0.000 0.125 0.000 0.000 0.625 0.000
0.000
##
## Node number 16127: 1277 observations, complexity param=1.11637e-05
## predicted class=7 expected loss=0.01096319 P(node) =0.05066455
## class counts: 0 1 1 1 1 0 0 1263 0
10
## probabilities: 0.000 0.001 0.001 0.001 0.001 0.000 0.000 0.989 0.000
0.008
## left son=32254 (1263 obs) right son=32255 (14 obs)
## Primary splits:
## 321 < 253.5 to the left, improve=1.1885560, (0 missing)
## 349 < 74.5 to the left, improve=0.8473116, (0 missing)
## 322 < 253.5 to the left, improve=0.8211557, (0 missing)
## 270 < 26.5 to the right, improve=0.7557122, (0 missing)
## 350 < 60 to the left, improve=0.7428425, (0 missing)
## Surrogate splits:
## 322 < 254.5 to the left, agree=0.991, adj=0.143, (0 split)
##
## Node number 16384: 2170 observations
## predicted class=1 expected loss=0.004147465 P(node) =0.08609403
## class counts: 0 2161 1 1 0 0 1 2 4
0
## probabilities: 0.000 0.996 0.000 0.000 0.000 0.000 0.000 0.001 0.002
0.000
##
## Node number 16385: 20 observations, complexity param=4.465482e-05
## predicted class=1 expected loss=0.25 P(node) =0.0007934934
## class counts: 0 15 0 0 0 0 0 0 5
0
## probabilities: 0.000 0.750 0.000 0.000 0.000 0.000 0.000 0.000 0.250
0.000
## left son=32770 (13 obs) right son=32771 (7 obs)
## Primary splits:
## 160 < 17.5 to the right, improve=4.642857, (0 missing)
## 268 < 62 to the right, improve=4.642857, (0 missing)

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##      269 < 231.5 to the right, improve=4.642857, (0 missing)
##      156 < 44.5  to the left,  improve=4.642857, (0 missing)
##      238 < 11.5  to the left,  improve=4.642857, (0 missing)
## Surrogate splits:
##      268 < 62   to the right, agree=1.00, adj=1.000, (0 split)
##      269 < 200.5 to the right, agree=0.95, adj=0.857, (0 split)
##      295 < 18.5  to the right, agree=0.95, adj=0.857, (0 split)
##      296 < 178   to the right, agree=0.95, adj=0.857, (0 split)
##      323 < 212   to the right, agree=0.95, adj=0.857, (0 split)
##
## Node number 31256: 26 observations,      complexity param=8.930964e-05
## predicted class=5 expected loss=0.3076923 P(node) =0.001031541
## class counts:      0      0      0      8      0      18      0      0      0
0
## probabilities: 0.000 0.000 0.000 0.308 0.000 0.692 0.000 0.000 0.000
0.000
## left son=62512 (10 obs) right son=62513 (16 obs)
## Primary splits:
##      292 < 135.5 to the right, improve=7.876923, (0 missing)
##      320 < 4.5   to the right, improve=7.876923, (0 missing)
##      347 < 232.5 to the right, improve=7.438034, (0 missing)
##      348 < 135   to the right, improve=7.438034, (0 missing)
##      293 < 33    to the right, improve=6.713287, (0 missing)
## Surrogate splits:
##      320 < 4.5   to the right, agree=1.000, adj=1.0, (0 split)
##      293 < 33    to the right, agree=0.962, adj=0.9, (0 split)
##      265 < 135   to the right, agree=0.923, adj=0.8, (0 split)
##      266 < 198   to the right, agree=0.923, adj=0.8, (0 split)
##      294 < 17.5  to the right, agree=0.923, adj=0.8, (0 split)
##
## Node number 31257: 407 observations
## predicted class=5 expected loss=0.01965602 P(node) =0.01614759
## class counts:      0      0      1      3      1      399      0      0      0
3
## probabilities: 0.000 0.000 0.002 0.007 0.002 0.980 0.000 0.000 0.000
0.007
##
## Node number 31742: 13 observations
## predicted class=9 expected loss=0.4615385 P(node) =0.0005157707
## class counts:      0      0      0      0      6      0      0      0      0
7
## probabilities: 0.000 0.000 0.000 0.000 0.462 0.000 0.000 0.000 0.000
0.538
##
## Node number 31743: 958 observations,      complexity param=3.721235e-05
## predicted class=9 expected loss=0.03340292 P(node) =0.03800833
## class counts:      0      0      1      4      16      0      0      5      6
926
## probabilities: 0.000 0.000 0.001 0.004 0.017 0.000 0.000 0.005 0.006
0.967

```

```

## left son=63486 (10 obs) right son=63487 (948 obs)
## Primary splits:
##      524 < 139   to the right, improve=3.241535, (0 missing)
##      263 < 65.5  to the left,  improve=2.640287, (0 missing)
##      552 < 148.5 to the right, improve=2.619930, (0 missing)
##      437 < 2.5   to the left,  improve=2.486148, (0 missing)
##      237 < 2     to the left,  improve=2.347475, (0 missing)
## Surrogate splits:
##      552 < 116   to the right, agree=0.997, adj=0.7, (0 split)
##      496 < 198.5 to the right, agree=0.995, adj=0.5, (0 split)
##      525 < 114.5 to the right, agree=0.994, adj=0.4, (0 split)
##      580 < 186   to the right, agree=0.993, adj=0.3, (0 split)
##      497 < 199.5 to the right, agree=0.992, adj=0.2, (0 split)
##
## Node number 32254: 1263 observations,      complexity param=1.11637e-05
## predicted class=7 expected loss=0.008709422 P(node) =0.05010911
## class counts:      0      1      1      1      1      0      0 1252      0
7
## probabilities: 0.000 0.001 0.001 0.001 0.001 0.000 0.000 0.991 0.000
0.006
## left son=64508 (1155 obs) right son=64509 (108 obs)
## Primary splits:
##      270 < 26.5  to the right, improve=0.8170668, (0 missing)
##      298 < 13    to the right, improve=0.6474661, (0 missing)
##      242 < 12    to the left,  improve=0.6368836, (0 missing)
##      326 < 0.5   to the right, improve=0.5940123, (0 missing)
##      461 < 211.5 to the right, improve=0.5675799, (0 missing)
## Surrogate splits:
##      298 < 0.5   to the right, agree=0.952, adj=0.435, (0 split)
##      326 < 3.5   to the right, agree=0.942, adj=0.324, (0 split)
##      242 < 0.5   to the right, agree=0.937, adj=0.269, (0 split)
##      269 < 1     to the right, agree=0.926, adj=0.139, (0 split)
##      241 < 6.5   to the right, agree=0.920, adj=0.065, (0 split)
##
## Node number 32255: 14 observations
## predicted class=7 expected loss=0.2142857 P(node) =0.0005554453
## class counts:      0      0      0      0      0      0      0      11      0
3
## probabilities: 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.786 0.000
0.214
##
## Node number 32770: 13 observations
## predicted class=1 expected loss=0 P(node) =0.0005157707
## class counts:      0     13      0      0      0      0      0      0      0
0
## probabilities: 0.000 1.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000
##
## Node number 32771: 7 observations
## predicted class=8 expected loss=0.2857143 P(node) =0.0002777227

```

```

##      class counts:      0      2      0      0      0      0      0      0      5
0
##      probabilities: 0.000 0.286 0.000 0.000 0.000 0.000 0.000 0.000 0.714
0.000
##
## Node number 62512: 10 observations
##      predicted class=3      expected loss=0.2      P(node) =0.0003967467
##      class counts:      0      0      0      8      0      2      0      0      0
0
##      probabilities: 0.000 0.000 0.000 0.800 0.000 0.200 0.000 0.000 0.000
0.000
##
## Node number 62513: 16 observations
##      predicted class=5      expected loss=0      P(node) =0.0006347947
##      class counts:      0      0      0      0      0      16      0      0      0
0
##      probabilities: 0.000 0.000 0.000 0.000 0.000 1.000 0.000 0.000 0.000
0.000
##
## Node number 63486: 10 observations
##      predicted class=9      expected loss=0.5      P(node) =0.0003967467
##      class counts:      0      0      1      0      1      0      0      0      3
5
##      probabilities: 0.000 0.000 0.100 0.000 0.100 0.000 0.000 0.000 0.300
0.500
##
## Node number 63487: 948 observations,      complexity param=3.721235e-05
##      predicted class=9      expected loss=0.02848101      P(node) =0.03761159
##      class counts:      0      0      0      4      15      0      0      5      3
921
##      probabilities: 0.000 0.000 0.000 0.004 0.016 0.000 0.000 0.005 0.003
0.972
##      left son=126974 (76 obs) right son=126975 (872 obs)
##      Primary splits:
##          263 < 65.5      to the left,      improve=2.768910, (0 missing)
##          237 < 2          to the left,      improve=2.400426, (0 missing)
##          236 < 0.5        to the left,      improve=2.134096, (0 missing)
##          290 < 23.5       to the left,      improve=2.019205, (0 missing)
##          262 < 1.5        to the left,      improve=1.866636, (0 missing)
##      Surrogate splits:
##          290 < 36         to the left,      agree=0.953, adj=0.408, (0 split)
##          236 < 32         to the left,      agree=0.948, adj=0.355, (0 split)
##          264 < 1          to the left,      agree=0.935, adj=0.184, (0 split)
##          210 < 17.5       to the left,      agree=0.934, adj=0.171, (0 split)
##          237 < 31.5       to the left,      agree=0.928, adj=0.105, (0 split)
##
## Node number 64508: 1155 observations
##      predicted class=7      expected loss=0.002597403      P(node) =0.04582424
##      class counts:      0      1      0      1      0      0      0      1152      0
1

```

```

## probabilities: 0.000 0.001 0.000 0.001 0.000 0.000 0.000 0.997 0.000
0.001
##
## Node number 64509: 108 observations, complexity param=1.11637e-05
## predicted class=7 expected loss=0.07407407 P(node) =0.004284864
## class counts: 0 0 1 0 1 0 0 100 0
6
## probabilities: 0.000 0.000 0.009 0.000 0.009 0.000 0.000 0.926 0.000
0.056
## left son=129018 (101 obs) right son=129019 (7 obs)
## Primary splits:
## 321 < 173.5 to the left, improve=3.844806, (0 missing)
## 320 < 215 to the left, improve=3.028025, (0 missing)
## 347 < 45.5 to the left, improve=2.310990, (0 missing)
## 348 < 44.5 to the left, improve=1.983420, (0 missing)
## 319 < 80 to the left, improve=1.897957, (0 missing)
## Surrogate splits:
## 349 < 7 to the left, agree=0.972, adj=0.571, (0 split)
## 320 < 250 to the left, agree=0.963, adj=0.429, (0 split)
## 275 < 149 to the left, agree=0.954, adj=0.286, (0 split)
## 302 < 201.5 to the left, agree=0.954, adj=0.286, (0 split)
## 322 < 237 to the left, agree=0.954, adj=0.286, (0 split)
##
## Node number 126974: 76 observations, complexity param=3.721235e-05
## predicted class=9 expected loss=0.1578947 P(node) =0.003015275
## class counts: 0 0 0 0 11 0 0 0 1
64
## probabilities: 0.000 0.000 0.000 0.000 0.145 0.000 0.000 0.000 0.013
0.842
## left son=253948 (9 obs) right son=253949 (67 obs)
## Primary splits:
## 403 < 253.5 to the right, improve=8.015755, (0 missing)
## 402 < 253.5 to the right, improve=6.055245, (0 missing)
## 354 < 172 to the left, improve=5.925000, (0 missing)
## 382 < 51.5 to the left, improve=4.889234, (0 missing)
## 297 < 253.5 to the right, improve=4.889234, (0 missing)
## Surrogate splits:
## 297 < 253.5 to the right, agree=0.947, adj=0.556, (0 split)
## 402 < 253.5 to the right, agree=0.947, adj=0.556, (0 split)
## 404 < 253.5 to the right, agree=0.947, adj=0.556, (0 split)
## 405 < 253.5 to the right, agree=0.921, adj=0.333, (0 split)
## 603 < 253.5 to the right, agree=0.921, adj=0.333, (0 split)
##
## Node number 126975: 872 observations
## predicted class=9 expected loss=0.01720183 P(node) =0.03459631
## class counts: 0 0 0 4 4 0 0 5 2
857
## probabilities: 0.000 0.000 0.000 0.005 0.005 0.000 0.000 0.006 0.002
0.983
##

```

```

## Node number 129018: 101 observations
##   predicted class=7   expected loss=0.03960396   P(node) =0.004007141
##   class counts:      0      0      1      0      1      0      0      97      0
2
##   probabilities: 0.000 0.000 0.010 0.000 0.010 0.000 0.000 0.960 0.000
0.020
##
## Node number 129019: 7 observations
##   predicted class=9   expected loss=0.4285714   P(node) =0.0002777227
##   class counts:      0      0      0      0      0      0      0      3      0
4
##   probabilities: 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.429 0.000
0.571
##
## Node number 253948: 9 observations
##   predicted class=4   expected loss=0.2222222   P(node) =0.000357072
##   class counts:      0      0      0      0      7      0      0      0      0
2
##   probabilities: 0.000 0.000 0.000 0.000 0.778 0.000 0.000 0.000 0.000
0.222
##
## Node number 253949: 67 observations
##   predicted class=9   expected loss=0.07462687   P(node) =0.002658203
##   class counts:      0      0      0      0      4      0      0      0      1
62
##   probabilities: 0.000 0.000 0.000 0.000 0.060 0.000 0.000 0.000 0.015
0.925
##
## Classification tree:
## rpart(formula = label ~ ., data = trainDF, method = "class",
##   control = rpart.control(cp = 0))
##
## Variables actually used in tree construction:
##   [1] 101 103 121 123 124 125 126 127 131 149 150 152 153 154 155 156 157
158
##   [19] 159 160 176 179 180 182 183 185 186 188 202 204 205 206 207 208 209
210
##   [37] 211 212 213 214 215 217 218 219 220 231 233 234 235 237 238 239 240
241
##   [55] 242 243 244 247 263 264 265 266 267 268 269 270 271 272 273 274 276
287
##   [73] 288 289 290 291 292 293 294 295 296 297 299 300 301 315 317 318 319
320
##   [91] 321 322 323 324 325 326 327 328 329 341 342 343 344 345 346 347 348
349
##  [109] 350 351 352 353 354 355 356 359 370 371 372 373 374 375 376 377 378
379
##  [127] 380 381 382 384 386 398 400 401 402 403 404 405 406 407 408 409 410
411

```



```

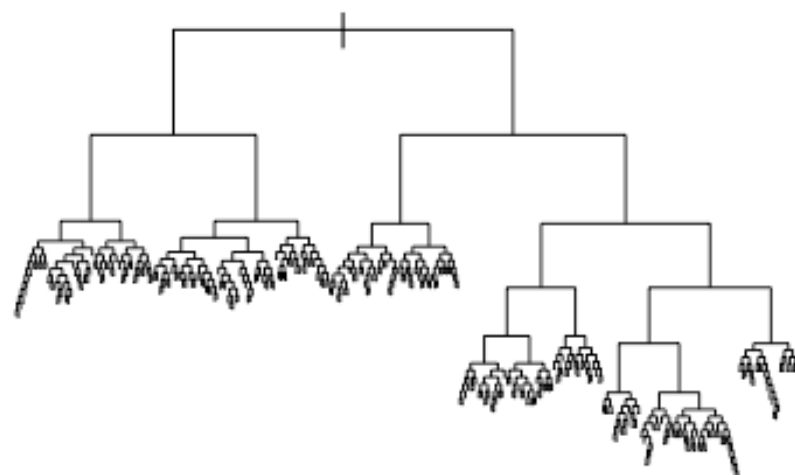
## [145] 412 413 427 428 429 431 432 433 434 435 436 437 438 439 441 442 454
455
## [163] 456 457 458 459 460 461 462 463 464 465 466 467 468 470 482 484 486
487
## [181] 488 489 490 491 492 493 494 512 513 514 515 516 518 520 522 524 527
537
## [199] 538 539 541 542 543 544 545 546 549 550 551 552 553 555 567 568 569
570
## [217] 572 573 574 575 576 580 584 595 596 597 599 600 601 602 603 608 623
624
## [235] 626 627 628 651 652 653 654 655 656 657 658 662 664 678 680 681 683
685
## [253] 686 709 711 712 714 717 718 94 95 96 98
##
## Root node error: 22394/25205 = 0.88847
##
## n= 25205
##
##          CP nsplit rel error  xerror      xstd
## 1  9.7794e-02      0  1.00000 1.00000 0.0022316
## 2  8.2567e-02      1  0.90221 0.90301 0.0028235
## 3  8.0200e-02      2  0.81964 0.84822 0.0030549
## 4  5.9570e-02      3  0.73944 0.72783 0.0033888
## 5  5.1934e-02      4  0.67987 0.66040 0.0034910
## 6  4.5727e-02      5  0.62794 0.61914 0.0035269
## 7  4.5057e-02      6  0.58221 0.58337 0.0035423
## 8  2.5453e-02      7  0.53715 0.53456 0.0035403
## 9  2.1390e-02      8  0.51170 0.51112 0.0035298
## 10 1.8666e-02      9  0.49031 0.49361 0.0035179
## 11 1.5763e-02     10  0.47164 0.48102 0.0035071
## 12 1.5495e-02     11  0.45588 0.46745 0.0034935
## 13 1.3307e-02     12  0.44039 0.45159 0.0034749
## 14 1.1074e-02     13  0.42708 0.43391 0.0034506
## 15 8.3505e-03     14  0.41600 0.42051 0.0034296
## 16 6.9662e-03     15  0.40765 0.41547 0.0034211
## 17 6.1177e-03     16  0.40069 0.40350 0.0033998
## 18 4.8227e-03     17  0.39457 0.39149 0.0033766
## 19 4.7781e-03     18  0.38975 0.37470 0.0033409
## 20 4.7334e-03     19  0.38497 0.37113 0.0033329
## 21 4.6888e-03     21  0.37550 0.36916 0.0033284
## 22 4.6441e-03     22  0.37081 0.36800 0.0033257
## 23 4.4208e-03     23  0.36617 0.36461 0.0033177
## 24 4.2869e-03     24  0.36175 0.35679 0.0032988
## 25 3.9296e-03     25  0.35746 0.35286 0.0032889
## 26 3.7957e-03     26  0.35353 0.34710 0.0032741
## 27 3.7510e-03     29  0.34215 0.34594 0.0032711
## 28 3.4831e-03     30  0.33839 0.34183 0.0032601
## 29 3.3938e-03     31  0.33491 0.33661 0.0032459
## 30 3.3491e-03     32  0.33152 0.33647 0.0032455
## 31 3.3045e-03     33  0.32817 0.33647 0.0032455

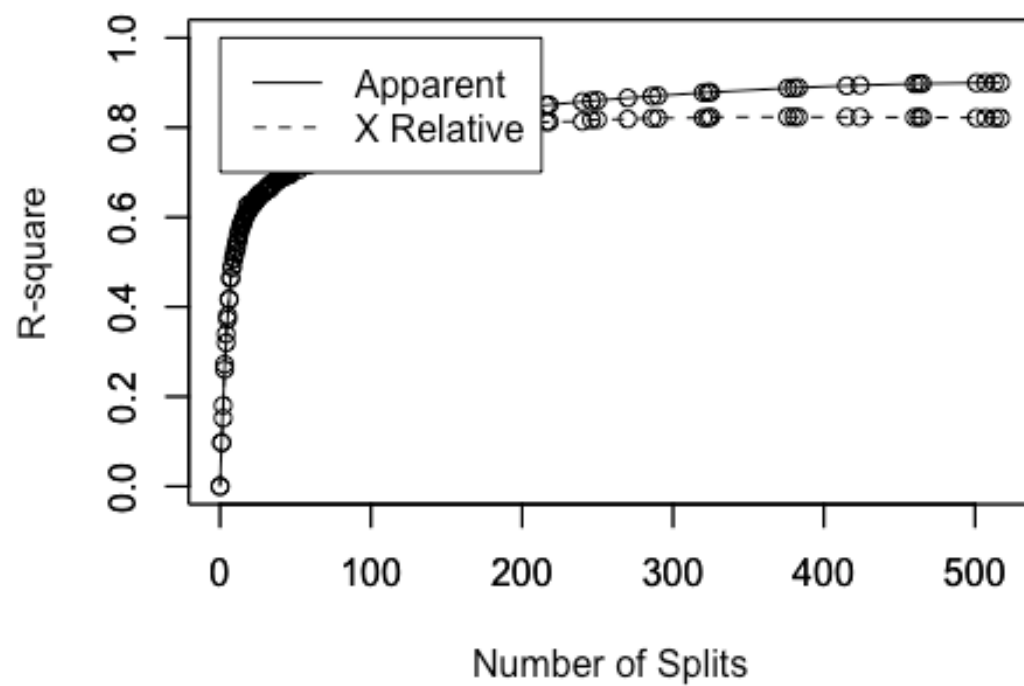
```

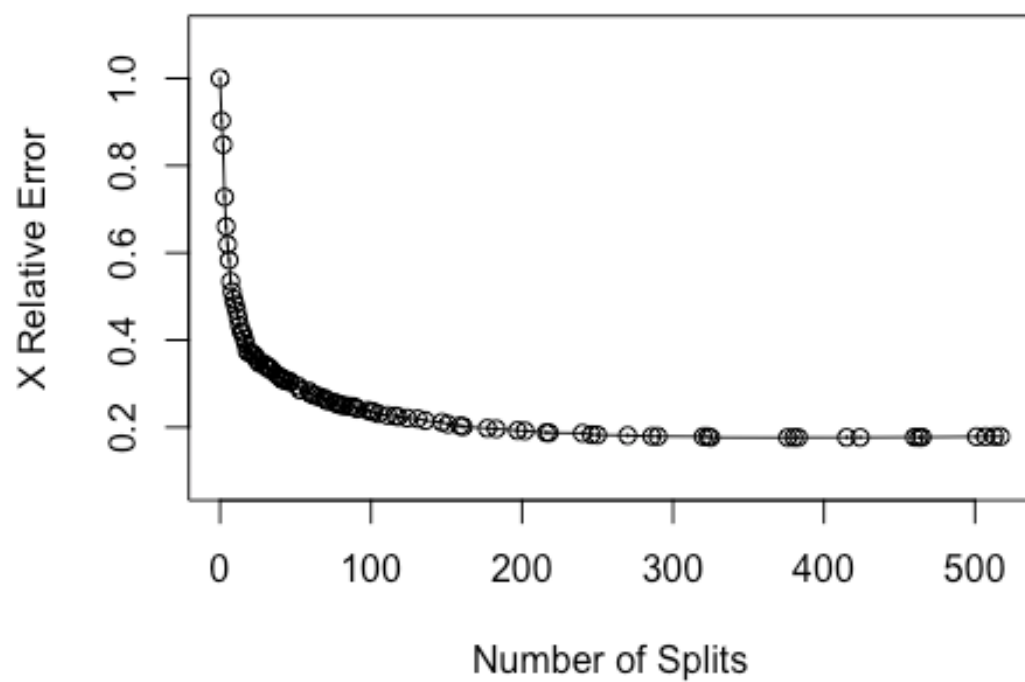
## 32	2.8579e-03	34	0.32486	0.33174	0.0032323
## 33	2.8356e-03	37	0.31629	0.32218	0.0032045
## 34	2.6346e-03	39	0.31062	0.31705	0.0031890
## 35	2.5900e-03	40	0.30798	0.31312	0.0031769
## 36	2.5453e-03	41	0.30539	0.31053	0.0031687
## 37	2.5007e-03	42	0.30285	0.30977	0.0031663
## 38	2.4560e-03	43	0.30035	0.30848	0.0031622
## 39	2.3890e-03	44	0.29789	0.30731	0.0031585
## 40	2.3667e-03	46	0.29311	0.30450	0.0031494
## 41	2.2774e-03	47	0.29075	0.30383	0.0031472
## 42	2.0541e-03	52	0.27932	0.29401	0.0031144
## 43	2.0095e-03	53	0.27726	0.28539	0.0030843
## 44	1.8308e-03	59	0.26520	0.28320	0.0030764
## 45	1.6969e-03	60	0.26337	0.27713	0.0030542
## 46	1.6746e-03	62	0.25998	0.27396	0.0030423
## 47	1.6299e-03	64	0.25663	0.27226	0.0030359
## 48	1.6076e-03	66	0.25337	0.26936	0.0030248
## 49	1.4736e-03	69	0.24855	0.26704	0.0030158
## 50	1.4066e-03	70	0.24708	0.26230	0.0029972
## 51	1.3843e-03	72	0.24426	0.26007	0.0029883
## 52	1.2950e-03	76	0.23872	0.25677	0.0029749
## 53	1.2503e-03	77	0.23743	0.25431	0.0029648
## 54	1.1610e-03	79	0.23493	0.25230	0.0029565
## 55	1.1164e-03	81	0.23261	0.24993	0.0029466
## 56	1.0940e-03	83	0.23037	0.24931	0.0029439
## 57	1.0717e-03	86	0.22689	0.24779	0.0029375
## 58	1.0271e-03	88	0.22475	0.24761	0.0029368
## 59	9.8241e-04	90	0.22269	0.24493	0.0029253
## 60	9.3775e-04	91	0.22171	0.24221	0.0029135
## 61	8.9310e-04	98	0.21515	0.23846	0.0028969
## 62	8.7077e-04	100	0.21336	0.23636	0.0028876
## 63	8.4844e-04	102	0.21162	0.23524	0.0028826
## 64	8.0379e-04	105	0.20907	0.23095	0.0028630
## 65	7.5913e-04	111	0.20425	0.22694	0.0028444
## 66	7.3680e-04	116	0.20046	0.22595	0.0028398
## 67	7.1448e-04	118	0.19898	0.22417	0.0028313
## 68	6.6982e-04	124	0.19470	0.22109	0.0028166
## 69	6.2517e-04	131	0.18938	0.21966	0.0028097
## 70	5.8051e-04	136	0.18626	0.21537	0.0027887
## 71	5.3586e-04	147	0.17987	0.21149	0.0027694
## 72	4.9120e-04	151	0.17773	0.20693	0.0027462
## 73	4.6888e-04	159	0.17380	0.20340	0.0027279
## 74	4.4655e-04	161	0.17286	0.20157	0.0027183
## 75	4.2422e-04	177	0.16562	0.19764	0.0026974
## 76	4.0189e-04	183	0.16259	0.19644	0.0026909
## 77	3.7957e-04	197	0.15696	0.19273	0.0026707
## 78	3.5724e-04	202	0.15504	0.19170	0.0026650
## 79	3.3491e-04	216	0.15004	0.18773	0.0026429
## 80	3.1258e-04	218	0.14937	0.18733	0.0026406
## 81	2.9770e-04	240	0.14245	0.18639	0.0026353

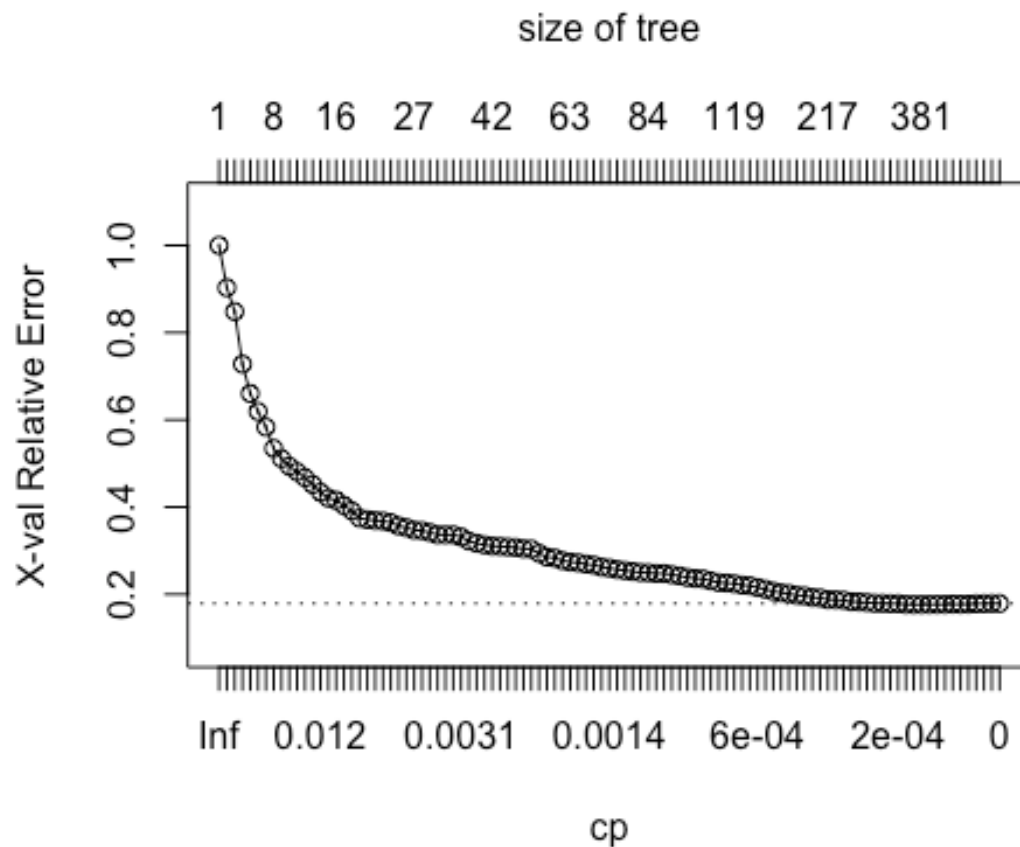
```
## 82 2.9026e-04 246 0.14066 0.18295 0.0026157
## 83 2.6793e-04 250 0.13950 0.18241 0.0026126
## 84 2.4560e-04 270 0.13414 0.18116 0.0026053
## 85 2.3444e-04 286 0.13017 0.17933 0.0025946
## 86 2.2327e-04 290 0.12923 0.17916 0.0025936
## 87 2.0839e-04 320 0.12253 0.17857 0.0025902
## 88 2.0095e-04 323 0.12191 0.17857 0.0025902
## 89 1.7862e-04 325 0.12151 0.17670 0.0025791
## 90 1.5629e-04 376 0.11226 0.17643 0.0025775
## 91 1.4885e-04 380 0.11164 0.17648 0.0025778
## 92 1.3396e-04 383 0.11119 0.17665 0.0025788
## 93 1.1164e-04 415 0.10690 0.17674 0.0025794
## 94 8.9310e-05 424 0.10583 0.17679 0.0025796
## 95 7.4425e-05 460 0.10262 0.17741 0.0025833
## 96 6.6982e-05 463 0.10239 0.17706 0.0025812
## 97 4.4655e-05 465 0.10226 0.17732 0.0025828
## 98 3.7212e-05 501 0.10065 0.17840 0.0025891
## 99 2.2327e-05 507 0.10043 0.17857 0.0025902
## 100 1.1164e-05 513 0.10029 0.17889 0.0025920
## 101 0.0000e+00 517 0.10025 0.17893 0.0025923
```

```
## Warning in rsq.rpart(treeModel): may not be applicable for this method
```

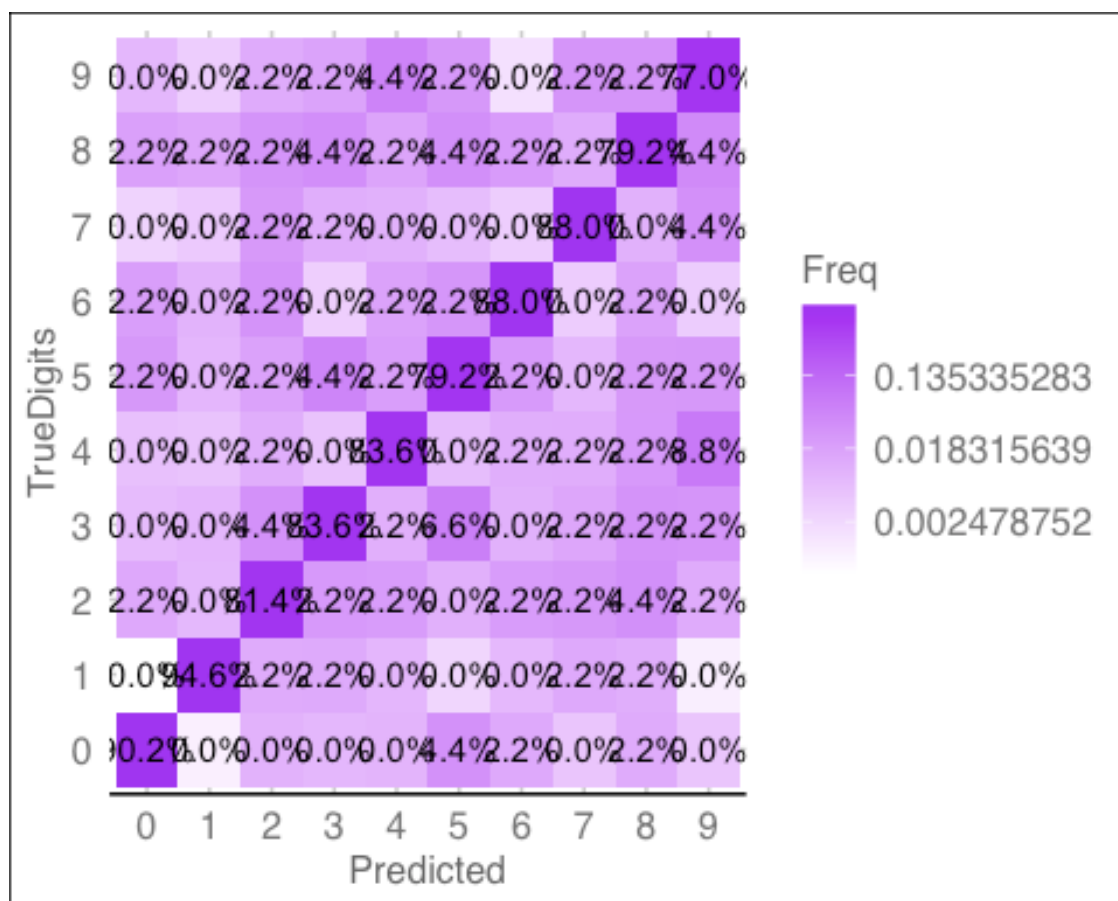








##	TrueDigits										
##	Predicted	0	1	2	3	4	5	6	7	8	9
##	0	1494	1	24	12	10	44	35	5	33	14
##	1	2	1751	15	16	10	16	18	8	29	7
##	2	17	22	1377	57	20	31	53	43	51	22
##	3	14	23	42	1400	9	88	6	20	62	29
##	4	15	14	36	18	1351	34	29	17	27	88
##	5	49	4	16	94	10	1166	41	10	53	38
##	6	23	13	36	17	19	39	1430	6	38	3
##	7	9	25	47	28	22	15	7	1574	23	52
##	8	20	18	54	47	38	39	28	16	1232	45
##	9	9	2	23	51	139	46	7	61	77	1377
##	Accuracy		Kappa			AccuracyLower		AccuracyUpper		AccuracyNull	
##	8.426317e-01		8.250834e-01			8.370355e-01		8.481091e-01		1.115213e-01	
##	AccuracyPValue		McnemarPValue								
##	0.000000e+00		3.572480e-08								



```
## n= 25205
##
## node), split, n, loss, yval, (yprob)
##      * denotes terminal node
##
##      1) root 25205 22394 1 (0.098 0.11 0.099 0.1 0.097 0.09 0.099 0.1
0.097 0.1)
##      2) 350>=120.5 9068 6479 1 (0.021 0.29 0.053 0.23 0.026 0.11 0.056
0.025 0.13 0.059)
##      4) 489>=44.5 4400 1969 1 (0.0064 0.55 0.077 0.036 0.025 0.024
0.063 0.027 0.15 0.036)
##      8) 234< 0.5 3250 861 1 (0.0055 0.74 0.048 0.017 0.023 0.028
0.049 0.0074 0.066 0.021)
##     16) 347< 1.5 2607 328 1 (0.00038 0.87 0.047 0.0077 0.0054
0.0092 0.012 0.0035 0.038 0.0027)
##     32) 550< 0.5 2456 189 1 (0 0.92 0.013 0.0049 0.0041 0.0098
0.0033 0.0033 0.037 0.0024)
##     64) 300< 21.5 2312 96 1 (0 0.96 0.013 0.003 0.003
0.0043 0.0035 0.0035 0.01 0.00087)
##    128) 608< 6 2291 77 1 (0 0.97 0.0052 0.0026 0.0031
0.0044 0.0035 0.0035 0.01 0.00087)
##    256) 484< 8 2260 51 1 (0 0.98 0.0018 0.0027 0.00088
0.0022 0.0022 0.0035 0.0084 0.00088)
```



```

##          512) 406>=48 2249      41 1 (0 0.98 0.00089 0.00089
0.00044 0.0018 0.0018 0.0036 0.0084 0.00044)
##          1024) 410< 32 2237      32 1 (0 0.99 0.00045 0.00089
0.00045 0.0018 0.0018 0.0022 0.0063 0.00045)
##          2048) 219< 22.5 2230      28 1 (0 0.99 0.00045
0.0009 0.00045 0 0.0018 0.0022 0.0063 0.00045)
##          4096) 493< 64.5 2198      18 1 (0 0.99 0.00045
0.00091 0.00045 0 0.00045 0.00091 0.0045 0.00045)
##          8192) 433>=2.5 2190      14 1 (0 0.99 0.00046
0.00046 0 0 0.00046 0.00091 0.0041 0)
##          16384) 300< 1 2170      9 1 (0 1 0.00046
0.00046 0 0 0.00046 0.00092 0.0018 0) *
##          16385) 300>=1 20      5 1 (0 0.75 0 0 0 0 0 0
0.25 0)
##          32770) 160>=17.5 13      0 1 (0 1 0 0 0 0 0
0 0 0) *
##          32771) 160< 17.5 7      2 8 (0 0.29 0 0 0 0
0 0 0.71 0) *
##          8193) 433< 2.5 8      4 1 (0 0.5 0 0.12 0.12 0
0 0 0.12 0.12) *
##          4097) 493>=64.5 32      10 1 (0 0.69 0 0 0 0 0.094
0.094 0.12 0)
##          8194) 546>=193.5 24      2 1 (0 0.92 0 0 0 0
0.083 0 0 0) *
##          8195) 546< 193.5 8      4 8 (0 0 0 0 0 0 0.12
0.38 0.5 0) *
##          2049) 219>=22.5 7      3 5 (0 0.43 0 0 0 0.57 0 0 0
0) *
##          1025) 410>=32 12      7 8 (0 0.25 0.083 0 0 0 0 0.25
0.42 0) *
##          513) 406< 48 11      7 3 (0 0.091 0.18 0.36 0.091
0.091 0.091 0 0 0.091) *
##          257) 484>=8 31      23 2 (0 0.16 0.26 0 0.16 0.16 0.097 0
0.16 0)
##          514) 623< 14.5 19      11 2 (0 0 0.42 0 0.26 0.21 0.11
0 0 0) *
##          515) 623>=14.5 12      7 1 (0 0.42 0 0 0 0.083 0.083 0
0.42 0) *
##          129) 608>=6 21      3 2 (0 0.095 0.86 0.048 0 0 0 0 0) *
##          65) 300>=21.5 144      78 8 (0 0.35 0.0069 0.035 0.021 0.097
0 0 0.46 0.028)
##          130) 265< 1.5 72      21 1 (0 0.71 0.014 0.028 0.014 0.18 0
0 0.056 0)
##          260) 487>=145 55      4 1 (0 0.93 0.018 0.018 0 0.018 0
0 0.018 0) *
##          261) 487< 145 17      5 5 (0 0 0 0.059 0.059 0.71 0 0
0.18 0) *
##          131) 265>=1.5 72      10 8 (0 0 0 0.042 0.028 0.014 0 0
0.86 0.056) *
##          33) 550>=0.5 151      59 2 (0.0066 0.079 0.61 0.053 0.026 0

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0.15 0.0066 0.066 0.0066)
##          66) 152>=12 108      25 2 (0 0.1 0.77 0.046 0.0093 0 0 0
0.074 0)
##          132) 292< 58.5 91      9 2 (0 0.022 0.9 0.055 0 0 0 0
0.022 0)
##          264) 543>=24.5 83      3 2 (0 0.024 0.96 0 0 0 0 0.012
0) *
##          265) 543< 24.5 8      3 3 (0 0 0.25 0.62 0 0 0 0.12 0)
*
##          133) 292>=58.5 17      8 1 (0 0.53 0.059 0 0.059 0 0 0
0.35 0) *
##          67) 152< 12 43      21 6 (0.023 0.023 0.21 0.07 0.07 0 0.51
0.023 0.047 0.023)
##          134) 212>=22 24      16 2 (0.042 0.042 0.33 0.12 0.12 0
0.21 0.042 0.083 0)
##          268) 349< 206.5 13      5 2 (0.077 0 0.62 0 0.23 0 0
0.077 0 0) *
##          269) 349>=206.5 11      6 6 (0 0.091 0 0.27 0 0 0.45 0
0.18 0) *
##          135) 212< 22 19      2 6 (0 0 0.053 0 0 0 0.89 0 0 0.053)
*
##          17) 347>=1.5 643      515 6 (0.026 0.17 0.053 0.056 0.096 0.1 0.2
0.023 0.18 0.093)
##          34) 103< 1.5 564      451 8 (0.028 0.19 0.059 0.059 0.11 0.12
0.1 0.027 0.2 0.11)
##          68) 657< 1.5 286      232 5 (0.042 0.12 0.11 0.049 0.15 0.19
0.19 0.028 0.028 0.1)
##          136) 276< 44.5 252      198 6 (0.048 0.13 0.12 0.056 0.16
0.095 0.21 0.032 0.024 0.12)
##          272) 574>=233 93      43 6 (0.075 0.14 0.097 0.065 0.032
0.032 0.54 0.011 0 0.011)
##          544) 486< 67.5 25      12 1 (0 0.52 0.12 0.2 0.08 0.04
0 0.04 0 0)
##          1088) 603>=181 16      3 1 (0 0.81 0.062 0 0.12 0 0 0
0 0) *
##          1089) 603< 181 9      4 3 (0 0 0.22 0.56 0 0.11 0
0.11 0 0) *
##          545) 486>=67.5 68      18 6 (0.1 0 0.088 0.015 0.015
0.029 0.74 0 0 0.015)
##          1090) 244>=56 12      5 0 (0.58 0 0.083 0.083 0 0.083
0.17 0 0 0) *
##          1091) 244< 56 56      8 6 (0 0 0.089 0 0.018 0.018
0.86 0 0 0.018)
##          2182) 95>=41 7      2 2 (0 0 0.71 0 0 0 0.29 0 0 0)
*
##          2183) 95< 41 49      3 6 (0 0 0 0 0.02 0.02 0.94 0
0 0.02) *
##          273) 574< 233 159      122 4 (0.031 0.13 0.14 0.05 0.23
0.13 0.025 0.044 0.038 0.18)
##          546) 539>=2 67      46 2 (0.075 0.09 0.31 0.09 0.06

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0.28 0.015 0 0.075 0)
##          1092) 552>=26 13      0 2 (0 0 1 0 0 0 0 0 0) *
##          1093) 552< 26 54      35 5 (0.093 0.11 0.15 0.11 0.074
0.35 0.019 0 0.093 0)
##          2186) 458>=16.5 31      24 2 (0.13 0.19 0.23 0.097
0.13 0.065 0.032 0 0.13 0)
##          4372) 652< 147 20      13 2 (0.15 0 0.35 0.15 0.2
0.1 0.05 0 0 0)
##          8744) 405>=210 8      1 2 (0 0 0.88 0.12 0 0 0
0 0 0) *
##          8745) 405< 210 12      8 4 (0.25 0 0 0.17 0.33
0.17 0.083 0 0 0) *
##          4373) 652>=147 11      5 1 (0.091 0.55 0 0 0 0 0
0 0.36 0) *
##          2187) 458< 16.5 23      6 5 (0.043 0 0.043 0.13 0
0.74 0 0 0.043 0)
##          4374) 157>=20.5 7      4 3 (0.14 0 0.14 0.43 0
0.14 0 0 0.14 0) *
##          4375) 157< 20.5 16      0 5 (0 0 0 0 0 1 0 0 0 0)
*
##          547) 539< 2 92      59 4 (0 0.15 0.011 0.022 0.36 0.022
0.033 0.076 0.011 0.32)
##          1094) 456>=13.5 22      2 4 (0 0 0 0.045 0.91 0 0
0.045 0 0) *
##          1095) 456< 13.5 70      41 9 (0 0.2 0.014 0.014 0.19
0.029 0.043 0.086 0.014 0.41)
##          2190) 381< 210.5 37      25 1 (0 0.32 0.027 0.027
0.22 0.054 0.081 0.14 0 0.14)
##          4380) 405>=205.5 15      4 1 (0 0.73 0 0 0 0 0.13
0 0 0.13) *
##          4381) 405< 205.5 22      14 4 (0 0.045 0.045 0.045
0.36 0.091 0.045 0.23 0 0.14)
##          8762) 403>=204.5 7      1 4 (0 0 0 0 0.86 0.14
0 0 0 0) *
##          8763) 403< 204.5 15      10 7 (0 0.067 0.067
0.067 0.13 0.067 0.067 0.33 0 0.2) *
##          2191) 381>=210.5 33      9 9 (0 0.061 0 0 0.15 0 0
0.03 0.03 0.73)
##          4382) 238< 175.5 9      6 4 (0 0.22 0 0 0.33 0 0
0.11 0.11 0.22) *
##          4383) 238>=175.5 24      2 9 (0 0 0 0 0.083 0 0 0
0 0.92) *
##          137) 276>=44.5 34      4 5 (0 0 0 0 0.059 0.88 0 0 0.059
0) *
##          69) 657>=1.5 278      173 8 (0.014 0.27 0.0072 0.068 0.068
0.043 0.014 0.025 0.38 0.11)
##          138) 294>=216 134      61 1 (0.022 0.54 0.0075 0.03 0.075
0.067 0.03 0.03 0.12 0.075)
##          276) 429< 10.5 95      23 1 (0.011 0.76 0.011 0.011 0
0.032 0.011 0.042 0.084 0.042)

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##          552) 299< 31 77      7 1 (0 0.91 0.013 0 0 0.013 0.013
0.026 0.013 0.013) *
##          553) 299>=31 18      11 8 (0.056 0.11 0 0.056 0 0.11 0
0.11 0.39 0.17) *
##        277) 429>=10.5 39      29 4 (0.051 0.026 0 0.077 0.26
0.15 0.077 0 0.21 0.15)
##          554) 627< 5.5 11      2 4 (0 0 0 0 0.82 0 0.091 0 0
0.091) *
##          555) 627>=5.5 28      20 8 (0.071 0.036 0 0.11 0.036
0.21 0.071 0 0.29 0.18)
##        1110) 379< 17.5 7      1 5 (0 0 0 0.14 0 0.86 0 0 0
0) *
##        1111) 379>=17.5 21      13 8 (0.095 0.048 0 0.095
0.048 0 0.095 0 0.38 0.24)
##        2222) 653>=111.5 10      3 8 (0.1 0.1 0 0 0.1 0 0 0
0.7 0) *
##        2223) 653< 111.5 11      6 9 (0.091 0 0 0.18 0 0
0.18 0 0.091 0.45) *
##        139) 294< 216 144      55 8 (0.0069 0.021 0.0069 0.1 0.062
0.021 0 0.021 0.62 0.14)
##        278) 711< 94.5 124      35 8 (0.0081 0.024 0.0081 0.12
0.073 0.024 0 0.0081 0.72 0.016)
##          556) 265< 15.5 37      24 3 (0.027 0.027 0.027 0.35
0.14 0.054 0 0.027 0.32 0.027)
##        1112) 317< 4.5 19      6 3 (0 0.053 0.053 0.68 0.11
0.053 0 0 0 0.053) *
##        1113) 317>=4.5 18      6 8 (0.056 0 0 0 0.17 0.056 0
0.056 0.67 0) *
##          557) 265>=15.5 87      10 8 (0 0.023 0 0.023 0.046
0.011 0 0 0.89 0.011)
##        1114) 401>=186 8      4 4 (0 0 0 0.12 0.5 0 0 0 0.38
0) *
##        1115) 401< 186 79      5 8 (0 0.025 0 0.013 0 0.013 0
0 0.94 0.013) *
##          279) 711>=94.5 20      2 9 (0 0 0 0 0 0 0.1 0 0.9) *
##        35) 103>=1.5 79      9 6 (0.013 0.013 0.013 0.038 0.013 0.013
0.89 0 0.013 0)
##        70) 271>=74.5 7      5 3 (0.14 0 0.14 0.29 0.14 0 0.14 0
0.14 0) *
##        71) 271< 74.5 72      3 6 (0 0.014 0 0.014 0 0.014 0.96 0 0
0) *
##          9) 234>=0.5 1150      690 8 (0.0087 0.037 0.16 0.09 0.031 0.012
0.1 0.083 0.4 0.079)
##        18) 658< 13.5 434      291 2 (0.012 0.044 0.33 0.035 0.03 0.014
0.26 0.065 0.085 0.12)
##        36) 345< 18 228      94 2 (0 0.075 0.59 0.066 0.0044 0.0044
0.039 0.092 0.088 0.044)
##        72) 541>=1.5 142      23 2 (0 0 0.84 0.014 0 0.007 0.042
0.014 0.077 0.007)
##        144) 301< 3.5 122      6 2 (0 0 0.95 0.0082 0 0.0082

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0.0082 0.016 0.0082 0) *
##          145) 301>=3.5 20      10 8 (0 0 0.15 0.05 0 0 0.25 0 0.5
0.05)
##          290) 291< 86 9       4 6 (0 0 0.33 0.11 0 0 0.56 0 0 0) *
##          291) 291>=86 11      1 8 (0 0 0 0 0 0 0 0 0.91 0.091) *
##          73) 541< 1.5 86      67 7 (0 0.2 0.17 0.15 0.012 0 0.035
0.22 0.1 0.1)
##          146) 683< 18 57      40 1 (0 0.3 0.26 0.18 0 0 0.053 0.035
0.14 0.035)
##          292) 459< 5.5 21      4 1 (0 0.81 0.095 0 0 0 0 0 0.048
0.048) *
##          293) 459>=5.5 36      23 2 (0 0 0.36 0.28 0 0 0.083 0.056
0.19 0.028)
##          586) 516>=7 24       11 2 (0 0 0.54 0.042 0 0 0.12 0.042
0.25 0)
##          1172) 270< 4.5 16     5 2 (0 0 0.69 0.062 0 0 0.19
0.062 0 0) *
##          1173) 270>=4.5 8      2 8 (0 0 0.25 0 0 0 0 0 0.75 0)
*
##          587) 516< 7 12       3 3 (0 0 0 0.75 0 0 0 0.083 0.083
0.083) *
##          147) 683>=18 29      12 7 (0 0 0 0.1 0.034 0 0 0.59 0.034
0.24)
##          294) 349< 102.5 17     1 7 (0 0 0 0.059 0 0 0 0.94 0 0)
*
##          295) 349>=102.5 12     5 9 (0 0 0 0.17 0.083 0 0 0.083
0.083 0.58) *
##          37) 345>=18 206      101 6 (0.024 0.0097 0.044 0 0.058 0.024
0.51 0.034 0.083 0.21)
##          74) 575>=51.5 144     39 6 (0.035 0.014 0.021 0 0.021 0.035
0.73 0.035 0.069 0.042)
##          148) 213< 25.5 112     13 6 (0.0089 0.018 0 0 0.027 0.018
0.88 0.036 0 0.0089)
##          296) 266>=154 14      10 7 (0.071 0.14 0 0 0.14 0.071
0.21 0.29 0 0.071) *
##          297) 266< 154 98      2 6 (0 0 0 0 0.01 0.01 0.98 0 0 0)
*
##          149) 213>=25.5 32     22 8 (0.12 0 0.094 0 0 0.094 0.19
0.031 0.31 0.16)
##          298) 442>=27 12       6 6 (0.33 0 0.17 0 0 0 0.5 0 0 0) *
##          299) 442< 27 20      10 8 (0 0 0.05 0 0 0.15 0 0.05 0.5
0.25)
##          598) 432< 47.5 9      5 9 (0 0 0.11 0 0 0.33 0 0.11 0
0.44) *
##          599) 432>=47.5 11     1 8 (0 0 0 0 0 0 0 0 0.91
0.091) *
##          75) 575< 51.5 62      24 9 (0 0 0.097 0 0.15 0 0 0.032 0.11
0.61)
##          150) 210< 21.5 19     10 4 (0 0 0.16 0 0.47 0 0 0.053 0.16
0.16) *

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##          151) 210>=21.5 43      8 9 (0 0 0.07 0 0 0 0 0.023 0.093
0.81) *
##          19) 658>=13.5 716      293 8 (0.007 0.032 0.052 0.12 0.032 0.011
0.007 0.094 0.59 0.052)
##          38) 319< 2 218      154 3 (0.0046 0.041 0.16 0.29 0.023 0.0046
0.014 0.2 0.23 0.032)
##          76) 344< 24 162      100 3 (0 0.056 0.2 0.38 0 0 0 0.27 0.08
0.0062)
##          152) 404>=228 59      10 3 (0 0 0.12 0.83 0 0 0 0.034 0.017
0)
##          304) 527>=25.5 7      1 2 (0 0 0.86 0.14 0 0 0 0 0) *
##          305) 527< 25.5 52      4 3 (0 0 0.019 0.92 0 0 0 0.038
0.019 0) *
##          153) 404< 228 103      61 7 (0 0.087 0.25 0.13 0 0 0 0.41
0.12 0.0097)
##          306) 153>=121 47      23 2 (0 0.085 0.51 0.17 0 0 0 0
0.23 0)
##          612) 321< 195 34      10 2 (0 0.029 0.71 0.24 0 0 0 0
0.029 0)
##          1224) 543>=81 24      1 2 (0 0 0.96 0 0 0 0 0.042
0) *
##          1225) 543< 81 10      2 3 (0 0.1 0.1 0.8 0 0 0 0 0)
*
##          613) 321>=195 13      3 8 (0 0.23 0 0 0 0 0 0.77 0)
*
##          307) 153< 121 56      14 7 (0 0.089 0.036 0.089 0 0 0
0.75 0.018 0.018)
##          614) 546< 15 7      2 3 (0 0 0 0.71 0 0 0 0.14 0.14 0)
*
##          615) 546>=15 49      8 7 (0 0.1 0.041 0 0 0 0 0.84 0
0.02) *
##          77) 344>=24 56      19 8 (0.018 0 0.018 0.036 0.089 0.018
0.054 0 0.66 0.11)
##          154) 516< 53 14      8 9 (0 0 0 0.071 0.36 0 0 0 0.14
0.43) *
##          155) 516>=53 42      7 8 (0.024 0 0.024 0.024 0 0.024
0.071 0 0.83 0)
##          310) 356>=118.5 7      4 6 (0.14 0 0 0.14 0 0 0.43 0
0.29 0) *
##          311) 356< 118.5 35      2 8 (0 0 0.029 0 0 0.029 0 0
0.94 0) *
##          39) 319>=2 498      125 8 (0.008 0.028 0.006 0.048 0.036 0.014
0.004 0.046 0.75 0.06)
##          78) 543< 9.5 124      79 8 (0.0081 0.1 0.0081 0.13 0.056
0.016 0 0.097 0.36 0.22)
##          156) 401< 173 80      39 8 (0 0.16 0.013 0.075 0.05 0.013 0
0.1 0.51 0.075)
##          312) 294>=148.5 35      22 1 (0 0.37 0 0.086 0 0.029 0
0.23 0.26 0.029)
##          624) 180>=118.5 26      13 1 (0 0.5 0 0.12 0 0.038 0 0

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0.35 0)
##          1248) 269< 25.5 14      1 1 (0 0.93 0 0 0 0 0 0 0.071
0) *
##          1249) 269>=25.5 12      4 8 (0 0 0 0.25 0 0.083 0 0
0.67 0) *
##          625) 180< 118.5 9       1 7 (0 0 0 0 0 0 0 0.89 0 0.11)
*
##          313) 294< 148.5 45      13 8 (0 0 0.022 0.067 0.089 0 0 0
0.71 0.11)
##          626) 461< 62.5 8       4 9 (0 0 0 0 0.38 0 0 0 0.12
0.5) *
##          627) 461>=62.5 37      6 8 (0 0 0.027 0.081 0.027 0 0
0 0.84 0.027) *
##          157) 401>=173 44      23 9 (0.023 0 0 0.23 0.068 0.023 0
0.091 0.091 0.48)
##          314) 206>=125 18      8 3 (0 0 0 0.56 0 0.056 0 0.17
0.17 0.056) *
##          315) 206< 125 26      6 9 (0.038 0 0 0 0.12 0 0 0.038
0.038 0.77)
##          630) 325< 213.5 7      4 4 (0.14 0 0 0 0.43 0 0 0 0.14
0.29) *
##          631) 325>=213.5 19     1 9 (0 0 0 0 0 0 0 0.053 0
0.95) *
##          79) 543>=9.5 374      46 8 (0.008 0.0027 0.0053 0.021 0.029
0.013 0.0053 0.029 0.88 0.008)
##          158) 470>=156.5 19     13 7 (0.11 0 0.053 0.21 0.053 0.16
0 0.32 0.11 0) *
##          159) 470< 156.5 355    29 8 (0.0028 0.0028 0.0028 0.011
0.028 0.0056 0.0056 0.014 0.92 0.0085)
##          318) 461< 43.5 7      4 7 (0 0 0 0.14 0.29 0.14 0 0.43 0
0) *
##          319) 461>=43.5 348     22 8 (0.0029 0.0029 0.0029 0.0086
0.023 0.0029 0.0057 0.0057 0.94 0.0086)
##          638) 401>=218.5 36     14 8 (0 0 0 0.056 0.19 0.028
0.028 0.028 0.61 0.056)
##          1276) 269>=252.5 13    7 4 (0 0 0 0.077 0.46 0
0.077 0.077 0.15 0.15) *
##          1277) 269< 252.5 23    3 8 (0 0 0 0.043 0.043 0.043
0 0 0.87 0) *
##          639) 401< 218.5 312    8 8 (0.0032 0.0032 0.0032
0.0032 0.0032 0 0.0032 0.0032 0.97 0.0032) *
##          5) 489< 44.5 4668 2714 3 (0.036 0.034 0.032 0.42 0.027 0.18 0.05
0.024 0.11 0.082)
##          10) 486< 76.5 3675 1787 3 (0.027 0.038 0.006 0.51 0.031 0.22
0.0095 0.03 0.031 0.094)
##          20) 290< 42.5 2318 665 3 (0.015 0.057 0.0082 0.71 0.016 0.12
0.0082 0.013 0.023 0.028)
##          40) 179>=1.5 1626 234 3 (0.0018 0.025 0.008 0.86 0.0031
0.065 0.0012 0.0043 0.019 0.017)
##          80) 315< 84.5 1502 128 3 (0 0.027 0.0087 0.91 0 0.026 0

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0.0047 0.015 0.0033)
##          160) 490>=139.5 64      31 1 (0 0.52 0.047 0.31 0 0.016 0
0.078 0.031 0)
##          320) 297< 26.5 39      6 1 (0 0.85 0.077 0 0 0.026 0
0.051 0 0)
##          640) 264>=27.5 32      1 1 (0 0.97 0 0 0 0.031 0 0 0
0) *
##          641) 264< 27.5 7       4 2 (0 0.29 0.43 0 0 0 0 0.29 0
0) *
##          321) 297>=26.5 25      5 3 (0 0 0 0.8 0 0 0 0.12 0.08 0)
##          642) 628>=164 18       0 3 (0 0 0 1 0 0 0 0 0 0) *
##          643) 628< 164 7       4 7 (0 0 0 0.29 0 0 0 0.43 0.29
0) *
##          161) 490< 139.5 1438   84 3 (0 0.0056 0.007 0.94 0 0.026
0 0.0014 0.015 0.0035)
##          322) 264< 244.5 1393   56 3 (0 0.0014 0.0072 0.96 0
0.017 0 0 0.011 0.0036)
##          644) 317< 206 1370     38 3 (0 0.0015 0.0073 0.97 0
0.01 0 0 0.0088 0)
##          1288) 487< 148 1360    28 3 (0 0.0015 0.0059 0.98 0
0.0096 0 0 0.0037 0)
##          2576) 341< 70 1350     19 3 (0 0.0015 0.0059 0.99 0
0.0044 0 0 0.0022 0) *
##          2577) 341>=70 10       3 5 (0 0 0 0.1 0 0.7 0 0 0.2
0) *
##          1289) 487>=148 10      3 8 (0 0 0.2 0 0 0.1 0 0 0.7
0) *
##          645) 317>=206 23       14 5 (0 0 0 0.22 0 0.39 0 0 0.17
0.22)
##          1290) 524>=20 16       7 5 (0 0 0 0.25 0 0.56 0 0 0.19
0) *
##          1291) 524< 20 7        2 9 (0 0 0 0.14 0 0 0 0 0.14
0.71) *
##          323) 264>=244.5 45     28 3 (0 0.13 0 0.38 0 0.33 0
0.044 0.11 0)
##          646) 296>=124.5 16     3 3 (0 0 0 0.81 0 0 0 0.062
0.12 0) *
##          647) 296< 124.5 29     14 5 (0 0.21 0 0.14 0 0.52 0
0.034 0.1 0)
##          1294) 185< 63.5 12     6 1 (0 0.5 0 0.33 0 0 0 0.083
0.083 0) *
##          1295) 185>=63.5 17     2 5 (0 0 0 0 0 0.88 0 0 0.12
0) *
##          81) 315>=84.5 124      58 5 (0.024 0 0 0.15 0.04 0.53 0.016
0 0.065 0.18)
##          162) 296< 54 78       17 5 (0.013 0 0 0.038 0.051 0.78 0 0
0.051 0.064)
##          324) 300< 6 62        5 5 (0.016 0 0 0.032 0.032 0.92 0 0
0 0) *
##          325) 300>=6 16        11 9 (0 0 0 0.062 0.12 0.25 0 0 0.25

```



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0.31) *
##          163) 296>=54 46      29 9 (0.043 0 0 0.33 0.022 0.11 0.043
0 0.087 0.37)
##          326) 493< 1 25      13 3 (0.08 0 0 0.48 0 0.2 0.04 0 0.16
0.04)
##          652) 401< 112.5 13      1 3 (0.077 0 0 0.92 0 0 0 0 0
0) *
##          653) 401>=112.5 12      7 5 (0.083 0 0 0 0 0.42 0.083
0 0.33 0.083) *
##          327) 493>=1 21      5 9 (0 0 0 0.14 0.048 0 0.048 0 0
0.76) *
##          41) 179< 1.5 692      431 3 (0.045 0.13 0.0087 0.38 0.045 0.25
0.025 0.033 0.032 0.055)
##          82) 626>=19.5 417      182 3 (0.062 0.0096 0.012 0.56 0 0.29
0.019 0.0096 0.029 0.0096)
##          164) 265< 148 261      51 3 (0.027 0.015 0.019 0.8 0 0.088
0.011 0.011 0.019 0.0038)
##          328) 155>=3 202      14 3 (0.0099 0.005 0.02 0.93 0
0.0099 0 0 0.02 0.005)
##          656) 428>=205 9      5 2 (0.11 0 0.44 0.22 0 0.11 0 0
0.11 0) *
##          657) 428< 205 193      7 3 (0.0052 0.0052 0 0.96 0
0.0052 0 0 0.016 0.0052) *
##          329) 155< 3 59      37 3 (0.085 0.051 0.017 0.37 0 0.36
0.051 0.051 0.017 0)
##          658) 348< 235 29      9 3 (0 0.1 0.034 0.69 0 0.069
0.1 0 0 0)
##          1316) 486>=1 7      4 1 (0 0.43 0.14 0 0 0.14 0.29 0
0 0) *
##          1317) 486< 1 22      2 3 (0 0 0 0.91 0 0.045 0.045 0
0 0) *
##          659) 348>=235 30      11 5 (0.17 0 0 0.067 0 0.63 0 0.1
0.033 0)
##          1318) 412>=5.5 7      2 0 (0.71 0 0 0.14 0 0 0 0.14 0
0) *
##          1319) 412< 5.5 23      4 5 (0 0 0 0.043 0 0.83 0
0.087 0.043 0) *
##          165) 265>=148 156      60 5 (0.12 0 0 0.16 0 0.62 0.032
0.0064 0.045 0.019)
##          330) 456>=235.5 25      6 0 (0.76 0 0 0 0 0.04 0.08 0
0.12 0)
##          660) 214>=169 18      0 0 (1 0 0 0 0 0 0 0 0 0) *
##          661) 214< 169 7      4 8 (0.14 0 0 0 0 0.14 0.29 0
0.43 0) *
##          331) 456< 235.5 131      36 5 (0 0 0 0.19 0 0.73 0.023
0.0076 0.031 0.023)
##          662) 299>=40 30      13 3 (0 0 0 0.57 0 0.17 0.067
0.033 0.067 0.1)
##          1324) 324>=153.5 22      5 3 (0 0 0 0.77 0 0 0.091 0
0.091 0.045) *

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##          1325) 324< 153.5 8      3 5 (0 0 0 0 0 0.62 0 0.12 0
0.25) *
##          663) 299< 40 101      11 5 (0 0 0 0.079 0 0.89 0.0099 0
0.02 0)
##          1326) 124>=83 8      2 3 (0 0 0 0.75 0 0.12 0 0 0.12
0) *
##          1327) 124< 83 93      4 5 (0 0 0 0.022 0 0.96 0.011 0
0.011 0) *
##          83) 626< 19.5 275      188 1 (0.018 0.32 0.0036 0.095 0.11
0.19 0.033 0.069 0.036 0.12)
##          166) 376< 20 104      24 1 (0 0.77 0 0.038 0.0096 0.048
0.0096 0.067 0.029 0.029)
##          332) 462>=85.5 85      6 1 (0 0.93 0 0 0.012 0 0.012
0.047 0 0)
##          664) 324< 109.5 77      0 1 (0 1 0 0 0 0 0 0 0 0) *
##          665) 324>=109.5 8      4 7 (0 0.25 0 0 0.12 0 0.12 0.5
0 0) *
##          333) 462< 85.5 19      14 5 (0 0.053 0 0.21 0 0.26 0 0.16
0.16 0.16) *
##          167) 376>=20 171      123 5 (0.029 0.041 0.0058 0.13 0.18
0.28 0.047 0.07 0.041 0.18)
##          334) 539>=54.5 58      15 5 (0.086 0 0.017 0.1 0 0.74
0.017 0.017 0.017 0)
##          668) 413>=194 7      2 0 (0.71 0 0 0.29 0 0 0 0 0 0) *
##          669) 413< 194 51      8 5 (0 0 0.02 0.078 0 0.84 0.02
0.02 0.02 0)
##          1338) 352>=251.5 7      3 3 (0 0 0 0.57 0 0.29 0 0
0.14 0) *
##          1339) 352< 251.5 44      3 5 (0 0 0.023 0 0 0.93
0.023 0.023 0 0) *
##          335) 539< 54.5 113      82 9 (0 0.062 0 0.14 0.27 0.044
0.062 0.097 0.053 0.27)
##          670) 237< 2 43      17 4 (0 0 0 0.14 0.6 0 0.023 0.23 0
0)
##          1340) 231>=13 23      1 4 (0 0 0 0 0.96 0 0 0.043 0
0) *
##          1341) 231< 13 20      11 7 (0 0 0 0.3 0.2 0 0.05 0.45
0 0)
##          2682) 345< 12 11      5 3 (0 0 0 0.55 0.36 0 0.091
0 0 0) *
##          2683) 345>=12 9      0 7 (0 0 0 0 0 0 0 1 0 0) *
##          671) 237>=2 70      39 9 (0 0.1 0 0.14 0.057 0.071
0.086 0.014 0.086 0.44)
##          1342) 325< 5 27      20 1 (0 0.26 0 0.11 0.074 0.19
0.22 0 0.15 0)
##          2684) 154>=20 13      6 1 (0 0.54 0 0 0 0 0.15 0
0.31 0) *
##          2685) 154< 20 14      9 5 (0 0 0 0.21 0.14 0.36
0.29 0 0 0) *
##          1343) 325>=5 43      12 9 (0 0 0 0.16 0.047 0 0 0.023

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0.047 0.72)
##                2686) 288< 117 22      12 9 (0 0 0 0.32 0.091 0 0
0.045 0.091 0.45)
##                5372) 292< 132 9       2 3 (0 0 0 0.78 0 0 0 0
0.22 0) *
##                5373) 292>=132 13      3 9 (0 0 0 0 0.15 0 0
0.077 0 0.77) *
##                2687) 288>=117 21      0 9 (0 0 0 0 0 0 0 0 0 1) *
##                21) 290>=42.5 1357      824 5 (0.049 0.0044 0.0022 0.17 0.057
0.39 0.012 0.058 0.044 0.21)
##                42) 626>=10.5 836      360 5 (0.071 0.0012 0.0012 0.24 0.0012
0.57 0.011 0.006 0.059 0.044)
##                84) 297>=29.5 324      179 3 (0.1 0.0031 0.0031 0.45 0 0.21
0.0093 0.015 0.12 0.09)
##                168) 359>=77 32        4 0 (0.88 0 0 0 0 0 0.031 0.062 0.031
0) *
##                169) 359< 77 292      147 3 (0.017 0.0034 0.0034 0.5 0 0.24
0.0068 0.01 0.13 0.099)
##                338) 318< 219.5 112    26 3 (0 0 0 0.77 0 0.036 0 0
0.14 0.054)
##                676) 484< 186 101     15 3 (0 0 0 0.85 0 0.03 0 0
0.059 0.059)
##                1352) 488< 57.5 94     10 3 (0 0 0 0.89 0 0.032 0 0
0.011 0.064) *
##                1353) 488>=57.5 7     2 8 (0 0 0 0.29 0 0 0 0 0.71
0) *
##                677) 484>=186 11       1 8 (0 0 0 0 0 0.091 0 0 0.91 0)
*
##                339) 318>=219.5 180    115 5 (0.028 0.0056 0.0056 0.33 0
0.36 0.011 0.017 0.12 0.13)
##                678) 176>=79.5 40      8 3 (0 0 0 0.8 0 0.15 0 0 0.05
0)
##                1356) 288< 216 32     1 3 (0 0 0 0.97 0 0.031 0 0 0
0) *
##                1357) 288>=216 8      3 5 (0 0 0 0.12 0 0.62 0 0 0.25
0) *
##                679) 176< 79.5 140    81 5 (0.036 0.0071 0.0071 0.19
0 0.42 0.014 0.021 0.14 0.16)
##                1358) 294>=3 102      49 5 (0.049 0.0098 0.0098 0.25 0
0.52 0.02 0.029 0.029 0.088)
##                2716) 125>=40.5 25     9 3 (0 0.04 0.04 0.64 0
0.24 0 0 0.04 0)
##                5432) 270>=13.5 16     1 3 (0 0 0.062 0.94 0 0 0
0 0 0) *
##                5433) 270< 13.5 9      3 5 (0 0.11 0 0.11 0 0.67
0 0 0.11 0) *
##                2717) 125< 40.5 77    30 5 (0.065 0 0 0.12 0 0.61
0.026 0.039 0.026 0.12)
##                5434) 455>=193.5 8     3 0 (0.62 0 0 0 0 0 0.25
0 0 0.12) *

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##          5435) 455< 193.5 69      22 5 (0 0 0 0.13 0 0.68 0
0.043 0.029 0.12)
##          10870) 597>=38.5 54      10 5 (0 0 0 0.15 0 0.81
0 0 0.019 0.019) *
##          10871) 597< 38.5 15       8 9 (0 0 0 0.067 0 0.2
0 0.2 0.067 0.47) *
##        1359) 294< 3 38      22 8 (0 0 0 0.053 0 0.16 0 0 0.42
0.37)
##        2718) 545< 45.5 30      14 8 (0 0 0 0.067 0 0.2 0 0
0.53 0.2)
##        5436) 431< 10.5 14       8 9 (0 0 0 0.14 0 0.29 0
0 0.14 0.43) *
##        5437) 431>=10.5 16       2 8 (0 0 0 0 0 0.12 0 0
0.88 0) *
##          2719) 545>=45.5 8       0 9 (0 0 0 0 0 0 0 0 0 1) *
##      85) 297< 29.5 512      105 5 (0.051 0 0 0.1 0.002 0.79 0.012
0 0.021 0.016)
##        170) 301>=74 39      15 0 (0.62 0 0 0.077 0.026 0.026 0 0
0.13 0.13)
##        340) 293>=187 23       0 0 (1 0 0 0 0 0 0 0 0 0) *
##        341) 293< 187 16       11 8 (0.062 0 0 0.19 0.062 0.062 0
0 0.31 0.31) *
##        171) 301< 74 473      67 5 (0.0042 0 0 0.11 0 0.86 0.013 0
0.013 0.0063)
##        342) 295>=219 33      11 3 (0.061 0 0 0.67 0 0.15 0.03 0
0.061 0.03)
##        684) 214< 206 23       2 3 (0 0 0 0.91 0 0 0 0 0.043
0.043) *
##        685) 214>=206 10       5 5 (0.2 0 0 0.1 0 0.5 0.1 0 0.1
0) *
##        343) 295< 219 440      39 5 (0 0 0 0.064 0 0.91 0.011 0
0.0091 0.0045)
##        686) 121>=122.5 18      5 3 (0 0 0 0.72 0 0.22 0 0
0.056 0) *
##        687) 121< 122.5 422     25 5 (0 0 0 0.036 0 0.94 0.012
0 0.0071 0.0047)
##        1374) 235< 1 37      13 5 (0 0 0 0.32 0 0.65 0.027 0 0
0)
##        2748) 293>=176 20      8 3 (0 0 0 0.6 0 0.35 0.05 0
0 0)
##        5496) 551>=62.5 13      2 3 (0 0 0 0.85 0 0.077
0.077 0 0 0) *
##        5497) 551< 62.5 7      1 5 (0 0 0 0.14 0 0.86 0 0
0 0) *
##          2749) 293< 176 17      0 5 (0 0 0 0 0 1 0 0 0 0) *
##      1375) 235>=1 385      12 5 (0 0 0 0.0078 0 0.97 0.01 0
0.0078 0.0052)
##        2750) 299< 67 378      7 5 (0 0 0 0.0079 0 0.98
0.011 0 0 0) *
##        2751) 299>=67 7      4 8 (0 0 0 0 0 0.29 0 0 0.43

```

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0.29) *
##          43) 626< 10.5 521    277 9 (0.015 0.0096 0.0038 0.071 0.15
0.11 0.013 0.14 0.021 0.47)
##          86) 210< 1 164    102 7 (0.024 0.018 0 0.055 0.35 0.067
0.024 0.38 0.018 0.061)
##          172) 321< 202 85    27 4 (0 0 0 0.047 0.68 0.082 0.047
0.035 0.012 0.094)
##          344) 266< 36 70    13 4 (0 0 0 0.014 0.81 0.043 0.057
0.029 0 0.043)
##          688) 124< 37 63    6 4 (0 0 0 0.016 0.9 0 0 0.032 0
0.048) *
##          689) 124>=37 7    3 6 (0 0 0 0 0 0.43 0.57 0 0 0) *
##          345) 266>=36 15    10 9 (0 0 0 0.2 0.067 0.27 0 0.067
0.067 0.33) *
##          173) 321>=202 79    20 7 (0.051 0.038 0 0.063 0 0.051 0
0.75 0.025 0.025)
##          346) 570>=2 12    8 0 (0.33 0 0 0.17 0 0.33 0 0 0.17
0) *
##          347) 570< 2 67    8 7 (0 0.045 0 0.045 0 0 0 0.88 0
0.03) *
##          87) 210>=1 357    123 9 (0.011 0.0056 0.0056 0.078 0.05
0.13 0.0084 0.034 0.022 0.66)
##          174) 297< 5.5 100    56 5 (0 0.02 0 0.16 0.1 0.44 0.03
0.02 0.03 0.2)
##          348) 295< 99 63    20 5 (0 0 0 0.079 0.063 0.68 0.048
0.016 0.016 0.095)
##          696) 491< 144 52    10 5 (0 0 0 0.096 0 0.81 0.058 0
0 0.038) *
##          697) 491>=144 11    7 4 (0 0 0 0 0.36 0.091 0 0.091
0.091 0.36) *
##          349) 295>=99 37    23 9 (0 0.054 0 0.3 0.16 0.027 0
0.027 0.054 0.38)
##          698) 468>=26 9    0 3 (0 0 0 1 0 0 0 0 0 0) *
##          699) 468< 26 28    14 9 (0 0.071 0 0.071 0.21 0.036 0
0.036 0.071 0.5)
##          1398) 294>=197.5 17    11 4 (0 0.12 0 0.12 0.35
0.059 0 0.059 0.12 0.18) *
##          1399) 294< 197.5 11    0 9 (0 0 0 0 0 0 0 0 0 1) *
##          175) 297>=5.5 257    43 9 (0.016 0 0.0078 0.047 0.031
0.0078 0 0.039 0.019 0.83)
##          350) 680>=29 10    2 3 (0.1 0 0 0.8 0 0.1 0 0 0 0) *
##          351) 680< 29 247    33 9 (0.012 0 0.0081 0.016 0.032
0.004 0 0.04 0.02 0.87)
##          702) 515>=44 9    4 8 (0.22 0 0.22 0 0 0 0 0 0.56 0)
*
##          703) 515< 44 238    24 9 (0.0042 0 0 0.017 0.034
0.0042 0 0.042 0 0.9)
##          1406) 377< 21.5 16    8 7 (0.062 0 0 0 0 0.062 0
0.5 0 0.38) *
##          1407) 377>=21.5 222    14 9 (0 0 0 0.018 0.036 0 0

```

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0.009 0 0.94) *
##          11) 486>=76.5 993    580 8 (0.065 0.02 0.13 0.066 0.014 0.053 0.2
0.001 0.42 0.035)
##          22) 657< 5.5 423    238 6 (0.031 0.047 0.23 0.035 0.033 0.054
0.44 0 0.069 0.061)
##          44) 270>=51.5 173    104 2 (0.052 0.087 0.4 0.046 0.052 0.04
0.081 0 0.13 0.11)
##          88) 126>=10 73      16 2 (0 0.014 0.78 0.068 0 0 0.055 0
0.082 0)
##          176) 466< 39.5 60      5 2 (0 0.017 0.92 0.033 0 0 0.033 0
0 0) *
##          177) 466>=39.5 13      7 8 (0 0 0.15 0.23 0 0 0.15 0 0.46
0) *
##          89) 126< 10 100      81 9 (0.09 0.14 0.12 0.03 0.09 0.07 0.1
0 0.17 0.19)
##          178) 717< 5 83      67 8 (0.11 0.17 0.14 0.036 0.11 0.084
0.12 0 0.19 0.036)
##          356) 211< 22.5 39      25 1 (0 0.36 0 0 0.21 0.18 0.18 0
0.051 0.026)
##          712) 457< 14.5 14      1 1 (0 0.93 0 0 0 0 0.071 0 0
0) *
##          713) 457>=14.5 25      17 4 (0 0.04 0 0 0.32 0.28 0.24
0 0.08 0.04)
##          1426) 293< 127.5 17      9 4 (0 0.059 0 0 0.47 0 0.35
0 0.059 0.059) *
##          1427) 293>=127.5 8      1 5 (0 0 0 0 0 0.88 0 0 0.12
0) *
##          357) 211>=22.5 44      30 8 (0.2 0 0.27 0.068 0.023 0
0.068 0 0.32 0.045)
##          714) 406< 98 9      1 0 (0.89 0 0 0 0 0 0.11 0 0 0) *
##          715) 406>=98 35      21 8 (0.029 0 0.34 0.086 0.029 0
0.057 0 0.4 0.057)
##          1430) 550>=139 16      5 2 (0 0 0.69 0.062 0.062 0
0.062 0 0.062 0.062) *
##          1431) 550< 139 19      6 8 (0.053 0 0.053 0.11 0 0
0.053 0 0.68 0.053) *
##          179) 717>=5 17      1 9 (0 0 0 0 0 0 0 0 0.059 0.94) *
##          45) 270< 51.5 250      79 6 (0.016 0.02 0.12 0.028 0.02 0.064
0.68 0 0.024 0.028)
##          90) 601< 36.5 41      32 2 (0.049 0.12 0.22 0.073 0.12 0.098
0.098 0 0.049 0.17)
##          180) 380< 19.5 18      9 2 (0.056 0.28 0.5 0 0 0.11 0.056
0 0 0) *
##          181) 380>=19.5 23      16 9 (0.043 0 0 0.13 0.22 0.087 0.13
0 0.087 0.3)
##          362) 428< 201 13      9 4 (0 0 0 0.23 0.31 0.077 0.23 0
0.15 0) *
##          363) 428>=201 10      3 9 (0.1 0 0 0 0.1 0.1 0 0 0 0.7)
*
##          91) 601>=36.5 209      42 6 (0.0096 0 0.096 0.019 0 0.057

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0.8 0 0.019 0)
##          182) 584>=8 16      3 2 (0 0 0.81 0 0 0 0.19 0 0 0) *
##          183) 584< 8 193     29 6 (0.01 0 0.036 0.021 0 0.062 0.85
0 0.021 0)
##          366) 431< 1 21      11 5 (0 0 0 0.14 0 0.48 0.38 0 0 0)
##          732) 321>=93.5 14    4 5 (0 0 0 0.21 0 0.71 0.071 0
0 0) *
##          733) 321< 93.5 7     0 6 (0 0 0 0 0 0 1 0 0 0) *
##          367) 431>=1 172     16 6 (0.012 0 0.041 0.0058 0 0.012
0.91 0 0.023 0)
##          734) 273>=58.5 7     4 8 (0.29 0 0 0.14 0 0.14 0 0
0.43 0) *
##          735) 273< 58.5 165   9 6 (0 0 0.042 0 0 0.0061 0.95
0 0.0061 0) *
##          23) 657>=5.5 570     186 8 (0.091 0 0.049 0.089 0 0.053 0.026
0.0018 0.67 0.016)
##          46) 407< 1.5 97      53 0 (0.45 0 0.082 0.062 0 0.15 0.031 0
0.22 0)
##          92) 329>=11 41       4 0 (0.9 0 0 0.024 0 0.049 0 0 0.024 0)
*
##          93) 329< 11 56       36 8 (0.12 0 0.14 0.089 0 0.23 0.054 0
0.36 0)
##          186) 347>=0.5 40     27 5 (0.17 0 0 0.12 0 0.33 0.075 0
0.3 0)
##          372) 351< 190 12     5 0 (0.58 0 0 0.083 0 0.25 0.083 0
0 0) *
##          373) 351>=190 28     16 8 (0 0 0 0.14 0 0.36 0.071 0
0.43 0)
##          746) 297< 178 16     6 5 (0 0 0 0.12 0 0.62 0.062 0
0.19 0) *
##          747) 297>=178 12     3 8 (0 0 0 0.17 0 0 0.083 0 0.75
0) *
##          187) 347< 0.5 16     8 2 (0 0 0.5 0 0 0 0 0.5 0) *
##          47) 407>=1.5 473     110 8 (0.017 0 0.042 0.095 0 0.032 0.025
0.0021 0.77 0.019)
##          94) 514< 1 43       21 3 (0 0 0.023 0.51 0 0.047 0 0 0.3
0.12)
##          188) 512< 70.5 27    6 3 (0 0 0 0.78 0 0.037 0 0 0 0.19)
##          376) 320< 71.5 20    0 3 (0 0 0 1 0 0 0 0 0 0) *
##          377) 320>=71.5 7     2 9 (0 0 0 0.14 0 0.14 0 0 0 0.71)
*
##          189) 512>=70.5 16    3 8 (0 0 0.062 0.062 0 0.062 0 0
0.81 0) *
##          95) 514>=1 430       80 8 (0.019 0 0.044 0.053 0 0.03 0.028
0.0023 0.81 0.0093)
##          190) 432< 1 28      20 3 (0.21 0 0.036 0.29 0 0.21 0.036 0
0.18 0.036)
##          380) 429>=101.5 13   7 0 (0.46 0 0.077 0 0 0 0.077 0
0.38 0) *
##          381) 429< 101.5 15   7 3 (0 0 0 0.53 0 0.4 0 0 0

```

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0.067) *
##          191) 432>=1 402      57 8 (0.005 0 0.045 0.037 0 0.017
0.027 0.0025 0.86 0.0075)
##          382) 436< 7 57      25 8 (0.018 0 0.32 0.053 0 0.018
0.018 0.018 0.56 0)
##          764) 126>=44.5 24      7 2 (0 0 0.71 0.042 0 0 0.042 0
0.21 0)
##          1528) 602>=175 17      1 2 (0 0 0.94 0 0 0 0.059 0 0
0) *
##          1529) 602< 175 7      2 8 (0 0 0.14 0.14 0 0 0 0 0.71
0) *
##          765) 126< 44.5 33      6 8 (0.03 0 0.03 0.061 0 0.03 0
0.03 0.82 0) *
##          383) 436>=7 345      32 8 (0.0029 0 0 0.035 0 0.017 0.029
0 0.91 0.0087)
##          766) 439>=250.5 36      18 8 (0 0 0 0.28 0 0.14 0.056 0
0.5 0.028)
##          1532) 289< 1.5 11      2 3 (0 0 0 0.82 0 0 0.091 0
0.091 0) *
##          1533) 289>=1.5 25      8 8 (0 0 0 0.04 0 0.2 0.04 0
0.68 0.04)
##          3066) 270< 126 8      3 5 (0 0 0 0 0 0.62 0.12 0
0.12 0.12) *
##          3067) 270>=126 17      1 8 (0 0 0 0.059 0 0 0 0
0.94 0) *
##          767) 439< 250.5 309      14 8 (0.0032 0 0 0.0065 0
0.0032 0.026 0 0.95 0.0065)
##          1534) 406< 171.5 37      9 8 (0.027 0 0 0 0 0 0.19 0
0.76 0.027)
##          3068) 131>=50 7      2 6 (0.14 0 0 0 0 0 0.71 0
0.14 0) *
##          3069) 131< 50 30      3 8 (0 0 0 0 0 0 0.067 0 0.9
0.033) *
##          1535) 406>=171.5 272      5 8 (0 0 0 0.0074 0 0.0037
0.0037 0 0.98 0.0037) *
##          3) 350< 120.5 16137 13725 7 (0.14 0.014 0.13 0.031 0.14 0.081 0.12
0.15 0.077 0.12)
##          6) 435< 0.5 4294 2072 0 (0.52 0.004 0.066 0.03 0.039 0.086 0.053
0.15 0.0086 0.042)
##          12) 597>=1.5 2737 684 0 (0.75 0.0022 0.084 0.031 0.0018 0.08
0.03 0.0058 0.011 0.0033)
##          24) 489< 0.5 2295 319 0 (0.86 0.00044 0.021 0.033 0.00087
0.053 0.02 0.0052 0.0026 0.0026)
##          48) 380< 1.5 2072 142 0 (0.93 0 0.015 0.015 0.00048 0.021
0.01 0.0048 0.00048 0.00097)
##          96) 324< 172 1973 88 0 (0.96 0 0.015 0.0035 0.00051
0.0096 0.0091 0.0051 0.00051 0.001)
##          192) 463< 80 1955 73 0 (0.96 0 0.013 0.0036 0.00051
0.0082 0.0087 0.002 0 0.001)
##          384) 400>=3.5 1623 17 0 (0.99 0 0.00062 0 0.00062

```



```

0.0012 0.0074 0 0 0.00062)
##          768) 96< 93.5 1603      12 0 (0.99 0 0.00062 0 0.00062
0.0012 0.0044 0 0 0.00062)
##          1536) 101< 189 1578      7 0 (1 0 0 0 0.00063 0.0013
0.0019 0 0 0.00063) *
##          1537) 101>=189 25      5 0 (0.8 0 0.04 0 0 0 0.16 0 0
0)
##          3074) 244>=5.5 18      1 0 (0.94 0 0.056 0 0 0 0 0
0 0) *
##          3075) 244< 5.5 7      3 6 (0.43 0 0 0 0 0 0.57 0 0
0) *
##          769) 96>=93.5 20      5 0 (0.75 0 0 0 0 0 0.25 0 0 0)
##          1538) 183>=24.5 13      0 0 (1 0 0 0 0 0 0 0 0 0) *
##          1539) 183< 24.5 7      2 6 (0.29 0 0 0 0 0 0.71 0 0
0) *
##          385) 400< 3.5 332      56 0 (0.83 0 0.075 0.021 0 0.042
0.015 0.012 0 0.003)
##          770) 545< 198.5 299      35 0 (0.88 0 0.03 0.023 0
0.047 0.01 0.0033 0 0.0033)
##          1540) 296< 135 267      15 0 (0.94 0 0.026 0.0037 0
0.0075 0.011 0.0037 0 0.0037)
##          3080) 244>=1 201      2 0 (0.99 0 0 0 0 0.005 0
0.005 0 0) *
##          3081) 244< 1 66      13 0 (0.8 0 0.11 0.015 0 0.015
0.045 0 0 0.015)
##          6162) 149< 10.5 56      4 0 (0.93 0 0.018 0 0 0
0.054 0 0 0) *
##          6163) 149>=10.5 10      4 2 (0.1 0 0.6 0.1 0 0.1
0 0 0 0.1) *
##          1541) 296>=135 32      20 0 (0.38 0 0.062 0.19 0 0.38
0 0 0 0)
##          3082) 239>=145 18      7 0 (0.61 0 0.11 0.28 0 0 0
0 0 0) *
##          3083) 239< 145 14      2 5 (0.071 0 0 0.071 0 0.86
0 0 0 0) *
##          771) 545>=198.5 33      17 2 (0.36 0 0.48 0 0 0 0.061
0.091 0 0)
##          1542) 455>=4 11      1 0 (0.91 0 0.091 0 0 0 0 0 0 0)
*
##          1543) 455< 4 22      7 2 (0.091 0 0.68 0 0 0 0.091
0.14 0 0)
##          3086) 544>=170 14      1 2 (0.071 0 0.93 0 0 0 0 0
0 0) *
##          3087) 544< 170 8      5 7 (0.12 0 0.25 0 0 0 0.25
0.38 0 0) *
##          193) 463>=80 18      12 7 (0.17 0 0.22 0 0 0.17 0.056 0.33
0.056 0) *
##          97) 324>=172 99      54 0 (0.45 0 0.02 0.24 0 0.25 0.03 0 0
0)
##          194) 427>=40 42      2 0 (0.95 0 0 0.024 0 0.024 0 0 0 0)

```

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*
##          195) 427< 40 57      33 5 (0.088 0 0.035 0.4 0 0.42 0.053 0
0 0)
##          390) 240>=64.5 30      9 3 (0.13 0 0.033 0.7 0 0.13 0 0
0 0)
##          780) 209>=148.5 11      7 0 (0.36 0 0.091 0.18 0 0.36
0 0 0 0) *
##          781) 209< 148.5 19      0 3 (0 0 0 1 0 0 0 0 0) *
##          391) 240< 64.5 27      7 5 (0.037 0 0.037 0.074 0 0.74
0.11 0 0 0)
##          782) 541>=148 7      4 6 (0.14 0 0.14 0 0 0.29 0.43 0
0 0) *
##          783) 541< 148 20      2 5 (0 0 0 0.1 0 0.9 0 0 0 0) *
##          49) 380>=1.5 223      146 5 (0.21 0.0045 0.076 0.2 0.0045 0.35
0.12 0.009 0.022 0.018)
##          98) 484>=42 84      45 0 (0.46 0 0.071 0.024 0.012 0.13 0.26
0 0.024 0.012)
##          196) 270>=21.5 45      9 0 (0.8 0 0.067 0 0.022 0.044 0 0
0.044 0.022)
##          392) 378< 76.5 38      2 0 (0.95 0 0 0 0.026 0 0 0 0
0.026) *
##          393) 378>=76.5 7      4 2 (0 0 0.43 0 0 0.29 0 0 0.29 0)
*
##          197) 270< 21.5 39      17 6 (0.077 0 0.077 0.051 0 0.23
0.56 0 0 0)
##          394) 325>=145 13      7 5 (0.15 0 0.23 0.15 0 0.46 0 0 0
0) *
##          395) 325< 145 26      4 6 (0.038 0 0 0 0 0.12 0.85 0 0
0) *
##          99) 484< 42 139      73 5 (0.05 0.0072 0.079 0.3 0 0.47
0.029 0.014 0.022 0.022)
##          198) 375< 95 65      34 3 (0.046 0.015 0.15 0.48 0 0.22
0.046 0.031 0.015 0)
##          396) 287< 38.5 55      24 3 (0.055 0.018 0.18 0.56 0 0.13
0.018 0.036 0 0)
##          792) 514>=4 11      5 2 (0.091 0.091 0.55 0 0 0.18
0.091 0 0 0) *
##          793) 514< 4 44      13 3 (0.045 0 0.091 0.7 0 0.11 0
0.045 0 0)
##          1586) 544< 35 36      6 3 (0.056 0 0 0.83 0 0.11 0 0
0 0)
##          3172) 538< 56 27      0 3 (0 0 0 1 0 0 0 0 0) *
##          3173) 538>=56 9      5 5 (0.22 0 0 0.33 0 0.44 0 0
0 0) *
##          1587) 544>=35 8      4 2 (0 0 0.5 0.12 0 0.12 0 0.25
0 0) *
##          397) 287>=38.5 10      3 5 (0 0 0 0 0 0.7 0.2 0 0.1 0) *
##          199) 375>=95 74      22 5 (0.054 0 0.014 0.15 0 0.7 0.014 0
0.027 0.041)
##          398) 326>=3.5 21      15 5 (0.19 0 0.048 0.19 0 0.29

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0.048 0 0.095 0.14)
##          796) 381>=215.5 13      9 0 (0.31 0 0.077 0.31 0 0.077
0 0 0 0.23) *
##          797) 381< 215.5 8      3 5 (0 0 0 0 0 0.62 0.12 0 0.25
0) *
##          399) 326< 3.5 53      7 5 (0 0 0 0.13 0 0.87 0 0 0 0)
##          798) 202>=10 7      2 3 (0 0 0 0.71 0 0.29 0 0 0 0) *
##          799) 202< 10 46      2 5 (0 0 0 0.043 0 0.96 0 0 0 0)
*
##          25) 489>=0.5 442      261 2 (0.17 0.011 0.41 0.023 0.0068 0.22
0.081 0.009 0.054 0.0068)
##          50) 347< 2.5 218      48 2 (0.032 0.023 0.78 0.028 0.0092
0.046 0.032 0.014 0.028 0.0092)
##          100) 344< 154.5 192      23 2 (0 0.026 0.88 0.031 0.0052 0.01
0.0052 0.016 0.026 0)
##          200) 520>=34 169      7 2 (0 0 0.96 0.012 0.0059 0 0.0059
0.018 0 0) *
##          201) 520< 34 23      16 2 (0 0.22 0.3 0.17 0 0.087 0 0 0.22
0)
##          402) 351>=171.5 11      5 2 (0 0.45 0.55 0 0 0 0 0 0 0)
*
##          403) 351< 171.5 12      7 8 (0 0 0.083 0.33 0 0.17 0 0
0.42 0) *
##          101) 344>=154.5 26      18 5 (0.27 0 0.038 0 0.038 0.31 0.23
0 0.038 0.077)
##          202) 512>=14.5 17      10 0 (0.41 0 0.059 0 0.059 0 0.29 0
0.059 0.12) *
##          203) 512< 14.5 9      1 5 (0 0 0 0 0 0.89 0.11 0 0 0) *
##          51) 347>=2.5 224      135 5 (0.31 0 0.049 0.018 0.0045 0.4 0.13
0.0045 0.08 0.0045)
##          102) 386>=3.5 73      9 0 (0.88 0 0.014 0 0 0 0.068 0.014
0.014 0.014)
##          204) 243>=2 64      3 0 (0.95 0 0.016 0 0 0 0 0.016 0.016
0) *
##          205) 243< 2 9      4 6 (0.33 0 0 0 0 0 0.56 0 0 0.11) *
##          103) 386< 3.5 151      62 5 (0.04 0 0.066 0.026 0.0066 0.59
0.16 0 0.11 0)
##          206) 513>=12.5 64      41 6 (0.078 0 0.14 0.062 0.016 0.16
0.36 0 0.19 0)
##          412) 131< 89 44      32 8 (0.091 0 0.18 0.068 0.023 0.23
0.14 0 0.27 0)
##          824) 407< 63 34      24 5 (0.12 0 0.24 0.088 0.029 0.29
0.15 0 0.088 0)
##          1648) 580>=144 10      3 2 (0 0 0.7 0.1 0 0 0.2 0 0
0) *
##          1649) 580< 144 24      14 5 (0.17 0 0.042 0.083 0.042
0.42 0.12 0 0.12 0)
##          3298) 627>=242 10      6 0 (0.4 0 0.1 0.1 0 0 0.2 0
0.2 0) *
##          3299) 627< 242 14      4 5 (0 0 0 0.071 0.071 0.71

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0.071 0 0.071 0) *
##          825) 407>=63 10      1 8 (0 0 0 0 0 0 0.1 0 0.9 0) *
##          413) 131>=89 20      3 6 (0.05 0 0.05 0.05 0 0 0.85 0 0
0) *
##          207) 513< 12.5 87      8 5 (0.011 0 0.011 0 0 0.91 0.011 0
0.057 0) *
##          13) 597< 1.5 1557      909 7 (0.11 0.0071 0.033 0.029 0.1 0.095
0.094 0.42 0.0045 0.11)
##          26) 486>=0.5 603      470 6 (0.18 0.0017 0.073 0.018 0.21 0.1
0.22 0.043 0.0083 0.15)
##          52) 572>=5.5 309      186 6 (0.32 0.0032 0.097 0.019 0.029
0.061 0.4 0.0097 0.0097 0.052)
##          104) 241>=12 151      61 0 (0.6 0 0.11 0.02 0.02 0.093 0.033
0.02 0.013 0.099)
##          208) 518< 102 93      13 0 (0.86 0 0.032 0.011 0 0.022
0.022 0.022 0.011 0.022)
##          416) 322< 103 86      7 0 (0.92 0 0.023 0.012 0 0 0
0.023 0 0.023) *
##          417) 322>=103 7      5 5 (0.14 0 0.14 0 0 0.29 0.29 0
0.14 0) *
##          209) 518>=102 58      45 2 (0.17 0 0.22 0.034 0.052 0.21
0.052 0.017 0.017 0.22)
##          418) 438< 23.5 25      13 5 (0.32 0 0 0.04 0 0.48 0.12 0
0.04 0)
##          836) 370>=3 8      0 0 (1 0 0 0 0 0 0 0 0 0) *
##          837) 370< 3 17      5 5 (0 0 0 0.059 0 0.71 0.18 0
0.059 0) *
##          419) 438>=23.5 33      20 2 (0.061 0 0.39 0.03 0.091 0 0
0.03 0 0.39)
##          838) 343< 29 19      6 2 (0.11 0 0.68 0.053 0.11 0 0 0
0 0.053) *
##          839) 343>=29 14      2 9 (0 0 0 0 0.071 0 0 0.071 0
0.86) *
##          105) 241< 12 158      40 6 (0.057 0.0063 0.089 0.019 0.038
0.032 0.75 0 0.0063 0.0063)
##          210) 215>=15 15      8 0 (0.47 0 0.2 0 0.13 0 0.067 0
0.067 0.067) *
##          211) 215< 15 143      26 6 (0.014 0.007 0.077 0.021 0.028
0.035 0.82 0 0 0)
##          422) 322>=99.5 15      11 2 (0.13 0.067 0.27 0.2 0 0.2
0.13 0 0 0) *
##          423) 322< 99.5 128      13 6 (0 0 0.055 0 0.031 0.016 0.9
0 0 0)
##          846) 555>=194 8      3 2 (0 0 0.62 0 0 0 0.38 0 0 0) *
##          847) 555< 194 120      8 6 (0 0 0.017 0 0.033 0.017
0.93 0 0 0)
##          1694) 657>=4.5 7      4 4 (0 0 0.14 0 0.43 0.14 0.29
0 0 0) *
##          1695) 657< 4.5 113      3 6 (0 0 0.0088 0 0.0088
0.0088 0.97 0 0 0) *

```

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##          53) 572< 5.5 294    178 4 (0.031 0 0.048 0.017 0.39 0.14
0.034 0.078 0.0068 0.25)
##          106) 211< 8 119      27 4 (0.017 0 0.05 0 0.77 0.025 0.042
0.05 0 0.042)
##          212) 294< 30.5 103    11 4 (0.0097 0 0.029 0 0.89 0 0.049
0 0 0.019)
##          424) 125>=149.5 7      4 2 (0 0 0.43 0 0.29 0 0.29 0 0
0) *
##          425) 125< 149.5 96     6 4 (0.01 0 0 0 0.94 0 0.031 0 0
0.021) *
##          213) 294>=30.5 16     10 7 (0.062 0 0.19 0 0 0.19 0 0.38 0
0.19) *
##          107) 211>=8 175    106 9 (0.04 0 0.046 0.029 0.14 0.22 0.029
0.097 0.011 0.39)
##          214) 465< 104 69     31 5 (0.087 0 0.072 0.072 0.014 0.55
0.058 0.058 0.014 0.072)
##          428) 218>=1.5 35      3 5 (0.057 0 0.029 0 0 0.91 0 0 0
0) *
##          429) 218< 1.5 34     28 5 (0.12 0 0.12 0.15 0.029 0.18
0.12 0.12 0.029 0.15)
##          858) 345< 146 25     20 3 (0.16 0 0.16 0.2 0.04 0 0.16
0.04 0.04 0.2)
##          1716) 324>=5.5 7      2 3 (0 0 0 0.71 0.14 0 0 0 0
0.14) *
##          1717) 324< 5.5 18     14 0 (0.22 0 0.22 0 0 0 0.22
0.056 0.056 0.22) *
##          859) 345>=146 9       3 5 (0 0 0 0 0 0.67 0 0.33 0 0) *
##          215) 465>=104 106     42 9 (0.0094 0 0.028 0 0.22 0 0.0094
0.12 0.0094 0.6)
##          430) 208< 2.5 24      7 4 (0.042 0 0.042 0 0.71 0 0
0.083 0 0.12)
##          860) 328< 97.5 17     1 4 (0 0 0 0 0.94 0 0 0 0
0.059) *
##          861) 328>=97.5 7      5 7 (0.14 0 0.14 0 0.14 0 0 0.29
0 0.29) *
##          431) 208>=2.5 82     21 9 (0 0 0.024 0 0.073 0 0.012
0.13 0.012 0.74)
##          862) 375>=62.5 9      5 4 (0 0 0.11 0 0.44 0 0 0.22
0.11 0.11) *
##          863) 375< 62.5 73     13 9 (0 0 0.014 0 0.027 0 0.014
0.12 0 0.82)
##          1726) 408>=130.5 11    5 7 (0 0 0 0 0 0 0 0.55 0
0.45) *
##          1727) 408< 130.5 62    7 9 (0 0 0.016 0 0.032 0
0.016 0.048 0 0.89) *
##          27) 486< 0.5 954     332 7 (0.064 0.01 0.0084 0.036 0.038 0.092
0.014 0.65 0.0021 0.084)
##          54) 404>=1 208      143 9 (0.019 0.034 0.014 0.12 0.11 0.3
0.043 0.043 0.0096 0.31)
##          108) 354< 26 106      47 5 (0.019 0.066 0 0.16 0.019 0.56

```

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0.085 0.019 0.019 0.057)
##          216) 290< 0.5 53      36 3 (0.019 0.13 0 0.32 0.019 0.32
0.15 0 0 0.038)
##          432) 205>=9.5 16      3 3 (0 0 0 0.81 0.062 0.12 0 0 0
0) *
##          433) 205< 9.5 37      22 5 (0.027 0.19 0 0.11 0 0.41 0.22
0 0 0.054)
##          866) 541< 12 28      20 6 (0.036 0.25 0 0.14 0 0.21
0.29 0 0 0.071)
##          1732) 515< 28.5 18      12 1 (0.056 0.33 0 0.22 0 0.28
0 0 0 0.11) *
##          1733) 515>=28.5 10      2 6 (0 0.1 0 0 0 0.1 0.8 0 0
0) *
##          867) 541>=12 9      0 5 (0 0 0 0 0 1 0 0 0 0) *
##          217) 290>=0.5 53      11 5 (0.019 0 0 0 0.019 0.79 0.019
0.038 0.038 0.075)
##          434) 464< 87 46      5 5 (0.022 0 0 0 0 0.89 0.022 0.022
0.043 0) *
##          435) 464>=87 7      3 9 (0 0 0 0 0.14 0.14 0 0.14 0
0.57) *
##          109) 354>=26 102      43 9 (0.02 0 0.029 0.078 0.2 0.029 0
0.069 0 0.58)
##          218) 239< 1.5 31      12 4 (0 0 0.032 0.13 0.61 0.032 0
0.097 0 0.097)
##          436) 155>=78.5 7      3 3 (0 0 0.14 0.57 0 0 0 0 0.29)
*
##          437) 155< 78.5 24      5 4 (0 0 0 0 0.79 0.042 0 0.12 0
0.042) *
##          219) 239>=1.5 71      15 9 (0.028 0 0.028 0.056 0.014 0.028
0 0.056 0 0.79) *
##          55) 404< 1 746      133 7 (0.076 0.004 0.0067 0.012 0.019 0.035
0.0054 0.82 0 0.02)
##          110) 538>=1 68      19 0 (0.72 0 0 0.015 0.029 0.13 0 0.059 0
0.044)
##          220) 323< 203 59      10 0 (0.83 0 0 0 0.034 0.051 0 0.034
0 0.051)
##          440) 518< 37.5 51      3 0 (0.94 0 0 0 0 0.02 0 0.039 0
0) *
##          441) 518>=37.5 8      5 9 (0.12 0 0 0 0.25 0.25 0 0 0
0.38) *
##          221) 323>=203 9      3 5 (0 0 0 0.11 0 0.67 0 0.22 0 0) *
##          111) 538< 1 678      69 7 (0.012 0.0044 0.0074 0.012 0.018
0.025 0.0059 0.9 0 0.018)
##          222) 460>=13 30      20 5 (0 0.067 0.033 0.033 0.27 0.33
0.033 0.067 0 0.17)
##          444) 381< 10.5 14      4 5 (0 0.14 0 0.071 0 0.71 0.071
0 0 0) *
##          445) 381>=10.5 16      8 4 (0 0 0.062 0 0.5 0 0 0.12 0
0.31) *
##          223) 460< 13 648      41 7 (0.012 0.0015 0.0062 0.011

```

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0.0062 0.011 0.0046 0.94 0 0.011)
##          446) 153>=27 19      14 3 (0.16 0.053 0.16 0.26 0 0.21 0
0.053 0 0.11) *
##          447) 153< 27 629      23 7 (0.0079 0 0.0016 0.0032 0.0064
0.0048 0.0048 0.96 0 0.0079)
##          894) 158>=2 7        4 0 (0.43 0 0 0 0.29 0.29 0 0 0 0)
*
##          895) 158< 2 622      16 7 (0.0032 0 0.0016 0.0032
0.0032 0.0016 0.0048 0.97 0 0.008)
##          1790) 542>=123 8      5 6 (0.12 0 0 0 0.12 0.12 0.38
0.12 0 0.12) *
##          1791) 542< 123 614      9 7 (0.0016 0 0.0016 0.0033
0.0016 0 0 0.99 0 0.0065) *
##          7) 435>=0.5 11843 9804 4 (0.0054 0.017 0.15 0.031 0.17 0.079
0.15 0.15 0.1 0.15)
##          14) 542>=1.5 5226 3621 6 (0.0094 0.025 0.28 0.0077 0.052 0.045
0.31 0.054 0.18 0.038)
##          28) 271>=0.5 2838 1751 2 (0.014 0.036 0.38 0.0099 0.076 0.046
0.027 0.088 0.26 0.057)
##          56) 347< 1.5 1644 635 2 (0.003 0.062 0.61 0.014 0.04
0.0073 0.03 0.12 0.057 0.055)
##          112) 155>=1 1021 119 2 (0.0029 0 0.88 0.016 0.002 0.002
0.002 0.012 0.065 0.016)
##          224) 344< 82 936 54 2 (0 0 0.94 0.016 0 0.0011 0 0.013
0.027 0.0011)
##          448) 349< 134.5 922 40 2 (0 0 0.96 0.016 0 0.0011 0
0.013 0.012 0.0011)
##          896) 345< 104.5 912 31 2 (0 0 0.97 0.016 0 0 0
0.013 0.0044 0)
##          1792) 681< 37 869 16 2 (0 0 0.98 0.014 0 0 0
0.0035 0.0012 0)
##          3584) 488>=1.5 801 6 2 (0 0 0.99 0.0025 0 0 0
0.0037 0.0012 0) *
##          3585) 488< 1.5 68 10 2 (0 0 0.85 0.15 0 0 0 0 0
0)
##          7170) 351< 38.5 56 2 2 (0 0 0.96 0.036 0 0 0
0 0 0) *
##          7171) 351>=38.5 12 4 3 (0 0 0.33 0.67 0 0 0
0 0 0) *
##          1793) 681>=37 43 15 2 (0 0 0.65 0.07 0 0 0 0.21
0.07 0)
##          3586) 206>=235.5 28 3 2 (0 0 0.89 0.071 0 0 0
0 0.036 0) *
##          3587) 206< 235.5 15 6 7 (0 0 0.2 0.067 0 0 0
0.6 0.13 0) *
##          897) 345>=104.5 10 3 8 (0 0 0.1 0 0 0.1 0 0 0.7
0.1) *
##          449) 349>=134.5 14 0 8 (0 0 0 0 0 0 0 0 1 0) *
##          225) 344>=82 85 44 8 (0.035 0 0.24 0.012 0.024 0.012
0.024 0 0.48 0.18)

```

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##          450) 402< 51.5 35      18 2 (0.086 0 0.49 0 0.057 0 0.057
0 0 0.31)
##          900) 570>=169.5 22      5 2 (0.14 0 0.77 0 0 0 0.091 0
0 0)
##          1800) 372< 138 15      0 2 (0 0 1 0 0 0 0 0 0) *
##          1801) 372>=138 7      4 0 (0.43 0 0.29 0 0 0 0.29 0 0
0) *
##          901) 570< 169.5 13      2 9 (0 0 0 0 0.15 0 0 0 0
0.85) *
##          451) 402>=51.5 50      9 8 (0 0 0.06 0.02 0 0.02 0 0
0.82 0.08)
##          902) 318>=167.5 7      5 2 (0 0 0.29 0.14 0 0.14 0 0
0.14 0.29) *
##          903) 318< 167.5 43      3 8 (0 0 0.023 0 0 0 0 0 0.93
0.047) *
##          113) 155< 1 623      442 7 (0.0032 0.16 0.17 0.011 0.1 0.016
0.077 0.29 0.045 0.12)
##          226) 709< 1.5 487      383 2 (0.0041 0.21 0.21 0.012 0.13
0.021 0.099 0.12 0.045 0.15)
##          452) 211< 1 246      146 1 (0 0.41 0.077 0.0041 0.24 0.02
0.2 0.033 0.012 0.0081)
##          904) 344< 1.5 135      35 1 (0 0.74 0.13 0.0074 0.015
0.022 0.044 0.044 0 0)
##          1808) 520< 3 107      8 1 (0 0.93 0.028 0 0.0093
0.0093 0 0.028 0 0)
##          3616) 411< 14.5 100      1 1 (0 0.99 0 0 0 0.01 0 0
0 0) *
##          3617) 411>=14.5 7      4 2 (0 0 0.43 0 0.14 0 0
0.43 0 0) *
##          1809) 520>=3 28      14 2 (0 0.036 0.5 0.036 0.036
0.071 0.21 0.11 0 0)
##          3618) 431>=8.5 14      2 2 (0 0 0.86 0.071 0.071 0
0 0 0) *
##          3619) 431< 8.5 14      8 6 (0 0.071 0.14 0 0 0.14
0.43 0.21 0 0) *
##          905) 344>=1.5 111      53 4 (0 0 0.018 0 0.52 0.018
0.38 0.018 0.027 0.018)
##          1810) 573< 221 72      18 4 (0 0 0.028 0 0.75 0.028
0.097 0.028 0.042 0.028)
##          3620) 292< 124 63      9 4 (0 0 0.016 0 0.86 0 0.11
0 0 0.016)
##          7240) 94< 7.5 56      3 4 (0 0 0.018 0 0.95 0
0.018 0 0 0.018) *
##          7241) 94>=7.5 7      1 6 (0 0 0 0 0.14 0 0.86 0 0
0) *
##          3621) 292>=124 9      6 8 (0 0 0.11 0 0 0.22 0 0.22
0.33 0.11) *
##          1811) 573>=221 39      4 6 (0 0 0 0 0.1 0 0.9 0 0 0)
##          3622) 576< 114 7      3 4 (0 0 0 0 0.57 0 0.43 0 0
0) *

```



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##          3623) 576>=114 32      0 6 (0 0 0 0 0 0 1 0 0 0) *
##          453) 211>=1 241      156 2 (0.0083 0.0083 0.35 0.021
0.0083 0.021 0 0.2 0.079 0.3)
##          906) 371< 1.5 150      69 2 (0 0.013 0.54 0.033 0.0067
0 0 0.31 0.04 0.06)
##          1812) 678< 45.5 127      46 2 (0 0.016 0.64 0.039 0 0
0 0.19 0.047 0.071)
##          3624) 712< 40.5 109      29 2 (0 0.018 0.73 0.046 0
0 0 0.092 0.037 0.073)
##          7248) 569>=4.5 78      10 2 (0 0.026 0.87 0.038 0
0 0 0.026 0.026 0.013) *
##          7249) 569< 4.5 31      19 2 (0 0 0.39 0.065 0 0 0
0.26 0.065 0.23)
##          14498) 575< 111.5 19      9 2 (0 0 0.53 0 0 0 0
0 0.11 0.37) *
##          14499) 575>=111.5 12      4 7 (0 0 0.17 0.17 0 0
0 0.67 0 0) *
##          3625) 712>=40.5 18      4 7 (0 0 0.056 0 0 0 0 0.78
0.11 0.056) *
##          1813) 678>=45.5 23      1 7 (0 0 0 0 0.043 0 0 0.96 0
0) *
##          907) 371>=1.5 91      28 9 (0.022 0 0.044 0 0.011 0.055
0 0.033 0.14 0.69)
##          1814) 599>=6.5 28      15 8 (0.071 0 0.071 0 0.036
0.18 0 0.071 0.46 0.11)
##          3628) 467>=4 14      9 5 (0.14 0 0.071 0 0.071 0.36
0 0.14 0.071 0.14) *
##          3629) 467< 4 14      2 8 (0 0 0.071 0 0 0 0 0.86
0.071) *
##          1815) 599< 6.5 63      3 9 (0 0 0.032 0 0 0 0 0.016 0
0.95) *
##          227) 709>=1.5 136      12 7 (0 0 0.022 0.0074 0.0074 0 0
0.91 0.044 0.0074)
##          454) 373< 182.5 128      4 7 (0 0 0.023 0.0078 0 0 0
0.97 0 0) *
##          455) 373>=182.5 8      2 8 (0 0 0 0 0.12 0 0 0 0.75
0.12) *
##          57) 347>=1.5 1194      546 8 (0.03 0 0.065 0.0042 0.13 0.1
0.023 0.047 0.54 0.06)
##          114) 657< 15 485      357 4 (0.039 0 0.15 0 0.26 0.2 0.039
0.099 0.1 0.11)
##          228) 354< 1 121      27 5 (0.041 0 0.058 0 0.025 0.78 0.033
0 0.066 0)
##          456) 384>=14 20      14 8 (0.25 0 0.25 0 0.05 0 0.15 0
0.3 0)
##          912) 522>=13.5 13      8 0 (0.38 0 0.38 0 0 0 0.23 0 0
0) *
##          913) 522< 13.5 7      1 8 (0 0 0 0 0.14 0 0 0 0.86 0)
*
##          457) 384< 14 101      7 5 (0 0 0.02 0 0.02 0.93 0.0099 0

```

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0.02 0)
##          914) 352>=52.5 7      5 2 (0 0 0.29 0 0.29 0.14 0 0
0.29 0) *
##          915) 352< 52.5 94      1 5 (0 0 0 0 0 0.99 0.011 0 0
0) *
##        229) 354>=1 364      239 4 (0.038 0 0.18 0 0.34 0.0055 0.041
0.13 0.11 0.15)
##        458) 212< 1.5 155      49 4 (0 0 0.084 0 0.68 0.0065
0.084 0.084 0.045 0.013)
##        916) 268< 136 132      26 4 (0 0 0.076 0 0.8 0.0076
0.098 0 0.015 0)
##        1832) 127>=2.5 18      9 2 (0 0 0.5 0 0 0 0.44 0
0.056 0) *
##        1833) 127< 2.5 114      8 4 (0 0 0.0088 0 0.93 0.0088
0.044 0 0.0088 0)
##        3666) 124< 172 107      3 4 (0 0 0.0093 0 0.97
0.0093 0 0 0.0093 0) *
##        3667) 124>=172 7      2 6 (0 0 0 0 0.29 0 0.71 0 0
0) *
##        917) 268>=136 23      10 7 (0 0 0.13 0 0 0 0 0.57 0.22
0.087)
##        1834) 486>=162.5 8      3 8 (0 0 0.38 0 0 0 0 0.62
0) *
##        1835) 486< 162.5 15      2 7 (0 0 0 0 0 0 0 0.87 0
0.13) *
##        459) 212>=1.5 209      156 2 (0.067 0 0.25 0 0.091 0.0048
0.0096 0.17 0.16 0.24)
##        918) 567>=25 85      41 2 (0.14 0 0.52 0 0.012 0.012
0.012 0.024 0.27 0.012)
##        1836) 654< 33 56      14 2 (0.11 0 0.75 0 0.018 0.018
0.018 0.018 0.054 0.018)
##        3672) 346< 236.5 43      3 2 (0.047 0 0.93 0 0 0 0
0 0.023 0) *
##        3673) 346>=236.5 13      9 0 (0.31 0 0.15 0 0.077
0.077 0.077 0.077 0.15 0.077) *
##        1837) 654>=33 29      9 8 (0.21 0 0.069 0 0 0 0 0.034
0.69 0)
##        3674) 492>=236 9      3 0 (0.67 0 0.22 0 0 0 0 0.11
0 0) *
##        3675) 492< 236 20      0 8 (0 0 0 0 0 0 0 0 1 0) *
##        919) 567< 25 124      74 9 (0.016 0 0.073 0 0.15 0
0.0081 0.27 0.089 0.4)
##        1838) 458< 5 71      38 7 (0.014 0 0.085 0 0.07 0
0.014 0.46 0.13 0.23)
##        3676) 404< 25 43      11 7 (0.023 0 0.093 0 0.023 0
0.023 0.74 0 0.093)
##        7352) 680< 83 10      6 2 (0.1 0 0.4 0 0.1 0 0.1
0 0 0.3) *
##        7353) 680>=83 33      1 7 (0 0 0 0 0 0 0 0.97 0
0.03) *

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##          3677) 404>=25 28      16 9 (0 0 0.071 0 0.14 0 0
0.036 0.32 0.43)
##          7354) 655>=18.5 15      6 8 (0 0 0.067 0 0.2 0 0
0.067 0.6 0.067) *
##          7355) 655< 18.5 13      2 9 (0 0 0.077 0 0.077 0
0 0 0 0.85) *
##          1839) 458>=5 53      19 9 (0.019 0 0.057 0 0.25 0 0 0
0.038 0.64)
##          3678) 402>=234.5 24      11 4 (0.042 0 0.042 0 0.54
0 0 0 0.042 0.33)
##          7356) 456>=71 15      3 4 (0.067 0 0.067 0 0.8 0
0 0 0 0.067) *
##          7357) 456< 71 9      2 9 (0 0 0 0 0.11 0 0 0 0.11
0.78) *
##          3679) 402< 234.5 29      3 9 (0 0 0.069 0 0 0 0 0
0.034 0.9) *
##          115) 657>=15 709      110 8 (0.024 0 0.0071 0.0071 0.034 0.032
0.013 0.011 0.84 0.027)
##          230) 428>=111.5 74      53 4 (0.14 0 0.014 0 0.28 0.12
0.068 0 0.2 0.18)
##          460) 212< 40.5 21      2 4 (0 0 0 0 0.9 0 0 0 0.095 0) *
##          461) 212>=40.5 53      40 8 (0.19 0 0.019 0 0.038 0.17
0.094 0 0.25 0.25)
##          922) 597>=24.5 36      23 8 (0.28 0 0.028 0 0 0.22 0.11
0 0.36 0)
##          1844) 266>=251.5 14      4 0 (0.71 0 0 0 0 0.29 0 0 0
0) *
##          1845) 266< 251.5 22      9 8 (0 0 0.045 0 0 0.18 0.18
0 0.59 0)
##          3690) 272< 158.5 9      5 5 (0 0 0.11 0 0 0.44 0.33
0 0.11 0) *
##          3691) 272>=158.5 13      1 8 (0 0 0 0 0 0 0.077 0
0.92 0) *
##          923) 597< 24.5 17      4 9 (0 0 0 0 0.12 0.059 0.059 0
0 0.76) *
##          231) 428< 111.5 635      51 8 (0.011 0 0.0063 0.0079 0.0047
0.022 0.0063 0.013 0.92 0.0094)
##          462) 488< 14.5 47      24 8 (0.085 0 0 0.043 0.021 0.26
0.021 0.043 0.49 0.043)
##          924) 600>=214 20      9 5 (0.2 0 0 0.1 0.05 0.55 0
0.05 0 0.05)
##          1848) 327>=46.5 8      4 0 (0.5 0 0 0.25 0 0 0 0.12 0
0.12) *
##          1849) 327< 46.5 12      1 5 (0 0 0 0 0.083 0.92 0 0 0
0) *
##          925) 600< 214 27      4 8 (0 0 0 0 0 0.037 0.037 0.037
0.85 0.037) *
##          463) 488>=14.5 588      27 8 (0.0051 0 0.0068 0.0051
0.0034 0.0034 0.0051 0.01 0.95 0.0068)
##          926) 404< 2 33      17 8 (0.03 0 0.12 0.03 0 0.03 0.03

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0.18 0.48 0.091)
##          1852) 294>=13 15      9 7 (0 0 0.27 0.067 0 0 0 0.4
0.067 0.2) *
##          1853) 294< 13 18      3 8 (0.056 0 0 0 0 0.056 0.056
0 0.83 0) *
##          927) 404>=2 555      10 8 (0.0036 0 0 0.0036 0.0036
0.0018 0.0036 0 0.98 0.0018) *
##          29) 271< 0.5 2388      861 6 (0.0034 0.012 0.16 0.005 0.023 0.044
0.64 0.015 0.086 0.014)
##          58) 297>=53.5 447      177 2 (0.011 0.058 0.6 0.0089 0.076
0.0022 0.049 0.069 0.083 0.038)
##          116) 346< 7.5 344      84 2 (0.0087 0.073 0.76 0.012 0.029 0
0.0087 0.078 0.017 0.017)
##          232) 686< 2.5 318      58 2 (0.0063 0.079 0.82 0.0063 0.025
0 0.0094 0.028 0.013 0.016)
##          464) 159>=0.5 32      10 1 (0.031 0.69 0.22 0 0.031 0 0 0
0.031 0)
##          928) 127< 5 24      2 1 (0 0.92 0 0 0.042 0 0 0 0.042
0) *
##          929) 127>=5 8      1 2 (0.12 0 0.88 0 0 0 0 0 0) *
##          465) 159< 0.5 286      33 2 (0.0035 0.01 0.88 0.007 0.024
0 0.01 0.031 0.01 0.017)
##          930) 398< 100.5 275      22 2 (0.0036 0.011 0.92 0.0073
0.011 0 0.0036 0.033 0.011 0)
##          1860) 681< 13 268      16 2 (0 0.011 0.94 0.0075 0.011
0 0.0037 0.015 0.011 0)
##          3720) 320< 35.5 260      10 2 (0 0.012 0.96 0.0038
0.0038 0 0.0038 0.015 0 0) *
##          3721) 320>=35.5 8      5 8 (0 0 0.25 0.12 0.25 0 0
0 0.38 0) *
##          1861) 681>=13 7      2 7 (0.14 0 0.14 0 0 0 0 0.71 0
0) *
##          931) 398>=100.5 11      6 9 (0 0 0 0 0.36 0 0.18 0 0
0.45) *
##          233) 686>=2.5 26      8 7 (0.038 0 0 0.077 0.077 0 0 0.69
0.077 0.038) *
##          117) 346>=7.5 103      72 8 (0.019 0.0097 0.097 0 0.23 0.0097
0.18 0.039 0.3 0.11)
##          234) 656< 105 73      49 4 (0 0.014 0.12 0 0.33 0.014 0.26
0.055 0.055 0.15)
##          468) 573< 214 48      24 4 (0 0.021 0.1 0 0.5 0.021 0
0.042 0.083 0.23)
##          936) 465>=250 27      6 4 (0 0 0.037 0 0.78 0 0 0 0
0.19)
##          1872) 209< 225.5 18      0 4 (0 0 0 0 1 0 0 0 0 0) *
##          1873) 209>=225.5 9      4 9 (0 0 0.11 0 0.33 0 0 0 0
0.56) *
##          937) 465< 250 21      15 9 (0 0.048 0.19 0 0.14 0.048 0
0.095 0.19 0.29)
##          1874) 429< 5 10      7 2 (0 0.1 0.3 0 0 0.1 0 0.2 0.3

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0) *
##          1875) 429>=5 11      5 9 (0 0 0.091 0 0.27 0 0 0
0.091 0.55) *
##          469) 573>=214 25      6 6 (0 0 0.16 0 0 0 0.76 0.08 0 0)
##          938) 441< 2.5 7      3 2 (0 0 0.57 0 0 0 0.14 0.29 0
0) *
##          939) 441>=2.5 18      0 6 (0 0 0 0 0 0 1 0 0 0) *
##          235) 656>=105 30      3 8 (0.067 0 0.033 0 0 0 0 0.9 0)
*
##          59) 297< 53.5 1941    436 6 (0.0015 0.0015 0.057 0.0041 0.01
0.053 0.78 0.0021 0.087 0.0082)
##          118) 274>=2.5 241    122 8 (0.012 0.0041 0.32 0.012 0.062
0.0041 0.058 0.0083 0.49 0.021)
##          236) 655< 30.5 127    55 2 (0.024 0.0079 0.57 0.024 0.094
0.0079 0.11 0.0079 0.12 0.039)
##          472) 537>=23.5 83     13 2 (0.036 0 0.84 0.036 0 0 0.024
0 0.06 0) *
##          473) 537< 23.5 44     32 4 (0 0.023 0.045 0 0.27 0.023
0.27 0.023 0.23 0.11)
##          946) 220>=30 12       2 4 (0 0 0 0 0.83 0.083 0 0 0.083
0) *
##          947) 220< 30 32       20 6 (0 0.031 0.062 0 0.062 0 0.38
0.031 0.28 0.16)
##          1894) 494>=33.5 15    4 6 (0 0 0.067 0 0.13 0 0.73
0 0 0.067) *
##          1895) 494< 33.5 17    8 8 (0 0.059 0.059 0 0 0
0.059 0.059 0.53 0.24) *
##          237) 655>=30.5 114    10 8 (0 0 0.053 0 0.026 0 0 0.0088
0.91 0)
##          474) 404< 4.5 20      10 8 (0 0 0.3 0 0.15 0 0 0.05 0.5
0)
##          948) 626>=244 10      4 2 (0 0 0.6 0 0.2 0 0 0.1 0.1
0) *
##          949) 626< 244 10      1 8 (0 0 0 0 0.1 0 0 0 0.9 0) *
##          475) 404>=4.5 94      0 8 (0 0 0 0 0 0 0 0 1 0) *
##          119) 274< 2.5 1700    209 6 (0 0.0012 0.019 0.0029 0.0029
0.06 0.88 0.0012 0.029 0.0065)
##          238) 658< 1.5 1537    83 6 (0 0.0013 0.02 0.00065 0.0026
0.018 0.95 0.00065 0.0072 0.0046)
##          476) 323>=161.5 34    8 2 (0 0.059 0.76 0 0.059 0
0.029 0.029 0.059 0) *
##          477) 323< 161.5 1503  50 6 (0 0 0.0027 0.00067 0.0013
0.018 0.97 0 0.006 0.0047)
##          954) 217>=164 18      5 5 (0 0 0 0 0 0.72 0.11 0 0.11
0.056) *
##          955) 217< 164 1485    34 6 (0 0 0.0027 0.00067 0.0013
0.0094 0.98 0 0.0047 0.004)
##          1910) 662< 2 1478    27 6 (0 0 0.0027 0.00068
0.00068 0.0081 0.98 0 0.0047 0.0014)
##          3820) 651< 2 1471    22 6 (0 0 0.0027 0.00068

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0.00068 0.0082 0.99 0 0.0014 0.0014) *
##          3821) 651>=2 7      2 8 (0 0 0 0 0 0 0.29 0 0.71 0)
*
##          1911) 662>=2 7      3 9 (0 0 0 0 0.14 0.29 0 0 0
0.57) *
##          239) 658>=1.5 163    88 5 (0 0 0.012 0.025 0.0061 0.46
0.23 0.0061 0.24 0.025)
##          478) 515< 12.5 67    11 5 (0 0 0 0.03 0.015 0.84 0.09 0
0.03 0)
##          956) 456< 140 58     3 5 (0 0 0 0.034 0 0.95 0 0
0.017 0) *
##          957) 456>=140 9     3 6 (0 0 0 0 0.11 0.11 0.67 0
0.11 0) *
##          479) 515>=12.5 96    59 8 (0 0 0.021 0.021 0 0.2 0.32
0.01 0.39 0.042)
##          958) 457>=103 34     9 6 (0 0 0 0 0 0.088 0.74 0 0.12
0.059)
##          1916) 243< 11.5 27    2 6 (0 0 0 0 0 0 0.93 0 0.074
0) *
##          1917) 243>=11.5 7     4 5 (0 0 0 0 0 0.43 0 0 0.29
0.29) *
##          959) 457< 103 62     29 8 (0 0 0.032 0.032 0 0.26
0.097 0.016 0.53 0.032)
##          1918) 354< 0.5 29     16 5 (0 0 0.034 0.069 0 0.45
0.21 0.034 0.21 0)
##          3836) 186< 160 13     7 6 (0 0 0.077 0.15 0 0.077
0.46 0.077 0.15 0) *
##          3837) 186>=160 16     4 5 (0 0 0 0 0 0.75 0 0 0.25
0) *
##          1919) 354>=0.5 33     6 8 (0 0 0.03 0 0 0.091 0 0
0.82 0.061) *
##          15) 542< 1.5 6617 4849 4 (0.0023 0.011 0.041 0.05 0.27 0.11
0.021 0.22 0.038 0.24)
##          30) 432>=0.5 4489 2890 4 (0.0016 0.0018 0.045 0.058 0.36 0.13
0.022 0.029 0.048 0.31)
##          60) 211< 31.5 1830 519 4 (0 0.0033 0.061 0.024 0.72 0.067
0.037 0.024 0.031 0.037)
##          120) 596>=1.5 221 133 2 (0 0 0.4 0.11 0.018 0.37 0.009 0
0.1 0)
##          240) 346< 3 109 25 2 (0 0 0.77 0.16 0 0.018 0 0 0.055
0)
##          480) 379< 151.5 87 5 2 (0 0 0.94 0.023 0 0.023 0 0
0.011 0) *
##          481) 379>=151.5 22 7 3 (0 0 0.091 0.68 0 0 0 0 0.23
0)
##          962) 484< 42.5 15 0 3 (0 0 0 1 0 0 0 0 0 0) *
##          963) 484>=42.5 7 2 8 (0 0 0.29 0 0 0 0 0 0.71 0)
*
##          241) 346>=3 112 33 5 (0 0 0.036 0.062 0.036 0.71 0.018
0 0.14 0)

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##          482) 355< 10 87      9 5 (0 0 0.023 0.057 0 0.9 0.011 0
0.011 0)
##          964) 126>=110 9      5 3 (0 0 0.22 0.44 0 0.33 0 0 0
0) *
##          965) 126< 110 78      3 5 (0 0 0 0.013 0 0.96 0.013 0
0.013 0) *
##          483) 355>=10 25      10 8 (0 0 0.08 0.08 0.16 0.04 0.04 0
0.6 0)
##          966) 400>=192 7      3 4 (0 0 0.29 0.14 0.57 0 0 0 0
0) *
##          967) 400< 192 18      3 8 (0 0 0 0.056 0 0.056 0.056 0
0.83 0) *
##          121) 596< 1.5 1609    302 4 (0 0.0037 0.014 0.012 0.81 0.026
0.041 0.027 0.021 0.042)
##          242) 267< 139 1469    186 4 (0 0.0041 0.011 0.011 0.87
0.014 0.045 0.0068 0.021 0.014)
##          484) 98< 3 1415      133 4 (0 0.0042 0.0099 0.011 0.91
0.015 0.011 0.0071 0.022 0.014)
##          968) 155< 120.5 1344    70 4 (0 0.0045 0.006 0.0067
0.95 0.0015 0.01 0.0074 0.0037 0.012)
##          1936) 295< 222 1325    52 4 (0 0.0045 0.0038 0.0053
0.96 0 0.011 0 0.0038 0.011)
##          3872) 95< 32 1313      42 4 (0 0.0046 0.0038 0.0053
0.97 0 0.003 0 0.0038 0.011)
##          7744) 437>=1 1269      24 4 (0 0 0.0039 0.0039
0.98 0 0.00079 0 0.0016 0.0087) *
##          7745) 437< 1 44        18 4 (0 0.14 0 0.045 0.59 0
0.068 0 0.068 0.091)
##          15490) 402< 20 16      10 1 (0 0.38 0 0.12 0.12 0
0.062 0 0.12 0.19) *
##          15491) 402>=20 28      4 4 (0 0 0 0 0.86 0 0.071
0 0.036 0.036) *
##          3873) 95>=32 12        2 6 (0 0 0 0 0.17 0 0.83 0 0
0) *
##          1937) 295>=222 19      9 7 (0 0 0.16 0.11 0.053 0.11
0 0.53 0 0.053) *
##          969) 155>=120.5 71      45 8 (0 0 0.085 0.099 0.11 0.27
0.014 0 0.37 0.056)
##          1938) 516< 47 48       30 5 (0 0 0.1 0.15 0.17 0.38 0 0
0.12 0.083)
##          3876) 354< 4 24        7 5 (0 0 0.042 0.083 0.083
0.71 0 0 0.042 0.042)
##          7752) 658>=50.5 17      1 5 (0 0 0 0.059 0 0.94 0
0 0 0) *
##          7753) 658< 50.5 7      5 4 (0 0 0.14 0.14 0.29
0.14 0 0 0.14 0.14) *
##          3877) 354>=4 24        18 4 (0 0 0.17 0.21 0.25 0.042
0 0 0.21 0.12)
##          7754) 461>=201.5 7      1 4 (0 0 0.14 0 0.86 0 0
0 0 0) *

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##          7755) 461< 201.5 17      12 3 (0 0 0.18 0.29 0
0.059 0 0 0.29 0.18) *
##          1939) 516>=47 23      3 8 (0 0 0.043 0 0 0.043 0.043
0 0.87 0) *
##          485) 98>=3 54      3 6 (0 0 0.037 0 0.019 0 0.94 0 0 0)
*
##          243) 267>=139 140      93 9 (0 0 0.05 0.029 0.17 0.15 0
0.24 0.021 0.34)
##          486) 401>=2.5 93      54 9 (0 0 0.022 0.022 0.26 0.22 0
0.054 0.011 0.42)
##          972) 247>=1.5 21      5 5 (0 0 0 0 0.095 0.76 0 0
0.048 0.095) *
##          973) 247< 1.5 72      35 9 (0 0 0.028 0.028 0.31 0.056
0 0.069 0 0.51)
##          1946) 237< 23.5 32      11 4 (0 0 0.031 0.031 0.66
0.062 0 0 0 0.22)
##          3892) 323>=1 24      4 4 (0 0 0.042 0.042 0.83
0.042 0 0 0 0.042) *
##          3893) 323< 1 8      2 9 (0 0 0 0 0.12 0.12 0 0 0
0.75) *
##          1947) 237>=23.5 40      10 9 (0 0 0.025 0.025 0.025
0.05 0 0.12 0 0.75)
##          3894) 468>=101 9      5 7 (0 0 0 0.11 0 0.22 0 0.44
0 0.22) *
##          3895) 468< 101 31      3 9 (0 0 0.032 0 0.032 0 0
0.032 0 0.9) *
##          487) 401< 2.5 47      18 7 (0 0 0.11 0.043 0 0.021 0 0.62
0.043 0.17)
##          974) 455< 81.5 36      7 7 (0 0 0.056 0.056 0 0 0 0.81
0.056 0.028) *
##          975) 455>=81.5 11      4 9 (0 0 0.27 0 0 0.091 0 0 0
0.64) *
##          61) 211>=31.5 2659 1347 9 (0.0026 0.00075 0.034 0.081 0.11
0.17 0.012 0.033 0.061 0.49)
##          122) 354< 2.5 808 363 5 (0.0037 0.0025 0.024 0.068 0.12
0.55 0.035 0.041 0.046 0.11)
##          244) 352< 55 581 136 5 (0.0052 0 0.024 0.064 0.01 0.77
0.045 0.0017 0.015 0.069)
##          488) 384< 17.5 521 79 5 (0 0 0.0019 0.067 0.0019
0.85 0.046 0.0019 0 0.033)
##          976) 516< 166.5 494 54 5 (0 0 0.002 0.071 0.002
0.89 0 0.002 0 0.032)
##          1952) 322>=187.5 24 8 3 (0 0 0 0.67 0 0.33 0 0 0
0)
##          3904) 265< 169.5 15 0 3 (0 0 0 1 0 0 0 0 0 0)
*
##          3905) 265>=169.5 9 1 5 (0 0 0 0.11 0 0.89 0 0
0 0) *
##          1953) 322< 187.5 470 38 5 (0 0 0.0021 0.04 0.0021
0.92 0 0.0021 0 0.034)

```



```

##          3906) 123>=180.5 9      2 3 (0 0 0 0.78 0 0.22 0 0
0 0) *
##          3907) 123< 180.5 461    31 5 (0 0 0.0022 0.026
0.0022 0.93 0 0.0022 0 0.035)
##          7814) 718< 37 450      23 5 (0 0 0.0022 0.027
0.0022 0.95 0 0 0 0.02)
##          15628) 714< 237 433     16 5 (0 0 0.0023 0.025
0.0023 0.96 0 0 0 0.0069)
##          31256) 176>=19 26       8 5 (0 0 0 0.31 0 0.69
0 0 0 0)
##          62512) 292>=135.5 10    2 3 (0 0 0 0.8 0
0.2 0 0 0 0) *
##          62513) 292< 135.5 16    0 5 (0 0 0 0 0 1 0
0 0 0) *
##          31257) 176< 19 407      8 5 (0 0 0.0025 0.0074
0.0025 0.98 0 0 0 0.0074) *
##          15629) 714>=237 17      7 5 (0 0 0 0.059 0 0.59
0 0 0 0.35) *
##          7815) 718>=37 11        4 9 (0 0 0 0 0 0.27 0 0.091
0 0.64) *
##          977) 516>=166.5 27      3 6 (0 0 0 0 0 0.074 0.89 0 0
0.037) *
##          489) 384>=17.5 60       37 9 (0.05 0 0.22 0.033 0.083 0.05
0.033 0 0.15 0.38)
##          978) 596>=14 25        12 2 (0.12 0 0.52 0.04 0 0 0.08 0
0.24 0)
##          1956) 685< 1.5 18       5 2 (0.17 0 0.72 0 0 0 0.11 0
0 0) *
##          1957) 685>=1.5 7        1 8 (0 0 0 0.14 0 0 0 0 0.86 0)
*
##          979) 596< 14 35         12 9 (0 0 0 0.029 0.14 0.086 0 0
0.086 0.66)
##          1958) 242< 14.5 11      6 4 (0 0 0 0 0.45 0.18 0 0
0.27 0.091) *
##          1959) 242>=14.5 24      2 9 (0 0 0 0.042 0 0.042 0 0
0 0.92) *
##          245) 352>=55 227       139 4 (0 0.0088 0.022 0.079 0.39 0
0.0088 0.14 0.12 0.23)
##          490) 209< 16.5 79       11 4 (0 0.013 0.013 0.013 0.86 0 0
0.051 0.013 0.038)
##          980) 265< 248 71        5 4 (0 0.014 0.014 0.014 0.93 0
0 0 0.014 0.014) *
##          981) 265>=248 8         4 7 (0 0 0 0 0.25 0 0 0.5 0 0.25)
*
##          491) 209>=16.5 148      99 9 (0 0.0068 0.027 0.11 0.14 0
0.014 0.19 0.18 0.33)
##          982) 544< 172.5 127     78 9 (0 0.0079 0.024 0.13 0.16
0 0.0079 0.22 0.071 0.39)
##          1964) 373< 9.5 60       34 7 (0 0.017 0.05 0.23 0.017 0
0.017 0.43 0.067 0.17)

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##          3928) 377>=4 23      12 3 (0 0.043 0 0.48 0.043 0
0.043 0 0.087 0.3)
##          7856) 180>=95 11      1 3 (0 0 0 0.91 0 0 0 0
0.091 0) *
##          7857) 180< 95 12      5 9 (0 0.083 0 0.083 0.083
0 0.083 0 0.083 0.58) *
##          3929) 377< 4 37      11 7 (0 0 0.081 0.081 0 0 0 0.7
0.054 0.081) *
##          1965) 373>=9.5 67      28 9 (0 0 0 0.03 0.28 0 0 0.03
0.075 0.58)
##          3930) 454>=2 13      0 4 (0 0 0 0 1 0 0 0 0 0) *
##          3931) 454< 2 54      15 9 (0 0 0 0.037 0.11 0 0
0.037 0.093 0.72) *
##          983) 544>=172.5 21      3 8 (0 0 0.048 0.048 0 0 0.048
0 0.86 0) *
##          123) 354>=2.5 1851      631 9 (0.0022 0 0.038 0.086 0.1 0.01
0.0022 0.03 0.067 0.66)
##          246) 156>=0.5 406      304 4 (0.0074 0 0.13 0.24 0.25 0.03
0.0099 0.0025 0.19 0.14)
##          492) 624>=1 178      96 3 (0.011 0 0.25 0.46 0.0056 0.045
0.017 0 0.15 0.062)
##          984) 484< 46 99      23 3 (0.01 0 0.02 0.77 0.01 0.071
0 0 0.02 0.1)
##          1968) 373< 63 77      4 3 (0 0 0.013 0.95 0 0 0 0
0.013 0.026) *
##          1969) 373>=63 22      14 9 (0.045 0 0.045 0.14 0.045
0.32 0 0 0.045 0.36)
##          3938) 188>=3.5 14      7 5 (0.071 0 0.071 0.21
0.071 0.5 0 0 0.071 0) *
##          3939) 188< 3.5 8      0 9 (0 0 0 0 0 0 0 0 0 1) *
##          985) 484>=46 79      37 2 (0.013 0 0.53 0.076 0 0.013
0.038 0 0.32 0.013)
##          1970) 465>=96.5 46      7 2 (0 0 0.85 0.087 0 0.022 0
0 0.022 0.022)
##          3940) 351< 9 38      1 2 (0 0 0.97 0 0 0 0 0 0
0.026) *
##          3941) 351>=9 8      4 3 (0 0 0.25 0.5 0 0.12 0 0
0.12 0) *
##          1971) 465< 96.5 33      9 8 (0.03 0 0.091 0.061 0 0
0.091 0 0.73 0)
##          3942) 549>=71 10      7 2 (0 0 0.3 0.2 0 0 0.3 0
0.2 0) *
##          3943) 549< 71 23      1 8 (0.043 0 0 0 0 0 0 0 0.96
0) *
##          493) 624< 1 228      127 4 (0.0044 0 0.039 0.07 0.44 0.018
0.0044 0.0044 0.22 0.2)
##          986) 428>=25 138      46 4 (0 0 0.036 0.051 0.67 0.014
0.0072 0 0.036 0.19)
##          1972) 207< 10 90      9 4 (0 0 0.033 0 0.9 0 0.011 0
0 0.056) *

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##          1973) 207>=10 48      27 9 (0 0 0.042 0.15 0.23 0.042
0 0 0.1 0.44)
##          3946) 183< 239 10      2 4 (0 0 0.1 0.1 0.8 0 0 0 0
0) *
##          3947) 183>=239 38      17 9 (0 0 0.026 0.16 0.079
0.053 0 0 0.13 0.55)
##          7894) 372< 11.5 8      2 3 (0 0 0.12 0.75 0 0 0 0
0.12 0) *
##          7895) 372>=11.5 30      9 9 (0 0 0 0 0.1 0.067 0
0 0.13 0.7)
##          15790) 152>=117 8      4 8 (0 0 0 0 0 0.25 0 0
0.5 0.25) *
##          15791) 152< 117 22      3 9 (0 0 0 0 0.14 0 0 0
0 0.86) *
##          987) 428< 25 90      45 8 (0.011 0 0.044 0.1 0.1 0.022
0 0.011 0.5 0.21)
##          1974) 544< 147 50      32 9 (0 0 0.06 0.18 0.18 0.04 0
0.02 0.16 0.36)
##          3948) 374< 58 14      6 3 (0 0 0.14 0.57 0.071 0 0
0.071 0.14 0) *
##          3949) 374>=58 36      18 9 (0 0 0.028 0.028 0.22
0.056 0 0 0.17 0.5)
##          7898) 407< 122 9      2 4 (0 0 0 0 0.78 0.11 0 0
0.11 0) *
##          7899) 407>=122 27      9 9 (0 0 0.037 0.037 0.037
0.037 0 0 0.19 0.67)
##          15798) 551>=139 8      3 8 (0 0 0 0.12 0 0.12 0
0 0.62 0.12) *
##          15799) 551< 139 19      2 9 (0 0 0.053 0 0.053 0
0 0 0 0.89) *
##          1975) 544>=147 40      3 8 (0.025 0 0.025 0 0 0 0 0
0.93 0.025) *
##          247) 156< 0.5 1445      281 9 (0.00069 0 0.012 0.043 0.064
0.0048 0 0.037 0.033 0.81)
##          494) 317< 1 293      150 9 (0.0034 0 0.058 0.18 0.078
0.0034 0 0.15 0.044 0.49)
##          988) 319< 108.5 176      122 9 (0.0057 0 0.097 0.29
0.045 0 0 0.22 0.034 0.31)
##          1976) 342< 10 119      69 3 (0.0084 0 0.13 0.42 0.05 0
0 0.33 0.017 0.042)
##          3952) 518< 96.5 66      23 3 (0 0 0.21 0.65 0.015 0
0 0.045 0.015 0.061)
##          7904) 512>=30 12      1 2 (0 0 0.92 0 0 0 0 0
0.083 0) *
##          7905) 512< 30 54      11 3 (0 0 0.056 0.8 0.019 0
0 0.056 0 0.074)
##          15810) 405>=138.5 41      1 3 (0 0 0 0.98 0.024
0 0 0 0 0) *
##          15811) 405< 138.5 13      9 9 (0 0 0.23 0.23 0 0
0 0.23 0 0.31) *

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##          3953) 518>=96.5 53      17 7 (0.019 0 0.038 0.13
0.094 0 0 0.68 0.019 0.019)
##          7906) 209< 29 9        4 4 (0.11 0 0.11 0 0.56 0 0
0 0.11 0.11) *
##          7907) 209>=29 44       8 7 (0 0 0.023 0.16 0 0 0
0.82 0 0)
##          15814) 437< 4 9        3 3 (0 0 0.11 0.67 0 0 0
0.22 0 0) *
##          15815) 437>=4 35       1 7 (0 0 0 0.029 0 0 0
0.97 0 0) *
##          1977) 342>=10 57       8 9 (0 0 0.018 0.018 0.035 0 0
0 0.07 0.86)
##          3954) 546>=49 10       6 8 (0 0 0.1 0.1 0.1 0 0 0
0.4 0.3) *
##          3955) 546< 49 47       1 9 (0 0 0 0 0.021 0 0 0 0
0.98) *
##          989) 319>=108.5 117     28 9 (0 0 0 0.0085 0.13 0.0085
0 0.034 0.06 0.76)
##          1978) 428>=71.5 20     7 4 (0 0 0 0.05 0.65 0.05 0 0
0 0.25)
##          3956) 213< 128 11      0 4 (0 0 0 0 1 0 0 0 0 0) *
##          3957) 213>=128 9       4 9 (0 0 0 0.11 0.22 0.11 0 0
0 0.56) *
##          1979) 428< 71.5 97     13 9 (0 0 0 0 0.021 0 0 0.041
0.072 0.87)
##          3958) 436< 152 12      5 8 (0 0 0 0 0.083 0 0 0
0.58 0.33) *
##          3959) 436>=152 85      5 9 (0 0 0 0 0.012 0 0 0.047
0 0.94) *
##          495) 317>=1 1152      131 9 (0 0 0.00087 0.0087 0.06
0.0052 0 0.0095 0.03 0.89)
##          990) 212< 14 66       32 4 (0 0 0 0 0.52 0 0 0.015 0.03
0.44)
##          1980) 319>=195 31      1 4 (0 0 0 0 0.97 0 0 0 0.032
0) *
##          1981) 319< 195 35      6 9 (0 0 0 0 0.11 0 0 0.029
0.029 0.83)
##          3962) 518>=79.5 7      4 4 (0 0 0 0 0.43 0 0 0.14
0.14 0.29) *
##          3963) 518< 79.5 28     1 9 (0 0 0 0 0.036 0 0 0 0
0.96) *
##          991) 212>=14 1086      94 9 (0 0 0.00092 0.0092 0.032
0.0055 0 0.0092 0.029 0.91)
##          1982) 204>=10.5 72     31 9 (0 0 0 0.056 0.069 0.028
0 0.042 0.24 0.57)
##          3964) 438< 130.5 24    8 8 (0 0 0 0.083 0.12 0 0
0.042 0.67 0.083)
##          7928) 544< 138 10      7 4 (0 0 0 0.2 0.3 0 0 0.1
0.2 0.2) *
##          7929) 544>=138 14      0 8 (0 0 0 0 0 0 0 0 1 0)

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*
##          3965) 438>=130.5 48      9 9 (0 0 0 0.042 0.042
0.042 0 0.042 0.021 0.81)
##          7930) 400< 26 8      6 3 (0 0 0 0.25 0.12 0.12 0
0.25 0.12 0.12) *
##          7931) 400>=26 40      2 9 (0 0 0 0 0.025 0.025 0
0 0 0.95) *
##          1983) 204< 10.5 1014    63 9 (0 0 0.00099 0.0059
0.03 0.0039 0 0.0069 0.015 0.94)
##          3966) 595>=21.5 7      4 5 (0 0 0 0.14 0 0.43 0 0
0.43 0) *
##          3967) 595< 21.5 1007    56 9 (0 0 0.00099 0.005
0.03 0.00099 0 0.007 0.012 0.94)
##          7934) 470>=5 18      9 9 (0 0 0 0 0.39 0 0 0.11 0
0.5) *
##          7935) 470< 5 989      47 9 (0 0 0.001 0.0051 0.023
0.001 0 0.0051 0.012 0.95)
##          15870) 409< 32 18      9 9 (0 0 0 0.056 0.056
0.056 0 0 0.33 0.5) *
##          15871) 409>=32 971    38 9 (0 0 0.001 0.0041
0.023 0 0 0.0051 0.0062 0.96)
##          31742) 320>=253.5 13    6 9 (0 0 0 0 0.46 0
0 0 0 0.54) *
##          31743) 320< 253.5 958    32 9 (0 0 0.001
0.0042 0.017 0 0 0.0052 0.0063 0.97)
##          63486) 524>=139 10      5 9 (0 0 0.1 0 0.1 0
0 0 0.3 0.5) *
##          63487) 524< 139 948     27 9 (0 0 0 0.0042
0.016 0 0 0.0053 0.0032 0.97)
##          126974) 263< 65.5 76    12 9 (0 0 0 0 0.14
0 0 0 0.013 0.84)
##          253948) 403>=253.5 9     2 4 (0 0 0 0
0.78 0 0 0 0 0.22) *
##          253949) 403< 253.5 67    5 9 (0 0 0 0
0.06 0 0 0 0.015 0.93) *
##          126975) 263>=65.5 872    15 9 (0 0 0
0.0046 0.0046 0 0 0.0057 0.0023 0.98) *
##          31) 432< 0.5 2128    796 7 (0.0038 0.031 0.034 0.032 0.079
0.056 0.017 0.63 0.017 0.1)
##          62) 487< 75.5 1766    457 7 (0.004 0.037 0.03 0.039 0.019
0.067 0.012 0.74 0.018 0.034)
##          124) 377>=6.5 313    197 5 (0.0032 0.038 0.026 0.18 0.096
0.37 0.0064 0.026 0.096 0.16)
##          248) 353< 1 175      60 5 (0.0057 0.04 0.023 0.23 0.017
0.66 0.011 0 0.0057 0.011)
##          496) 323>=1.5 40      16 3 (0.025 0.15 0 0.6 0.075 0.1
0.025 0 0 0.025)
##          992) 490< 1 26      2 3 (0 0 0 0.92 0.038 0.038 0 0 0
0) *
##          993) 490>=1 14      8 1 (0.071 0.43 0 0 0.14 0.21

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0.071 0 0 0.071) *
##          497) 323< 1.5 135      24 5 (0 0.0074 0.03 0.12 0 0.82
0.0074 0 0.0074 0.0074)
##          994) 150>=65 25      13 3 (0 0.04 0.08 0.48 0 0.36 0 0
0.04 0)
##          1988) 233< 6 16      4 3 (0 0.062 0.12 0.75 0 0 0 0
0.062 0) *
##          1989) 233>=6 9      0 5 (0 0 0 0 0 1 0 0 0 0) *
##          995) 150< 65 110     8 5 (0 0 0.018 0.036 0 0.93
0.0091 0 0 0.0091) *
##          249) 353>=1 138      91 9 (0 0.036 0.029 0.12 0.2 0.0072 0
0.058 0.21 0.34)
##          498) 434>=208.5 46    20 8 (0 0.11 0.043 0.2 0 0 0
0.065 0.57 0.022)
##          996) 348< 11.5 18     9 3 (0 0.28 0 0.5 0 0 0 0.17 0
0.056) *
##          997) 348>=11.5 28     2 8 (0 0 0.071 0 0 0 0 0 0.93
0) *
##          499) 434< 208.5 92    46 9 (0 0 0.022 0.087 0.29 0.011
0 0.054 0.033 0.5)
##          998) 210< 49 32      10 4 (0 0 0.031 0.062 0.69 0.031 0
0.094 0 0.094) *
##          999) 210>=49 60      17 9 (0 0 0.017 0.1 0.083 0 0
0.033 0.05 0.72)
##          1998) 623>=10 7      1 3 (0 0 0 0.86 0 0 0 0 0 0.14)
*
##          1999) 623< 10 53     11 9 (0 0 0.019 0 0.094 0 0
0.038 0.057 0.79)
##          3998) 379< 57 7      5 4 (0 0 0.14 0 0.29 0 0 0.14
0.29 0.14) *
##          3999) 379>=57 46     5 9 (0 0 0 0 0.065 0 0 0.022
0.022 0.89) *
##          125) 377< 6.5 1453    152 7 (0.0041 0.036 0.031 0.0076
0.0028 0.0014 0.013 0.9 0.00069 0.0076)
##          250) 156>=0.5 93     52 1 (0.043 0.44 0.26 0.054 0 0.022
0.13 0.054 0 0)
##          500) 179< 7 54      16 1 (0.037 0.7 0 0.019 0 0.037 0.2 0
0 0)
##          1000) 568< 14 39      1 1 (0 0.97 0 0 0 0.026 0 0 0 0)
*
##          1001) 568>=14 15     4 6 (0.13 0 0 0.067 0 0.067 0.73
0 0 0) *
##          501) 179>=7 39      15 2 (0.051 0.077 0.62 0.1 0 0 0.026
0.13 0 0)
##          1002) 545>=104 25    3 2 (0 0.04 0.88 0 0 0 0 0.08 0
0) *
##          1003) 545< 104 14    10 3 (0.14 0.14 0.14 0.29 0 0
0.071 0.21 0 0) *
##          251) 156< 0.5 1360    64 7 (0.0015 0.0088 0.015 0.0044
0.0029 0 0.0051 0.95 0.00074 0.0081)

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##          502) 153>=57 23      13 2 (0 0.13 0.43 0.087 0.043 0 0.22
0.043 0.043 0)
##          1004) 176>=25.5 12      2 2 (0 0 0.83 0.17 0 0 0 0 0)
*
##          1005) 176< 25.5 11      6 6 (0 0.27 0 0 0.091 0 0.45
0.091 0.091 0) *
##          503) 153< 57 1337      42 7 (0.0015 0.0067 0.0082 0.003
0.0022 0 0.0015 0.97 0 0.0082)
##          1006) 158>=54 10      2 1 (0.2 0.8 0 0 0 0 0 0 0) *
##          1007) 158< 54 1327      32 7 (0 0.00075 0.0083 0.003
0.0023 0 0.0015 0.98 0 0.0083)
##          2014) 553>=6 13      7 7 (0 0 0.31 0.15 0 0 0 0.46 0
0.077) *
##          2015) 553< 6 1314      25 7 (0 0.00076 0.0053 0.0015
0.0023 0 0.0015 0.98 0 0.0076)
##          4030) 482>=134.5 7      3 7 (0 0 0 0 0.14 0 0.29
0.57 0 0) *
##          4031) 482< 134.5 1307      22 7 (0 0.00077 0.0054
0.0015 0.0015 0 0 0.98 0 0.0077)
##          8062) 488>=106 22      5 7 (0 0 0.18 0.045 0 0 0
0.77 0 0)
##          16124) 182>=59 7      3 2 (0 0 0.57 0.14 0 0 0
0.29 0 0) *
##          16125) 182< 59 15      0 7 (0 0 0 0 0 0 0 1 0 0)
*
##          8063) 488< 106 1285      17 7 (0 0.00078 0.0023
0.00078 0.0016 0 0 0.99 0 0.0078)
##          16126) 664>=3.5 8      3 7 (0 0 0.25 0 0.12 0 0
0.62 0 0) *
##          16127) 664< 3.5 1277      14 7 (0 0.00078 0.00078
0.00078 0.00078 0 0 0.99 0 0.0078)
##          32254) 321< 253.5 1263      11 7 (0 0.00079
0.00079 0.00079 0.00079 0 0 0.99 0 0.0055)
##          64508) 270>=26.5 1155      3 7 (0 0.00087 0
0.00087 0 0 0 1 0 0.00087) *
##          64509) 270< 26.5 108      8 7 (0 0 0.0093 0
0.0093 0 0 0.93 0 0.056)
##          129018) 321< 173.5 101      4 7 (0 0 0.0099
0 0.0099 0 0 0.96 0 0.02) *
##          129019) 321>=173.5 7      3 9 (0 0 0 0 0 0
0 0.43 0 0.57) *
##          32255) 321>=253.5 14      3 7 (0 0 0 0 0 0 0
0.79 0 0.21) *
##          63) 487>=75.5 362      202 9 (0.0028 0.0028 0.052 0.0028 0.37
0.0028 0.044 0.064 0.014 0.44)
##          126) 211< 5.5 144      38 4 (0.0069 0.0069 0.076 0 0.74
0.0069 0.1 0.0069 0.0069 0.049)
##          252) 95< 6.5 132      26 4 (0.0076 0.0076 0.061 0 0.8
0.0076 0.045 0.0076 0.0076 0.053)
##          504) 429< 8 29      18 4 (0.034 0.034 0.28 0 0.38 0.034

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0.1 0.034 0.034 0.069)
##          1008) 398>=2.5 11      1 4 (0.091 0 0 0 0.91 0 0 0 0 0)
*
##          1009) 398< 2.5 18      10 2 (0 0.056 0.44 0 0.056 0.056
0.17 0.056 0.056 0.11) *
##          505) 429>=8 103      8 4 (0 0 0 0 0.92 0 0.029 0 0
0.049)
##          1010) 490>=97.5 96      4 4 (0 0 0 0 0.96 0 0.031 0 0
0.01) *
##          1011) 490< 97.5 7      3 9 (0 0 0 0 0.43 0 0 0 0 0.57)
*
##          253) 95>=6.5 12      3 6 (0 0 0.25 0 0 0 0.75 0 0 0) *
##          127) 211>=5.5 218      65 9 (0 0 0.037 0.0046 0.13 0 0.0046
0.1 0.018 0.7)
##          254) 518>=241.5 50      34 7 (0 0 0.08 0 0.24 0 0 0.32 0.06
0.3)
##          508) 429< 48.5 24      8 7 (0 0 0.17 0 0.083 0 0 0.67 0
0.083)
##          1016) 233< 2.5 8      4 2 (0 0 0.5 0 0.12 0 0 0.12 0
0.25) *
##          1017) 233>=2.5 16      1 7 (0 0 0 0 0.062 0 0 0.94 0 0)
*
##          509) 429>=48.5 26      13 9 (0 0 0 0 0.38 0 0 0 0.12 0.5)
##          1018) 382< 178.5 12      3 4 (0 0 0 0 0.75 0 0 0 0.17
0.083) *
##          1019) 382>=178.5 14      2 9 (0 0 0 0 0.071 0 0 0 0.071
0.86) *
##          255) 518< 241.5 168      30 9 (0 0 0.024 0.006 0.1 0 0.006
0.036 0.006 0.82)
##          510) 235< 0.5 25      11 4 (0 0 0.04 0 0.56 0 0 0.04 0
0.36)
##          1020) 434< 94 17      3 4 (0 0 0.059 0 0.82 0 0 0.059 0
0.059) *
##          1021) 434>=94 8      0 9 (0 0 0 0 0 0 0 0 0 1) *
##          511) 235>=0.5 143      14 9 (0 0 0.021 0.007 0.021 0
0.007 0.035 0.007 0.9) *

ptree<- prune(tree_model_1,

cp=tree_model_1$cptable[which.min(tree_model_1$cptable[, "xerror"]), "CP"])
predictTreeModel(ptree)

## Call:
## rpart(formula = label ~ ., data = trainDF, method = "class",
##       control = rpart.control(cp = 0))
## n= 25205
##
##          CP nsplit rel error      xerror      xstd
## 1  0.09777940520      0 1.0000000 1.0000000 0.002231625
## 2  0.0825667590      1 0.9022059 0.9030097 0.002823465

```


## 3	0.0802000536	2	0.8196392	0.8482183	0.003054854
## 4	0.0595695276	3	0.7394391	0.7278289	0.003388807
## 5	0.0519335536	4	0.6798696	0.6604001	0.003490960
## 6	0.0457265339	5	0.6279361	0.6191391	0.003526886
## 7	0.0450567116	6	0.5822095	0.5833705	0.003542340
## 8	0.0254532464	7	0.5371528	0.5345628	0.003540265
## 9	0.0213896579	8	0.5116996	0.5111190	0.003529761
## 10	0.0186657140	9	0.4903099	0.4936144	0.003517858
## 11	0.0157631508	10	0.4716442	0.4810217	0.003507127
## 12	0.0154952219	11	0.4558810	0.4674466	0.003493505
## 13	0.0133071358	12	0.4403858	0.4515942	0.003474869
## 14	0.0110743949	13	0.4270787	0.4339109	0.003450553
## 15	0.0083504510	14	0.4160043	0.4205144	0.003429611
## 16	0.0069661516	15	0.4076538	0.4154684	0.003421149
## 17	0.0061177101	16	0.4006877	0.4035009	0.003399810
## 18	0.0048227204	17	0.3945700	0.3914888	0.003376564
## 19	0.0047780656	18	0.3897473	0.3746986	0.003340930
## 20	0.0047334107	19	0.3849692	0.3711262	0.003332866
## 21	0.0046887559	21	0.3755024	0.3691614	0.003328358
## 22	0.0046441011	22	0.3708136	0.3680004	0.003325669
## 23	0.0044208270	23	0.3661695	0.3646066	0.003317706
## 24	0.0042868626	24	0.3617487	0.3567920	0.003298769
## 25	0.0039296240	25	0.3574618	0.3528624	0.003288927
## 26	0.0037956596	26	0.3535322	0.3471019	0.003274107
## 27	0.0037510047	29	0.3421452	0.3459409	0.003271064
## 28	0.0034830758	30	0.3383942	0.3418326	0.003260139
## 29	0.0033937662	31	0.3349111	0.3366080	0.003245895
## 30	0.0033491114	32	0.3315174	0.3364741	0.003245524
## 31	0.0033044566	33	0.3281683	0.3364741	0.003245524
## 32	0.0028579084	34	0.3248638	0.3317406	0.003232267
## 33	0.0028355810	37	0.3162901	0.3221845	0.003204489
## 34	0.0026346343	39	0.3106189	0.3170492	0.003188992
## 35	0.0025899795	40	0.3079843	0.3131196	0.003176860
## 36	0.0025453246	41	0.3053943	0.3105296	0.003168733
## 37	0.0025006698	42	0.3028490	0.3097705	0.003166331
## 38	0.0024560150	43	0.3003483	0.3084755	0.003162213
## 39	0.0023890328	44	0.2978923	0.3073145	0.003158498
## 40	0.0023667054	46	0.2931142	0.3045012	0.003149408
## 41	0.0022773957	47	0.2907475	0.3038314	0.003147225
## 42	0.0020541216	52	0.2793159	0.2940073	0.003114378
## 43	0.0020094668	53	0.2772618	0.2853889	0.003084253
## 44	0.0018308475	59	0.2652050	0.2832009	0.003076405
## 45	0.0016968831	60	0.2633741	0.2771278	0.003054191
## 46	0.0016745557	62	0.2599804	0.2739573	0.003042339
## 47	0.0016299009	64	0.2566312	0.2722604	0.003035923
## 48	0.0016075735	66	0.2533714	0.2693579	0.003024828
## 49	0.0014736090	69	0.2485487	0.2670358	0.003015843
## 50	0.0014066268	70	0.2470751	0.2623024	0.002997223
## 51	0.0013842994	72	0.2442619	0.2600697	0.002988297
## 52	0.0012949897	76	0.2387247	0.2567652	0.002974915

```

## 53 0.0012503349      77 0.2374297 0.2543092 0.002964835
## 54 0.0011610253      79 0.2349290 0.2522997 0.002956502
## 55 0.0011163705      81 0.2326069 0.2499330 0.002946587
## 56 0.0010940430      83 0.2303742 0.2493079 0.002943950
## 57 0.0010717156      86 0.2268911 0.2477896 0.002937514
## 58 0.0010270608      88 0.2247477 0.2476110 0.002936754
## 59 0.0009824060      90 0.2226936 0.2449317 0.002925275
## 60 0.0009377512      91 0.2217112 0.2422077 0.002913459
## 61 0.0008930964      98 0.2151469 0.2384567 0.002896943
## 62 0.0008707690     100 0.2133607 0.2363580 0.002887576
## 63 0.0008484415     102 0.2116192 0.2352416 0.002882556
## 64 0.0008037867     105 0.2090739 0.2309547 0.002863039
## 65 0.0007591319     111 0.2042511 0.2269358 0.002844387
## 66 0.0007368045     116 0.2004555 0.2259534 0.002839775
## 67 0.0007144771     118 0.1989819 0.2241672 0.002831335
## 68 0.0006698223     124 0.1946950 0.2210860 0.002816611
## 69 0.0006251675     131 0.1893811 0.2196571 0.002809711
## 70 0.0005805126     136 0.1862552 0.2153702 0.002788733
## 71 0.0005358578     147 0.1798696 0.2114852 0.002769358
## 72 0.0004912030     151 0.1777262 0.2069304 0.002746191
## 73 0.0004688756     159 0.1737966 0.2034027 0.002727905
## 74 0.0004465482     161 0.1728588 0.2015718 0.002718294
## 75 0.0004242208     177 0.1656247 0.1976422 0.002697385
## 76 0.0004018934     183 0.1625882 0.1964365 0.002690892
## 77 0.0003795660     197 0.1569617 0.1927302 0.002670696
## 78 0.0003572385     202 0.1550415 0.1917031 0.002665037
## 79 0.0003349111     216 0.1500402 0.1877289 0.002642873
## 80 0.0003125837     218 0.1493704 0.1873270 0.002640608
## 81 0.0002976988     240 0.1424489 0.1863892 0.002635307
## 82 0.0002902563     246 0.1406627 0.1829508 0.002615661
## 83 0.0002679289     250 0.1395017 0.1824149 0.002612570
## 84 0.0002456015     270 0.1341431 0.1811646 0.002605326
## 85 0.0002344378     286 0.1301688 0.1793338 0.002594640
## 86 0.0002232741     290 0.1292310 0.1791551 0.002593592
## 87 0.0002083892     320 0.1225328 0.1785746 0.002590181
## 88 0.0002009467     323 0.1219077 0.1785746 0.002590181
## 89 0.0001786193     325 0.1215058 0.1766991 0.002579093
## 90 0.0001562919     376 0.1122622 0.1764312 0.002577501
##
## Variable importance
## 489 517 490 350 461 435 514 347 211 434 462 597 542 323 516 378 210 351
515 319
##   2   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1
1   1
## 543 270 486 432 346 212 541 322 487 596 598 271 626 238 239 408 407 431
348 485
##   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1
1   1
## 570 568 375 349 436 262 298 155 433 463 458 657 243 299 297 156 234 656
154 658

```

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## 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1
## 354 320 324 240 269 459 325 353 272 207 430 488 569 296 157 317 206 381
235 290
## 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1
## 377 376
## 1 1
##
## Node number 1: 25205 observations, complexity param=0.09779405
## predicted class=1 expected loss=0.8884745 P(node) =1
## class counts: 2480 2811 2507 2611 2444 2277 2483 2641 2438
2513
## probabilities: 0.098 0.112 0.099 0.104 0.097 0.090 0.099 0.105 0.097
0.100
## left son=2 (9068 obs) right son=3 (16137 obs)
## Primary splits:
## 350 < 120.5 to the right, improve=1009.8860, (0 missing)
## 409 < 0.5 to the left, improve= 999.1138, (0 missing)
## 461 < 1.5 to the left, improve= 990.1707, (0 missing)
## 378 < 131.5 to the right, improve= 964.9390, (0 missing)
## 433 < 0.5 to the left, improve= 956.4358, (0 missing)
## Surrogate splits:
## 351 < 192.5 to the right, agree=0.864, adj=0.621, (0 split)
## 378 < 237.5 to the right, agree=0.860, adj=0.610, (0 split)
## 323 < 118.5 to the right, agree=0.845, adj=0.570, (0 split)
## 322 < 40.5 to the right, agree=0.845, adj=0.570, (0 split)
## 349 < 63.5 to the right, agree=0.844, adj=0.567, (0 split)
##
## Node number 2: 9068 observations, complexity param=0.08020005
## predicted class=1 expected loss=0.7144905 P(node) =0.3597699
## class counts: 194 2589 485 2113 239 968 512 229 1200
539
## probabilities: 0.021 0.286 0.053 0.233 0.026 0.107 0.056 0.025 0.132
0.059
## left son=4 (4400 obs) right son=5 (4668 obs)
## Primary splits:
## 489 < 44.5 to the right, improve=1014.6630, (0 missing)
## 517 < 28.5 to the right, improve= 931.7002, (0 missing)
## 375 < 0.5 to the left, improve= 930.7003, (0 missing)
## 461 < 65.5 to the right, improve= 882.2089, (0 missing)
## 462 < 96.5 to the right, improve= 869.9859, (0 missing)
## Surrogate splits:
## 517 < 32.5 to the right, agree=0.904, adj=0.802, (0 split)
## 461 < 124.5 to the right, agree=0.895, adj=0.785, (0 split)
## 490 < 32.5 to the right, agree=0.868, adj=0.728, (0 split)
## 462 < 96.5 to the right, agree=0.867, adj=0.726, (0 split)
## 516 < 16.5 to the right, agree=0.844, adj=0.679, (0 split)
##
## Node number 3: 16137 observations, complexity param=0.08256676

```

```

## predicted class=7 expected loss=0.8505298 P(node) =0.6402301
## class counts: 2286 222 2022 498 2205 1309 1971 2412 1238
1974
## probabilities: 0.142 0.014 0.125 0.031 0.137 0.081 0.122 0.149 0.077
0.122
## left son=6 (4294 obs) right son=7 (11843 obs)
## Primary splits:
## 435 < 0.5 to the left, improve=997.0246, (0 missing)
## 436 < 0.5 to the left, improve=993.5928, (0 missing)
## 569 < 0.5 to the right, improve=985.1319, (0 missing)
## 568 < 0.5 to the right, improve=981.9576, (0 missing)
## 408 < 0.5 to the left, improve=973.5181, (0 missing)
## Surrogate splits:
## 436 < 0.5 to the left, agree=0.892, adj=0.594, (0 split)
## 408 < 0.5 to the left, agree=0.890, adj=0.588, (0 split)
## 434 < 0.5 to the left, agree=0.888, adj=0.578, (0 split)
## 463 < 0.5 to the left, agree=0.883, adj=0.559, (0 split)
## 407 < 0.5 to the left, agree=0.879, adj=0.545, (0 split)
##
## Node number 4: 4400 observations, complexity param=0.01866571
## predicted class=1 expected loss=0.4475 P(node) =0.1745685
## class counts: 28 2431 337 159 112 105 277 119 674
158
## probabilities: 0.006 0.552 0.077 0.036 0.025 0.024 0.063 0.027 0.153
0.036
## left son=8 (3250 obs) right son=9 (1150 obs)
## Primary splits:
## 234 < 0.5 to the left, improve=534.2896, (0 missing)
## 521 < 0.5 to the left, improve=526.6306, (0 missing)
## 319 < 0.5 to the left, improve=524.5641, (0 missing)
## 262 < 0.5 to the left, improve=524.1744, (0 missing)
## 550 < 0.5 to the left, improve=523.3399, (0 missing)
## Surrogate splits:
## 206 < 0.5 to the left, agree=0.934, adj=0.747, (0 split)
## 262 < 1.5 to the left, agree=0.930, adj=0.732, (0 split)
## 235 < 132.5 to the left, agree=0.930, adj=0.731, (0 split)
## 207 < 48.5 to the left, agree=0.925, adj=0.715, (0 split)
## 233 < 1.5 to the left, agree=0.922, adj=0.700, (0 split)
##
## Node number 5: 4668 observations, complexity param=0.01549522
## predicted class=3 expected loss=0.5814053 P(node) =0.1852013
## class counts: 166 158 148 1954 127 863 235 110 526
381
## probabilities: 0.036 0.034 0.032 0.419 0.027 0.185 0.050 0.024 0.113
0.082
## left son=10 (3675 obs) right son=11 (993 obs)
## Primary splits:
## 486 < 76.5 to the left, improve=339.3307, (0 missing)
## 290 < 34.5 to the left, improve=326.0021, (0 missing)
## 487 < 11.5 to the left, improve=315.4504, (0 missing)

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##      317 < 33.5  to the left,  improve=282.8250, (0 missing)
##      291 < 10.5  to the left,  improve=281.4892, (0 missing)
##      Surrogate splits:
##      487 < 11.5  to the left,  agree=0.941, adj=0.722, (0 split)
##      514 < 141.5 to the left,  agree=0.922, adj=0.631, (0 split)
##      485 < 101.5 to the left,  agree=0.911, adj=0.581, (0 split)
##      459 < 201.5 to the left,  agree=0.910, adj=0.577, (0 split)
##      458 < 202.5 to the left,  agree=0.908, adj=0.569, (0 split)
##
## Node number 6: 4294 observations,    complexity param=0.02138966
## predicted class=0 expected loss=0.4825338 P(node) =0.170363
## class counts:  2222   17   282   130   166   368   229   664   37
179
## probabilities: 0.517 0.004 0.066 0.030 0.039 0.086 0.053 0.155 0.009
0.042
## left son=12 (2737 obs) right son=13 (1557 obs)
## Primary splits:
##      597 < 1.5   to the right, improve=603.7671, (0 missing)
##      598 < 2.5   to the right, improve=574.3586, (0 missing)
##      568 < 0.5   to the right, improve=537.4804, (0 missing)
##      626 < 3.5   to the right, improve=524.5488, (0 missing)
##      511 < 2.5   to the right, improve=521.8409, (0 missing)
##      Surrogate splits:
##      598 < 7.5   to the right, agree=0.930, adj=0.808, (0 split)
##      596 < 0.5   to the right, agree=0.905, adj=0.739, (0 split)
##      568 < 0.5   to the right, agree=0.898, adj=0.720, (0 split)
##      626 < 6.5   to the right, agree=0.895, adj=0.712, (0 split)
##      569 < 1.5   to the right, agree=0.887, adj=0.689, (0 split)
##
## Node number 7: 11843 observations,    complexity param=0.05956953
## predicted class=4 expected loss=0.8278308 P(node) =0.4698671
## class counts:   64   205  1740   368  2039   941  1742  1748  1201
1795
## probabilities: 0.005 0.017 0.147 0.031 0.172 0.079 0.147 0.148 0.101
0.152
## left son=14 (5226 obs) right son=15 (6617 obs)
## Primary splits:
##      542 < 1.5   to the right, improve=822.1865, (0 missing)
##      570 < 1.5   to the right, improve=766.1911, (0 missing)
##      127 < 0.5   to the right, improve=760.7062, (0 missing)
##      569 < 0.5   to the right, improve=752.4553, (0 missing)
##      541 < 0.5   to the right, improve=750.0038, (0 missing)
##      Surrogate splits:
##      541 < 0.5   to the right, agree=0.895, adj=0.762, (0 split)
##      543 < 48.5  to the right, agree=0.893, adj=0.757, (0 split)
##      570 < 20.5  to the right, agree=0.880, adj=0.729, (0 split)
##      515 < 31.5  to the right, agree=0.854, adj=0.670, (0 split)
##      514 < 1.5   to the right, agree=0.852, adj=0.666, (0 split)
##
## Node number 8: 3250 observations,    complexity param=0.002277396

```

```

## predicted class=1 expected loss=0.2649231 P(node) =0.1289427
## class counts: 18 2389 157 56 76 91 158 24 214
67
## probabilities: 0.006 0.735 0.048 0.017 0.023 0.028 0.049 0.007 0.066
0.021
## left son=16 (2607 obs) right son=17 (643 obs)
## Primary splits:
## 347 < 1.5 to the left, improve=298.0289, (0 missing)
## 402 < 8 to the left, improve=281.7995, (0 missing)
## 375 < 48.5 to the left, improve=280.9152, (0 missing)
## 374 < 0.5 to the left, improve=277.2342, (0 missing)
## 457 < 1.5 to the left, improve=273.9629, (0 missing)
## Surrogate splits:
## 375 < 29.5 to the left, agree=0.943, adj=0.712, (0 split)
## 319 < 0.5 to the left, agree=0.942, adj=0.709, (0 split)
## 348 < 170.5 to the left, agree=0.930, adj=0.645, (0 split)
## 374 < 0.5 to the left, agree=0.925, adj=0.621, (0 split)
## 346 < 1 to the left, agree=0.923, adj=0.610, (0 split)
##
## Node number 9: 1150 observations, complexity param=0.004733411
## predicted class=8 expected loss=0.6 P(node) =0.04562587
## class counts: 10 42 180 103 36 14 119 95 460
91
## probabilities: 0.009 0.037 0.157 0.090 0.031 0.012 0.103 0.083 0.400
0.079
## left son=18 (434 obs) right son=19 (716 obs)
## Primary splits:
## 658 < 13.5 to the left, improve=111.38900, (0 missing)
## 657 < 1.5 to the left, improve=108.81070, (0 missing)
## 659 < 1 to the left, improve=108.67210, (0 missing)
## 656 < 4 to the left, improve= 97.54418, (0 missing)
## 319 < 6.5 to the left, improve= 79.81577, (0 missing)
## Surrogate splits:
## 659 < 1 to the left, agree=0.916, adj=0.776, (0 split)
## 657 < 5 to the left, agree=0.910, adj=0.763, (0 split)
## 630 < 66.5 to the left, agree=0.860, adj=0.629, (0 split)
## 631 < 5 to the left, agree=0.846, adj=0.592, (0 split)
## 656 < 1.5 to the left, agree=0.819, adj=0.521, (0 split)
##
## Node number 10: 3675 observations, complexity param=0.01330714
## predicted class=3 expected loss=0.4862585 P(node) =0.1458044
## class counts: 101 138 22 1888 113 810 35 109 113
346
## probabilities: 0.027 0.038 0.006 0.514 0.031 0.220 0.010 0.030 0.031
0.094
## left son=20 (2318 obs) right son=21 (1357 obs)
## Primary splits:
## 290 < 42.5 to the left, improve=347.9199, (0 missing)
## 317 < 33.5 to the left, improve=327.6350, (0 missing)
## 296 < 12.5 to the right, improve=303.0004, (0 missing)

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```

##      289 < 5.5   to the left,   improve=302.9559, (0 missing)
##      318 < 51.5  to the left,   improve=279.4329, (0 missing)
##      Surrogate splits:
##      289 < 11.5  to the left,   agree=0.875, adj=0.660, (0 split)
##      318 < 138.5 to the left,   agree=0.863, adj=0.629, (0 split)
##      291 < 38.5  to the left,   agree=0.861, adj=0.623, (0 split)
##      317 < 68.5  to the left,   agree=0.858, adj=0.615, (0 split)
##      262 < 68    to the left,   agree=0.850, adj=0.593, (0 split)
##
## Node number 11: 993 observations,      complexity param=0.006966152
##   predicted class=8   expected loss=0.5840886   P(node) =0.03939695
##   class counts:      65      20      126      66      14      53      200      1      413
35
##   probabilities: 0.065 0.020 0.127 0.066 0.014 0.053 0.201 0.001 0.416
0.035
##   left son=22 (423 obs) right son=23 (570 obs)
##   Primary splits:
##      657 < 5.5   to the left,   improve=140.94030, (0 missing)
##      656 < 1     to the left,   improve=138.99620, (0 missing)
##      658 < 0.5   to the left,   improve=123.86500, (0 missing)
##      655 < 14    to the left,   improve=122.38120, (0 missing)
##      654 < 0.5   to the left,   improve= 90.32948, (0 missing)
##   Surrogate splits:
##      656 < 1     to the left,   agree=0.957, adj=0.898, (0 split)
##      658 < 0.5   to the left,   agree=0.934, adj=0.844, (0 split)
##      655 < 0.5   to the left,   agree=0.900, adj=0.766, (0 split)
##      659 < 0.5   to the left,   agree=0.845, adj=0.636, (0 split)
##      654 < 0.5   to the left,   agree=0.830, adj=0.600, (0 split)
##
## Node number 12: 2737 observations,      complexity param=0.004644101
##   predicted class=0   expected loss=0.2499087   P(node) =0.1085896
##   class counts:      2053      6      230      85      5      220      83      16      30
9
##   probabilities: 0.750 0.002 0.084 0.031 0.002 0.080 0.030 0.006 0.011
0.003
##   left son=24 (2295 obs) right son=25 (442 obs)
##   Primary splits:
##      489 < 0.5   to the left,   improve=243.9992, (0 missing)
##      461 < 0.5   to the left,   improve=224.9709, (0 missing)
##      488 < 2.5   to the left,   improve=222.8567, (0 missing)
##      372 < 0.5   to the right,  improve=215.5484, (0 missing)
##      400 < 3.5   to the right,  improve=215.4347, (0 missing)
##   Surrogate splits:
##      490 < 33.5  to the left,   agree=0.955, adj=0.724, (0 split)
##      488 < 0.5   to the left,   agree=0.950, adj=0.688, (0 split)
##      517 < 140.5 to the left,   agree=0.936, adj=0.606, (0 split)
##      462 < 1.5   to the left,   agree=0.932, adj=0.581, (0 split)
##      461 < 0.5   to the left,   agree=0.931, adj=0.570, (0 split)
##
## Node number 13: 1557 observations,      complexity param=0.004778066

```

```

## predicted class=7 expected loss=0.583815 P(node) =0.06177346
## class counts: 169 11 52 45 161 148 146 648 7
170
## probabilities: 0.109 0.007 0.033 0.029 0.103 0.095 0.094 0.416 0.004
0.109
## left son=26 (603 obs) right son=27 (954 obs)
## Primary splits:
## 486 < 0.5 to the right, improve=171.6117, (0 missing)
## 458 < 0.5 to the right, improve=170.5544, (0 missing)
## 487 < 0.5 to the right, improve=170.2561, (0 missing)
## 515 < 1 to the right, improve=162.3623, (0 missing)
## 459 < 1 to the right, improve=157.7163, (0 missing)
## Surrogate splits:
## 487 < 0.5 to the right, agree=0.920, adj=0.793, (0 split)
## 485 < 1 to the right, agree=0.903, adj=0.750, (0 split)
## 514 < 0.5 to the right, agree=0.903, adj=0.750, (0 split)
## 515 < 2.5 to the right, agree=0.900, adj=0.743, (0 split)
## 458 < 0.5 to the right, agree=0.891, adj=0.718, (0 split)
##
## Node number 14: 5226 observations, complexity param=0.04505671
## predicted class=6 expected loss=0.6928817 P(node) =0.2073398
## class counts: 49 131 1467 40 271 235 1605 284 948
196
## probabilities: 0.009 0.025 0.281 0.008 0.052 0.045 0.307 0.054 0.181
0.038
## left son=28 (2838 obs) right son=29 (2388 obs)
## Primary splits:
## 271 < 0.5 to the right, improve=604.5449, (0 missing)
## 270 < 0.5 to the right, improve=599.7244, (0 missing)
## 243 < 0.5 to the right, improve=593.0277, (0 missing)
## 347 < 0.5 to the left, improve=575.8547, (0 missing)
## 242 < 0.5 to the right, improve=568.0370, (0 missing)
## Surrogate splits:
## 243 < 0.5 to the right, agree=0.910, adj=0.803, (0 split)
## 299 < 0.5 to the right, agree=0.906, adj=0.794, (0 split)
## 270 < 0.5 to the right, agree=0.857, adj=0.686, (0 split)
## 298 < 3.5 to the right, agree=0.854, adj=0.680, (0 split)
## 272 < 0.5 to the right, agree=0.853, adj=0.678, (0 split)
##
## Node number 15: 6617 observations, complexity param=0.05193355
## predicted class=4 expected loss=0.7328094 P(node) =0.2625273
## class counts: 15 74 273 328 1768 706 137 1464 253
1599
## probabilities: 0.002 0.011 0.041 0.050 0.267 0.107 0.021 0.221 0.038
0.242
## left son=30 (4489 obs) right son=31 (2128 obs)
## Primary splits:
## 432 < 0.5 to the right, improve=696.1747, (0 missing)
## 431 < 0.5 to the right, improve=662.3729, (0 missing)
## 433 < 2.5 to the right, improve=658.4506, (0 missing)

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##      430 < 0.5   to the right, improve=646.2347, (0 missing)
##      239 < 0.5   to the left,  improve=617.7026, (0 missing)
##      Surrogate splits:
##      431 < 0.5   to the right, agree=0.935, adj=0.798, (0 split)
##      433 < 29.5  to the right, agree=0.922, adj=0.758, (0 split)
##      430 < 0.5   to the right, agree=0.864, adj=0.577, (0 split)
##      434 < 80.5  to the right, agree=0.823, adj=0.451, (0 split)
##      460 < 0.5   to the right, agree=0.821, adj=0.444, (0 split)
##
## Node number 16: 2607 observations,      complexity param=0.002277396
## predicted class=1 expected loss=0.1258151 P(node) =0.1034319
## class counts:      1  2279  123   20   14   24   30    9  100
7
## probabilities: 0.000 0.874 0.047 0.008 0.005 0.009 0.012 0.003 0.038
0.003
## left son=32 (2456 obs) right son=33 (151 obs)
## Primary splits:
##      550 < 0.5   to the left,  improve=155.3068, (0 missing)
##      580 < 0.5   to the left,  improve=151.2452, (0 missing)
##      551 < 6.5   to the left,  improve=149.7522, (0 missing)
##      579 < 1.5   to the left,  improve=147.4893, (0 missing)
##      149 < 5     to the left,  improve=146.3479, (0 missing)
## Surrogate splits:
##      551 < 0.5   to the left,  agree=0.986, adj=0.755, (0 split)
##      578 < 44    to the left,  agree=0.979, adj=0.642, (0 split)
##      549 < 160   to the left,  agree=0.979, adj=0.636, (0 split)
##      522 < 2.5   to the left,  agree=0.978, adj=0.623, (0 split)
##      552 < 6     to the left,  agree=0.977, adj=0.609, (0 split)
##
## Node number 17: 643 observations,      complexity param=0.002277396
## predicted class=6 expected loss=0.8009331 P(node) =0.02551081
## class counts:      17  110   34   36   62   67  128   15  114
60
## probabilities: 0.026 0.171 0.053 0.056 0.096 0.104 0.199 0.023 0.177
0.093
## left son=34 (564 obs) right son=35 (79 obs)
## Primary splits:
##      103 < 1.5   to the left,  improve=49.62266, (0 missing)
##      102 < 4.5   to the left,  improve=45.81023, (0 missing)
##      657 < 1.5   to the left,  improve=44.98221, (0 missing)
##      467 < 2.5   to the right, improve=44.65403, (0 missing)
##      522 < 37    to the left,  improve=43.85053, (0 missing)
## Surrogate splits:
##      104 < 5.5   to the left,  agree=0.955, adj=0.633, (0 split)
##      102 < 11.5  to the left,  agree=0.953, adj=0.620, (0 split)
##      131 < 213.5 to the left,  agree=0.941, adj=0.519, (0 split)
##      130 < 227.5 to the left,  agree=0.935, adj=0.468, (0 split)
##      132 < 228   to the left,  agree=0.922, adj=0.367, (0 split)
##
## Node number 18: 434 observations,      complexity param=0.004286863

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## predicted class=2 expected loss=0.6705069 P(node) =0.01721881
## class counts:      5      19      143      15      13      6      114      28      37
54
## probabilities: 0.012 0.044 0.329 0.035 0.030 0.014 0.263 0.065 0.085
0.124
## left son=36 (228 obs) right son=37 (206 obs)
## Primary splits:
##      345 < 18      to the left, improve=60.79050, (0 missing)
##      384 < 7.5     to the left, improve=48.60646, (0 missing)
##      373 < 32.5    to the left, improve=47.71478, (0 missing)
##      318 < 36.5    to the left, improve=46.92627, (0 missing)
##      317 < 8.5     to the left, improve=46.85354, (0 missing)
## Surrogate splits:
##      317 < 18.5    to the left, agree=0.924, adj=0.840, (0 split)
##      373 < 21      to the left, agree=0.924, adj=0.840, (0 split)
##      344 < 0.5     to the left, agree=0.901, adj=0.791, (0 split)
##      346 < 11.5    to the left, agree=0.878, adj=0.743, (0 split)
##      372 < 0.5     to the left, agree=0.869, adj=0.723, (0 split)
##
## Node number 19: 716 observations, complexity param=0.001094043
## predicted class=8 expected loss=0.4092179 P(node) =0.02840706
## class counts:      5      23      37      88      23      8      5      67      423
37
## probabilities: 0.007 0.032 0.052 0.123 0.032 0.011 0.007 0.094 0.591
0.052
## left son=38 (218 obs) right son=39 (498 obs)
## Primary splits:
##      319 < 2       to the left, improve=57.35732, (0 missing)
##      543 < 10.5    to the left, improve=55.94126, (0 missing)
##      515 < 66.5    to the left, improve=54.57325, (0 missing)
##      516 < 50      to the left, improve=50.41320, (0 missing)
##      318 < 1.5     to the left, improve=46.75767, (0 missing)
## Surrogate splits:
##      318 < 0.5     to the left, agree=0.873, adj=0.583, (0 split)
##      320 < 0.5     to the left, agree=0.865, adj=0.555, (0 split)
##      347 < 7       to the left, agree=0.856, adj=0.528, (0 split)
##      291 < 79      to the left, agree=0.855, adj=0.523, (0 split)
##      290 < 2       to the left, agree=0.837, adj=0.463, (0 split)
##
## Node number 20: 2318 observations, complexity param=0.002009467
## predicted class=3 expected loss=0.2868852 P(node) =0.09196588
## class counts:      34      132      19      1653      36      277      19      30      53
65
## probabilities: 0.015 0.057 0.008 0.713 0.016 0.119 0.008 0.013 0.023
0.028
## left son=40 (1626 obs) right son=41 (692 obs)
## Primary splits:
##      179 < 1.5     to the right, improve=136.4540, (0 missing)
##      296 < 12.5    to the right, improve=131.9266, (0 missing)
##      655 < 3.5     to the right, improve=131.1460, (0 missing)

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##      152 < 0.5   to the right, improve=130.7408, (0 missing)
##      490 < 104.5 to the right, improve=128.5077, (0 missing)
##      Surrogate splits:
##      180 < 9.5   to the right, agree=0.910, adj=0.698, (0 split)
##      178 < 0.5   to the right, agree=0.902, adj=0.672, (0 split)
##      151 < 0.5   to the right, agree=0.837, adj=0.455, (0 split)
##      181 < 17.5  to the right, agree=0.830, adj=0.432, (0 split)
##      207 < 0.5   to the right, agree=0.825, adj=0.415, (0 split)
##
## Node number 21: 1357 observations,      complexity param=0.008350451
## predicted class=5 expected loss=0.6072218 P(node) =0.05383852
## class counts:      67      6      3    235      77    533      16      79      60
281
## probabilities: 0.049 0.004 0.002 0.173 0.057 0.393 0.012 0.058 0.044
0.207
## left son=42 (836 obs) right son=43 (521 obs)
## Primary splits:
##      626 < 10.5  to the right, improve=148.5743, (0 missing)
##      297 < 13.5  to the left,  improve=148.4859, (0 missing)
##      625 < 0.5   to the right, improve=140.2124, (0 missing)
##      296 < 10.5  to the left,  improve=134.0005, (0 missing)
##      627 < 1     to the right, improve=130.5689, (0 missing)
## Surrogate splits:
##      625 < 0.5   to the right, agree=0.935, adj=0.831, (0 split)
##      627 < 34.5  to the right, agree=0.931, adj=0.821, (0 split)
##      598 < 1     to the right, agree=0.887, adj=0.704, (0 split)
##      597 < 1     to the right, agree=0.878, adj=0.683, (0 split)
##      654 < 0.5   to the right, agree=0.866, adj=0.651, (0 split)
##
## Node number 22: 423 observations,      complexity param=0.002456015
## predicted class=6 expected loss=0.5626478 P(node) =0.01678238
## class counts:      13      20      98      15      14      23     185      0      29
26
## probabilities: 0.031 0.047 0.232 0.035 0.033 0.054 0.437 0.000 0.069
0.061
## left son=44 (173 obs) right son=45 (250 obs)
## Primary splits:
##      270 < 51.5  to the right, improve=48.04790, (0 missing)
##      242 < 2.5   to the right, improve=48.02302, (0 missing)
##      269 < 129.5 to the right, improve=46.32373, (0 missing)
##      243 < 28.5  to the right, improve=39.71868, (0 missing)
##      241 < 63.5  to the right, improve=39.07740, (0 missing)
## Surrogate splits:
##      297 < 149   to the right, agree=0.898, adj=0.751, (0 split)
##      271 < 1.5   to the right, agree=0.884, adj=0.717, (0 split)
##      269 < 152.5 to the right, agree=0.882, adj=0.711, (0 split)
##      243 < 4.5   to the right, agree=0.879, adj=0.705, (0 split)
##      242 < 83    to the right, agree=0.877, adj=0.699, (0 split)
##
## Node number 23: 570 observations,      complexity param=0.001027061

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## predicted class=8 expected loss=0.3263158 P(node) =0.02261456
## class counts: 52 0 28 51 0 30 15 1 384
9
## probabilities: 0.091 0.000 0.049 0.089 0.000 0.053 0.026 0.002 0.674
0.016
## left son=46 (97 obs) right son=47 (473 obs)
## Primary splits:
## 407 < 1.5 to the left, improve=41.25076, (0 missing)
## 412 < 57.5 to the right, improve=40.94860, (0 missing)
## 435 < 44.5 to the left, improve=40.48067, (0 missing)
## 436 < 7 to the left, improve=39.70404, (0 missing)
## 440 < 51 to the right, improve=37.08431, (0 missing)
## Surrogate splits:
## 406 < 59 to the left, agree=0.921, adj=0.536, (0 split)
## 379 < 106.5 to the left, agree=0.907, adj=0.454, (0 split)
## 378 < 118 to the left, agree=0.902, adj=0.423, (0 split)
## 405 < 39.5 to the left, agree=0.870, adj=0.237, (0 split)
## 351 < 39.5 to the left, agree=0.858, adj=0.165, (0 split)
##
## Node number 24: 2295 observations, complexity param=0.001384299
## predicted class=0 expected loss=0.1389978 P(node) =0.09105336
## class counts: 1976 1 49 75 2 121 47 12 6
6
## probabilities: 0.861 0.000 0.021 0.033 0.001 0.053 0.020 0.005 0.003
0.003
## left son=48 (2072 obs) right son=49 (223 obs)
## Primary splits:
## 380 < 1.5 to the left, improve=136.9082, (0 missing)
## 351 < 5.5 to the left, improve=120.5561, (0 missing)
## 379 < 1.5 to the left, improve=111.7483, (0 missing)
## 352 < 5.5 to the left, improve=107.7130, (0 missing)
## 378 < 46.5 to the left, improve=106.0854, (0 missing)
## Surrogate splits:
## 379 < 0.5 to the left, agree=0.959, adj=0.574, (0 split)
## 352 < 122.5 to the left, agree=0.953, adj=0.511, (0 split)
## 381 < 181.5 to the left, agree=0.953, adj=0.511, (0 split)
## 408 < 24.5 to the left, agree=0.952, adj=0.507, (0 split)
## 407 < 4 to the left, agree=0.949, adj=0.471, (0 split)
##
## Node number 25: 442 observations, complexity param=0.003483076
## predicted class=2 expected loss=0.5904977 P(node) =0.0175362
## class counts: 77 5 181 10 3 99 36 4 24
3
## probabilities: 0.174 0.011 0.410 0.023 0.007 0.224 0.081 0.009 0.054
0.007
## left son=50 (218 obs) right son=51 (224 obs)
## Primary splits:
## 347 < 2.5 to the left, improve=82.75933, (0 missing)
## 319 < 2 to the left, improve=82.43492, (0 missing)
## 320 < 1 to the left, improve=78.95617, (0 missing)

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##      374 < 4.5   to the left,  improve=77.95075, (0 missing)
##      346 < 5.5   to the left,  improve=73.21611, (0 missing)
##  Surrogate splits:
##      319 < 10.5  to the left,  agree=0.930, adj=0.858, (0 split)
##      320 < 14.5  to the left,  agree=0.928, adj=0.853, (0 split)
##      375 < 1     to the left,  agree=0.912, adj=0.821, (0 split)
##      348 < 1     to the left,  agree=0.907, adj=0.812, (0 split)
##      346 < 5.5   to the left,  agree=0.882, adj=0.761, (0 split)
##
## Node number 26: 603 observations,    complexity param=0.004733411
##   predicted class=6  expected loss=0.7794362  P(node) =0.02392382
##   class counts:   108      1    44    11   125    60   133    26      5
##   90
##   probabilities: 0.179 0.002 0.073 0.018 0.207 0.100 0.221 0.043 0.008
##   0.149
##   left son=52 (309 obs) right son=53 (294 obs)
##   Primary splits:
##       572 < 5.5   to the right, improve=60.75282, (0 missing)
##       571 < 94.5  to the right, improve=60.30347, (0 missing)
##       600 < 21.5  to the right, improve=54.55946, (0 missing)
##       99  < 1.5   to the left,  improve=54.37963, (0 missing)
##       298 < 1.5   to the right, improve=50.66128, (0 missing)
##   Surrogate splits:
##       571 < 0.5   to the right, agree=0.927, adj=0.850, (0 split)
##       573 < 22    to the right, agree=0.894, adj=0.782, (0 split)
##       543 < 148   to the right, agree=0.856, adj=0.704, (0 split)
##       600 < 19    to the right, agree=0.846, adj=0.684, (0 split)
##       601 < 13.5  to the right, agree=0.839, adj=0.670, (0 split)
##
## Node number 27: 954 observations,    complexity param=0.00250067
##   predicted class=7  expected loss=0.3480084  P(node) =0.03784963
##   class counts:     61    10      8    34    36    88    13   622      2
##   80
##   probabilities: 0.064 0.010 0.008 0.036 0.038 0.092 0.014 0.652 0.002
##   0.084
##   left son=54 (208 obs) right son=55 (746 obs)
##   Primary splits:
##       404 < 1     to the right, improve=127.8033, (0 missing)
##       403 < 4     to the right, improve=126.7987, (0 missing)
##       432 < 2     to the right, improve=117.4801, (0 missing)
##       405 < 3     to the right, improve=115.9155, (0 missing)
##       376 < 0.5   to the right, improve=106.3250, (0 missing)
##   Surrogate splits:
##       405 < 3     to the right, agree=0.954, adj=0.788, (0 split)
##       403 < 45    to the right, agree=0.953, adj=0.784, (0 split)
##       377 < 1.5   to the right, agree=0.939, adj=0.721, (0 split)
##       376 < 5.5   to the right, agree=0.935, adj=0.702, (0 split)
##       406 < 1     to the right, agree=0.922, adj=0.644, (0 split)
##
## Node number 28: 2838 observations,    complexity param=0.02545325

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## predicted class=2 expected loss=0.6169838 P(node) =0.1125967
## class counts: 41 102 1087 28 217 131 78 249 742
163
## probabilities: 0.014 0.036 0.383 0.010 0.076 0.046 0.027 0.088 0.261
0.057
## left son=56 (1644 obs) right son=57 (1194 obs)
## Primary splits:
## 347 < 1.5 to the left, improve=389.0371, (0 missing)
## 127 < 1.5 to the right, improve=367.2948, (0 missing)
## 126 < 0.5 to the right, improve=359.3462, (0 missing)
## 684 < 0.5 to the left, improve=345.3252, (0 missing)
## 319 < 1.5 to the left, improve=335.1514, (0 missing)
## Surrogate splits:
## 348 < 0.5 to the left, agree=0.898, adj=0.757, (0 split)
## 319 < 10.5 to the left, agree=0.894, adj=0.748, (0 split)
## 346 < 7.5 to the left, agree=0.893, adj=0.745, (0 split)
## 375 < 0.5 to the left, agree=0.880, adj=0.714, (0 split)
## 320 < 0.5 to the left, agree=0.857, adj=0.660, (0 split)
##
## Node number 29: 2388 observations, complexity param=0.01107439
## predicted class=6 expected loss=0.3605528 P(node) =0.09474311
## class counts: 8 29 380 12 54 104 1527 35 206
33
## probabilities: 0.003 0.012 0.159 0.005 0.023 0.044 0.639 0.015 0.086
0.014
## left son=58 (447 obs) right son=59 (1941 obs)
## Primary splits:
## 297 < 53.5 to the right, improve=306.1271, (0 missing)
## 296 < 66.5 to the right, improve=303.9832, (0 missing)
## 269 < 15.5 to the right, improve=285.7534, (0 missing)
## 324 < 96.5 to the right, improve=271.0391, (0 missing)
## 241 < 53.5 to the right, improve=215.7059, (0 missing)
## Surrogate splits:
## 269 < 82 to the right, agree=0.953, adj=0.749, (0 split)
## 296 < 61 to the right, agree=0.951, adj=0.740, (0 split)
## 324 < 113.5 to the right, agree=0.948, adj=0.723, (0 split)
## 325 < 141.5 to the right, agree=0.934, adj=0.647, (0 split)
## 270 < 0.5 to the right, agree=0.918, adj=0.562, (0 split)
##
## Node number 30: 4489 observations, complexity param=0.04572653
## predicted class=4 expected loss=0.6437959 P(node) =0.1780996
## class counts: 7 8 201 259 1599 587 100 132 217
1379
## probabilities: 0.002 0.002 0.045 0.058 0.356 0.131 0.022 0.029 0.048
0.307
## left son=60 (1830 obs) right son=61 (2659 obs)
## Primary splits:
## 211 < 31.5 to the left, improve=645.5260, (0 missing)
## 210 < 4.5 to the left, improve=585.5882, (0 missing)
## 238 < 5.5 to the left, improve=521.4250, (0 missing)

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##      239 < 0.5   to the left,   improve=517.7189, (0 missing)
##      212 < 10.5  to the left,   improve=496.3398, (0 missing)
##      Surrogate splits:
##      210 < 0.5   to the left,   agree=0.892, adj=0.734, (0 split)
##      212 < 10.5  to the left,   agree=0.887, adj=0.723, (0 split)
##      239 < 0.5   to the left,   agree=0.871, adj=0.683, (0 split)
##      238 < 1.5   to the left,   agree=0.841, adj=0.609, (0 split)
##      240 < 0.5   to the left,   agree=0.798, adj=0.505, (0 split)
##
## Node number 31: 2128 observations,      complexity param=0.00611771
##   predicted class=7   expected loss=0.3740602   P(node) =0.08442769
##   class counts:      8      66      72      69      169      119      37      1332      36
220
##   probabilities: 0.004 0.031 0.034 0.032 0.079 0.056 0.017 0.626 0.017
0.103
##   left son=62 (1766 obs) right son=63 (362 obs)
##   Primary splits:
##      487 < 75.5   to the left,   improve=227.9958, (0 missing)
##      486 < 63.5   to the left,   improve=223.1893, (0 missing)
##      458 < 47.5   to the left,   improve=211.7383, (0 missing)
##      488 < 105.5  to the right,  improve=209.6276, (0 missing)
##      459 < 1      to the left,   improve=205.0181, (0 missing)
##   Surrogate splits:
##      486 < 40     to the left,   agree=0.992, adj=0.950, (0 split)
##      459 < 1      to the left,   agree=0.981, adj=0.887, (0 split)
##      488 < 162    to the left,   agree=0.971, adj=0.831, (0 split)
##      458 < 26.5   to the left,   agree=0.971, adj=0.829, (0 split)
##      485 < 0.5    to the left,   agree=0.961, adj=0.771, (0 split)
##
## Node number 32: 2456 observations,      complexity param=0.001384299
##   predicted class=1   expected loss=0.0769544   P(node) =0.09744098
##   class counts:      0      2267      31      12      10      24      8      8      90
6
##   probabilities: 0.000 0.923 0.013 0.005 0.004 0.010 0.003 0.003 0.037
0.002
##   left son=64 (2312 obs) right son=65 (144 obs)
##   Primary splits:
##      300 < 21.5   to the left,   improve=78.16071, (0 missing)
##      355 < 32.5   to the left,   improve=76.54136, (0 missing)
##      484 < 5.5    to the left,   improve=75.24698, (0 missing)
##      301 < 2.5    to the left,   improve=74.91437, (0 missing)
##      511 < 6.5    to the left,   improve=72.98386, (0 missing)
##   Surrogate splits:
##      327 < 81     to the left,   agree=0.982, adj=0.694, (0 split)
##      299 < 192    to the left,   agree=0.981, adj=0.681, (0 split)
##      272 < 98.5   to the left,   agree=0.980, adj=0.667, (0 split)
##      273 < 1      to the left,   agree=0.979, adj=0.639, (0 split)
##      301 < 5.5    to the left,   agree=0.975, adj=0.569, (0 split)
##
## Node number 33: 151 observations,      complexity param=0.0005805126

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## predicted class=2 expected loss=0.3907285 P(node) =0.005990875
## class counts:      1      12      92      8      4      0      22      1      10
1
## probabilities: 0.007 0.079 0.609 0.053 0.026 0.000 0.146 0.007 0.066
0.007
## left son=66 (108 obs) right son=67 (43 obs)
## Primary splits:
##      152 < 12      to the right, improve=18.06109, (0 missing)
##      153 < 10.5    to the right, improve=17.30327, (0 missing)
##      154 < 12.5    to the right, improve=17.30274, (0 missing)
##      125 < 20.5    to the right, improve=17.24011, (0 missing)
##      386 < 43      to the left,  improve=16.81243, (0 missing)
## Surrogate splits:
##      153 < 20      to the right, agree=0.954, adj=0.837, (0 split)
##      154 < 12.5    to the right, agree=0.914, adj=0.698, (0 split)
##      180 < 5        to the right, agree=0.894, adj=0.628, (0 split)
##      125 < 6        to the right, agree=0.881, adj=0.581, (0 split)
##      151 < 5        to the right, agree=0.881, adj=0.581, (0 split)
##
## Node number 34: 564 observations,      complexity param=0.002277396
## predicted class=8 expected loss=0.7996454 P(node) =0.02237651
## class counts:      16      109      33      33      61      66      58      15      113
60
## probabilities: 0.028 0.193 0.059 0.059 0.108 0.117 0.103 0.027 0.200
0.106
## left son=68 (286 obs) right son=69 (278 obs)
## Primary splits:
##      657 < 1.5      to the left,  improve=30.51536, (0 missing)
##      374 < 37.5     to the left,  improve=28.44060, (0 missing)
##      294 < 190      to the right, improve=27.20103, (0 missing)
##      322 < 245.5    to the right, improve=26.74014, (0 missing)
##      658 < 0.5      to the left,  improve=26.27535, (0 missing)
## Surrogate splits:
##      658 < 0.5      to the left,  agree=0.888, adj=0.773, (0 split)
##      629 < 108.5    to the left,  agree=0.872, adj=0.741, (0 split)
##      656 < 10.5     to the left,  agree=0.860, adj=0.716, (0 split)
##      630 < 4         to the left,  agree=0.826, adj=0.647, (0 split)
##      685 < 1         to the left,  agree=0.766, adj=0.525, (0 split)
##
## Node number 35: 79 observations
## predicted class=6 expected loss=0.1139241 P(node) =0.003134299
## class counts:      1      1      1      3      1      1      70      0      1
0
## probabilities: 0.013 0.013 0.013 0.038 0.013 0.013 0.886 0.000 0.013
0.000
##
## Node number 36: 228 observations,      complexity param=0.0004242208
## predicted class=2 expected loss=0.4122807 P(node) =0.009045824
## class counts:      0      17      134      15      1      1      9      21      20
10

```



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## probabilities: 0.000 0.075 0.588 0.066 0.004 0.004 0.039 0.092 0.088
0.044
## left son=72 (142 obs) right son=73 (86 obs)
## Primary splits:
## 541 < 1.5 to the right, improve=29.54094, (0 missing)
## 514 < 218.5 to the right, improve=27.51901, (0 missing)
## 515 < 26 to the right, improve=26.83889, (0 missing)
## 513 < 61.5 to the right, improve=25.40063, (0 missing)
## 542 < 4.5 to the right, improve=24.69672, (0 missing)
## Surrogate splits:
## 513 < 8 to the right, agree=0.925, adj=0.802, (0 split)
## 542 < 115.5 to the right, agree=0.925, adj=0.802, (0 split)
## 540 < 0.5 to the right, agree=0.904, adj=0.744, (0 split)
## 514 < 165.5 to the right, agree=0.895, adj=0.721, (0 split)
## 569 < 3 to the right, agree=0.882, adj=0.686, (0 split)
##
## Node number 37: 206 observations, complexity param=0.001696883
## predicted class=6 expected loss=0.4902913 P(node) =0.008172982
## class counts: 5 2 9 0 12 5 105 7 17
44
## probabilities: 0.024 0.010 0.044 0.000 0.058 0.024 0.510 0.034 0.083
0.214
## left son=74 (144 obs) right son=75 (62 obs)
## Primary splits:
## 575 < 51.5 to the right, improve=38.30019, (0 missing)
## 576 < 149 to the right, improve=34.00853, (0 missing)
## 574 < 201 to the right, improve=33.23562, (0 missing)
## 603 < 94.5 to the right, improve=33.02369, (0 missing)
## 602 < 58 to the right, improve=32.25226, (0 missing)
## Surrogate splits:
## 574 < 201 to the right, agree=0.913, adj=0.710, (0 split)
## 603 < 2.5 to the right, agree=0.898, adj=0.661, (0 split)
## 576 < 1 to the right, agree=0.888, adj=0.629, (0 split)
## 602 < 33.5 to the right, agree=0.879, adj=0.597, (0 split)
## 547 < 74.5 to the right, agree=0.864, adj=0.548, (0 split)
##
## Node number 38: 218 observations, complexity param=0.001094043
## predicted class=3 expected loss=0.706422 P(node) =0.008649078
## class counts: 1 9 34 64 5 1 3 44 50
7
## probabilities: 0.005 0.041 0.156 0.294 0.023 0.005 0.014 0.202 0.229
0.032
## left son=76 (162 obs) right son=77 (56 obs)
## Primary splits:
## 344 < 24 to the left, improve=24.57021, (0 missing)
## 345 < 8 to the left, improve=23.04704, (0 missing)
## 373 < 85.5 to the left, improve=23.00540, (0 missing)
## 544 < 57.5 to the left, improve=21.22790, (0 missing)
## 543 < 138 to the left, improve=20.97228, (0 missing)
## Surrogate splits:

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##      345 < 8      to the left,  agree=0.954, adj=0.821, (0 split)
##      316 < 36.5  to the left,  agree=0.950, adj=0.804, (0 split)
##      372 < 0.5   to the left,  agree=0.945, adj=0.786, (0 split)
##      317 < 52.5  to the left,  agree=0.936, adj=0.750, (0 split)
##      373 < 85.5  to the left,  agree=0.936, adj=0.750, (0 split)
##
## Node number 39: 498 observations,      complexity param=0.000379566
##   predicted class=8  expected loss=0.251004  P(node) =0.01975798
##   class counts:      4      14      3      24      18      7      2      23      373
30
##   probabilities: 0.008 0.028 0.006 0.048 0.036 0.014 0.004 0.046 0.749
0.060
##   left son=78 (124 obs) right son=79 (374 obs)
##   Primary splits:
##       543 < 9.5   to the left,  improve=31.25450, (0 missing)
##       515 < 13    to the left,  improve=29.28271, (0 missing)
##       518 < 248.5 to the right, improve=27.08767, (0 missing)
##       155 < 4.5   to the left,  improve=27.00839, (0 missing)
##       516 < 46.5  to the left,  improve=25.72759, (0 missing)
##   Surrogate splits:
##       515 < 13    to the left,  agree=0.918, adj=0.669, (0 split)
##       571 < 6     to the left,  agree=0.892, adj=0.565, (0 split)
##       516 < 45.5  to the left,  agree=0.853, adj=0.411, (0 split)
##       488 < 88.5  to the left,  agree=0.851, adj=0.403, (0 split)
##       487 < 1     to the left,  agree=0.833, adj=0.331, (0 split)
##
## Node number 40: 1626 observations,      complexity param=0.002009467
##   predicted class=3  expected loss=0.1439114  P(node) =0.06451101
##   class counts:      3      41      13 1392      5 105      2      7      31
27
##   probabilities: 0.002 0.025 0.008 0.856 0.003 0.065 0.001 0.004 0.019
0.017
##   left son=80 (1502 obs) right son=81 (124 obs)
##   Primary splits:
##       315 < 84.5  to the left,  improve=101.33530, (0 missing)
##       316 < 163.5 to the left,  improve= 93.73302, (0 missing)
##       288 < 120   to the left,  improve= 87.80485, (0 missing)
##       343 < 129   to the left,  improve= 83.76342, (0 missing)
##       296 < 2.5   to the right, improve= 75.56257, (0 missing)
##   Surrogate splits:
##       343 < 129   to the left,  agree=0.972, adj=0.637, (0 split)
##       316 < 72.5  to the left,  agree=0.972, adj=0.629, (0 split)
##       287 < 151.5 to the left,  agree=0.971, adj=0.621, (0 split)
##       314 < 3.5   to the left,  agree=0.967, adj=0.573, (0 split)
##       342 < 31.5  to the left,  agree=0.964, adj=0.532, (0 split)
##
## Node number 41: 692 observations,      complexity param=0.002009467
##   predicted class=3  expected loss=0.6228324  P(node) =0.02745487
##   class counts:      31      91      6 261      31 172      17      23      22
38

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## probabilities: 0.045 0.132 0.009 0.377 0.045 0.249 0.025 0.033 0.032
0.055
## left son=82 (417 obs) right son=83 (275 obs)
## Primary splits:
## 626 < 19.5 to the right, improve=58.69160, (0 missing)
## 627 < 36.5 to the right, improve=57.79988, (0 missing)
## 628 < 23 to the left, improve=56.53345, (0 missing)
## 625 < 1.5 to the right, improve=56.23608, (0 missing)
## 490 < 127.5 to the right, improve=53.88951, (0 missing)
## Surrogate splits:
## 627 < 13.5 to the right, agree=0.952, adj=0.880, (0 split)
## 625 < 1.5 to the right, agree=0.945, adj=0.862, (0 split)
## 628 < 3 to the right, agree=0.910, adj=0.775, (0 split)
## 624 < 0.5 to the right, agree=0.871, adj=0.676, (0 split)
## 598 < 1 to the right, agree=0.835, adj=0.585, (0 split)
##
## Node number 42: 836 observations, complexity param=0.003393766
## predicted class=5 expected loss=0.430622 P(node) =0.03316802
## class counts: 59 1 1 198 1 476 9 5 49
37
## probabilities: 0.071 0.001 0.001 0.237 0.001 0.569 0.011 0.006 0.059
0.044
## left son=84 (324 obs) right son=85 (512 obs)
## Primary splits:
## 297 < 29.5 to the right, improve=94.16206, (0 missing)
## 298 < 0.5 to the right, improve=89.46983, (0 missing)
## 296 < 54.5 to the right, improve=89.39417, (0 missing)
## 269 < 0.5 to the right, improve=76.41152, (0 missing)
## 270 < 9.5 to the right, improve=73.21487, (0 missing)
## Surrogate splits:
## 298 < 0.5 to the right, agree=0.916, adj=0.784, (0 split)
## 296 < 111.5 to the right, agree=0.879, adj=0.688, (0 split)
## 270 < 85 to the right, agree=0.854, adj=0.623, (0 split)
## 269 < 191.5 to the right, agree=0.848, adj=0.608, (0 split)
## 325 < 210 to the right, agree=0.842, adj=0.593, (0 split)
##
## Node number 43: 521 observations, complexity param=0.002389033
## predicted class=9 expected loss=0.5316699 P(node) =0.0206705
## class counts: 8 5 2 37 76 57 7 74 11
244
## probabilities: 0.015 0.010 0.004 0.071 0.146 0.109 0.013 0.142 0.021
0.468
## left son=86 (164 obs) right son=87 (357 obs)
## Primary splits:
## 210 < 1 to the left, improve=63.94359, (0 missing)
## 211 < 1.5 to the left, improve=56.21769, (0 missing)
## 209 < 18.5 to the left, improve=53.53197, (0 missing)
## 321 < 234 to the right, improve=45.42103, (0 missing)
## 238 < 9.5 to the left, improve=42.78869, (0 missing)
## Surrogate splits:

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##      211 < 1.5   to the left,  agree=0.933, adj=0.787, (0 split)
##      209 < 18.5  to the left,  agree=0.925, adj=0.762, (0 split)
##      238 < 1     to the left,  agree=0.850, adj=0.524, (0 split)
##      237 < 1     to the left,  agree=0.839, adj=0.488, (0 split)
##      212 < 1     to the left,  agree=0.829, adj=0.457, (0 split)
##
## Node number 44: 173 observations,    complexity param=0.0004465482
##   predicted class=2  expected loss=0.6011561  P(node) =0.006863718
##   class counts:      9    15    69    8    9    7    14    0    23
19
##   probabilities: 0.052 0.087 0.399 0.046 0.052 0.040 0.081 0.000 0.133
0.110
##   left son=88 (73 obs) right son=89 (100 obs)
##   Primary splits:
##       126 < 10    to the right, improve=21.98748, (0 missing)
##       154 < 11.5  to the right, improve=21.90812, (0 missing)
##       156 < 5.5   to the right, improve=21.04590, (0 missing)
##       155 < 59.5  to the right, improve=20.71615, (0 missing)
##       573 < 94.5  to the right, improve=20.26070, (0 missing)
##   Surrogate splits:
##       125 < 5.5   to the right, agree=0.942, adj=0.863, (0 split)
##       127 < 6.5   to the right, agree=0.936, adj=0.849, (0 split)
##       153 < 24    to the right, agree=0.908, adj=0.781, (0 split)
##       154 < 129.5 to the right, agree=0.908, adj=0.781, (0 split)
##       128 < 5     to the right, agree=0.896, adj=0.753, (0 split)
##
## Node number 45: 250 observations,    complexity param=0.0003349111
##   predicted class=6  expected loss=0.316  P(node) =0.009918667
##   class counts:      4    5    29    7    5    16    171    0    6
7
##   probabilities: 0.016 0.020 0.116 0.028 0.020 0.064 0.684 0.000 0.024
0.028
##   left son=90 (41 obs) right son=91 (209 obs)
##   Primary splits:
##       601 < 36.5  to the left,  improve=19.64868, (0 missing)
##       295 < 174   to the right, improve=19.07010, (0 missing)
##       380 < 25    to the left,  improve=17.06546, (0 missing)
##       381 < 1     to the left,  improve=16.91467, (0 missing)
##       600 < 2.5   to the left,  improve=16.78673, (0 missing)
##   Surrogate splits:
##       600 < 2.5   to the left,  agree=0.980, adj=0.878, (0 split)
##       602 < 0.5   to the left,  agree=0.956, adj=0.732, (0 split)
##       599 < 2     to the left,  agree=0.944, adj=0.659, (0 split)
##       573 < 1.5   to the left,  agree=0.920, adj=0.512, (0 split)
##       572 < 1.5   to the left,  agree=0.916, adj=0.488, (0 split)
##
## Node number 46: 97 observations,    complexity param=0.0005805126
##   predicted class=0  expected loss=0.5463918  P(node) =0.003848443
##   class counts:     44    0    8    6    0    15    3    0    21
0

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## probabilities: 0.454 0.000 0.082 0.062 0.000 0.155 0.031 0.000 0.216
0.000
## left son=92 (41 obs) right son=93 (56 obs)
## Primary splits:
## 329 < 11 to the right, improve=18.37385, (0 missing)
## 328 < 120.5 to the right, improve=18.09793, (0 missing)
## 301 < 18.5 to the right, improve=17.28437, (0 missing)
## 300 < 67 to the right, improve=17.01085, (0 missing)
## 266 < 240.5 to the right, improve=16.89891, (0 missing)
## Surrogate splits:
## 301 < 26 to the right, agree=0.938, adj=0.854, (0 split)
## 357 < 8.5 to the right, agree=0.938, adj=0.854, (0 split)
## 300 < 67 to the right, agree=0.928, adj=0.829, (0 split)
## 328 < 85.5 to the right, agree=0.928, adj=0.829, (0 split)
## 356 < 232.5 to the right, agree=0.887, adj=0.732, (0 split)
##
## Node number 47: 473 observations, complexity param=0.0004688756
## predicted class=8 expected loss=0.2325581 P(node) =0.01876612
## class counts: 8 0 20 45 0 15 12 1 363
9
## probabilities: 0.017 0.000 0.042 0.095 0.000 0.032 0.025 0.002 0.767
0.019
## left son=94 (43 obs) right son=95 (430 obs)
## Primary splits:
## 514 < 1 to the left, improve=18.95645, (0 missing)
## 439 < 250.5 to the right, improve=18.87687, (0 missing)
## 440 < 60 to the right, improve=17.81530, (0 missing)
## 541 < 1 to the left, improve=16.73971, (0 missing)
## 401 < 230.5 to the right, improve=15.72282, (0 missing)
## Surrogate splits:
## 712 < 169 to the right, agree=0.918, adj=0.093, (0 split)
## 507 < 32 to the right, agree=0.915, adj=0.070, (0 split)
## 509 < 28 to the right, agree=0.915, adj=0.070, (0 split)
## 535 < 12 to the right, agree=0.915, adj=0.070, (0 split)
## 537 < 118.5 to the right, agree=0.915, adj=0.070, (0 split)
##
## Node number 48: 2072 observations, complexity param=0.0004242208
## predicted class=0 expected loss=0.06853282 P(node) =0.08220591
## class counts: 1930 0 32 31 1 44 21 10 1
2
## probabilities: 0.931 0.000 0.015 0.015 0.000 0.021 0.010 0.005 0.000
0.001
## left son=96 (1973 obs) right son=97 (99 obs)
## Primary splits:
## 324 < 172 to the left, improve=34.63603, (0 missing)
## 455 < 1 to the right, improve=31.48402, (0 missing)
## 323 < 147.5 to the left, improve=31.37636, (0 missing)
## 427 < 0.5 to the right, improve=30.52109, (0 missing)
## 428 < 0.5 to the right, improve=28.05817, (0 missing)
## Surrogate splits:

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##      352 < 15.5 to the left, agree=0.977, adj=0.525, (0 split)
##      323 < 216.5 to the left, agree=0.971, adj=0.394, (0 split)
##      325 < 241 to the left, agree=0.967, adj=0.303, (0 split)
##      351 < 10 to the left, agree=0.965, adj=0.273, (0 split)
##      353 < 218.5 to the left, agree=0.959, adj=0.152, (0 split)
##
## Node number 49: 223 observations, complexity param=0.001250335
## predicted class=5 expected loss=0.6547085 P(node) =0.008847451
## class counts: 46 1 17 44 1 77 26 2 5
4
## probabilities: 0.206 0.004 0.076 0.197 0.004 0.345 0.117 0.009 0.022
0.018
## left son=98 (84 obs) right son=99 (139 obs)
## Primary splits:
## 484 < 42 to the right, improve=22.09355, (0 missing)
## 485 < 63 to the right, improve=21.30952, (0 missing)
## 513 < 105.5 to the right, improve=20.88248, (0 missing)
## 298 < 127 to the right, improve=20.27173, (0 missing)
## 456 < 13.5 to the right, improve=19.78078, (0 missing)
## Surrogate splits:
## 456 < 7.5 to the right, agree=0.928, adj=0.810, (0 split)
## 512 < 35 to the right, agree=0.892, adj=0.714, (0 split)
## 457 < 29.5 to the right, agree=0.843, adj=0.583, (0 split)
## 485 < 33.5 to the right, agree=0.839, adj=0.571, (0 split)
## 513 < 105.5 to the right, agree=0.834, adj=0.560, (0 split)
##
## Node number 50: 218 observations, complexity param=0.0003125837
## predicted class=2 expected loss=0.2201835 P(node) =0.008649078
## class counts: 7 5 170 6 2 10 7 3 6
2
## probabilities: 0.032 0.023 0.780 0.028 0.009 0.046 0.032 0.014 0.028
0.009
## left son=100 (192 obs) right son=101 (26 obs)
## Primary splits:
## 344 < 154.5 to the left, improve=21.28125, (0 missing)
## 372 < 32 to the left, improve=20.41915, (0 missing)
## 345 < 33.5 to the left, improve=19.99551, (0 missing)
## 371 < 16 to the left, improve=19.79440, (0 missing)
## 465 < 5 to the right, improve=18.42076, (0 missing)
## Surrogate splits:
## 372 < 32 to the left, agree=0.982, adj=0.846, (0 split)
## 371 < 3 to the left, agree=0.972, adj=0.769, (0 split)
## 317 < 167.5 to the left, agree=0.968, adj=0.731, (0 split)
## 345 < 33.5 to the left, agree=0.968, adj=0.731, (0 split)
## 316 < 93.5 to the left, agree=0.959, adj=0.654, (0 split)
##
## Node number 51: 224 observations, complexity param=0.002857908
## predicted class=5 expected loss=0.6026786 P(node) =0.008887126
## class counts: 70 0 11 4 1 89 29 1 18
1

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## probabilities: 0.312 0.000 0.049 0.018 0.004 0.397 0.129 0.004 0.080
0.004
## left son=102 (73 obs) right son=103 (151 obs)
## Primary splits:
## 386 < 3.5 to the right, improve=52.64302, (0 missing)
## 358 < 6.5 to the right, improve=52.12740, (0 missing)
## 413 < 36 to the right, improve=51.92639, (0 missing)
## 357 < 26.5 to the right, improve=51.87439, (0 missing)
## 385 < 43 to the right, improve=51.27013, (0 missing)
## Surrogate splits:
## 358 < 13.5 to the right, agree=0.973, adj=0.918, (0 split)
## 385 < 108 to the right, agree=0.964, adj=0.890, (0 split)
## 413 < 36 to the right, agree=0.960, adj=0.877, (0 split)
## 414 < 6.5 to the right, agree=0.960, adj=0.877, (0 split)
## 441 < 19.5 to the right, agree=0.942, adj=0.822, (0 split)
##
## Node number 52: 309 observations, complexity param=0.00379566
## predicted class=6 expected loss=0.6019417 P(node) =0.01225947
## class counts: 99 1 30 6 9 19 123 3 3
16
## probabilities: 0.320 0.003 0.097 0.019 0.029 0.061 0.398 0.010 0.010
0.052
## left son=104 (151 obs) right son=105 (158 obs)
## Primary splits:
## 241 < 12 to the right, improve=62.80933, (0 missing)
## 270 < 2 to the right, improve=62.15147, (0 missing)
## 242 < 2 to the right, improve=59.06631, (0 missing)
## 269 < 1 to the right, improve=56.39711, (0 missing)
## 298 < 1.5 to the right, improve=55.86574, (0 missing)
## Surrogate splits:
## 269 < 1 to the right, agree=0.942, adj=0.881, (0 split)
## 242 < 2 to the right, agree=0.926, adj=0.848, (0 split)
## 270 < 2 to the right, agree=0.922, adj=0.841, (0 split)
## 240 < 0.5 to the right, agree=0.890, adj=0.775, (0 split)
## 298 < 1.5 to the right, agree=0.887, adj=0.768, (0 split)
##
## Node number 53: 294 observations, complexity param=0.002009467
## predicted class=4 expected loss=0.6054422 P(node) =0.01166435
## class counts: 9 0 14 5 116 41 10 23 2
74
## probabilities: 0.031 0.000 0.048 0.017 0.395 0.139 0.034 0.078 0.007
0.252
## left son=106 (119 obs) right son=107 (175 obs)
## Primary splits:
## 211 < 8 to the left, improve=40.32227, (0 missing)
## 210 < 9 to the left, improve=40.02085, (0 missing)
## 238 < 1 to the left, improve=34.44240, (0 missing)
## 239 < 0.5 to the left, improve=31.73947, (0 missing)
## 465 < 34 to the left, improve=31.34210, (0 missing)
## Surrogate splits:

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##      210 < 6.5   to the left,  agree=0.895, adj=0.739, (0 split)
##      212 < 0.5   to the left,  agree=0.881, adj=0.706, (0 split)
##      239 < 0.5   to the left,  agree=0.874, adj=0.689, (0 split)
##      238 < 4     to the left,  agree=0.850, adj=0.630, (0 split)
##      240 < 1     to the left,  agree=0.844, adj=0.613, (0 split)
##
## Node number 54: 208 observations,    complexity param=0.002366705
##   predicted class=9   expected loss=0.6875   P(node) =0.008252331
##   class counts:      4      7      3      25      22      62      9      9      2
65
##   probabilities: 0.019 0.034 0.014 0.120 0.106 0.298 0.043 0.043 0.010
0.312
##   left son=108 (106 obs) right son=109 (102 obs)
##   Primary splits:
##       354 < 26     to the left,  improve=31.37672, (0 missing)
##       353 < 22.5   to the left,  improve=28.44115, (0 missing)
##       355 < 2      to the left,  improve=24.04168, (0 missing)
##       465 < 80     to the left,  improve=23.43269, (0 missing)
##       382 < 35.5   to the left,  improve=21.14973, (0 missing)
##   Surrogate splits:
##       353 < 22.5   to the left,  agree=0.909, adj=0.814, (0 split)
##       355 < 2      to the left,  agree=0.875, adj=0.745, (0 split)
##       326 < 2      to the left,  agree=0.870, adj=0.735, (0 split)
##       382 < 146    to the left,  agree=0.856, adj=0.706, (0 split)
##       465 < 80     to the left,  agree=0.817, adj=0.627, (0 split)
##
## Node number 55: 746 observations,    complexity param=0.002009467
##   predicted class=7   expected loss=0.1782842   P(node) =0.0295973
##   class counts:      57      3      5      9      14      26      4      613      0
15
##   probabilities: 0.076 0.004 0.007 0.012 0.019 0.035 0.005 0.822 0.000
0.020
##   left son=110 (68 obs) right son=111 (678 obs)
##   Primary splits:
##       538 < 1      to the right, improve=75.36373, (0 missing)
##       510 < 10.5   to the right, improve=71.88152, (0 missing)
##       539 < 2      to the right, improve=68.65317, (0 missing)
##       623 < 3      to the right, improve=67.04377, (0 missing)
##       566 < 7      to the right, improve=66.62073, (0 missing)
##   Surrogate splits:
##       510 < 121.5  to the right, agree=0.981, adj=0.794, (0 split)
##       566 < 1.5    to the right, agree=0.976, adj=0.735, (0 split)
##       567 < 1      to the right, agree=0.971, adj=0.676, (0 split)
##       539 < 56     to the right, agree=0.968, adj=0.647, (0 split)
##       537 < 2      to the right, agree=0.962, adj=0.588, (0 split)
##
## Node number 56: 1644 observations,    complexity param=0.003304457
##   predicted class=2   expected loss=0.386253   P(node) =0.06522515
##   class counts:      5     102    1009     23     65     12     50    193     94
91

```



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## probabilities: 0.003 0.062 0.614 0.014 0.040 0.007 0.030 0.117 0.057
0.055
## left son=112 (1021 obs) right son=113 (623 obs)
## Primary splits:
## 155 < 1 to the right, improve=246.8804, (0 missing)
## 156 < 0.5 to the right, improve=246.5524, (0 missing)
## 154 < 0.5 to the right, improve=235.2572, (0 missing)
## 127 < 1.5 to the right, improve=212.1310, (0 missing)
## 157 < 2.5 to the right, improve=208.6518, (0 missing)
## Surrogate splits:
## 156 < 0.5 to the right, agree=0.969, adj=0.918, (0 split)
## 154 < 0.5 to the right, agree=0.956, adj=0.884, (0 split)
## 157 < 2.5 to the right, agree=0.917, adj=0.782, (0 split)
## 153 < 0.5 to the right, agree=0.901, adj=0.738, (0 split)
## 152 < 1 to the right, agree=0.826, adj=0.541, (0 split)
##
## Node number 57: 1194 observations, complexity param=0.00379566
## predicted class=8 expected loss=0.4572864 P(node) =0.04737155
## class counts: 36 0 78 5 152 119 28 56 648
72
## probabilities: 0.030 0.000 0.065 0.004 0.127 0.100 0.023 0.047 0.543
0.060
## left son=114 (485 obs) right son=115 (709 obs)
## Primary splits:
## 657 < 15 to the left, improve=192.8540, (0 missing)
## 656 < 22.5 to the left, improve=182.8277, (0 missing)
## 658 < 3.5 to the left, improve=168.9296, (0 missing)
## 655 < 20 to the left, improve=143.8821, (0 missing)
## 684 < 0.5 to the left, improve=142.4054, (0 missing)
## Surrogate splits:
## 658 < 0.5 to the left, agree=0.934, adj=0.837, (0 split)
## 656 < 59 to the left, agree=0.931, adj=0.831, (0 split)
## 630 < 7.5 to the left, agree=0.879, adj=0.703, (0 split)
## 629 < 4 to the left, agree=0.848, adj=0.627, (0 split)
## 631 < 0.5 to the left, agree=0.843, adj=0.612, (0 split)
##
## Node number 58: 447 observations, complexity param=0.0009377512
## predicted class=2 expected loss=0.3959732 P(node) =0.01773458
## class counts: 5 26 270 4 34 1 22 31 37
17
## probabilities: 0.011 0.058 0.604 0.009 0.076 0.002 0.049 0.069 0.083
0.038
## left son=116 (344 obs) right son=117 (103 obs)
## Primary splits:
## 346 < 7.5 to the left, improve=47.61144, (0 missing)
## 347 < 0.5 to the left, improve=43.59109, (0 missing)
## 348 < 2 to the left, improve=38.53257, (0 missing)
## 124 < 3 to the right, improve=38.15032, (0 missing)
## 345 < 5.5 to the left, improve=37.90400, (0 missing)
## Surrogate splits:

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##      347 < 0.5   to the left,  agree=0.937, adj=0.728, (0 split)
##      318 < 24.5  to the left,  agree=0.933, adj=0.709, (0 split)
##      345 < 2.5   to the left,  agree=0.915, adj=0.631, (0 split)
##      374 < 4.5   to the left,  agree=0.915, adj=0.631, (0 split)
##      319 < 41    to the left,  agree=0.904, adj=0.583, (0 split)
##
## Node number 59: 1941 observations,    complexity param=0.004688756
##   predicted class=6  expected loss=0.2246265  P(node) =0.07700853
##   class counts:      3      3  110      8   20  103  1505      4   169
16
##   probabilities: 0.002 0.002 0.057 0.004 0.010 0.053 0.775 0.002 0.087
0.008
##   left son=118 (241 obs) right son=119 (1700 obs)
##   Primary splits:
##       274 < 2.5   to the right, improve=208.2075, (0 missing)
##       655 < 1.5   to the left,  improve=206.0021, (0 missing)
##       654 < 0.5   to the left,  improve=202.5597, (0 missing)
##       246 < 5.5   to the right, improve=198.0558, (0 missing)
##       656 < 2     to the left,  improve=195.6095, (0 missing)
##   Surrogate splits:
##       273 < 3     to the right, agree=0.982, adj=0.855, (0 split)
##       246 < 24    to the right, agree=0.973, adj=0.780, (0 split)
##       301 < 137.5 to the right, agree=0.965, adj=0.722, (0 split)
##       302 < 39    to the right, agree=0.961, adj=0.689, (0 split)
##       245 < 14.5  to the right, agree=0.958, adj=0.660, (0 split)
##
## Node number 60: 1830 observations,    complexity param=0.003751005
##   predicted class=4  expected loss=0.2836066  P(node) =0.07260464
##   class counts:      0      6  111   44 1311  123   68   44   56
67
##   probabilities: 0.000 0.003 0.061 0.024 0.716 0.067 0.037 0.024 0.031
0.037
##   left son=120 (221 obs) right son=121 (1609 obs)
##   Primary splits:
##       596 < 1.5   to the right, improve=177.3933, (0 missing)
##       597 < 13    to the right, improve=171.0007, (0 missing)
##       595 < 0.5   to the right, improve=167.7112, (0 missing)
##       624 < 2.5   to the right, improve=167.5858, (0 missing)
##       625 < 35    to the right, improve=163.3194, (0 missing)
##   Surrogate splits:
##       597 < 44    to the right, agree=0.981, adj=0.846, (0 split)
##       595 < 0.5   to the right, agree=0.978, adj=0.819, (0 split)
##       624 < 0.5   to the right, agree=0.973, adj=0.778, (0 split)
##       568 < 0.5   to the right, agree=0.967, adj=0.729, (0 split)
##       567 < 15.5  to the right, agree=0.964, adj=0.701, (0 split)
##
## Node number 61: 2659 observations,    complexity param=0.01576315
##   predicted class=9  expected loss=0.5065814  P(node) =0.1054949
##   class counts:      7      2   90  215  288  464   32   88  161
1312

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## probabilities: 0.003 0.001 0.034 0.081 0.108 0.175 0.012 0.033 0.061
0.493
## left son=122 (808 obs) right son=123 (1851 obs)
## Primary splits:
## 354 < 2.5 to the left, improve=332.8322, (0 missing)
## 353 < 1.5 to the left, improve=318.0870, (0 missing)
## 326 < 0.5 to the left, improve=309.1417, (0 missing)
## 381 < 9.5 to the left, improve=293.6687, (0 missing)
## 382 < 1.5 to the left, improve=277.3368, (0 missing)
## Surrogate splits:
## 326 < 0.5 to the left, agree=0.920, adj=0.736, (0 split)
## 382 < 1.5 to the left, agree=0.914, adj=0.715, (0 split)
## 381 < 91.5 to the left, agree=0.896, adj=0.658, (0 split)
## 353 < 0.5 to the left, agree=0.881, adj=0.608, (0 split)
## 327 < 1 to the left, agree=0.837, adj=0.464, (0 split)
##
## Node number 62: 1766 observations, complexity param=0.00482272
## predicted class=7 expected loss=0.2587769 P(node) =0.07006546
## class counts: 7 65 53 68 34 118 21 1309 31
60
## probabilities: 0.004 0.037 0.030 0.039 0.019 0.067 0.012 0.741 0.018
0.034
## left son=124 (313 obs) right son=125 (1453 obs)
## Primary splits:
## 377 < 6.5 to the right, improve=248.0977, (0 missing)
## 405 < 23.5 to the right, improve=243.4815, (0 missing)
## 376 < 73.5 to the right, improve=211.9655, (0 missing)
## 378 < 100.5 to the right, improve=210.6609, (0 missing)
## 404 < 4 to the right, improve=196.8469, (0 missing)
## Surrogate splits:
## 405 < 39.5 to the right, agree=0.971, adj=0.834, (0 split)
## 376 < 73.5 to the right, agree=0.967, adj=0.815, (0 split)
## 404 < 2.5 to the right, agree=0.959, adj=0.767, (0 split)
## 378 < 157.5 to the right, agree=0.935, adj=0.636, (0 split)
## 406 < 202.5 to the right, agree=0.914, adj=0.514, (0 split)
##
## Node number 63: 362 observations, complexity param=0.004420827
## predicted class=9 expected loss=0.558011 P(node) =0.01436223
## class counts: 1 1 19 1 135 1 16 23 5
160
## probabilities: 0.003 0.003 0.052 0.003 0.373 0.003 0.044 0.064 0.014
0.442
## left son=126 (144 obs) right son=127 (218 obs)
## Primary splits:
## 211 < 5.5 to the left, improve=70.33103, (0 missing)
## 210 < 9 to the left, improve=65.94942, (0 missing)
## 212 < 9.5 to the left, improve=60.68276, (0 missing)
## 209 < 12.5 to the left, improve=56.75568, (0 missing)
## 239 < 4.5 to the left, improve=44.24857, (0 missing)
## Surrogate splits:

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##      210 < 6.5   to the left,  agree=0.903, adj=0.757, (0 split)
##      212 < 9.5   to the left,  agree=0.890, adj=0.722, (0 split)
##      239 < 0.5   to the left,  agree=0.862, adj=0.653, (0 split)
##      209 < 11.5  to the left,  agree=0.859, adj=0.646, (0 split)
##      183 < 6     to the left,  agree=0.823, adj=0.556, (0 split)
##
## Node number 64: 2312 observations,    complexity param=0.0007144771
##   predicted class=1  expected loss=0.04152249  P(node) =0.09172783
##   class counts:      0  2216    30    7    7    10    8    8    24
2
##   probabilities: 0.000 0.958 0.013 0.003 0.003 0.004 0.003 0.003 0.010
0.001
##   left son=128 (2291 obs) right son=129 (21 obs)
##   Primary splits:
##       608 < 6     to the left,  improve=30.93996, (0 missing)
##       177 < 36.5  to the left,  improve=30.91269, (0 missing)
##       607 < 114.5 to the left,  improve=30.66493, (0 missing)
##       176 < 63.5  to the left,  improve=28.78651, (0 missing)
##       609 < 21    to the left,  improve=28.63209, (0 missing)
##   Surrogate splits:
##       607 < 114.5 to the left,  agree=0.999, adj=0.905, (0 split)
##       636 < 87.5  to the left,  agree=0.999, adj=0.857, (0 split)
##       609 < 21    to the left,  agree=0.998, adj=0.762, (0 split)
##       637 < 8.5   to the left,  agree=0.998, adj=0.762, (0 split)
##       580 < 37    to the left,  agree=0.997, adj=0.714, (0 split)
##
## Node number 65: 144 observations,    complexity param=0.001384299
##   predicted class=8  expected loss=0.5416667  P(node) =0.005713152
##   class counts:      0    51    1    5    3   14    0    0   66
4
##   probabilities: 0.000 0.354 0.007 0.035 0.021 0.097 0.000 0.000 0.458
0.028
##   left son=130 (72 obs) right son=131 (72 obs)
##   Primary splits:
##       265 < 1.5   to the left,  improve=42.55556, (0 missing)
##       293 < 8     to the left,  improve=41.14472, (0 missing)
##       183 < 27    to the left,  improve=40.63166, (0 missing)
##       211 < 33.5  to the left,  improve=40.50671, (0 missing)
##       266 < 2.5   to the left,  improve=40.02092, (0 missing)
##   Surrogate splits:
##       293 < 62    to the left,  agree=0.965, adj=0.931, (0 split)
##       237 < 2     to the left,  agree=0.938, adj=0.875, (0 split)
##       210 < 12    to the left,  agree=0.903, adj=0.806, (0 split)
##       211 < 11.5  to the left,  agree=0.903, adj=0.806, (0 split)
##       238 < 5.5   to the left,  agree=0.903, adj=0.806, (0 split)
##
## Node number 66: 108 observations,    complexity param=0.0003572385
##   predicted class=2  expected loss=0.2314815  P(node) =0.004284864
##   class counts:      0    11    83    5    1    0    0    0    8
0

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## probabilities: 0.000 0.102 0.769 0.046 0.009 0.000 0.000 0.000 0.074
0.000
## left son=132 (91 obs) right son=133 (17 obs)
## Primary splits:
## 292 < 58.5 to the left, improve=15.51201, (0 missing)
## 321 < 246.5 to the left, improve=15.02522, (0 missing)
## 515 < 26.5 to the right, improve=14.98427, (0 missing)
## 543 < 24.5 to the right, improve=14.48043, (0 missing)
## 264 < 69 to the left, improve=14.32744, (0 missing)
## Surrogate splits:
## 320 < 21.5 to the left, agree=0.981, adj=0.882, (0 split)
## 321 < 243 to the left, agree=0.981, adj=0.882, (0 split)
## 264 < 69 to the left, agree=0.972, adj=0.824, (0 split)
## 293 < 171.5 to the left, agree=0.963, adj=0.765, (0 split)
## 236 < 217.5 to the left, agree=0.954, adj=0.706, (0 split)
##
## Node number 67: 43 observations, complexity param=0.0001786193
## predicted class=6 expected loss=0.4883721 P(node) =0.001706011
## class counts: 1 1 9 3 3 0 22 1 2
1
## probabilities: 0.023 0.023 0.209 0.070 0.070 0.000 0.512 0.023 0.047
0.023
## left son=134 (24 obs) right son=135 (19 obs)
## Primary splits:
## 212 < 22 to the right, improve=6.321603, (0 missing)
## 176 < 131.5 to the left, improve=6.219615, (0 missing)
## 204 < 236.5 to the left, improve=6.152366, (0 missing)
## 211 < 23.5 to the right, improve=6.013390, (0 missing)
## 232 < 8.5 to the left, improve=5.575989, (0 missing)
## Surrogate splits:
## 120 < 5.5 to the left, agree=0.930, adj=0.842, (0 split)
## 239 < 9.5 to the right, agree=0.930, adj=0.842, (0 split)
## 148 < 7 to the left, agree=0.907, adj=0.789, (0 split)
## 176 < 8 to the left, agree=0.907, adj=0.789, (0 split)
## 232 < 8.5 to the left, agree=0.907, adj=0.789, (0 split)
##
## Node number 68: 286 observations, complexity param=0.001406627
## predicted class=5 expected loss=0.8111888 P(node) =0.01134695
## class counts: 12 33 31 14 42 54 54 8 8
30
## probabilities: 0.042 0.115 0.108 0.049 0.147 0.189 0.189 0.028 0.028
0.105
## left son=136 (252 obs) right son=137 (34 obs)
## Primary splits:
## 276 < 44.5 to the left, improve=21.85412, (0 missing)
## 574 < 233 to the right, improve=21.35074, (0 missing)
## 247 < 1 to the left, improve=21.33641, (0 missing)
## 539 < 85.5 to the right, improve=20.30011, (0 missing)
## 275 < 23.5 to the left, improve=20.14673, (0 missing)
## Surrogate splits:

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##      275 < 209.5 to the left, agree=0.965, adj=0.706, (0 split)
##      277 < 0.5   to the left, agree=0.962, adj=0.676, (0 split)
##      248 < 120.5 to the left, agree=0.955, adj=0.618, (0 split)
##      304 < 67.5  to the left, agree=0.951, adj=0.588, (0 split)
##      249 < 17    to the left, agree=0.941, adj=0.500, (0 split)
##
## Node number 69: 278 observations,    complexity param=0.002277396
##   predicted class=8 expected loss=0.6223022 P(node) =0.01102956
##   class counts:      4      76      2      19      19      12      4      7      105
30
##   probabilities: 0.014 0.273 0.007 0.068 0.068 0.043 0.014 0.025 0.378
0.108
##   left son=138 (134 obs) right son=139 (144 obs)
##   Primary splits:
##       294 < 216   to the right, improve=37.22654, (0 missing)
##       322 < 237   to the right, improve=33.89610, (0 missing)
##       295 < 249.5 to the right, improve=30.28190, (0 missing)
##       215 < 1      to the left,  improve=28.16814, (0 missing)
##       267 < 185.5 to the right, improve=27.96281, (0 missing)
##   Surrogate splits:
##       267 < 174.5 to the right, agree=0.892, adj=0.776, (0 split)
##       266 < 245.5 to the right, agree=0.878, adj=0.746, (0 split)
##       322 < 237    to the right, agree=0.878, adj=0.746, (0 split)
##       295 < 249.5 to the right, agree=0.849, adj=0.687, (0 split)
##       239 < 248.5 to the right, agree=0.784, adj=0.552, (0 split)
##
## Node number 72: 142 observations,    complexity param=0.0003125837
##   predicted class=2 expected loss=0.1619718 P(node) =0.005633803
##   class counts:      0      0  119      2      0      1      6      2      11
1
##   probabilities: 0.000 0.000 0.838 0.014 0.000 0.007 0.042 0.014 0.077
0.007
##   left son=144 (122 obs) right son=145 (20 obs)
##   Primary splits:
##       301 < 3.5   to the left,  improve=16.25925, (0 missing)
##       274 < 1      to the left,  improve=15.01724, (0 missing)
##       356 < 37     to the left,  improve=13.89224, (0 missing)
##       302 < 12     to the left,  improve=13.24347, (0 missing)
##       273 < 36.5  to the left,  improve=12.83977, (0 missing)
##   Surrogate splits:
##       329 < 17    to the left,  agree=0.972, adj=0.80, (0 split)
##       273 < 36.5  to the left,  agree=0.965, adj=0.75, (0 split)
##       300 < 117.5 to the left,  agree=0.965, adj=0.75, (0 split)
##       302 < 12    to the left,  agree=0.965, adj=0.75, (0 split)
##       328 < 149.5 to the left,  agree=0.965, adj=0.75, (0 split)
##
## Node number 73: 86 observations,    complexity param=0.0004242208
##   predicted class=7 expected loss=0.7790698 P(node) =0.003412021
##   class counts:      0      17      15      13      1      0      3      19      9
9

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## probabilities: 0.000 0.198 0.174 0.151 0.012 0.000 0.035 0.221 0.105
0.105
## left son=146 (57 obs) right son=147 (29 obs)
## Primary splits:
## 683 < 18 to the left, improve=10.087930, (0 missing)
## 516 < 37.5 to the left, improve= 9.245802, (0 missing)
## 684 < 36 to the left, improve= 9.195264, (0 missing)
## 515 < 5.5 to the left, improve= 9.040953, (0 missing)
## 488 < 168.5 to the left, improve= 8.756569, (0 missing)
## Surrogate splits:
## 682 < 1.5 to the left, agree=0.930, adj=0.793, (0 split)
## 684 < 4.5 to the left, agree=0.907, adj=0.724, (0 split)
## 710 < 8 to the left, agree=0.907, adj=0.724, (0 split)
## 711 < 12.5 to the left, agree=0.907, adj=0.724, (0 split)
## 242 < 126 to the left, agree=0.895, adj=0.690, (0 split)
##
## Node number 74: 144 observations, complexity param=0.0002232741
## predicted class=6 expected loss=0.2708333 P(node) =0.005713152
## class counts: 5 2 3 0 3 5 105 5 10
6
## probabilities: 0.035 0.014 0.021 0.000 0.021 0.035 0.729 0.035 0.069
0.042
## left son=148 (112 obs) right son=149 (32 obs)
## Primary splits:
## 213 < 25.5 to the left, improve=15.76587, (0 missing)
## 240 < 105 to the left, improve=15.25453, (0 missing)
## 239 < 43 to the right, improve=15.19769, (0 missing)
## 241 < 12 to the left, improve=14.80026, (0 missing)
## 212 < 21.5 to the left, improve=13.19373, (0 missing)
## Surrogate splits:
## 214 < 13 to the left, agree=0.944, adj=0.750, (0 split)
## 186 < 2.5 to the left, agree=0.938, adj=0.719, (0 split)
## 212 < 21.5 to the left, agree=0.924, adj=0.656, (0 split)
## 185 < 51.5 to the left, agree=0.917, adj=0.625, (0 split)
## 241 < 29 to the left, agree=0.910, adj=0.594, (0 split)
##
## Node number 75: 62 observations, complexity param=0.0002679289
## predicted class=9 expected loss=0.3870968 P(node) =0.002459829
## class counts: 0 0 6 0 9 0 0 2 7
38
## probabilities: 0.000 0.000 0.097 0.000 0.145 0.000 0.000 0.032 0.113
0.613
## left son=150 (19 obs) right son=151 (43 obs)
## Primary splits:
## 210 < 21.5 to the left, improve=8.797607, (0 missing)
## 209 < 131.5 to the left, improve=7.533531, (0 missing)
## 238 < 68.5 to the left, improve=6.490469, (0 missing)
## 154 < 161.5 to the right, improve=5.666443, (0 missing)
## 239 < 9.5 to the left, improve=5.648694, (0 missing)
## Surrogate splits:

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##      211 < 33.5  to the left,  agree=0.919, adj=0.737, (0 split)
##      239 < 9.5   to the left,  agree=0.887, adj=0.632, (0 split)
##      209 < 2     to the left,  agree=0.871, adj=0.579, (0 split)
##      238 < 21    to the left,  agree=0.871, adj=0.579, (0 split)
##      182 < 4     to the left,  agree=0.839, adj=0.474, (0 split)
##
## Node number 76: 162 observations,    complexity param=0.001094043
##   predicted class=3  expected loss=0.617284  P(node) =0.006427296
##   class counts:      0      9      33      62      0      0      0      44      13
1
##   probabilities: 0.000 0.056 0.204 0.383 0.000 0.000 0.000 0.272 0.080
0.006
##   left son=152 (59 obs) right son=153 (103 obs)
##   Primary splits:
##       404 < 228   to the right, improve=25.18382, (0 missing)
##       376 < 65    to the right, improve=25.02485, (0 missing)
##       403 < 59.5  to the right, improve=22.72821, (0 missing)
##       578 < 20.5  to the right, improve=21.57795, (0 missing)
##       606 < 2     to the right, improve=21.43827, (0 missing)
##   Surrogate splits:
##       376 < 48    to the right, agree=0.932, adj=0.814, (0 split)
##       403 < 29    to the right, agree=0.932, adj=0.814, (0 split)
##       375 < 2.5   to the right, agree=0.926, adj=0.797, (0 split)
##       377 < 230.5 to the right, agree=0.889, adj=0.695, (0 split)
##       431 < 157.5 to the right, agree=0.870, adj=0.644, (0 split)
##
## Node number 77: 56 observations,    complexity param=0.0001786193
##   predicted class=8  expected loss=0.3392857  P(node) =0.002221781
##   class counts:      1      0      1      2      5      1      3      0      37
6
##   probabilities: 0.018 0.000 0.018 0.036 0.089 0.018 0.054 0.000 0.661
0.107
##   left son=154 (14 obs) right son=155 (42 obs)
##   Primary splits:
##       516 < 53    to the left,  improve=8.369048, (0 missing)
##       634 < 33.5  to the left,  improve=8.243088, (0 missing)
##       606 < 9     to the left,  improve=7.903571, (0 missing)
##       662 < 13    to the left,  improve=7.322161, (0 missing)
##       661 < 56    to the left,  improve=6.989683, (0 missing)
##   Surrogate splits:
##       544 < 2     to the left,  agree=0.964, adj=0.857, (0 split)
##       543 < 1.5   to the left,  agree=0.911, adj=0.643, (0 split)
##       488 < 84.5  to the left,  agree=0.875, adj=0.500, (0 split)
##       515 < 10    to the left,  agree=0.875, adj=0.500, (0 split)
##       433 < 192   to the left,  agree=0.857, adj=0.429, (0 split)
##
## Node number 78: 124 observations,    complexity param=0.000379566
##   predicted class=8  expected loss=0.6370968  P(node) =0.004919659
##   class counts:      1      13      1      16      7      2      0      12      45
27

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## probabilities: 0.008 0.105 0.008 0.129 0.056 0.016 0.000 0.097 0.363
0.218
## left son=156 (80 obs) right son=157 (44 obs)
## Primary splits:
## 401 < 173 to the left, improve=11.080790, (0 missing)
## 180 < 115.5 to the right, improve=10.839260, (0 missing)
## 179 < 4.5 to the right, improve=10.102630, (0 missing)
## 207 < 207.5 to the right, improve= 9.505904, (0 missing)
## 713 < 26.5 to the left, improve= 9.334151, (0 missing)
## Surrogate splits:
## 400 < 1.5 to the left, agree=0.919, adj=0.773, (0 split)
## 402 < 248.5 to the left, agree=0.887, adj=0.682, (0 split)
## 373 < 178 to the left, agree=0.879, adj=0.659, (0 split)
## 428 < 9.5 to the left, agree=0.879, adj=0.659, (0 split)
## 429 < 17.5 to the left, agree=0.839, adj=0.545, (0 split)
##
## Node number 79: 374 observations, complexity param=0.0001786193
## predicted class=8 expected loss=0.1229947 P(node) =0.01483833
## class counts: 3 1 2 8 11 5 2 11 328
3
## probabilities: 0.008 0.003 0.005 0.021 0.029 0.013 0.005 0.029 0.877
0.008
## left son=158 (19 obs) right son=159 (355 obs)
## Primary splits:
## 470 < 156.5 to the right, improve=14.94440, (0 missing)
## 471 < 5.5 to the right, improve=14.26268, (0 missing)
## 440 < 65 to the right, improve=13.47169, (0 missing)
## 441 < 204.5 to the right, improve=13.26268, (0 missing)
## 469 < 54.5 to the right, improve=13.15042, (0 missing)
## Surrogate splits:
## 471 < 5.5 to the right, agree=0.997, adj=0.947, (0 split)
## 442 < 80 to the right, agree=0.989, adj=0.789, (0 split)
## 498 < 164 to the right, agree=0.989, adj=0.789, (0 split)
## 499 < 2 to the right, agree=0.989, adj=0.789, (0 split)
## 443 < 3.5 to the right, agree=0.984, adj=0.684, (0 split)
##
## Node number 80: 1502 observations, complexity param=0.0007368045
## predicted class=3 expected loss=0.08521971 P(node) =0.05959135
## class counts: 0 41 13 1374 0 39 0 7 23
5
## probabilities: 0.000 0.027 0.009 0.915 0.000 0.026 0.000 0.005 0.015
0.003
## left son=160 (64 obs) right son=161 (1438 obs)
## Primary splits:
## 490 < 139.5 to the right, improve=40.67295, (0 missing)
## 264 < 147.5 to the left, improve=39.08559, (0 missing)
## 491 < 251.5 to the right, improve=35.00766, (0 missing)
## 296 < 2.5 to the right, improve=33.06601, (0 missing)
## 519 < 248.5 to the right, improve=28.93667, (0 missing)
## Surrogate splits:

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##      491 < 251.5 to the right, agree=0.971, adj=0.328, (0 split)
##      518 < 204   to the right, agree=0.970, adj=0.297, (0 split)
##      519 < 252.5 to the right, agree=0.963, adj=0.141, (0 split)
##      462 < 240.5 to the right, agree=0.961, adj=0.078, (0 split)
##      489 < 17.5  to the right, agree=0.960, adj=0.062, (0 split)
##
## Node number 81: 124 observations,      complexity param=0.0005358578
##   predicted class=5   expected loss=0.4677419   P(node) =0.004919659
##   class counts:      3      0      0      18      5      66      2      0      8
22
##   probabilities: 0.024 0.000 0.000 0.145 0.040 0.532 0.016 0.000 0.065
0.177
##   left son=162 (78 obs) right son=163 (46 obs)
##   Primary splits:
##       296 < 54      to the left,   improve=18.35723, (0 missing)
##       297 < 8.5     to the left,   improve=13.84682, (0 missing)
##       295 < 190.5   to the left,   improve=13.33559, (0 missing)
##       493 < 1       to the left,   improve=13.15037, (0 missing)
##       269 < 0.5     to the left,   improve=13.05200, (0 missing)
##   Surrogate splits:
##       297 < 2       to the left,   agree=0.895, adj=0.717, (0 split)
##       295 < 36.5    to the left,   agree=0.863, adj=0.630, (0 split)
##       324 < 234     to the left,   agree=0.855, adj=0.609, (0 split)
##       269 < 0.5     to the left,   agree=0.847, adj=0.587, (0 split)
##       323 < 228.5   to the left,   agree=0.831, adj=0.543, (0 split)
##
## Node number 82: 417 observations,      complexity param=0.002009467
##   predicted class=3   expected loss=0.4364508   P(node) =0.01654434
##   class counts:      26      4      5      235      0      119      8      4      12
4
##   probabilities: 0.062 0.010 0.012 0.564 0.000 0.285 0.019 0.010 0.029
0.010
##   left son=164 (261 obs) right son=165 (156 obs)
##   Primary splits:
##       265 < 148     to the left,   improve=68.75340, (0 missing)
##       292 < 98.5    to the left,   improve=56.56522, (0 missing)
##       293 < 119     to the left,   improve=50.53075, (0 missing)
##       266 < 218     to the left,   improve=49.22403, (0 missing)
##       238 < 178.5   to the left,   improve=43.42265, (0 missing)
##   Surrogate splits:
##       264 < 17.5    to the left,   agree=0.873, adj=0.660, (0 split)
##       238 < 201.5   to the left,   agree=0.868, adj=0.647, (0 split)
##       292 < 124.5   to the left,   agree=0.859, adj=0.622, (0 split)
##       266 < 167     to the left,   agree=0.842, adj=0.577, (0 split)
##       237 < 83      to the left,   agree=0.825, adj=0.532, (0 split)
##
## Node number 83: 275 observations,      complexity param=0.001830848
##   predicted class=1   expected loss=0.6836364   P(node) =0.01091053
##   class counts:      5      87      1      26      31      53      9      19      10
34

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## probabilities: 0.018 0.316 0.004 0.095 0.113 0.193 0.033 0.069 0.036
0.124
## left son=166 (104 obs) right son=167 (171 obs)
## Primary splits:
## 376 < 20 to the left, improve=41.76481, (0 missing)
## 462 < 138.5 to the right, improve=39.92496, (0 missing)
## 375 < 1 to the left, improve=39.04379, (0 missing)
## 154 < 2.5 to the right, improve=38.93607, (0 missing)
## 153 < 2.5 to the right, improve=38.78834, (0 missing)
## Surrogate splits:
## 375 < 1 to the left, agree=0.938, adj=0.837, (0 split)
## 348 < 7.5 to the left, agree=0.884, adj=0.692, (0 split)
## 403 < 1.5 to the left, agree=0.880, adj=0.683, (0 split)
## 374 < 2 to the left, agree=0.869, adj=0.654, (0 split)
## 404 < 2.5 to the left, agree=0.869, adj=0.654, (0 split)
##
## Node number 84: 324 observations, complexity param=0.001250335
## predicted class=3 expected loss=0.5524691 P(node) =0.01285459
## class counts: 33 1 1 145 0 69 3 5 38
29
## probabilities: 0.102 0.003 0.003 0.448 0.000 0.213 0.009 0.015 0.117
0.090
## left son=168 (32 obs) right son=169 (292 obs)
## Primary splits:
## 359 < 77 to the right, improve=30.59009, (0 missing)
## 330 < 172.5 to the right, improve=30.52172, (0 missing)
## 331 < 6 to the right, improve=29.98537, (0 missing)
## 427 < 214.5 to the right, improve=29.80651, (0 missing)
## 454 < 162.5 to the right, improve=29.57523, (0 missing)
## Surrogate splits:
## 330 < 186.5 to the right, agree=0.981, adj=0.813, (0 split)
## 358 < 237 to the right, agree=0.981, adj=0.813, (0 split)
## 387 < 64 to the right, agree=0.981, adj=0.813, (0 split)
## 331 < 79.5 to the right, agree=0.978, adj=0.781, (0 split)
## 360 < 7 to the right, agree=0.963, adj=0.625, (0 split)
##
## Node number 85: 512 observations, complexity param=0.001027061
## predicted class=5 expected loss=0.2050781 P(node) =0.02031343
## class counts: 26 0 0 53 1 407 6 0 11
8
## probabilities: 0.051 0.000 0.000 0.104 0.002 0.795 0.012 0.000 0.021
0.016
## left son=170 (39 obs) right son=171 (473 obs)
## Primary splits:
## 301 < 74 to the right, improve=39.51550, (0 missing)
## 330 < 1.5 to the right, improve=37.61420, (0 missing)
## 302 < 35 to the right, improve=36.12414, (0 missing)
## 329 < 2 to the right, improve=35.30698, (0 missing)
## 300 < 70.5 to the right, improve=34.88390, (0 missing)
## Surrogate splits:

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##      329 < 14    to the right, agree=0.992, adj=0.897, (0 split)
##      302 < 8     to the right, agree=0.986, adj=0.821, (0 split)
##      330 < 1.5   to the right, agree=0.984, adj=0.795, (0 split)
##      273 < 211.5 to the right, agree=0.980, adj=0.744, (0 split)
##      300 < 70.5  to the right, agree=0.975, adj=0.667, (0 split)
##
## Node number 86: 164 observations,    complexity param=0.002389033
##   predicted class=7 expected loss=0.6219512 P(node) =0.006506646
##   class counts:      4      3      0      9      58      11      4      62      3
10
##   probabilities: 0.024 0.018 0.000 0.055 0.354 0.067 0.024 0.378 0.018
0.061
##   left son=172 (85 obs) right son=173 (79 obs)
##   Primary splits:
##       321 < 202    to the left,  improve=40.30244, (0 missing)
##       322 < 200    to the left,  improve=37.31707, (0 missing)
##       405 < 6.5    to the right, improve=36.44269, (0 missing)
##       378 < 201.5  to the right, improve=35.36654, (0 missing)
##       404 < 59     to the right, improve=33.65017, (0 missing)
##   Surrogate splits:
##       322 < 207.5  to the left,  agree=0.939, adj=0.873, (0 split)
##       320 < 214.5  to the left,  agree=0.902, adj=0.797, (0 split)
##       293 < 63.5   to the left,  agree=0.896, adj=0.785, (0 split)
##       294 < 99.5   to the left,  agree=0.872, adj=0.734, (0 split)
##       323 < 233.5  to the left,  agree=0.860, adj=0.709, (0 split)
##
## Node number 87: 357 observations,    complexity param=0.001071716
##   predicted class=9 expected loss=0.3445378 P(node) =0.01416386
##   class counts:      4      2      2      28      18      46      3      12      8
234
##   probabilities: 0.011 0.006 0.006 0.078 0.050 0.129 0.008 0.034 0.022
0.655
##   left son=174 (100 obs) right son=175 (257 obs)
##   Primary splits:
##       297 < 5.5    to the left,  improve=43.67962, (0 missing)
##       325 < 12.5   to the left,  improve=38.79364, (0 missing)
##       296 < 7.5    to the left,  improve=34.24751, (0 missing)
##       464 < 36     to the left,  improve=33.64649, (0 missing)
##       492 < 29     to the left,  improve=33.25300, (0 missing)
##   Surrogate splits:
##       269 < 2.5    to the left,  agree=0.908, adj=0.67, (0 split)
##       325 < 73.5   to the left,  agree=0.894, adj=0.62, (0 split)
##       296 < 7.5    to the left,  agree=0.863, adj=0.51, (0 split)
##       324 < 188.5  to the left,  agree=0.863, adj=0.51, (0 split)
##       298 < 3      to the left,  agree=0.818, adj=0.35, (0 split)
##
## Node number 88: 73 observations,    complexity param=0.0001786193
##   predicted class=2 expected loss=0.2191781 P(node) =0.002896251
##   class counts:      0      1      57      5      0      0      4      0      6
0

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## probabilities: 0.000 0.014 0.781 0.068 0.000 0.000 0.055 0.000 0.082
0.000
## left son=176 (60 obs) right son=177 (13 obs)
## Primary splits:
## 466 < 39.5 to the left, improve=9.068247, (0 missing)
## 412 < 17.5 to the left, improve=8.709380, (0 missing)
## 440 < 124.5 to the left, improve=8.709380, (0 missing)
## 439 < 184.5 to the left, improve=8.646880, (0 missing)
## 411 < 12 to the left, improve=8.380669, (0 missing)
## Surrogate splits:
## 465 < 5 to the left, agree=0.959, adj=0.769, (0 split)
## 494 < 184.5 to the left, agree=0.959, adj=0.769, (0 split)
## 493 < 128 to the left, agree=0.945, adj=0.692, (0 split)
## 436 < 58 to the left, agree=0.932, adj=0.615, (0 split)
## 437 < 118 to the left, agree=0.932, adj=0.615, (0 split)
##
## Node number 89: 100 observations, complexity param=0.0004465482
## predicted class=9 expected loss=0.81 P(node) =0.003967467
## class counts: 9 14 12 3 9 7 10 0 17
19
## probabilities: 0.090 0.140 0.120 0.030 0.090 0.070 0.100 0.000 0.170
0.190
## left son=178 (83 obs) right son=179 (17 obs)
## Primary splits:
## 717 < 5 to the left, improve=13.162230, (0 missing)
## 572 < 25.5 to the right, improve= 9.874790, (0 missing)
## 573 < 12 to the right, improve= 9.765385, (0 missing)
## 600 < 5 to the right, improve= 9.620000, (0 missing)
## 541 < 20 to the right, improve= 9.477250, (0 missing)
## Surrogate splits:
## 716 < 2 to the left, agree=0.95, adj=0.706, (0 split)
## 689 < 166 to the left, agree=0.94, adj=0.647, (0 split)
## 688 < 164 to the left, agree=0.92, adj=0.529, (0 split)
## 718 < 3.5 to the left, agree=0.90, adj=0.412, (0 split)
## 745 < 1 to the left, agree=0.90, adj=0.412, (0 split)
##
## Node number 90: 41 observations, complexity param=0.0003125837
## predicted class=2 expected loss=0.7804878 P(node) =0.001626661
## class counts: 2 5 9 3 5 4 4 0 2
7
## probabilities: 0.049 0.122 0.220 0.073 0.122 0.098 0.098 0.000 0.049
0.171
## left son=180 (18 obs) right son=181 (23 obs)
## Primary splits:
## 380 < 19.5 to the left, improve=5.028161, (0 missing)
## 400 < 63.5 to the left, improve=4.392656, (0 missing)
## 352 < 43.5 to the left, improve=4.284634, (0 missing)
## 409 < 68.5 to the left, improve=4.035147, (0 missing)
## 408 < 125 to the left, improve=3.949634, (0 missing)
## Surrogate splits:

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##      381 < 8      to the left,  agree=0.902, adj=0.778, (0 split)
##      408 < 14     to the left,  agree=0.878, adj=0.722, (0 split)
##      352 < 43.5   to the left,  agree=0.854, adj=0.667, (0 split)
##      409 < 21     to the left,  agree=0.854, adj=0.667, (0 split)
##      262 < 68.5   to the left,  agree=0.805, adj=0.556, (0 split)
##
## Node number 91: 209 observations,    complexity param=0.0003349111
##   predicted class=6  expected loss=0.2009569  P(node) =0.008292006
##   class counts:      2      0      20      4      0      12      167      0      4
##   0
##   probabilities: 0.010 0.000 0.096 0.019 0.000 0.057 0.799 0.000 0.019
##   0.000
##   left son=182 (16 obs) right son=183 (193 obs)
##   Primary splits:
##       584 < 8      to the right, improve=15.45373, (0 missing)
##       583 < 102.5  to the right, improve=13.91228, (0 missing)
##       582 < 26.5   to the right, improve=13.34968, (0 missing)
##       556 < 3.5    to the right, improve=13.25837, (0 missing)
##       581 < 81     to the right, improve=12.23165, (0 missing)
##   Surrogate splits:
##       583 < 120.5  to the right, agree=0.995, adj=0.937, (0 split)
##       556 < 51.5   to the right, agree=0.986, adj=0.813, (0 split)
##       555 < 149    to the right, agree=0.976, adj=0.687, (0 split)
##       557 < 11     to the right, agree=0.976, adj=0.687, (0 split)
##       611 < 35     to the right, agree=0.976, adj=0.687, (0 split)
##
## Node number 92: 41 observations
##   predicted class=0  expected loss=0.09756098  P(node) =0.001626661
##   class counts:     37      0      0      1      0      2      0      0      1
##   0
##   probabilities: 0.902 0.000 0.000 0.024 0.000 0.049 0.000 0.000 0.024
##   0.000
##
## Node number 93: 56 observations,    complexity param=0.0002083892
##   predicted class=8  expected loss=0.6428571  P(node) =0.002221781
##   class counts:      7      0      8      5      0      13      3      0      20
##   0
##   probabilities: 0.125 0.000 0.143 0.089 0.000 0.232 0.054 0.000 0.357
##   0.000
##   left son=186 (40 obs) right son=187 (16 obs)
##   Primary splits:
##       347 < 0.5    to the right, improve=5.114286, (0 missing)
##       431 < 11.5   to the left,  improve=5.062771, (0 missing)
##       269 < 10.5   to the right, improve=4.992063, (0 missing)
##       297 < 178    to the left,  improve=4.928571, (0 missing)
##       346 < 22.5   to the left,  improve=4.674179, (0 missing)
##   Surrogate splits:
##       320 < 14.5   to the right, agree=0.929, adj=0.750, (0 split)
##       319 < 5      to the right, agree=0.893, adj=0.625, (0 split)
##       348 < 110.5  to the right, agree=0.893, adj=0.625, (0 split)

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##      318 < 6      to the right, agree=0.839, adj=0.438, (0 split)
##      354 < 1      to the right, agree=0.839, adj=0.438, (0 split)
##
## Node number 94: 43 observations,      complexity param=0.0004688756
## predicted class=3 expected loss=0.4883721 P(node) =0.001706011
## class counts:      0      0      1      22      0      2      0      0      13
5
## probabilities: 0.000 0.000 0.023 0.512 0.000 0.047 0.000 0.000 0.302
0.116
## left son=188 (27 obs) right son=189 (16 obs)
## Primary splits:
##      512 < 70.5 to the left, improve=12.16258, (0 missing)
##      513 < 8.5  to the left, improve=12.16258, (0 missing)
##      539 < 195.5 to the left, improve=10.96037, (0 missing)
##      485 < 207.5 to the left, improve=10.87067, (0 missing)
##      511 < 67.5 to the left, improve=10.63056, (0 missing)
## Surrogate splits:
##      511 < 67.5 to the left, agree=0.977, adj=0.937, (0 split)
##      484 < 163.5 to the left, agree=0.953, adj=0.875, (0 split)
##      513 < 8.5  to the left, agree=0.953, adj=0.875, (0 split)
##      483 < 76   to the left, agree=0.930, adj=0.812, (0 split)
##      268 < 9.5  to the right, agree=0.907, adj=0.750, (0 split)
##
## Node number 95: 430 observations,      complexity param=0.0002344378
## predicted class=8 expected loss=0.1860465 P(node) =0.01706011
## class counts:      8      0      19      23      0      13      12      1      350
4
## probabilities: 0.019 0.000 0.044 0.053 0.000 0.030 0.028 0.002 0.814
0.009
## left son=190 (28 obs) right son=191 (402 obs)
## Primary splits:
##      432 < 1      to the left, improve=15.89285, (0 missing)
##      459 < 16.5 to the left, improve=15.80018, (0 missing)
##      435 < 44.5 to the left, improve=14.50146, (0 missing)
##      439 < 250.5 to the right, improve=13.62454, (0 missing)
##      436 < 7      to the left, improve=13.55462, (0 missing)
## Surrogate splits:
##      405 < 5      to the left, agree=0.967, adj=0.500, (0 split)
##      431 < 1      to the left, agree=0.956, adj=0.321, (0 split)
##      459 < 0.5    to the left, agree=0.956, adj=0.321, (0 split)
##      385 < 241    to the right, agree=0.944, adj=0.143, (0 split)
##      413 < 250    to the right, agree=0.944, adj=0.143, (0 split)
##
## Node number 96: 1973 observations,      complexity param=0.0001786193
## predicted class=0 expected loss=0.04460213 P(node) =0.07827812
## class counts: 1885      0      30      7      1      19      18      10      1
2
## probabilities: 0.955 0.000 0.015 0.004 0.001 0.010 0.009 0.005 0.001
0.001
## left son=192 (1955 obs) right son=193 (18 obs)

```

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## Primary splits:
## 463 < 80 to the left, improve=14.57930, (0 missing)
## 707 < 3.5 to the left, improve=13.36910, (0 missing)
## 708 < 43 to the left, improve=13.36910, (0 missing)
## 427 < 0.5 to the right, improve=12.97644, (0 missing)
## 464 < 193 to the left, improve=12.69634, (0 missing)
## Surrogate splits:
## 464 < 242 to the left, agree=0.993, adj=0.278, (0 split)
## 491 < 239.5 to the left, agree=0.993, adj=0.278, (0 split)
## 490 < 131.5 to the left, agree=0.993, adj=0.222, (0 split)
## 707 < 39 to the left, agree=0.993, adj=0.222, (0 split)
## 706 < 3.5 to the left, agree=0.992, adj=0.167, (0 split)
##
## Node number 97: 99 observations, complexity param=0.0004242208
## predicted class=0 expected loss=0.5454545 P(node) =0.003927792
## class counts: 45 0 2 24 0 25 3 0 0
0
## probabilities: 0.455 0.000 0.020 0.242 0.000 0.253 0.030 0.000 0.000
0.000
## left son=194 (42 obs) right son=195 (57 obs)
## Primary splits:
## 427 < 40 to the right, improve=25.47832, (0 missing)
## 455 < 3 to the right, improve=23.30820, (0 missing)
## 399 < 73.5 to the right, improve=23.26249, (0 missing)
## 428 < 103.5 to the right, improve=19.27411, (0 missing)
## 271 < 118 to the right, improve=18.54264, (0 missing)
## Surrogate splits:
## 399 < 65.5 to the right, agree=0.960, adj=0.905, (0 split)
## 455 < 51 to the right, agree=0.949, adj=0.881, (0 split)
## 426 < 1.5 to the right, agree=0.919, adj=0.810, (0 split)
## 454 < 6.5 to the right, agree=0.909, adj=0.786, (0 split)
## 371 < 21 to the right, agree=0.879, adj=0.714, (0 split)
##
## Node number 98: 84 observations, complexity param=0.0008484415
## predicted class=0 expected loss=0.5357143 P(node) =0.003332672
## class counts: 39 0 6 2 1 11 22 0 2
1
## probabilities: 0.464 0.000 0.071 0.024 0.012 0.131 0.262 0.000 0.024
0.012
## left son=196 (45 obs) right son=197 (39 obs)
## Primary splits:
## 270 < 21.5 to the right, improve=18.41636, (0 missing)
## 378 < 41 to the left, improve=16.00212, (0 missing)
## 269 < 72 to the right, improve=15.83202, (0 missing)
## 405 < 64 to the left, improve=15.81935, (0 missing)
## 406 < 70 to the left, improve=15.81935, (0 missing)
## Surrogate splits:
## 269 < 72 to the right, agree=0.881, adj=0.744, (0 split)
## 241 < 15.5 to the right, agree=0.869, adj=0.718, (0 split)
## 242 < 78 to the right, agree=0.857, adj=0.692, (0 split)

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##      271 < 45.5  to the right, agree=0.857, adj=0.692, (0 split)
##      298 < 37   to the right, agree=0.845, adj=0.667, (0 split)
##
## Node number 99: 139 observations,      complexity param=0.0007591319
## predicted class=5 expected loss=0.5251799 P(node) =0.005514779
## class counts:      7      1      11      42      0      66      4      2      3
3
## probabilities: 0.050 0.007 0.079 0.302 0.000 0.475 0.029 0.014 0.022
0.022
## left son=198 (65 obs) right son=199 (74 obs)
## Primary splits:
##      375 < 95    to the left, improve=12.76991, (0 missing)
##      346 < 2     to the left, improve=12.54354, (0 missing)
##      374 < 104   to the left, improve=11.65058, (0 missing)
##      402 < 4.5   to the left, improve=11.49828, (0 missing)
##      324 < 2.5   to the right, improve=11.04272, (0 missing)
## Surrogate splits:
##      376 < 11.5  to the left, agree=0.921, adj=0.831, (0 split)
##      374 < 19.5  to the left, agree=0.871, adj=0.723, (0 split)
##      402 < 4.5   to the left, agree=0.856, adj=0.692, (0 split)
##      403 < 35    to the left, agree=0.856, adj=0.692, (0 split)
##      377 < 2     to the left, agree=0.827, adj=0.631, (0 split)
##
## Node number 100: 192 observations
## predicted class=2 expected loss=0.1197917 P(node) =0.007617536
## class counts:      0      5      169      6      1      2      1      3      5
0
## probabilities: 0.000 0.026 0.880 0.031 0.005 0.010 0.005 0.016 0.026
0.000
##
## Node number 101: 26 observations,      complexity param=0.0003125837
## predicted class=5 expected loss=0.6923077 P(node) =0.001031541
## class counts:      7      0      1      0      1      8      6      0      1
2
## probabilities: 0.269 0.000 0.038 0.000 0.038 0.308 0.231 0.000 0.038
0.077
## left son=202 (17 obs) right son=203 (9 obs)
## Primary splits:
##      512 < 14.5  to the right, improve=5.986928, (0 missing)
##      440 < 170.5 to the right, improve=5.947712, (0 missing)
##      540 < 19    to the right, improve=5.894737, (0 missing)
##      511 < 0.5   to the right, improve=5.869281, (0 missing)
##      412 < 185.5 to the right, improve=5.775000, (0 missing)
## Surrogate splits:
##      523 < 31    to the right, agree=0.962, adj=0.889, (0 split)
##      541 < 13.5  to the right, agree=0.962, adj=0.889, (0 split)
##      355 < 9.5   to the right, agree=0.923, adj=0.778, (0 split)
##      431 < 42.5  to the left, agree=0.923, adj=0.778, (0 split)
##      495 < 3     to the right, agree=0.923, adj=0.778, (0 split)
##

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## Node number 102: 73 observations
##   predicted class=0   expected loss=0.1232877   P(node) =0.002896251
##   class counts:      64      0      1      0      0      0      5      1      1
1
##   probabilities: 0.877 0.000 0.014 0.000 0.000 0.000 0.068 0.014 0.014
0.014
##
## Node number 103: 151 observations,   complexity param=0.0005805126
##   predicted class=5   expected loss=0.410596   P(node) =0.005990875
##   class counts:       6      0     10      4      1     89     24      0     17
0
##   probabilities: 0.040 0.000 0.066 0.026 0.007 0.589 0.159 0.000 0.113
0.000
##   left son=206 (64 obs) right son=207 (87 obs)
##   Primary splits:
##       513 < 12.5   to the right, improve=26.85880, (0 missing)
##       157 < 47     to the left,  improve=22.88604, (0 missing)
##       156 < 74.5   to the left,  improve=21.54192, (0 missing)
##       514 < 3.5    to the left,  improve=21.01624, (0 missing)
##       131 < 89     to the left,  improve=20.69583, (0 missing)
##   Surrogate splits:
##       514 < 3.5    to the right, agree=0.887, adj=0.734, (0 split)
##       485 < 108    to the right, agree=0.874, adj=0.703, (0 split)
##       541 < 46     to the right, agree=0.854, adj=0.656, (0 split)
##       512 < 55.5   to the right, agree=0.834, adj=0.609, (0 split)
##       486 < 140.5 to the right, agree=0.828, adj=0.594, (0 split)
##
## Node number 104: 151 observations,   complexity param=0.0004018934
##   predicted class=0   expected loss=0.4039735   P(node) =0.005990875
##   class counts:      90      0     16      3      3     14      5      3      2
15
##   probabilities: 0.596 0.000 0.106 0.020 0.020 0.093 0.033 0.020 0.013
0.099
##   left son=208 (93 obs) right son=209 (58 obs)
##   Primary splits:
##       518 < 102    to the left, improve=21.05911, (0 missing)
##       519 < 110.5  to the left, improve=15.24324, (0 missing)
##       571 < 118    to the right, improve=15.17687, (0 missing)
##       517 < 167.5  to the left, improve=15.05487, (0 missing)
##       489 < 46.5   to the left, improve=14.75032, (0 missing)
##   Surrogate splits:
##       517 < 80     to the left, agree=0.901, adj=0.741, (0 split)
##       490 < 1      to the left, agree=0.894, adj=0.724, (0 split)
##       519 < 110.5  to the left, agree=0.894, adj=0.724, (0 split)
##       489 < 1.5    to the left, agree=0.848, adj=0.603, (0 split)
##       546 < 224.5  to the left, agree=0.834, adj=0.569, (0 split)
##
## Node number 105: 158 observations,   complexity param=0.0002679289
##   predicted class=6   expected loss=0.2531646   P(node) =0.006268598
##   class counts:       9      1     14      3      6      5    118      0      1

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1
## probabilities: 0.057 0.006 0.089 0.019 0.038 0.032 0.747 0.000 0.006
0.006
## left son=210 (15 obs) right son=211 (143 obs)
## Primary splits:
## 215 < 15 to the right, improve=10.949600, (0 missing)
## 99 < 1.5 to the left, improve=10.621320, (0 missing)
## 244 < 5 to the right, improve=10.141330, (0 missing)
## 657 < 4.5 to the right, improve= 9.843735, (0 missing)
## 243 < 3 to the right, improve= 9.691958, (0 missing)
## Surrogate splits:
## 243 < 3 to the right, agree=0.994, adj=0.933, (0 split)
## 216 < 20.5 to the right, agree=0.981, adj=0.800, (0 split)
## 187 < 22.5 to the right, agree=0.968, adj=0.667, (0 split)
## 214 < 5 to the right, agree=0.968, adj=0.667, (0 split)
## 242 < 3 to the right, agree=0.968, adj=0.667, (0 split)
##
## Node number 106: 119 observations, complexity param=0.0002679289
## predicted class=4 expected loss=0.2268908 P(node) =0.004721285
## class counts: 2 0 6 0 92 3 5 6 0
5
## probabilities: 0.017 0.000 0.050 0.000 0.773 0.025 0.042 0.050 0.000
0.042
## left son=212 (103 obs) right son=213 (16 obs)
## Primary splits:
## 294 < 30.5 to the left, improve=14.29289, (0 missing)
## 266 < 44.5 to the left, improve=13.49975, (0 missing)
## 295 < 15 to the left, improve=12.17027, (0 missing)
## 267 < 10.5 to the left, improve=11.11692, (0 missing)
## 322 < 2.5 to the left, improve=10.30024, (0 missing)
## Surrogate splits:
## 266 < 44.5 to the left, agree=0.975, adj=0.812, (0 split)
## 295 < 15 to the left, agree=0.958, adj=0.688, (0 split)
## 265 < 211 to the left, agree=0.950, adj=0.625, (0 split)
## 267 < 10.5 to the left, agree=0.950, adj=0.625, (0 split)
## 322 < 2.5 to the left, agree=0.950, adj=0.625, (0 split)
##
## Node number 107: 175 observations, complexity param=0.001473609
## predicted class=9 expected loss=0.6057143 P(node) =0.006943067
## class counts: 7 0 8 5 24 38 5 17 2
69
## probabilities: 0.040 0.000 0.046 0.029 0.137 0.217 0.029 0.097 0.011
0.394
## left son=214 (69 obs) right son=215 (106 obs)
## Primary splits:
## 465 < 104 to the left, improve=27.01432, (0 missing)
## 466 < 0.5 to the left, improve=25.30958, (0 missing)
## 437 < 11.5 to the left, improve=25.03619, (0 missing)
## 438 < 16 to the left, improve=24.84611, (0 missing)
## 218 < 1.5 to the right, improve=24.44695, (0 missing)

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## Surrogate splits:
##      437 < 1      to the left,  agree=0.943, adj=0.855, (0 split)
##      464 < 10.5  to the left,  agree=0.903, adj=0.754, (0 split)
##      409 < 1      to the left,  agree=0.880, adj=0.696, (0 split)
##      438 < 52     to the left,  agree=0.880, adj=0.696, (0 split)
##      493 < 55.5  to the left,  agree=0.880, adj=0.696, (0 split)
##
## Node number 108: 106 observations,  complexity param=0.0002456015
## predicted class=5 expected loss=0.4433962 P(node) =0.004205515
## class counts:      2      7      0      17      2      59      9      2      2
6
## probabilities: 0.019 0.066 0.000 0.160 0.019 0.557 0.085 0.019 0.019
0.057
## left son=216 (53 obs) right son=217 (53 obs)
## Primary splits:
##      290 < 0.5    to the left,  improve=9.660377, (0 missing)
##      263 < 3.5    to the left,  improve=9.106793, (0 missing)
##      203 < 5       to the right, improve=8.230857, (0 missing)
##      205 < 12     to the right, improve=7.251435, (0 missing)
##      291 < 46     to the left,  improve=7.251267, (0 missing)
## Surrogate splits:
##      318 < 55     to the left,  agree=0.887, adj=0.774, (0 split)
##      263 < 28     to the left,  agree=0.830, adj=0.660, (0 split)
##      317 < 3       to the left,  agree=0.830, adj=0.660, (0 split)
##      262 < 17.5   to the left,  agree=0.821, adj=0.642, (0 split)
##      289 < 13     to the left,  agree=0.811, adj=0.623, (0 split)
##
## Node number 109: 102 observations,  complexity param=0.0007144771
## predicted class=9 expected loss=0.4215686 P(node) =0.004046816
## class counts:      2      0      3      8      20      3      0      7      0
59
## probabilities: 0.020 0.000 0.029 0.078 0.196 0.029 0.000 0.069 0.000
0.578
## left son=218 (31 obs) right son=219 (71 obs)
## Primary splits:
##      239 < 1.5    to the left,  improve=18.23672, (0 missing)
##      238 < 17.5   to the left,  improve=17.47031, (0 missing)
##      210 < 2       to the left,  improve=16.29280, (0 missing)
##      211 < 4       to the left,  improve=15.30392, (0 missing)
##      237 < 69.5   to the left,  improve=14.14787, (0 missing)
## Surrogate splits:
##      238 < 2       to the left,  agree=0.941, adj=0.806, (0 split)
##      211 < 28.5    to the left,  agree=0.922, adj=0.742, (0 split)
##      240 < 3.5     to the left,  agree=0.922, adj=0.742, (0 split)
##      210 < 2       to the left,  agree=0.902, adj=0.677, (0 split)
##      237 < 8.5     to the left,  agree=0.892, adj=0.645, (0 split)
##
## Node number 110: 68 observations,  complexity param=0.0002679289
## predicted class=0 expected loss=0.2794118 P(node) =0.002697877
## class counts:      49      0      0      1      2      9      0      4      0

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3
## probabilities: 0.721 0.000 0.000 0.015 0.029 0.132 0.000 0.059 0.000
0.044
## left son=220 (59 obs) right son=221 (9 obs)
## Primary splits:
## 323 < 203 to the left, improve=8.749972, (0 missing)
## 353 < 45.5 to the left, improve=8.666479, (0 missing)
## 322 < 102.5 to the left, improve=8.395886, (0 missing)
## 237 < 24 to the right, improve=8.231900, (0 missing)
## 358 < 3.5 to the right, improve=7.987677, (0 missing)
## Surrogate splits:
## 322 < 197.5 to the left, agree=0.971, adj=0.778, (0 split)
## 321 < 229 to the left, agree=0.956, adj=0.667, (0 split)
## 352 < 59.5 to the left, agree=0.956, adj=0.667, (0 split)
## 353 < 75 to the left, agree=0.956, adj=0.667, (0 split)
## 324 < 232.5 to the left, agree=0.941, adj=0.556, (0 split)
##
## Node number 111: 678 observations, complexity param=0.0003572385
## predicted class=7 expected loss=0.1017699 P(node) =0.02689942
## class counts: 8 3 5 8 12 17 4 609 0
12
## probabilities: 0.012 0.004 0.007 0.012 0.018 0.025 0.006 0.898 0.000
0.018
## left son=222 (30 obs) right son=223 (648 obs)
## Primary splits:
## 460 < 13 to the right, improve=27.51554, (0 missing)
## 488 < 2 to the right, improve=27.47981, (0 missing)
## 461 < 5.5 to the right, improve=26.12030, (0 missing)
## 432 < 13.5 to the right, improve=25.79541, (0 missing)
## 459 < 17.5 to the right, improve=25.38516, (0 missing)
## Surrogate splits:
## 459 < 33.5 to the right, agree=0.994, adj=0.867, (0 split)
## 461 < 5.5 to the right, agree=0.993, adj=0.833, (0 split)
## 431 < 75.5 to the right, agree=0.991, adj=0.800, (0 split)
## 432 < 13.5 to the right, agree=0.991, adj=0.800, (0 split)
## 433 < 1.5 to the right, agree=0.985, adj=0.667, (0 split)
##
## Node number 112: 1021 observations, complexity param=0.0009377512
## predicted class=2 expected loss=0.1165524 P(node) =0.04050784
## class counts: 3 0 902 16 2 2 2 12 66
16
## probabilities: 0.003 0.000 0.883 0.016 0.002 0.002 0.002 0.012 0.065
0.016
## left son=224 (936 obs) right son=225 (85 obs)
## Primary splits:
## 344 < 82 to the left, improve=57.73321, (0 missing)
## 372 < 94.5 to the left, improve=57.50269, (0 missing)
## 373 < 134 to the left, improve=55.79061, (0 missing)
## 345 < 6.5 to the left, improve=54.35326, (0 missing)
## 343 < 27.5 to the left, improve=48.16892, (0 missing)

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## Surrogate splits:
##      345 < 6.5   to the left,  agree=0.976, adj=0.706, (0 split)
##      343 < 4.5   to the left,  agree=0.975, adj=0.694, (0 split)
##      316 < 141   to the left,  agree=0.966, adj=0.588, (0 split)
##      372 < 94.5  to the left,  agree=0.966, adj=0.588, (0 split)
##      317 < 137   to the left,  agree=0.955, adj=0.459, (0 split)
##
## Node number 113: 623 observations,    complexity param=0.002857908
## predicted class=7 expected loss=0.7094703 P(node) =0.02471732
## class counts:      2   102   107      7   63   10   48   181   28
75
## probabilities: 0.003 0.164 0.172 0.011 0.101 0.016 0.077 0.291 0.045
0.120
## left son=226 (487 obs) right son=227 (136 obs)
## Primary splits:
##      709 < 1.5   to the left,  improve=80.54117, (0 missing)
##      708 < 0.5   to the left,  improve=78.89815, (0 missing)
##      238 < 1     to the left,  improve=74.85138, (0 missing)
##      237 < 1     to the left,  improve=71.72020, (0 missing)
##      239 < 7.5   to the left,  improve=70.12118, (0 missing)
## Surrogate splits:
##      708 < 0.5   to the left,  agree=0.949, adj=0.765, (0 split)
##      681 < 204.5 to the left,  agree=0.929, adj=0.676, (0 split)
##      710 < 8     to the left,  agree=0.912, adj=0.596, (0 split)
##      680 < 92.5  to the left,  agree=0.891, adj=0.500, (0 split)
##      682 < 17.5  to the left,  agree=0.884, adj=0.471, (0 split)
##
## Node number 114: 485 observations,    complexity param=0.00379566
## predicted class=4 expected loss=0.7360825 P(node) =0.01924221
## class counts:      19      0   73      0  128   96   19   48   49
53
## probabilities: 0.039 0.000 0.151 0.000 0.264 0.198 0.039 0.099 0.101
0.109
## left son=228 (121 obs) right son=229 (364 obs)
## Primary splits:
##      354 < 1     to the left,  improve=68.34460, (0 missing)
##      353 < 10.5  to the left,  improve=55.12702, (0 missing)
##      382 < 0.5   to the right, improve=51.97462, (0 missing)
##      381 < 13.5  to the left,  improve=51.07833, (0 missing)
##      488 < 0.5   to the left,  improve=50.20387, (0 missing)
## Surrogate splits:
##      381 < 13.5  to the left,  agree=0.924, adj=0.694, (0 split)
##      353 < 2.5   to the left,  agree=0.920, adj=0.678, (0 split)
##      382 < 0.5   to the left,  agree=0.907, adj=0.628, (0 split)
##      326 < 16    to the left,  agree=0.905, adj=0.620, (0 split)
##      327 < 1     to the left,  agree=0.889, adj=0.554, (0 split)
##
## Node number 115: 709 observations,    complexity param=0.0004465482
## predicted class=8 expected loss=0.1551481 P(node) =0.02812934
## class counts:      17      0      5      5   24   23      9      8   599

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19
## probabilities: 0.024 0.000 0.007 0.007 0.034 0.032 0.013 0.011 0.845
0.027
## left son=230 (74 obs) right son=231 (635 obs)
## Primary splits:
## 428 < 111.5 to the right, improve=43.00775, (0 missing)
## 456 < 224 to the right, improve=39.61953, (0 missing)
## 427 < 3 to the right, improve=39.06051, (0 missing)
## 400 < 57.5 to the right, improve=38.75969, (0 missing)
## 455 < 23.5 to the right, improve=35.15894, (0 missing)
## Surrogate splits:
## 456 < 204 to the right, agree=0.976, adj=0.770, (0 split)
## 427 < 9 to the right, agree=0.969, adj=0.703, (0 split)
## 455 < 9 to the right, agree=0.968, adj=0.689, (0 split)
## 429 < 247.5 to the right, agree=0.962, adj=0.635, (0 split)
## 400 < 164.5 to the right, agree=0.952, adj=0.541, (0 split)
##
## Node number 116: 344 observations, complexity param=0.0008037867
## predicted class=2 expected loss=0.244186 P(node) =0.01364809
## class counts: 3 25 260 4 10 0 3 27 6
6
## probabilities: 0.009 0.073 0.756 0.012 0.029 0.000 0.009 0.078 0.017
0.017
## left son=232 (318 obs) right son=233 (26 obs)
## Primary splits:
## 686 < 2.5 to the left, improve=27.13588, (0 missing)
## 153 < 2 to the right, improve=25.48856, (0 missing)
## 152 < 1 to the right, improve=25.38425, (0 missing)
## 159 < 0.5 to the right, improve=24.04874, (0 missing)
## 187 < 16.5 to the right, improve=23.73987, (0 missing)
## Surrogate splits:
## 687 < 7 to the left, agree=0.983, adj=0.769, (0 split)
## 714 < 2.5 to the left, agree=0.968, adj=0.577, (0 split)
## 659 < 165.5 to the left, agree=0.962, adj=0.500, (0 split)
## 685 < 32 to the left, agree=0.962, adj=0.500, (0 split)
## 688 < 9 to the left, agree=0.959, adj=0.462, (0 split)
##
## Node number 117: 103 observations, complexity param=0.0008930964
## predicted class=8 expected loss=0.6990291 P(node) =0.004086491
## class counts: 2 1 10 0 24 1 19 4 31
11
## probabilities: 0.019 0.010 0.097 0.000 0.233 0.010 0.184 0.039 0.301
0.107
## left son=234 (73 obs) right son=235 (30 obs)
## Primary splits:
## 656 < 105 to the left, improve=19.74875, (0 missing)
## 655 < 6.5 to the left, improve=18.45919, (0 missing)
## 627 < 4 to the left, improve=15.76298, (0 missing)
## 657 < 18 to the left, improve=15.70104, (0 missing)
## 626 < 0.5 to the left, improve=15.06336, (0 missing)

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## Surrogate splits:
##      655 < 123   to the left,  agree=0.971, adj=0.900, (0 split)
##      657 < 108.5 to the left,  agree=0.942, adj=0.800, (0 split)
##      627 < 183.5 to the left,  agree=0.913, adj=0.700, (0 split)
##      654 < 2     to the left,  agree=0.883, adj=0.600, (0 split)
##      628 < 140   to the left,  agree=0.874, adj=0.567, (0 split)
##
## Node number 118: 241 observations,    complexity param=0.002545325
## predicted class=8 expected loss=0.5062241 P(node) =0.009561595
## class counts:      3      1      78      3      15      1      14      2      119
5
## probabilities: 0.012 0.004 0.324 0.012 0.062 0.004 0.058 0.008 0.494
0.021
## left son=236 (127 obs) right son=237 (114 obs)
## Primary splits:
##      655 < 30.5   to the left,  improve=54.95627, (0 missing)
##      654 < 6      to the left,  improve=52.10515, (0 missing)
##      537 < 131.5  to the right, improve=50.14114, (0 missing)
##      656 < 6      to the left,  improve=49.56066, (0 missing)
##      509 < 3.5    to the right, improve=48.44629, (0 missing)
## Surrogate splits:
##      654 < 6      to the left,  agree=0.946, adj=0.886, (0 split)
##      656 < 1.5    to the left,  agree=0.942, adj=0.877, (0 split)
##      629 < 2      to the left,  agree=0.884, adj=0.754, (0 split)
##      628 < 1      to the left,  agree=0.880, adj=0.746, (0 split)
##      627 < 86.5   to the left,  agree=0.867, adj=0.719, (0 split)
##
## Node number 119: 1700 observations,    complexity param=0.001696883
## predicted class=6 expected loss=0.1229412 P(node) =0.06744694
## class counts:      0      2      32      5      5     102    1491      2      50
11
## probabilities: 0.000 0.001 0.019 0.003 0.003 0.060 0.877 0.001 0.029
0.006
## left son=238 (1537 obs) right son=239 (163 obs)
## Primary splits:
##      658 < 1.5    to the left,  improve=113.14630, (0 missing)
##      657 < 6      to the left,  improve=110.56940, (0 missing)
##      656 < 11     to the left,  improve=107.75830, (0 missing)
##      655 < 1.5    to the right, improve=100.02240, (0 missing)
##      659 < 6.5    to the right, improve= 98.06006, (0 missing)
## Surrogate splits:
##      657 < 2.5    to the left,  agree=0.993, adj=0.926, (0 split)
##      659 < 3      to the left,  agree=0.985, adj=0.847, (0 split)
##      656 < 0.5    to the left,  agree=0.979, adj=0.785, (0 split)
##      660 < 3.5    to the left,  agree=0.971, adj=0.699, (0 split)
##      655 < 1.5    to the left,  agree=0.962, adj=0.607, (0 split)
##
## Node number 120: 221 observations,    complexity param=0.003349111
## predicted class=2 expected loss=0.60181 P(node) =0.008768102
## class counts:      0      0      88      24      4      81      2      0      22

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0
## probabilities: 0.000 0.000 0.398 0.109 0.018 0.367 0.009 0.000 0.100
0.000
## left son=240 (109 obs) right son=241 (112 obs)
## Primary splits:
## 346 < 3 to the left, improve=56.90477, (0 missing)
## 319 < 5 to the left, improve=52.80342, (0 missing)
## 127 < 31.5 to the right, improve=49.12228, (0 missing)
## 347 < 9 to the left, improve=48.68827, (0 missing)
## 157 < 2 to the right, improve=47.95154, (0 missing)
## Surrogate splits:
## 319 < 26 to the left, agree=0.914, adj=0.826, (0 split)
## 347 < 9 to the left, agree=0.905, adj=0.807, (0 split)
## 374 < 58 to the left, agree=0.905, adj=0.807, (0 split)
## 318 < 1 to the left, agree=0.882, adj=0.761, (0 split)
## 345 < 1.5 to the left, agree=0.882, adj=0.761, (0 split)
##
## Node number 121: 1609 observations, complexity param=0.001629901
## predicted class=4 expected loss=0.1876942 P(node) =0.06383654
## class counts: 0 6 23 20 1307 42 66 44 34
67
## probabilities: 0.000 0.004 0.014 0.012 0.812 0.026 0.041 0.027 0.021
0.042
## left son=242 (1469 obs) right son=243 (140 obs)
## Primary splits:
## 267 < 139 to the left, improve=86.21374, (0 missing)
## 98 < 3 to the left, improve=81.05098, (0 missing)
## 97 < 1 to the left, improve=69.20911, (0 missing)
## 266 < 173.5 to the left, improve=69.13510, (0 missing)
## 400 < 6.5 to the right, improve=63.19168, (0 missing)
## Surrogate splits:
## 239 < 74.5 to the left, agree=0.965, adj=0.600, (0 split)
## 266 < 191.5 to the left, agree=0.959, adj=0.529, (0 split)
## 295 < 176.5 to the left, agree=0.947, adj=0.386, (0 split)
## 294 < 132 to the left, agree=0.937, adj=0.271, (0 split)
## 268 < 250.5 to the left, agree=0.927, adj=0.164, (0 split)
##
## Node number 122: 808 observations, complexity param=0.003929624
## predicted class=5 expected loss=0.4492574 P(node) =0.03205713
## class counts: 3 2 19 55 94 445 28 33 37
92
## probabilities: 0.004 0.002 0.024 0.068 0.116 0.551 0.035 0.041 0.046
0.114
## left son=244 (581 obs) right son=245 (227 obs)
## Primary splits:
## 352 < 55 to the left, improve=128.5179, (0 missing)
## 324 < 30.5 to the left, improve=120.9151, (0 missing)
## 351 < 42.5 to the left, improve=107.8040, (0 missing)
## 353 < 1.5 to the left, improve=105.0853, (0 missing)
## 325 < 1 to the left, improve=103.3771, (0 missing)

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## Surrogate splits:
##      324 < 129.5 to the left,  agree=0.972, adj=0.899, (0 split)
##      351 < 42.5  to the left,  agree=0.968, adj=0.885, (0 split)
##      353 < 1.5   to the left,  agree=0.955, adj=0.841, (0 split)
##      325 < 6.5   to the left,  agree=0.941, adj=0.789, (0 split)
##      323 < 0.5   to the left,  agree=0.906, adj=0.665, (0 split)
##
## Node number 123: 1851 observations,    complexity param=0.002835581
## predicted class=9 expected loss=0.3408968 P(node) =0.07343781
## class counts:      4      0      71      160      194      19      4      55      124
1220
## probabilities: 0.002 0.000 0.038 0.086 0.105 0.010 0.002 0.030 0.067
0.659
## left son=246 (406 obs) right son=247 (1445 obs)
## Primary splits:
##      156 < 0.5   to the right, improve=177.7674, (0 missing)
##      155 < 0.5   to the right, improve=172.9101, (0 missing)
##      154 < 1      to the right, improve=137.4916, (0 missing)
##      157 < 0.5   to the right, improve=135.3175, (0 missing)
##      623 < 1      to the right, improve=128.5714, (0 missing)
## Surrogate splits:
##      155 < 0.5   to the right, agree=0.960, adj=0.818, (0 split)
##      157 < 0.5   to the right, agree=0.949, adj=0.768, (0 split)
##      154 < 1      to the right, agree=0.910, adj=0.589, (0 split)
##      158 < 0.5   to the right, agree=0.900, adj=0.544, (0 split)
##      153 < 0.5   to the right, agree=0.880, adj=0.451, (0 split)
##
## Node number 124: 313 observations,    complexity param=0.002054122
## predicted class=5 expected loss=0.629393 P(node) =0.01241817
## class counts:      1      12      8      57      30      116      2      8      30
49
## probabilities: 0.003 0.038 0.026 0.182 0.096 0.371 0.006 0.026 0.096
0.157
## left son=248 (175 obs) right son=249 (138 obs)
## Primary splits:
##      353 < 1      to the left, improve=47.76335, (0 missing)
##      352 < 12     to the left, improve=44.04212, (0 missing)
##      325 < 2.5    to the left, improve=34.45115, (0 missing)
##      381 < 141.5  to the left, improve=32.65698, (0 missing)
##      354 < 2.5    to the left, improve=31.10189, (0 missing)
## Surrogate splits:
##      352 < 18     to the left, agree=0.920, adj=0.819, (0 split)
##      325 < 23.5   to the left, agree=0.911, adj=0.797, (0 split)
##      354 < 2.5    to the left, agree=0.872, adj=0.710, (0 split)
##      326 < 0.5    to the left, agree=0.869, adj=0.703, (0 split)
##      381 < 79.5   to the left, agree=0.856, adj=0.674, (0 split)
##
## Node number 125: 1453 observations,    complexity param=0.001607573
## predicted class=7 expected loss=0.1046111 P(node) =0.05764729
## class counts:      6      53      45      11      4      2      19      1301      1

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11
## probabilities: 0.004 0.036 0.031 0.008 0.003 0.001 0.013 0.895 0.001
0.008
## left son=250 (93 obs) right son=251 (1360 obs)
## Primary splits:
## 156 < 0.5 to the right, improve=93.49668, (0 missing)
## 155 < 3.5 to the right, improve=84.86421, (0 missing)
## 157 < 0.5 to the right, improve=83.35302, (0 missing)
## 154 < 7 to the right, improve=71.99319, (0 missing)
## 153 < 2 to the right, improve=65.40702, (0 missing)
## Surrogate splits:
## 155 < 3.5 to the right, agree=0.983, adj=0.742, (0 split)
## 157 < 0.5 to the right, agree=0.982, adj=0.720, (0 split)
## 154 < 10.5 to the right, agree=0.966, adj=0.473, (0 split)
## 128 < 6.5 to the right, agree=0.962, adj=0.409, (0 split)
## 158 < 1.5 to the right, agree=0.960, adj=0.376, (0 split)
##
## Node number 126: 144 observations, complexity param=0.0004018934
## predicted class=4 expected loss=0.2638889 P(node) =0.005713152
## class counts: 1 1 11 0 106 1 15 1 1
7
## probabilities: 0.007 0.007 0.076 0.000 0.736 0.007 0.104 0.007 0.007
0.049
## left son=252 (132 obs) right son=253 (12 obs)
## Primary splits:
## 95 < 6.5 to the left, improve=12.98232, (0 missing)
## 96 < 2 to the left, improve=12.87266, (0 missing)
## 97 < 4.5 to the right, improve=12.59550, (0 missing)
## 597 < 35.5 to the right, improve=11.90941, (0 missing)
## 567 < 164.5 to the right, improve=11.77222, (0 missing)
## Surrogate splits:
## 94 < 4 to the left, agree=0.972, adj=0.667, (0 split)
## 122 < 64 to the left, agree=0.972, adj=0.667, (0 split)
## 67 < 4 to the left, agree=0.965, adj=0.583, (0 split)
## 96 < 36 to the left, agree=0.965, adj=0.583, (0 split)
## 123 < 100.5 to the left, agree=0.958, adj=0.500, (0 split)
##
## Node number 127: 218 observations, complexity param=0.0003125837
## predicted class=9 expected loss=0.2981651 P(node) =0.008649078
## class counts: 0 0 8 1 29 0 1 22 4
153
## probabilities: 0.000 0.000 0.037 0.005 0.133 0.000 0.005 0.101 0.018
0.702
## left son=254 (50 obs) right son=255 (168 obs)
## Primary splits:
## 518 < 241.5 to the right, improve=14.56990, (0 missing)
## 235 < 3.5 to the left, improve=14.16128, (0 missing)
## 155 < 1 to the right, improve=13.12314, (0 missing)
## 354 < 4 to the left, improve=12.86037, (0 missing)
## 316 < 6 to the left, improve=12.85993, (0 missing)

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## Surrogate splits:
##      545 < 30    to the right, agree=0.927, adj=0.68, (0 split)
##      517 < 223.5 to the right, agree=0.899, adj=0.56, (0 split)
##      546 < 171.5 to the right, agree=0.862, adj=0.40, (0 split)
##      573 < 62.5  to the right, agree=0.862, adj=0.40, (0 split)
##      572 < 24.5  to the right, agree=0.858, adj=0.38, (0 split)
##
## Node number 128: 2291 observations,    complexity param=0.0001786193
## predicted class=1 expected loss=0.03360978 P(node) =0.09089466
## class counts:      0 2214    12     6     7    10     8     8    24
##
## probabilities: 0.000 0.966 0.005 0.003 0.003 0.004 0.003 0.003 0.010
0.001
## left son=256 (2260 obs) right son=257 (31 obs)
## Primary splits:
##      484 < 8      to the left, improve=24.92766, (0 missing)
##      456 < 8      to the left, improve=24.56170, (0 missing)
##      483 < 1      to the left, improve=23.74161, (0 missing)
##      457 < 81     to the left, improve=23.35611, (0 missing)
##      466 < 3      to the left, improve=22.41290, (0 missing)
## Surrogate splits:
##      485 < 179    to the left, agree=0.996, adj=0.677, (0 split)
##      512 < 113    to the left, agree=0.996, adj=0.677, (0 split)
##      457 < 57     to the left, agree=0.995, adj=0.645, (0 split)
##      456 < 8      to the left, agree=0.994, adj=0.548, (0 split)
##      483 < 1      to the left, agree=0.993, adj=0.516, (0 split)
##
## Node number 129: 21 observations
## predicted class=2 expected loss=0.1428571 P(node) =0.000833168
## class counts:      0     2    18     1     0     0     0     0     0
##
## probabilities: 0.000 0.095 0.857 0.048 0.000 0.000 0.000 0.000 0.000
0.000
##
## Node number 130: 72 observations,    complexity param=0.0005358578
## predicted class=1 expected loss=0.2916667 P(node) =0.002856576
## class counts:      0    51     1     2     1    13     0     0     4
##
## probabilities: 0.000 0.708 0.014 0.028 0.014 0.181 0.000 0.000 0.056
0.000
## left son=260 (55 obs) right son=261 (17 obs)
## Primary splits:
##      487 < 145    to the right, improve=17.70351, (0 missing)
##      434 < 203.5  to the right, improve=17.37037, (0 missing)
##      242 < 182    to the right, improve=17.02758, (0 missing)
##      215 < 32     to the right, improve=16.82813, (0 missing)
##      597 < 27     to the right, improve=16.07407, (0 missing)
## Surrogate splits:
##      242 < 160.5  to the right, agree=0.958, adj=0.824, (0 split)
##      460 < 225.5  to the right, agree=0.958, adj=0.824, (0 split)

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##      488 < 221   to the right, agree=0.958, adj=0.824, (0 split)
##      244 < 126.5 to the right, agree=0.944, adj=0.765, (0 split)
##      243 < 44.5  to the right, agree=0.931, adj=0.706, (0 split)
##
## Node number 131: 72 observations
##   predicted class=8   expected loss=0.1388889   P(node) =0.002856576
##   class counts:      0      0      0      3      2      1      0      0      62
4
##   probabilities: 0.000 0.000 0.000 0.042 0.028 0.014 0.000 0.000 0.861
0.056
##
## Node number 132: 91 observations
##   predicted class=2   expected loss=0.0989011   P(node) =0.003610395
##   class counts:      0      2     82      5      0      0      0      0      2
0
##   probabilities: 0.000 0.022 0.901 0.055 0.000 0.000 0.000 0.000 0.022
0.000
##
## Node number 133: 17 observations
##   predicted class=1   expected loss=0.4705882   P(node) =0.0006744694
##   class counts:      0      9      1      0      1      0      0      0      6
0
##   probabilities: 0.000 0.529 0.059 0.000 0.059 0.000 0.000 0.000 0.353
0.000
##
## Node number 134: 24 observations,      complexity param=0.0001786193
##   predicted class=2   expected loss=0.6666667   P(node) =0.000952192
##   class counts:      1      1      8      3      3      0      5      1      2
0
##   probabilities: 0.042 0.042 0.333 0.125 0.125 0.000 0.208 0.042 0.083
0.000
##   left son=268 (13 obs) right son=269 (11 obs)
##   Primary splits:
##      349 < 206.5 to the left,   improve=4.564685, (0 missing)
##      546 < 99.5  to the right,  improve=3.767483, (0 missing)
##      348 < 7     to the left,   improve=3.583333, (0 missing)
##      551 < 18.5  to the right,  improve=3.459790, (0 missing)
##      376 < 75.5  to the left,   improve=3.421429, (0 missing)
##   Surrogate splits:
##      348 < 7     to the left,   agree=0.958, adj=0.909, (0 split)
##      600 < 121   to the left,   agree=0.917, adj=0.818, (0 split)
##      296 < 188.5 to the right,  agree=0.875, adj=0.727, (0 split)
##      321 < 66    to the left,   agree=0.875, adj=0.727, (0 split)
##      376 < 75.5  to the left,   agree=0.875, adj=0.727, (0 split)
##
## Node number 135: 19 observations
##   predicted class=6   expected loss=0.1052632   P(node) =0.0007538187
##   class counts:      0      0      1      0      0      0      17      0      0
1
##   probabilities: 0.000 0.000 0.053 0.000 0.000 0.000 0.895 0.000 0.000

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0.053
##
## Node number 136: 252 observations,    complexity param=0.001406627
## predicted class=6 expected loss=0.7857143 P(node) =0.009998016
## class counts:    12    33    31    14    40    24    54    8    6
30
## probabilities: 0.048 0.131 0.123 0.056 0.159 0.095 0.214 0.032 0.024
0.119
## left son=272 (93 obs) right son=273 (159 obs)
## Primary splits:
## 574 < 233 to the right, improve=20.46787, (0 missing)
## 602 < 74.5 to the right, improve=18.99616, (0 missing)
## 573 < 248.5 to the left, improve=17.63102, (0 missing)
## 601 < 127 to the left, improve=17.47485, (0 missing)
## 550 < 65.5 to the right, improve=16.87836, (0 missing)
## Surrogate splits:
## 602 < 52 to the right, agree=0.925, adj=0.796, (0 split)
## 575 < 145.5 to the right, agree=0.913, adj=0.763, (0 split)
## 603 < 1.5 to the right, agree=0.889, adj=0.699, (0 split)
## 576 < 19.5 to the right, agree=0.865, adj=0.634, (0 split)
## 573 < 250.5 to the right, agree=0.849, adj=0.591, (0 split)
##
## Node number 137: 34 observations
## predicted class=5 expected loss=0.1176471 P(node) =0.001348939
## class counts:    0    0    0    0    2    30    0    0    2
0
## probabilities: 0.000 0.000 0.000 0.000 0.059 0.882 0.000 0.000 0.059
0.000
##
## Node number 138: 134 observations,    complexity param=0.0004018934
## predicted class=1 expected loss=0.4552239 P(node) =0.005316405
## class counts:    3    73    1    4    10    9    4    4    16
10
## probabilities: 0.022 0.545 0.007 0.030 0.075 0.067 0.030 0.030 0.119
0.075
## left son=276 (95 obs) right son=277 (39 obs)
## Primary splits:
## 429 < 10.5 to the left, improve=18.14786, (0 missing)
## 299 < 18 to the left, improve=17.89685, (0 missing)
## 271 < 27.5 to the left, improve=17.79153, (0 missing)
## 327 < 30.5 to the left, improve=17.44297, (0 missing)
## 430 < 2.5 to the left, improve=16.75559, (0 missing)
## Surrogate splits:
## 457 < 61 to the left, agree=0.963, adj=0.872, (0 split)
## 430 < 160.5 to the left, agree=0.933, adj=0.769, (0 split)
## 456 < 6.5 to the left, agree=0.933, adj=0.769, (0 split)
## 428 < 3 to the left, agree=0.925, adj=0.744, (0 split)
## 401 < 61.5 to the left, agree=0.910, adj=0.692, (0 split)
##
## Node number 139: 144 observations,    complexity param=0.0008037867

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## predicted class=8 expected loss=0.3819444 P(node) =0.005713152
## class counts: 1 3 1 15 9 3 0 3 89
20
## probabilities: 0.007 0.021 0.007 0.104 0.062 0.021 0.000 0.021 0.618
0.139
## left son=278 (124 obs) right son=279 (20 obs)
## Primary splits:
## 711 < 94.5 to the left, improve=22.83728, (0 missing)
## 712 < 2.5 to the left, improve=22.34791, (0 missing)
## 461 < 170.5 to the left, improve=21.84393, (0 missing)
## 488 < 15 to the right, improve=19.92244, (0 missing)
## 433 < 166 to the left, improve=19.58357, (0 missing)
## Surrogate splits:
## 712 < 69.5 to the left, agree=0.965, adj=0.75, (0 split)
## 710 < 7.5 to the left, agree=0.958, adj=0.70, (0 split)
## 739 < 44.5 to the left, agree=0.917, adj=0.40, (0 split)
## 740 < 28 to the left, agree=0.910, adj=0.35, (0 split)
## 433 < 1.5 to the right, agree=0.903, adj=0.30, (0 split)
##
## Node number 144: 122 observations
## predicted class=2 expected loss=0.04918033 P(node) =0.004840309
## class counts: 0 0 116 1 0 1 1 2 1
0
## probabilities: 0.000 0.000 0.951 0.008 0.000 0.008 0.008 0.016 0.008
0.000
##
## Node number 145: 20 observations, complexity param=0.0002232741
## predicted class=8 expected loss=0.5 P(node) =0.0007934934
## class counts: 0 0 3 1 0 0 5 0 10
1
## probabilities: 0.000 0.000 0.150 0.050 0.000 0.000 0.250 0.000 0.500
0.050
## left son=290 (9 obs) right son=291 (11 obs)
## Primary splits:
## 291 < 86 to the left, improve=6.270707, (0 missing)
## 319 < 26 to the left, improve=6.270707, (0 missing)
## 320 < 98 to the left, improve=6.270707, (0 missing)
## 321 < 48 to the left, improve=6.270707, (0 missing)
## 497 < 8 to the right, improve=6.270707, (0 missing)
## Surrogate splits:
## 319 < 26 to the left, agree=1, adj=1, (0 split)
## 320 < 98 to the left, agree=1, adj=1, (0 split)
## 321 < 48 to the left, agree=1, adj=1, (0 split)
## 497 < 8 to the right, agree=1, adj=1, (0 split)
## 525 < 20 to the right, agree=1, adj=1, (0 split)
##
## Node number 146: 57 observations, complexity param=0.0004242208
## predicted class=1 expected loss=0.7017544 P(node) =0.002261456
## class counts: 0 17 15 10 0 0 3 2 8
2

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```

## probabilities: 0.000 0.298 0.263 0.175 0.000 0.000 0.053 0.035 0.140
0.035
## left son=292 (21 obs) right son=293 (36 obs)
## Primary splits:
## 459 < 5.5 to the left, improve=11.076860, (0 missing)
## 515 < 1.5 to the left, improve=10.451460, (0 missing)
## 487 < 0.5 to the left, improve=10.305740, (0 missing)
## 488 < 158.5 to the left, improve=10.213420, (0 missing)
## 233 < 23 to the left, improve= 9.465748, (0 missing)
## Surrogate splits:
## 460 < 126 to the left, agree=0.947, adj=0.857, (0 split)
## 487 < 0.5 to the left, agree=0.895, adj=0.714, (0 split)
## 233 < 23 to the left, agree=0.860, adj=0.619, (0 split)
## 458 < 1 to the left, agree=0.860, adj=0.619, (0 split)
## 431 < 1 to the left, agree=0.842, adj=0.571, (0 split)
##
## Node number 147: 29 observations, complexity param=0.0002679289
## predicted class=7 expected loss=0.4137931 P(node) =0.001150565
## class counts: 0 0 0 3 1 0 0 17 1
7
## probabilities: 0.000 0.000 0.000 0.103 0.034 0.000 0.000 0.586 0.034
0.241
## left son=294 (17 obs) right son=295 (12 obs)
## Primary splits:
## 349 < 102.5 to the left, improve=7.749831, (0 missing)
## 406 < 250.5 to the right, improve=7.298851, (0 missing)
## 319 < 8 to the left, improve=7.112886, (0 missing)
## 434 < 230.5 to the right, improve=6.917898, (0 missing)
## 318 < 90 to the left, improve=6.887595, (0 missing)
## Surrogate splits:
## 348 < 7 to the left, agree=0.966, adj=0.917, (0 split)
## 406 < 250.5 to the right, agree=0.966, adj=0.917, (0 split)
## 434 < 250 to the right, agree=0.931, adj=0.833, (0 split)
## 461 < 250 to the right, agree=0.931, adj=0.833, (0 split)
## 488 < 142 to the right, agree=0.931, adj=0.833, (0 split)
##
## Node number 148: 112 observations
## predicted class=6 expected loss=0.1160714 P(node) =0.004443563
## class counts: 1 2 0 0 3 2 99 4 0
1
## probabilities: 0.009 0.018 0.000 0.000 0.027 0.018 0.884 0.036 0.000
0.009
##
## Node number 149: 32 observations, complexity param=0.0002232741
## predicted class=8 expected loss=0.6875 P(node) =0.001269589
## class counts: 4 0 3 0 0 3 6 1 10
5
## probabilities: 0.125 0.000 0.094 0.000 0.000 0.094 0.188 0.031 0.312
0.156
## left son=298 (12 obs) right son=299 (20 obs)

```



```

## Primary splits:
## 442 < 27 to the right, improve=5.341667, (0 missing)
## 470 < 21 to the right, improve=5.341667, (0 missing)
## 483 < 19 to the right, improve=5.278922, (0 missing)
## 511 < 138 to the right, improve=5.278922, (0 missing)
## 469 < 183 to the right, improve=5.154352, (0 missing)
## Surrogate splits:
## 470 < 21 to the right, agree=1.000, adj=1.000, (0 split)
## 426 < 16.5 to the right, agree=0.969, adj=0.917, (0 split)
## 443 < 10.5 to the right, agree=0.969, adj=0.917, (0 split)
## 454 < 69 to the right, agree=0.969, adj=0.917, (0 split)
## 469 < 183 to the right, agree=0.969, adj=0.917, (0 split)
##
## Node number 150: 19 observations
## predicted class=4 expected loss=0.5263158 P(node) =0.0007538187
## class counts: 0 0 3 0 9 0 0 1 3
3
## probabilities: 0.000 0.000 0.158 0.000 0.474 0.000 0.000 0.053 0.158
0.158
##
## Node number 151: 43 observations
## predicted class=9 expected loss=0.1860465 P(node) =0.001706011
## class counts: 0 0 3 0 0 0 0 1 4
35
## probabilities: 0.000 0.000 0.070 0.000 0.000 0.000 0.000 0.023 0.093
0.814
##
## Node number 152: 59 observations, complexity param=0.0002232741
## predicted class=3 expected loss=0.1694915 P(node) =0.002340805
## class counts: 0 0 7 49 0 0 0 2 1
0
## probabilities: 0.000 0.000 0.119 0.831 0.000 0.000 0.000 0.034 0.017
0.000
## left son=304 (7 obs) right son=305 (52 obs)
## Primary splits:
## 527 < 25.5 to the right, improve=8.098622, (0 missing)
## 555 < 25 to the right, improve=8.098622, (0 missing)
## 514 < 214 to the right, improve=6.821203, (0 missing)
## 543 < 220.5 to the right, improve=6.821203, (0 missing)
## 515 < 233.5 to the right, improve=6.590588, (0 missing)
## Surrogate splits:
## 555 < 25 to the right, agree=1.000, adj=1.000, (0 split)
## 583 < 14 to the right, agree=0.983, adj=0.857, (0 split)
## 499 < 67 to the right, agree=0.966, adj=0.714, (0 split)
## 554 < 153.5 to the right, agree=0.966, adj=0.714, (0 split)
## 582 < 122 to the right, agree=0.966, adj=0.714, (0 split)
##
## Node number 153: 103 observations, complexity param=0.001071716
## predicted class=7 expected loss=0.592233 P(node) =0.004086491
## class counts: 0 9 26 13 0 0 0 42 12

```

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1
## probabilities: 0.000 0.087 0.252 0.126 0.000 0.000 0.000 0.408 0.117
0.010
## left son=306 (47 obs) right son=307 (56 obs)
## Primary splits:
## 153 < 121 to the right, improve=21.50764, (0 missing)
## 152 < 13 to the right, improve=20.69896, (0 missing)
## 154 < 2.5 to the right, improve=20.21410, (0 missing)
## 155 < 20 to the right, improve=18.46666, (0 missing)
## 151 < 0.5 to the right, improve=17.12519, (0 missing)
## Surrogate splits:
## 152 < 35.5 to the right, agree=0.961, adj=0.915, (0 split)
## 154 < 117.5 to the right, agree=0.932, adj=0.851, (0 split)
## 155 < 38.5 to the right, agree=0.883, adj=0.745, (0 split)
## 151 < 0.5 to the right, agree=0.874, adj=0.723, (0 split)
## 238 < 148 to the left, agree=0.854, adj=0.681, (0 split)
##
## Node number 154: 14 observations
## predicted class=9 expected loss=0.5714286 P(node) =0.0005554453
## class counts: 0 0 0 1 5 0 0 0 2
6
## probabilities: 0.000 0.000 0.000 0.071 0.357 0.000 0.000 0.000 0.143
0.429
##
## Node number 155: 42 observations
## predicted class=8 expected loss=0.1666667 P(node) =0.001666336
## class counts: 1 0 1 1 0 1 3 0 35
0
## probabilities: 0.024 0.000 0.024 0.024 0.000 0.024 0.071 0.000 0.833
0.000
##
## Node number 156: 80 observations, complexity param=0.0002976988
## predicted class=8 expected loss=0.4875 P(node) =0.003173973
## class counts: 0 13 1 6 4 1 0 8 41
6
## probabilities: 0.000 0.163 0.013 0.075 0.050 0.013 0.000 0.100 0.513
0.075
## left son=312 (35 obs) right son=313 (45 obs)
## Primary splits:
## 294 < 148.5 to the right, improve=8.124603, (0 missing)
## 298 < 9 to the left, improve=8.043407, (0 missing)
## 297 < 11.5 to the left, improve=7.834584, (0 missing)
## 213 < 15 to the left, improve=7.771429, (0 missing)
## 322 < 134.5 to the right, improve=7.548997, (0 missing)
## Surrogate splits:
## 322 < 184 to the right, agree=0.938, adj=0.857, (0 split)
## 293 < 176 to the right, agree=0.900, adj=0.771, (0 split)
## 266 < 233.5 to the right, agree=0.887, adj=0.743, (0 split)
## 185 < 20.5 to the left, agree=0.838, adj=0.629, (0 split)
## 295 < 241.5 to the right, agree=0.825, adj=0.600, (0 split)

```

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##
## Node number 157: 44 observations,    complexity param=0.000379566
## predicted class=9 expected loss=0.5227273 P(node) =0.001745685
## class counts:    1    0    0    10    3    1    0    4    4
21
## probabilities: 0.023 0.000 0.000 0.227 0.068 0.023 0.000 0.091 0.091
0.477
## left son=314 (18 obs) right son=315 (26 obs)
## Primary splits:
## 206 < 125 to the right, improve=9.240093, (0 missing)
## 318 < 153 to the left, improve=8.282828, (0 missing)
## 551 < 16.5 to the right, improve=7.761461, (0 missing)
## 627 < 221 to the right, improve=7.698701, (0 missing)
## 178 < 7 to the right, improve=7.584416, (0 missing)
## Surrogate splits:
## 178 < 7 to the right, agree=0.955, adj=0.889, (0 split)
## 205 < 11 to the right, agree=0.932, adj=0.833, (0 split)
## 207 < 207.5 to the right, agree=0.932, adj=0.833, (0 split)
## 179 < 4.5 to the right, agree=0.909, adj=0.778, (0 split)
## 634 < 17 to the right, agree=0.909, adj=0.778, (0 split)
##
## Node number 158: 19 observations
## predicted class=7 expected loss=0.6842105 P(node) =0.0007538187
## class counts:    2    0    1    4    1    3    0    6    2
0
## probabilities: 0.105 0.000 0.053 0.211 0.053 0.158 0.000 0.316 0.105
0.000
##
## Node number 159: 355 observations
## predicted class=8 expected loss=0.08169014 P(node) =0.01408451
## class counts:    1    1    1    4    10    2    2    5    326
3
## probabilities: 0.003 0.003 0.003 0.011 0.028 0.006 0.006 0.014 0.918
0.008
##
## Node number 160: 64 observations,    complexity param=0.0007368045
## predicted class=1 expected loss=0.484375 P(node) =0.002539179
## class counts:    0    33    3    20    0    1    0    5    2
0
## probabilities: 0.000 0.516 0.047 0.312 0.000 0.016 0.000 0.078 0.031
0.000
## left son=320 (39 obs) right son=321 (25 obs)
## Primary splits:
## 297 < 26.5 to the left, improve=20.92705, (0 missing)
## 270 < 9 to the left, improve=19.81591, (0 missing)
## 242 < 18.5 to the left, improve=19.48048, (0 missing)
## 656 < 6.5 to the left, improve=19.39167, (0 missing)
## 325 < 3 to the left, improve=19.30833, (0 missing)
## Surrogate splits:
## 325 < 3 to the left, agree=0.984, adj=0.96, (0 split)

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##      324 < 174   to the left,  agree=0.969, adj=0.92, (0 split)
##      269 < 11    to the left,  agree=0.953, adj=0.88, (0 split)
##      184 < 2.5   to the left,  agree=0.938, adj=0.84, (0 split)
##      213 < 3     to the left,  agree=0.938, adj=0.84, (0 split)
##
## Node number 161: 1438 observations,      complexity param=0.0002456015
##   predicted class=3   expected loss=0.05841446   P(node) =0.05705217
##   class counts:      0      8      10 1354      0      38      0      2      21
5
##   probabilities: 0.000 0.006 0.007 0.942 0.000 0.026 0.000 0.001 0.015
0.003
##   left son=322 (1393 obs) right son=323 (45 obs)
##   Primary splits:
##       264 < 244.5 to the left,  improve=20.42218, (0 missing)
##       296 < 1      to the right, improve=17.95148, (0 missing)
##       487 < 140.5 to the left,  improve=17.62124, (0 missing)
##       317 < 206   to the left,  improve=17.03519, (0 missing)
##       292 < 248.5 to the left,  improve=16.23283, (0 missing)
##   Surrogate splits:
##       291 < 224   to the left,  agree=0.973, adj=0.133, (0 split)
##       263 < 251   to the left,  agree=0.971, adj=0.089, (0 split)
##       292 < 254.5 to the left,  agree=0.971, adj=0.067, (0 split)
##       265 < 254.5 to the left,  agree=0.970, adj=0.044, (0 split)
##       247 < 220.5 to the left,  agree=0.969, adj=0.022, (0 split)
##
## Node number 162: 78 observations
##   predicted class=5   expected loss=0.2179487   P(node) =0.003094624
##   class counts:      1      0      0      3      4      61      0      0      4
5
##   probabilities: 0.013 0.000 0.000 0.038 0.051 0.782 0.000 0.000 0.051
0.064
##
## Node number 163: 46 observations,      complexity param=0.000491203
##   predicted class=9   expected loss=0.6304348   P(node) =0.001825035
##   class counts:      2      0      0      15      1      5      2      0      4
17
##   probabilities: 0.043 0.000 0.000 0.326 0.022 0.109 0.043 0.000 0.087
0.370
##   left son=326 (25 obs) right son=327 (21 obs)
##   Primary splits:
##       493 < 1      to the left,  improve=8.093416, (0 missing)
##       497 < 1      to the right, improve=7.992977, (0 missing)
##       624 < 3.5    to the right, improve=7.076765, (0 missing)
##       525 < 32.5   to the right, improve=6.866115, (0 missing)
##       372 < 24.5   to the left,  improve=6.768542, (0 missing)
##   Surrogate splits:
##       465 < 14.5   to the left,  agree=0.891, adj=0.762, (0 split)
##       492 < 7.5    to the left,  agree=0.848, adj=0.667, (0 split)
##       494 < 168.5  to the left,  agree=0.848, adj=0.667, (0 split)
##       520 < 14.5   to the left,  agree=0.848, adj=0.667, (0 split)

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##      437 < 115.5 to the left,  agree=0.826, adj=0.619, (0 split)
##
## Node number 164: 261 observations,      complexity param=0.000379566
## predicted class=3 expected loss=0.1954023 P(node) =0.01035509
## class counts:      7      4      5    210      0    23      3      3      5
1
## probabilities: 0.027 0.015 0.019 0.805 0.000 0.088 0.011 0.011 0.019
0.004
## left son=328 (202 obs) right son=329 (59 obs)
## Primary splits:
##      155 < 3      to the right, improve=20.26569, (0 missing)
##      154 < 1.5    to the right, improve=17.63843, (0 missing)
##      156 < 0.5    to the right, improve=17.55721, (0 missing)
##      275 < 55     to the left,  improve=16.22994, (0 missing)
##      220 < 4.5    to the left,  improve=15.23607, (0 missing)
## Surrogate splits:
##      156 < 7.5    to the right, agree=0.943, adj=0.746, (0 split)
##      154 < 1.5    to the right, agree=0.927, adj=0.678, (0 split)
##      157 < 3      to the right, agree=0.866, adj=0.407, (0 split)
##      184 < 14.5   to the right, agree=0.858, adj=0.373, (0 split)
##      219 < 3.5    to the left,  agree=0.839, adj=0.288, (0 split)
##
## Node number 165: 156 observations,      complexity param=0.0008037867
## predicted class=5 expected loss=0.3846154 P(node) =0.006189248
## class counts:      19      0      0    25      0    96      5      1      7
3
## probabilities: 0.122 0.000 0.000 0.160 0.000 0.615 0.032 0.006 0.045
0.019
## left son=330 (25 obs) right son=331 (131 obs)
## Primary splits:
##      456 < 235.5 to the right, improve=22.99540, (0 missing)
##      299 < 24     to the right, improve=22.37895, (0 missing)
##      457 < 132    to the right, improve=21.66617, (0 missing)
##      429 < 252.5  to the right, improve=20.38718, (0 missing)
##      328 < 56.5   to the right, improve=20.05636, (0 missing)
## Surrogate splits:
##      429 < 252.5  to the right, agree=0.968, adj=0.80, (0 split)
##      457 < 132    to the right, agree=0.962, adj=0.76, (0 split)
##      484 < 209.5  to the right, agree=0.949, adj=0.68, (0 split)
##      428 < 174    to the right, agree=0.936, adj=0.60, (0 split)
##      455 < 73     to the right, agree=0.929, adj=0.56, (0 split)
##
## Node number 166: 104 observations,      complexity param=0.0001786193
## predicted class=1 expected loss=0.2307692 P(node) =0.004126165
## class counts:      0    80      0      4      1      5      1      7      3
3
## probabilities: 0.000 0.769 0.000 0.038 0.010 0.048 0.010 0.067 0.029
0.029
## left son=332 (85 obs) right son=333 (19 obs)
## Primary splits:

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##      462 < 85.5 to the right, improve=14.67072, (0 missing)
##      266 < 63.5 to the right, improve=14.49487, (0 missing)
##      325 < 4    to the left,  improve=13.46066, (0 missing)
##      294 < 73   to the right, improve=13.14803, (0 missing)
##      297 < 2    to the left,  improve=13.10839, (0 missing)
## Surrogate splits:
##      434 < 57   to the right, agree=0.952, adj=0.737, (0 split)
##      490 < 21   to the right, agree=0.933, adj=0.632, (0 split)
##      294 < 66   to the right, agree=0.923, adj=0.579, (0 split)
##      463 < 20   to the right, agree=0.923, adj=0.579, (0 split)
##      491 < 71.5 to the right, agree=0.913, adj=0.526, (0 split)
##
## Node number 167: 171 observations,    complexity param=0.001161025
## predicted class=5 expected loss=0.7192982 P(node) =0.006784368
## class counts:      5      7      1      22      30      48      8      12      7
31
## probabilities: 0.029 0.041 0.006 0.129 0.175 0.281 0.047 0.070 0.041
0.181
## left son=334 (58 obs) right son=335 (113 obs)
## Primary splits:
##      539 < 54.5 to the right, improve=25.08373, (0 missing)
##      570 < 79   to the right, improve=24.44883, (0 missing)
##      569 < 8    to the right, improve=23.88734, (0 missing)
##      540 < 57.5 to the right, improve=23.88416, (0 missing)
##      541 < 70   to the right, improve=23.88416, (0 missing)
## Surrogate splits:
##      538 < 5.5  to the right, agree=0.977, adj=0.931, (0 split)
##      540 < 31   to the right, agree=0.953, adj=0.862, (0 split)
##      567 < 26.5 to the right, agree=0.953, adj=0.862, (0 split)
##      568 < 74.5 to the right, agree=0.953, adj=0.862, (0 split)
##      541 < 117.5 to the right, agree=0.936, adj=0.810, (0 split)
##
## Node number 168: 32 observations
## predicted class=0 expected loss=0.125 P(node) =0.001269589
## class counts:      28      0      0      0      0      0      1      2      1
0
## probabilities: 0.875 0.000 0.000 0.000 0.000 0.000 0.031 0.062 0.031
0.000
##
## Node number 169: 292 observations,    complexity param=0.0007144771
## predicted class=3 expected loss=0.5034247 P(node) =0.011585
## class counts:      5      1      1      145      0      69      2      3      37
29
## probabilities: 0.017 0.003 0.003 0.497 0.000 0.236 0.007 0.010 0.127
0.099
## left son=338 (112 obs) right son=339 (180 obs)
## Primary splits:
##      318 < 219.5 to the left, improve=21.19424, (0 missing)
##      346 < 156.5 to the left, improve=19.16912, (0 missing)
##      247 < 16.5  to the left, improve=19.12572, (0 missing)

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##      345 < 124.5 to the left, improve=18.26027, (0 missing)
##      275 < 41    to the left, improve=16.79973, (0 missing)
## Surrogate splits:
##      346 < 127.5 to the left, agree=0.877, adj=0.679, (0 split)
##      317 < 22.5  to the left, agree=0.863, adj=0.643, (0 split)
##      319 < 108   to the left, agree=0.856, adj=0.625, (0 split)
##      345 < 5     to the left, agree=0.846, adj=0.598, (0 split)
##      347 < 205   to the left, agree=0.822, adj=0.536, (0 split)
##
## Node number 170: 39 observations, complexity param=0.0001786193
## predicted class=0 expected loss=0.3846154 P(node) =0.001547312
## class counts: 24 0 0 3 1 1 0 0 5
5
## probabilities: 0.615 0.000 0.000 0.077 0.026 0.026 0.000 0.000 0.128
0.128
## left son=340 (23 obs) right son=341 (16 obs)
## Primary splits:
##      293 < 187   to the right, improve=10.541670, (0 missing)
##      381 < 28    to the left, improve=10.541670, (0 missing)
##      409 < 144   to the left, improve= 9.820513, (0 missing)
##      266 < 161.5 to the right, improve= 9.816667, (0 missing)
##      294 < 42.5  to the right, improve= 9.550000, (0 missing)
## Surrogate splits:
##      294 < 149   to the right, agree=0.949, adj=0.875, (0 split)
##      381 < 28    to the left, agree=0.949, adj=0.875, (0 split)
##      265 < 213   to the right, agree=0.923, adj=0.813, (0 split)
##      266 < 161.5 to the right, agree=0.923, adj=0.813, (0 split)
##      354 < 48    to the left, agree=0.923, adj=0.813, (0 split)
##
## Node number 171: 473 observations, complexity param=0.0007591319
## predicted class=5 expected loss=0.141649 P(node) =0.01876612
## class counts: 2 0 0 50 0 406 6 0 6
3
## probabilities: 0.004 0.000 0.000 0.106 0.000 0.858 0.013 0.000 0.013
0.006
## left son=342 (33 obs) right son=343 (440 obs)
## Primary splits:
##      295 < 219   to the right, improve=29.11258, (0 missing)
##      294 < 176.5 to the right, improve=24.87470, (0 missing)
##      186 < 2.5   to the left, improve=24.12164, (0 missing)
##      262 < 12.5  to the left, improve=23.88677, (0 missing)
##      187 < 1     to the left, improve=23.43563, (0 missing)
## Surrogate splits:
##      296 < 117.5 to the right, agree=0.960, adj=0.424, (0 split)
##      267 < 245.5 to the right, agree=0.958, adj=0.394, (0 split)
##      268 < 241   to the right, agree=0.953, adj=0.333, (0 split)
##      294 < 251.5 to the right, agree=0.949, adj=0.273, (0 split)
##      349 < 6     to the left, agree=0.934, adj=0.061, (0 split)
##
## Node number 172: 85 observations, complexity param=0.0001786193

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## predicted class=4 expected loss=0.3176471 P(node) =0.003372347
## class counts:      0      0      0      4      58      7      4      3      1
8
## probabilities: 0.000 0.000 0.000 0.047 0.682 0.082 0.047 0.035 0.012
0.094
## left son=344 (70 obs) right son=345 (15 obs)
## Primary splits:
##      266 < 36      to the left, improve=9.104762, (0 missing)
##      405 < 10.5    to the right, improve=8.905141, (0 missing)
##      409 < 242     to the right, improve=8.366917, (0 missing)
##      238 < 13.5    to the left, improve=8.280590, (0 missing)
##      492 < 31      to the right, improve=8.164593, (0 missing)
## Surrogate splits:
##      265 < 131     to the left, agree=0.976, adj=0.867, (0 split)
##      238 < 4.5      to the left, agree=0.965, adj=0.800, (0 split)
##      237 < 151.5    to the left, agree=0.941, adj=0.667, (0 split)
##      293 < 30       to the left, agree=0.929, adj=0.600, (0 split)
##      267 < 208      to the left, agree=0.918, adj=0.533, (0 split)
##
## Node number 173: 79 observations, complexity param=0.0001786193
## predicted class=7 expected loss=0.2531646 P(node) =0.003134299
## class counts:      4      3      0      5      0      4      0      59      2
2
## probabilities: 0.051 0.038 0.000 0.063 0.000 0.051 0.000 0.747 0.025
0.025
## left son=346 (12 obs) right son=347 (67 obs)
## Primary splits:
##      570 < 2        to the right, improve=10.616920, (0 missing)
##      571 < 64        to the right, improve=10.616920, (0 missing)
##      598 < 8         to the right, improve= 9.893048, (0 missing)
##      542 < 28.5      to the right, improve= 9.529412, (0 missing)
##      569 < 64        to the right, improve= 9.426087, (0 missing)
## Surrogate splits:
##      571 < 64        to the right, agree=1.000, adj=1.000, (0 split)
##      542 < 28.5      to the right, agree=0.987, adj=0.917, (0 split)
##      598 < 8         to the right, agree=0.987, adj=0.917, (0 split)
##      543 < 3         to the right, agree=0.975, adj=0.833, (0 split)
##      569 < 64        to the right, agree=0.975, adj=0.833, (0 split)
##
## Node number 174: 100 observations, complexity param=0.0005805126
## predicted class=5 expected loss=0.56 P(node) =0.003967467
## class counts:      0      2      0      16      10      44      3      2      3
20
## probabilities: 0.000 0.020 0.000 0.160 0.100 0.440 0.030 0.020 0.030
0.200
## left son=348 (63 obs) right son=349 (37 obs)
## Primary splits:
##      295 < 99       to the left, improve=13.37684, (0 missing)
##      491 < 144      to the left, improve=11.90888, (0 missing)
##      186 < 5.5      to the right, improve=11.88813, (0 missing)

```



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##      294 < 203.5 to the right, improve=11.38746, (0 missing)
##      296 < 3      to the left,  improve=11.22879, (0 missing)
##      Surrogate splits:
##      296 < 3      to the left,  agree=0.94, adj=0.838, (0 split)
##      267 < 167.5 to the left,  agree=0.91, adj=0.757, (0 split)
##      294 < 127   to the left,  agree=0.90, adj=0.730, (0 split)
##      323 < 223   to the left,  agree=0.90, adj=0.730, (0 split)
##      266 < 231   to the left,  agree=0.80, adj=0.459, (0 split)
##
## Node number 175: 257 observations,      complexity param=0.0003572385
## predicted class=9 expected loss=0.1673152 P(node) =0.01019639
## class counts:      4      0      2      12      8      2      0      10      5
214
## probabilities: 0.016 0.000 0.008 0.047 0.031 0.008 0.000 0.039 0.019
0.833
## left son=350 (10 obs) right son=351 (247 obs)
## Primary splits:
##      680 < 29    to the right, improve=13.31189, (0 missing)
##      681 < 106.5 to the right, improve=11.82432, (0 missing)
##      651 < 29.5  to the right, improve=11.66365, (0 missing)
##      653 < 4     to the right, improve=11.59529, (0 missing)
##      652 < 184.5 to the right, improve=11.51373, (0 missing)
## Surrogate splits:
##      681 < 106.5 to the right, agree=0.996, adj=0.9, (0 split)
##      651 < 36    to the right, agree=0.992, adj=0.8, (0 split)
##      679 < 0.5   to the right, agree=0.992, adj=0.8, (0 split)
##      652 < 218.5 to the right, agree=0.988, adj=0.7, (0 split)
##      682 < 243.5 to the right, agree=0.988, adj=0.7, (0 split)
##
## Node number 176: 60 observations
## predicted class=2 expected loss=0.08333333 P(node) =0.00238048
## class counts:      0      1      55      2      0      0      2      0      0
0
## probabilities: 0.000 0.017 0.917 0.033 0.000 0.000 0.033 0.000 0.000
0.000
##
## Node number 177: 13 observations
## predicted class=8 expected loss=0.5384615 P(node) =0.0005157707
## class counts:      0      0      2      3      0      0      2      0      6
0
## probabilities: 0.000 0.000 0.154 0.231 0.000 0.000 0.154 0.000 0.462
0.000
##
## Node number 178: 83 observations,      complexity param=0.0004465482
## predicted class=8 expected loss=0.8072289 P(node) =0.003292997
## class counts:      9      14      12      3      9      7      10      0      16
3
## probabilities: 0.108 0.169 0.145 0.036 0.108 0.084 0.120 0.000 0.193
0.036
## left son=356 (39 obs) right son=357 (44 obs)

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## Primary splits:
## 211 < 22.5 to the left, improve=8.254023, (0 missing)
## 572 < 25.5 to the left, improve=7.771388, (0 missing)
## 210 < 37.5 to the left, improve=7.755189, (0 missing)
## 457 < 14.5 to the left, improve=7.718914, (0 missing)
## 209 < 2 to the left, improve=7.624469, (0 missing)
## Surrogate splits:
## 210 < 37.5 to the left, agree=0.940, adj=0.872, (0 split)
## 237 < 20.5 to the left, agree=0.916, adj=0.821, (0 split)
## 238 < 91 to the left, agree=0.916, adj=0.821, (0 split)
## 209 < 0.5 to the left, agree=0.892, adj=0.769, (0 split)
## 183 < 5 to the left, agree=0.880, adj=0.744, (0 split)
##
## Node number 179: 17 observations
## predicted class=9 expected loss=0.05882353 P(node) =0.0006744694
## class counts: 0 0 0 0 0 0 0 0 1
16
## probabilities: 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.059
0.941
##
## Node number 180: 18 observations
## predicted class=2 expected loss=0.5 P(node) =0.000714144
## class counts: 1 5 9 0 0 2 1 0 0
0
## probabilities: 0.056 0.278 0.500 0.000 0.000 0.111 0.056 0.000 0.000
0.000
##
## Node number 181: 23 observations, complexity param=0.0001786193
## predicted class=9 expected loss=0.6956522 P(node) =0.0009125174
## class counts: 1 0 0 3 5 2 3 0 2
7
## probabilities: 0.043 0.000 0.000 0.130 0.217 0.087 0.130 0.000 0.087
0.304
## left son=362 (13 obs) right son=363 (10 obs)
## Primary splits:
## 428 < 201 to the left, improve=3.808696, (0 missing)
## 208 < 74.5 to the left, improve=3.701003, (0 missing)
## 319 < 94.5 to the right, improve=3.320817, (0 missing)
## 344 < 48.5 to the left, improve=3.305665, (0 missing)
## 347 < 112 to the right, improve=3.301003, (0 missing)
## Surrogate splits:
## 371 < 5.5 to the left, agree=0.957, adj=0.9, (0 split)
## 400 < 78 to the left, agree=0.957, adj=0.9, (0 split)
## 316 < 4.5 to the left, agree=0.913, adj=0.8, (0 split)
## 343 < 51 to the left, agree=0.913, adj=0.8, (0 split)
## 344 < 15.5 to the left, agree=0.913, adj=0.8, (0 split)
##
## Node number 182: 16 observations
## predicted class=2 expected loss=0.1875 P(node) =0.0006347947
## class counts: 0 0 13 0 0 0 3 0 0

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0
## probabilities: 0.000 0.000 0.813 0.000 0.000 0.000 0.188 0.000 0.000
0.000
##
## Node number 183: 193 observations, complexity param=0.0002009467
## predicted class=6 expected loss=0.1502591 P(node) =0.007657211
## class counts: 2 0 7 4 0 12 164 0 4
0
## probabilities: 0.010 0.000 0.036 0.021 0.000 0.062 0.850 0.000 0.021
0.000
## left son=366 (21 obs) right son=367 (172 obs)
## Primary splits:
## 431 < 1 to the left, improve=9.612658, (0 missing)
## 430 < 9.5 to the left, improve=8.260657, (0 missing)
## 245 < 23 to the right, improve=7.806778, (0 missing)
## 459 < 15 to the left, improve=7.540244, (0 missing)
## 272 < 65 to the right, improve=7.168708, (0 missing)
## Surrogate splits:
## 404 < 3.5 to the left, agree=0.964, adj=0.667, (0 split)
## 403 < 4.5 to the left, agree=0.953, adj=0.571, (0 split)
## 459 < 4 to the left, agree=0.943, adj=0.476, (0 split)
## 458 < 1.5 to the left, agree=0.933, adj=0.381, (0 split)
## 376 < 1.5 to the left, agree=0.922, adj=0.286, (0 split)
##
## Node number 186: 40 observations, complexity param=0.0002083892
## predicted class=5 expected loss=0.675 P(node) =0.001586987
## class counts: 7 0 0 5 0 13 3 0 12
0
## probabilities: 0.175 0.000 0.000 0.125 0.000 0.325 0.075 0.000 0.300
0.000
## left son=372 (12 obs) right son=373 (28 obs)
## Primary splits:
## 351 < 190 to the left, improve=4.528571, (0 missing)
## 379 < 16 to the left, improve=4.407692, (0 missing)
## 297 < 178 to the left, improve=3.880051, (0 missing)
## 431 < 27.5 to the left, improve=3.766667, (0 missing)
## 352 < 79.5 to the left, improve=3.684416, (0 missing)
## Surrogate splits:
## 379 < 18.5 to the left, agree=0.950, adj=0.833, (0 split)
## 352 < 111 to the left, agree=0.900, adj=0.667, (0 split)
## 299 < 58 to the right, agree=0.825, adj=0.417, (0 split)
## 350 < 199.5 to the left, agree=0.825, adj=0.417, (0 split)
## 353 < 2.5 to the left, agree=0.825, adj=0.417, (0 split)
##
## Node number 187: 16 observations
## predicted class=2 expected loss=0.5 P(node) =0.0006347947
## class counts: 0 0 8 0 0 0 0 0 8
0
## probabilities: 0.000 0.000 0.500 0.000 0.000 0.000 0.000 0.000 0.500
0.000

```

```

##
## Node number 188: 27 observations,    complexity param=0.0001786193
## predicted class=3 expected loss=0.2222222 P(node) =0.001071216
## class counts:    0    0    0    21    0    1    0    0    0
5
## probabilities: 0.000 0.000 0.000 0.778 0.000 0.037 0.000 0.000 0.000
0.185
## left son=376 (20 obs) right son=377 (7 obs)
## Primary splits:
## 320 < 71.5 to the left, improve=6.560847, (0 missing)
## 265 < 233.5 to the left, improve=5.453704, (0 missing)
## 292 < 131.5 to the left, improve=5.453704, (0 missing)
## 319 < 74 to the left, improve=5.453704, (0 missing)
## 653 < 6 to the right, improve=5.453704, (0 missing)
## Surrogate splits:
## 265 < 233.5 to the left, agree=0.963, adj=0.857, (0 split)
## 292 < 131.5 to the left, agree=0.963, adj=0.857, (0 split)
## 319 < 74 to the left, agree=0.963, adj=0.857, (0 split)
## 183 < 146.5 to the right, agree=0.926, adj=0.714, (0 split)
## 291 < 15.5 to the left, agree=0.926, adj=0.714, (0 split)
##
## Node number 189: 16 observations
## predicted class=8 expected loss=0.1875 P(node) =0.0006347947
## class counts:    0    0    1    1    0    1    0    0    13
0
## probabilities: 0.000 0.000 0.062 0.062 0.000 0.062 0.000 0.000 0.813
0.000
##
## Node number 190: 28 observations,    complexity param=0.0002344378
## predicted class=3 expected loss=0.7142857 P(node) =0.001110891
## class counts:    6    0    1    8    0    6    1    0    5
1
## probabilities: 0.214 0.000 0.036 0.286 0.000 0.214 0.036 0.000 0.179
0.036
## left son=380 (13 obs) right son=381 (15 obs)
## Primary splits:
## 429 < 101.5 to the right, improve=5.722344, (0 missing)
## 457 < 228.5 to the right, improve=5.722344, (0 missing)
## 402 < 196.5 to the right, improve=5.684524, (0 missing)
## 430 < 119.5 to the right, improve=5.684524, (0 missing)
## 317 < 20.5 to the right, improve=5.559524, (0 missing)
## Surrogate splits:
## 457 < 228.5 to the right, agree=1.000, adj=1.000, (0 split)
## 401 < 24 to the right, agree=0.964, adj=0.923, (0 split)
## 402 < 196.5 to the right, agree=0.964, adj=0.923, (0 split)
## 428 < 17.5 to the right, agree=0.964, adj=0.923, (0 split)
## 430 < 53 to the right, agree=0.964, adj=0.923, (0 split)
##
## Node number 191: 402 observations,    complexity param=0.0002344378
## predicted class=8 expected loss=0.141791 P(node) =0.01594922

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##      class counts:      2      0      18      15      0      7      11      1      345
3
##      probabilities: 0.005 0.000 0.045 0.037 0.000 0.017 0.027 0.002 0.858
0.007
##      left son=382 (57 obs) right son=383 (345 obs)
##      Primary splits:
##          436 < 7      to the left,  improve=10.780420, (0 missing)
##          439 < 250.5 to the right, improve= 9.744096, (0 missing)
##          611 < 5.5   to the right, improve= 9.738585, (0 missing)
##          435 < 44.5  to the left,  improve= 9.566444, (0 missing)
##          464 < 0.5   to the left,  improve= 8.444042, (0 missing)
##      Surrogate splits:
##          407 < 114.5 to the left,  agree=0.876, adj=0.123, (0 split)
##          408 < 0.5   to the left,  agree=0.876, adj=0.123, (0 split)
##          584 < 57    to the right, agree=0.871, adj=0.088, (0 split)
##          611 < 5.5   to the right, agree=0.871, adj=0.088, (0 split)
##          556 < 121.5 to the right, agree=0.868, adj=0.070, (0 split)
##
##      Node number 192: 1955 observations,      complexity param=0.0001786193
##      predicted class=0 expected loss=0.03734015 P(node) =0.07756398
##      class counts: 1882      0      26      7      1      16      17      4      0
2
##      probabilities: 0.963 0.000 0.013 0.004 0.001 0.008 0.009 0.002 0.000
0.001
##      left son=384 (1623 obs) right son=385 (332 obs)
##      Primary splits:
##          400 < 3.5   to the right, improve=9.077685, (0 missing)
##          427 < 0.5   to the right, improve=8.966215, (0 missing)
##          563 < 11.5  to the left,  improve=8.723178, (0 missing)
##          455 < 1     to the right, improve=8.318778, (0 missing)
##          214 < 0.5   to the right, improve=8.285884, (0 missing)
##      Surrogate splits:
##          428 < 1.5   to the right, agree=0.935, adj=0.614, (0 split)
##          372 < 5.5   to the right, agree=0.912, adj=0.482, (0 split)
##          345 < 3.5   to the right, agree=0.908, adj=0.458, (0 split)
##          373 < 3.5   to the right, agree=0.881, adj=0.301, (0 split)
##          456 < 0.5   to the right, agree=0.874, adj=0.256, (0 split)
##
##      Node number 193: 18 observations
##      predicted class=7 expected loss=0.6666667 P(node) =0.000714144
##      class counts:      3      0      4      0      0      3      1      6      1
0
##      probabilities: 0.167 0.000 0.222 0.000 0.000 0.167 0.056 0.333 0.056
0.000
##
##      Node number 194: 42 observations
##      predicted class=0 expected loss=0.04761905 P(node) =0.001666336
##      class counts:      40      0      0      1      0      1      0      0      0
0
##      probabilities: 0.952 0.000 0.000 0.024 0.000 0.024 0.000 0.000 0.000

```

```

0.000
##
## Node number 195: 57 observations,    complexity param=0.0004242208
## predicted class=5 expected loss=0.5789474 P(node) =0.002261456
## class counts:    5    0    2    23    0    24    3    0    0
0
## probabilities: 0.088 0.000 0.035 0.404 0.000 0.421 0.053 0.000 0.000
0.000
## left son=390 (30 obs) right son=391 (27 obs)
## Primary splits:
## 240 < 64.5 to the right, improve=11.117740, (0 missing)
## 241 < 12 to the right, improve=10.379130, (0 missing)
## 208 < 18 to the left, improve= 9.593314, (0 missing)
## 267 < 123.5 to the right, improve= 8.864035, (0 missing)
## 239 < 11.5 to the right, improve= 8.677368, (0 missing)
## Surrogate splits:
## 239 < 11.5 to the right, agree=0.930, adj=0.852, (0 split)
## 241 < 1 to the right, agree=0.860, adj=0.704, (0 split)
## 267 < 190 to the right, agree=0.860, adj=0.704, (0 split)
## 212 < 148.5 to the right, agree=0.825, adj=0.630, (0 split)
## 213 < 12 to the right, agree=0.825, adj=0.630, (0 split)
##
## Node number 196: 45 observations
## predicted class=0 expected loss=0.2 P(node) =0.00178536
## class counts:    36    0    3    0    1    2    0    0    2
1
## probabilities: 0.800 0.000 0.067 0.000 0.022 0.044 0.000 0.000 0.044
0.022
##
## Node number 197: 39 observations,    complexity param=0.0002679289
## predicted class=6 expected loss=0.4358974 P(node) =0.001547312
## class counts:    3    0    3    2    0    9    22    0    0
0
## probabilities: 0.077 0.000 0.077 0.051 0.000 0.231 0.564 0.000 0.000
0.000
## left son=394 (13 obs) right son=395 (26 obs)
## Primary splits:
## 325 < 145 to the right, improve=8.025641, (0 missing)
## 324 < 49.5 to the right, improve=7.632051, (0 missing)
## 408 < 15.5 to the left, improve=6.932414, (0 missing)
## 296 < 67.5 to the right, improve=6.494172, (0 missing)
## 323 < 134.5 to the right, improve=6.370940, (0 missing)
## Surrogate splits:
## 297 < 4.5 to the right, agree=0.949, adj=0.846, (0 split)
## 324 < 49.5 to the right, agree=0.949, adj=0.846, (0 split)
## 296 < 71 to the right, agree=0.923, adj=0.769, (0 split)
## 401 < 4 to the left, agree=0.872, adj=0.615, (0 split)
## 323 < 134.5 to the right, agree=0.846, adj=0.538, (0 split)
##
## Node number 198: 65 observations,    complexity param=0.0003125837

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## predicted class=3 expected loss=0.5230769 P(node) =0.002578853
## class counts:      3      1      10      31      0      14      3      2      1
0
## probabilities: 0.046 0.015 0.154 0.477 0.000 0.215 0.046 0.031 0.015
0.000
## left son=396 (55 obs) right son=397 (10 obs)
## Primary splits:
##      287 < 38.5 to the left, improve=6.146853, (0 missing)
##      485 < 9.5  to the right, improve=6.090287, (0 missing)
##      322 < 21.5 to the left, improve=5.958974, (0 missing)
##      571 < 198  to the left, improve=5.746089, (0 missing)
##      514 < 4    to the right, improve=5.712476, (0 missing)
## Surrogate splits:
##      288 < 180  to the left, agree=0.969, adj=0.8, (0 split)
##      315 < 3    to the left, agree=0.954, adj=0.7, (0 split)
##      260 < 171.5 to the left, agree=0.938, adj=0.6, (0 split)
##      342 < 13   to the left, agree=0.938, adj=0.6, (0 split)
##      371 < 71   to the left, agree=0.923, adj=0.5, (0 split)
##
## Node number 199: 74 observations
## predicted class=5 expected loss=0.2972973 P(node) =0.002935925
## class counts:      4      0      1      11      0      52      1      0      2
3
## probabilities: 0.054 0.000 0.014 0.149 0.000 0.703 0.014 0.000 0.027
0.041
##
## Node number 202: 17 observations
## predicted class=0 expected loss=0.5882353 P(node) =0.0006744694
## class counts:      7      0      1      0      1      0      5      0      1
2
## probabilities: 0.412 0.000 0.059 0.000 0.059 0.000 0.294 0.000 0.059
0.118
##
## Node number 203: 9 observations
## predicted class=5 expected loss=0.1111111 P(node) =0.000357072
## class counts:      0      0      0      0      0      8      1      0      0
0
## probabilities: 0.000 0.000 0.000 0.000 0.000 0.889 0.111 0.000 0.000
0.000
##
## Node number 206: 64 observations, complexity param=0.0002976988
## predicted class=6 expected loss=0.640625 P(node) =0.002539179
## class counts:      5      0      9      4      1      10      23      0      12
0
## probabilities: 0.078 0.000 0.141 0.062 0.016 0.156 0.359 0.000 0.188
0.000
## left son=412 (44 obs) right son=413 (20 obs)
## Primary splits:
##      131 < 89    to the left, improve=9.009091, (0 missing)
##      132 < 19.5  to the left, improve=8.963636, (0 missing)

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##      432 < 229.5 to the left, improve=8.156725, (0 missing)
##      103 < 9.5   to the left, improve=8.133333, (0 missing)
##      682 < 20.5 to the left, improve=7.714286, (0 missing)
## Surrogate splits:
##      132 < 19.5 to the left, agree=0.938, adj=0.80, (0 split)
##      103 < 49   to the left, agree=0.891, adj=0.65, (0 split)
##      130 < 157 to the left, agree=0.891, adj=0.65, (0 split)
##      104 < 8    to the left, agree=0.875, adj=0.60, (0 split)
##      159 < 210 to the left, agree=0.859, adj=0.55, (0 split)
##
## Node number 207: 87 observations
## predicted class=5 expected loss=0.09195402 P(node) =0.003451696
## class counts:      1      0      1      0      0      79      1      0      5
##
## probabilities: 0.011 0.000 0.011 0.000 0.000 0.908 0.011 0.000 0.057
## 0.000
##
## Node number 208: 93 observations
## predicted class=0 expected loss=0.1397849 P(node) =0.003689744
## class counts:      80      0      3      1      0      2      2      2      1
## 2
## probabilities: 0.860 0.000 0.032 0.011 0.000 0.022 0.022 0.022 0.011
## 0.022
##
## Node number 209: 58 observations, complexity param=0.0004018934
## predicted class=2 expected loss=0.7758621 P(node) =0.002301131
## class counts:      10      0      13      2      3      12      3      1      1
## 13
## probabilities: 0.172 0.000 0.224 0.034 0.052 0.207 0.052 0.017 0.017
## 0.224
## left son=418 (25 obs) right son=419 (33 obs)
## Primary splits:
##      438 < 23.5 to the left, improve=9.008694, (0 missing)
##      443 < 22   to the right, improve=7.751724, (0 missing)
##      494 < 2    to the right, improve=7.646461, (0 missing)
##      466 < 25.5 to the left, improve=7.511320, (0 missing)
##      411 < 9    to the left, improve=7.316573, (0 missing)
## Surrogate splits:
##      410 < 5    to the left, agree=0.948, adj=0.88, (0 split)
##      411 < 22.5 to the left, agree=0.948, adj=0.88, (0 split)
##      437 < 1.5  to the left, agree=0.914, adj=0.80, (0 split)
##      466 < 25.5 to the left, agree=0.914, adj=0.80, (0 split)
##      439 < 39   to the left, agree=0.897, adj=0.76, (0 split)
##
## Node number 210: 15 observations
## predicted class=0 expected loss=0.5333333 P(node) =0.00059512
## class counts:      7      0      3      0      2      0      1      0      1
## 1
## probabilities: 0.467 0.000 0.200 0.000 0.133 0.000 0.067 0.000 0.067
## 0.067

```



```

##
## Node number 211: 143 observations
## predicted class=6 expected loss=0.1818182 P(node) =0.005673477
## class counts:      2      1      11      3      4      5      117      0      0
0
## probabilities: 0.014 0.007 0.077 0.021 0.028 0.035 0.818 0.000 0.000
0.000
##
## Node number 212: 103 observations
## predicted class=4 expected loss=0.1067961 P(node) =0.004086491
## class counts:      1      0      3      0      92      0      5      0      0
2
## probabilities: 0.010 0.000 0.029 0.000 0.893 0.000 0.049 0.000 0.000
0.019
##
## Node number 213: 16 observations
## predicted class=7 expected loss=0.625 P(node) =0.0006347947
## class counts:      1      0      3      0      0      3      0      6      0
3
## probabilities: 0.062 0.000 0.188 0.000 0.000 0.188 0.000 0.375 0.000
0.188
##
## Node number 214: 69 observations
## predicted class=5 expected loss=0.4492754 P(node) =0.002737552
## class counts:      6      0      5      5      1      38      4      4      1
5
## probabilities: 0.087 0.000 0.072 0.072 0.014 0.551 0.058 0.058 0.014
0.072
##
## Node number 215: 106 observations, complexity param=0.0006251675
## predicted class=9 expected loss=0.3962264 P(node) =0.004205515
## class counts:      1      0      3      0      23      0      1      13      1
64
## probabilities: 0.009 0.000 0.028 0.000 0.217 0.000 0.009 0.123 0.009
0.604
## left son=430 (24 obs) right son=431 (82 obs)
## Primary splits:
## 208 < 2.5 to the left, improve=14.69290, (0 missing)
## 235 < 3 to the left, improve=13.55717, (0 missing)
## 156 < 10.5 to the right, improve=12.51154, (0 missing)
## 374 < 121 to the right, improve=12.34940, (0 missing)
## 320 < 89 to the right, improve=12.34725, (0 missing)
## Surrogate splits:
## 209 < 17 to the left, agree=0.962, adj=0.833, (0 split)
## 210 < 72 to the left, agree=0.906, adj=0.583, (0 split)
## 207 < 2.5 to the left, agree=0.877, adj=0.458, (0 split)
## 235 < 3 to the left, agree=0.877, adj=0.458, (0 split)
## 157 < 59.5 to the right, agree=0.858, adj=0.375, (0 split)
##
## Node number 216: 53 observations, complexity param=0.0002456015

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## predicted class=3 expected loss=0.6792453 P(node) =0.002102757
## class counts: 1 7 0 17 1 17 8 0 0
2
## probabilities: 0.019 0.132 0.000 0.321 0.019 0.321 0.151 0.000 0.000
0.038
## left son=432 (16 obs) right son=433 (37 obs)
## Primary splits:
## 205 < 9.5 to the right, improve=7.426759, (0 missing)
## 541 < 18.5 to the left, improve=6.576329, (0 missing)
## 574 < 1.5 to the left, improve=6.534771, (0 missing)
## 517 < 31 to the left, improve=6.495608, (0 missing)
## 544 < 2.5 to the left, improve=6.334176, (0 missing)
## Surrogate splits:
## 232 < 13 to the right, agree=0.943, adj=0.813, (0 split)
## 204 < 10 to the right, agree=0.925, adj=0.750, (0 split)
## 206 < 23.5 to the right, agree=0.925, adj=0.750, (0 split)
## 203 < 5 to the right, agree=0.906, adj=0.688, (0 split)
## 231 < 2 to the right, agree=0.906, adj=0.688, (0 split)
##
## Node number 217: 53 observations
## predicted class=5 expected loss=0.2075472 P(node) =0.002102757
## class counts: 1 0 0 0 1 42 1 2 2
4
## probabilities: 0.019 0.000 0.000 0.000 0.019 0.792 0.019 0.038 0.038
0.075
##
## Node number 218: 31 observations, complexity param=0.0001786193
## predicted class=4 expected loss=0.3870968 P(node) =0.001229915
## class counts: 0 0 1 4 19 1 0 3 0
3
## probabilities: 0.000 0.000 0.032 0.129 0.613 0.032 0.000 0.097 0.000
0.097
## left son=436 (7 obs) right son=437 (24 obs)
## Primary splits:
## 155 < 78.5 to the right, improve=5.693548, (0 missing)
## 183 < 35 to the right, improve=5.693548, (0 missing)
## 184 < 114 to the right, improve=4.508766, (0 missing)
## 381 < 251 to the right, improve=4.219189, (0 missing)
## 464 < 13 to the right, improve=4.213750, (0 missing)
## Surrogate splits:
## 154 < 90.5 to the right, agree=0.968, adj=0.857, (0 split)
## 156 < 104.5 to the right, agree=0.968, adj=0.857, (0 split)
## 153 < 77.5 to the right, agree=0.935, adj=0.714, (0 split)
## 183 < 35 to the right, agree=0.935, adj=0.714, (0 split)
## 622 < 9 to the right, agree=0.935, adj=0.714, (0 split)
##
## Node number 219: 71 observations
## predicted class=9 expected loss=0.2112676 P(node) =0.002816901
## class counts: 2 0 2 4 1 2 0 4 0
56

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## probabilities: 0.028 0.000 0.028 0.056 0.014 0.028 0.000 0.056 0.000
0.789
##
## Node number 220: 59 observations
## predicted class=0 expected loss=0.1694915 P(node) =0.002340805
## class counts: 49 0 0 0 2 3 0 2 0
3
## probabilities: 0.831 0.000 0.000 0.000 0.034 0.051 0.000 0.034 0.000
0.051
##
## Node number 221: 9 observations
## predicted class=5 expected loss=0.3333333 P(node) =0.000357072
## class counts: 0 0 0 1 0 6 0 2 0
0
## probabilities: 0.000 0.000 0.000 0.111 0.000 0.667 0.000 0.222 0.000
0.000
##
## Node number 222: 30 observations, complexity param=0.0003572385
## predicted class=5 expected loss=0.6666667 P(node) =0.00119024
## class counts: 0 2 1 1 8 10 1 2 0
5
## probabilities: 0.000 0.067 0.033 0.033 0.267 0.333 0.033 0.067 0.000
0.167
## left son=444 (14 obs) right son=445 (16 obs)
## Primary splits:
## 381 < 10.5 to the left, improve=6.779762, (0 missing)
## 409 < 65 to the left, improve=6.779762, (0 missing)
## 437 < 77 to the left, improve=6.779762, (0 missing)
## 465 < 168.5 to the left, improve=6.779762, (0 missing)
## 464 < 205 to the right, improve=6.733333, (0 missing)
## Surrogate splits:
## 409 < 65 to the left, agree=1.000, adj=1.000, (0 split)
## 437 < 77 to the left, agree=1.000, adj=1.000, (0 split)
## 465 < 168.5 to the left, agree=1.000, adj=1.000, (0 split)
## 493 < 115.5 to the left, agree=0.967, adj=0.929, (0 split)
## 353 < 3.5 to the left, agree=0.933, adj=0.857, (0 split)
##
## Node number 223: 648 observations, complexity param=0.0001786193
## predicted class=7 expected loss=0.0632716 P(node) =0.02570918
## class counts: 8 1 4 7 4 7 3 607 0
7
## probabilities: 0.012 0.002 0.006 0.011 0.006 0.011 0.005 0.937 0.000
0.011
## left son=446 (19 obs) right son=447 (629 obs)
## Primary splits:
## 153 < 27 to the right, improve=18.41900, (0 missing)
## 155 < 11.5 to the right, improve=17.95829, (0 missing)
## 154 < 1 to the right, improve=17.53289, (0 missing)
## 157 < 1.5 to the right, improve=16.51543, (0 missing)
## 156 < 6.5 to the right, improve=16.38860, (0 missing)

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## Surrogate splits:
##      154 < 1      to the right, agree=0.998, adj=0.947, (0 split)
##      152 < 29     to the right, agree=0.994, adj=0.789, (0 split)
##      151 < 1      to the right, agree=0.991, adj=0.684, (0 split)
##      150 < 4      to the right, agree=0.988, adj=0.579, (0 split)
##      155 < 27     to the right, agree=0.988, adj=0.579, (0 split)
##
## Node number 224: 936 observations,      complexity param=0.0006251675
## predicted class=2 expected loss=0.05769231 P(node) =0.03713549
## class counts:      0      0  882   15      0      1      0   12   25
1
## probabilities: 0.000 0.000 0.942 0.016 0.000 0.001 0.000 0.013 0.027
0.001
## left son=448 (922 obs) right son=449 (14 obs)
## Primary splits:
##      349 < 134.5 to the left,  improve=26.08949, (0 missing)
##      348 < 51    to the left,  improve=20.47057, (0 missing)
##      321 < 169.5 to the left,  improve=17.05345, (0 missing)
##      320 < 143   to the left,  improve=15.22744, (0 missing)
##      345 < 104.5 to the left,  improve=11.95572, (0 missing)
## Surrogate splits:
##      348 < 51    to the left,  agree=0.997, adj=0.786, (0 split)
##      321 < 169.5 to the left,  agree=0.995, adj=0.643, (0 split)
##      320 < 143   to the left,  agree=0.994, adj=0.571, (0 split)
##      377 < 253.5 to the left,  agree=0.987, adj=0.143, (0 split)
##
## Node number 225: 85 observations,      complexity param=0.0007591319
## predicted class=8 expected loss=0.5176471 P(node) =0.003372347
## class counts:      3      0   20      1      2      1      2      0   41
15
## probabilities: 0.035 0.000 0.235 0.012 0.024 0.012 0.024 0.000 0.482
0.176
## left son=450 (35 obs) right son=451 (50 obs)
## Primary splits:
##      402 < 51.5  to the left,  improve=19.00706, (0 missing)
##      403 < 5.5   to the left,  improve=17.87550, (0 missing)
##      657 < 157.5 to the left,  improve=15.56613, (0 missing)
##      431 < 182   to the left,  improve=15.56511, (0 missing)
##      432 < 128   to the left,  improve=15.20337, (0 missing)
## Surrogate splits:
##      403 < 5.5   to the left,  agree=0.918, adj=0.800, (0 split)
##      430 < 50.5  to the left,  agree=0.906, adj=0.771, (0 split)
##      431 < 24    to the left,  agree=0.894, adj=0.743, (0 split)
##      432 < 128   to the left,  agree=0.882, adj=0.714, (0 split)
##      404 < 11    to the left,  agree=0.871, adj=0.686, (0 split)
##
## Node number 226: 487 observations,      complexity param=0.002857908
## predicted class=2 expected loss=0.7864476 P(node) =0.01932156
## class counts:      2  102  104      6  62  10  48  57  22
74

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## probabilities: 0.004 0.209 0.214 0.012 0.127 0.021 0.099 0.117 0.045
0.152
## left son=452 (246 obs) right son=453 (241 obs)
## Primary splits:
## 211 < 1 to the left, improve=54.34980, (0 missing)
## 344 < 21.5 to the left, improve=52.68771, (0 missing)
## 238 < 1 to the left, improve=52.56168, (0 missing)
## 210 < 5.5 to the left, improve=52.23305, (0 missing)
## 237 < 1 to the left, improve=50.24258, (0 missing)
## Surrogate splits:
## 210 < 0.5 to the left, agree=0.973, adj=0.946, (0 split)
## 212 < 63 to the left, agree=0.951, adj=0.900, (0 split)
## 209 < 1 to the left, agree=0.940, adj=0.880, (0 split)
## 237 < 26.5 to the left, agree=0.940, adj=0.880, (0 split)
## 238 < 1 to the left, agree=0.938, adj=0.876, (0 split)
##
## Node number 227: 136 observations, complexity param=0.0002679289
## predicted class=7 expected loss=0.08823529 P(node) =0.005395755
## class counts: 0 0 3 1 1 0 0 124 6
1
## probabilities: 0.000 0.000 0.022 0.007 0.007 0.000 0.000 0.912 0.044
0.007
## left son=454 (128 obs) right son=455 (8 obs)
## Primary splits:
## 373 < 182.5 to the left, improve=11.541360, (0 missing)
## 374 < 46 to the left, improve=10.126290, (0 missing)
## 401 < 51.5 to the left, improve= 9.641326, (0 missing)
## 402 < 128 to the left, improve= 8.369485, (0 missing)
## 603 < 54 to the right, improve= 8.036963, (0 missing)
## Surrogate splits:
## 374 < 46 to the left, agree=0.993, adj=0.875, (0 split)
## 402 < 128 to the left, agree=0.985, adj=0.750, (0 split)
## 345 < 233.5 to the left, agree=0.978, adj=0.625, (0 split)
## 401 < 51.5 to the left, agree=0.978, adj=0.625, (0 split)
## 346 < 106.5 to the left, agree=0.971, adj=0.500, (0 split)
##
## Node number 228: 121 observations, complexity param=0.0002679289
## predicted class=5 expected loss=0.2231405 P(node) =0.004800635
## class counts: 5 0 7 0 3 94 4 0 8
0
## probabilities: 0.041 0.000 0.058 0.000 0.025 0.777 0.033 0.000 0.066
0.000
## left son=456 (20 obs) right son=457 (101 obs)
## Primary splits:
## 384 < 14 to the right, improve=18.04196, (0 missing)
## 413 < 1 to the right, improve=17.66176, (0 missing)
## 412 < 5 to the right, improve=17.56195, (0 missing)
## 385 < 43.5 to the right, improve=17.43202, (0 missing)
## 356 < 2.5 to the right, improve=16.41559, (0 missing)
## Surrogate splits:

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##      385 < 43.5  to the right, agree=0.992, adj=0.95, (0 split)
##      356 < 2.5   to the right, agree=0.983, adj=0.90, (0 split)
##      357 < 5     to the right, agree=0.983, adj=0.90, (0 split)
##      412 < 130   to the right, agree=0.983, adj=0.90, (0 split)
##      413 < 1     to the right, agree=0.983, adj=0.90, (0 split)
##
## Node number 229: 364 observations,      complexity param=0.001674556
##   predicted class=4  expected loss=0.6565934  P(node) =0.01444158
##   class counts:      14      0      66      0      125      2      15      48      41
53
##   probabilities: 0.038 0.000 0.181 0.000 0.343 0.005 0.041 0.132 0.113
0.146
##   left son=458 (155 obs) right son=459 (209 obs)
##   Primary splits:
##       212 < 1.5   to the left,  improve=41.35091, (0 missing)
##       240 < 16.5  to the left,  improve=40.03897, (0 missing)
##       213 < 6.5   to the left,  improve=34.08154, (0 missing)
##       184 < 55    to the right, improve=33.64439, (0 missing)
##       429 < 64    to the right, improve=32.44985, (0 missing)
##   Surrogate splits:
##       211 < 7.5   to the left,  agree=0.896, adj=0.755, (0 split)
##       213 < 6.5   to the left,  agree=0.882, adj=0.723, (0 split)
##       184 < 4.5   to the left,  agree=0.857, adj=0.665, (0 split)
##       240 < 6     to the left,  agree=0.843, adj=0.632, (0 split)
##       239 < 103.5 to the left,  agree=0.832, adj=0.606, (0 split)
##
## Node number 230: 74 observations,      complexity param=0.0004465482
##   predicted class=4  expected loss=0.7162162  P(node) =0.002935925
##   class counts:      10      0      1      0      21      9      5      0      15
13
##   probabilities: 0.135 0.000 0.014 0.000 0.284 0.122 0.068 0.000 0.203
0.176
##   left son=460 (21 obs) right son=461 (53 obs)
##   Primary splits:
##       212 < 40.5  to the left,  improve=13.65836, (0 missing)
##       213 < 11    to the left,  improve=11.76198, (0 missing)
##       211 < 40.5  to the left,  improve=11.71766, (0 missing)
##       597 < 35    to the right, improve=11.04087, (0 missing)
##       185 < 107   to the left,  improve=10.69842, (0 missing)
##   Surrogate splits:
##       211 < 40.5  to the left,  agree=0.946, adj=0.810, (0 split)
##       239 < 21.5  to the left,  agree=0.946, adj=0.810, (0 split)
##       213 < 20    to the left,  agree=0.932, adj=0.762, (0 split)
##       210 < 50    to the left,  agree=0.919, adj=0.714, (0 split)
##       184 < 3     to the left,  agree=0.905, adj=0.667, (0 split)
##
## Node number 231: 635 observations,      complexity param=0.0002456015
##   predicted class=8  expected loss=0.08031496  P(node) =0.02519341
##   class counts:      7      0      4      5      3      14      4      8      584
6

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## probabilities: 0.011 0.000 0.006 0.008 0.005 0.022 0.006 0.013 0.920
0.009
## left son=462 (47 obs) right son=463 (588 obs)
## Primary splits:
## 488 < 14.5 to the left, improve=12.62911, (0 missing)
## 404 < 2 to the left, improve=12.45999, (0 missing)
## 487 < 2.5 to the left, improve=11.15042, (0 missing)
## 434 < 27 to the left, improve=10.17359, (0 missing)
## 461 < 56.5 to the left, improve=10.09254, (0 missing)
## Surrogate splits:
## 461 < 67.5 to the left, agree=0.965, adj=0.532, (0 split)
## 515 < 8.5 to the left, agree=0.961, adj=0.468, (0 split)
## 489 < 0.5 to the left, agree=0.943, adj=0.234, (0 split)
## 462 < 0.5 to the left, agree=0.942, adj=0.213, (0 split)
## 121 < 6.5 to the right, agree=0.932, adj=0.085, (0 split)
##
## Node number 232: 318 observations, complexity param=0.0006698223
## predicted class=2 expected loss=0.1823899 P(node) =0.01261654
## class counts: 2 25 260 2 8 0 3 9 4
5
## probabilities: 0.006 0.079 0.818 0.006 0.025 0.000 0.009 0.028 0.013
0.016
## left son=464 (32 obs) right son=465 (286 obs)
## Primary splits:
## 159 < 0.5 to the right, improve=26.02915, (0 missing)
## 187 < 16.5 to the right, improve=25.86607, (0 missing)
## 215 < 28 to the right, improve=24.47659, (0 missing)
## 186 < 129 to the right, improve=22.71974, (0 missing)
## 158 < 132.5 to the right, improve=19.37000, (0 missing)
## Surrogate splits:
## 187 < 16.5 to the right, agree=0.987, adj=0.875, (0 split)
## 186 < 215 to the right, agree=0.965, adj=0.656, (0 split)
## 131 < 12.5 to the right, agree=0.959, adj=0.594, (0 split)
## 158 < 143 to the right, agree=0.956, adj=0.562, (0 split)
## 215 < 4 to the right, agree=0.953, adj=0.531, (0 split)
##
## Node number 233: 26 observations
## predicted class=7 expected loss=0.3076923 P(node) =0.001031541
## class counts: 1 0 0 2 2 0 0 18 2
1
## probabilities: 0.038 0.000 0.000 0.077 0.077 0.000 0.000 0.692 0.077
0.038
##
## Node number 234: 73 observations, complexity param=0.0008484415
## predicted class=4 expected loss=0.6712329 P(node) =0.002896251
## class counts: 0 1 9 0 24 1 19 4 4
11
## probabilities: 0.000 0.014 0.123 0.000 0.329 0.014 0.260 0.055 0.055
0.151
## left son=468 (48 obs) right son=469 (25 obs)

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## Primary splits:
##      573 < 214   to the left,  improve=14.67151, (0 missing)
##      571 < 79    to the right, improve=13.28790, (0 missing)
##      356 < 63.5  to the left,  improve=12.90220, (0 missing)
##      572 < 108.5 to the right, improve=12.42019, (0 missing)
##      269 < 4     to the right, improve=11.92731, (0 missing)
## Surrogate splits:
##      572 < 232.5 to the left,  agree=0.932, adj=0.80, (0 split)
##      601 < 26.5  to the left,  agree=0.904, adj=0.72, (0 split)
##      574 < 182   to the left,  agree=0.890, adj=0.68, (0 split)
##      600 < 96    to the left,  agree=0.890, adj=0.68, (0 split)
##      269 < 4     to the right, agree=0.863, adj=0.60, (0 split)
##
## Node number 235: 30 observations
##   predicted class=8   expected loss=0.1   P(node) =0.00119024
##   class counts:      2      0      1      0      0      0      0      0      27
##   0
##   probabilities: 0.067 0.000 0.033 0.000 0.000 0.000 0.000 0.000 0.900
##   0.000
##
## Node number 236: 127 observations,   complexity param=0.0004465482
##   predicted class=2   expected loss=0.4330709   P(node) =0.005038683
##   class counts:      3      1      72      3      12      1      14      1      15
##   5
##   probabilities: 0.024 0.008 0.567 0.024 0.094 0.008 0.110 0.008 0.118
##   0.039
##   left son=472 (83 obs) right son=473 (44 obs)
## Primary splits:
##      537 < 23.5   to the right, improve=23.51794, (0 missing)
##      565 < 20     to the right, improve=22.83947, (0 missing)
##      158 < 9      to the right, improve=19.65800, (0 missing)
##      159 < 9.5    to the right, improve=19.65800, (0 missing)
##      157 < 67.5   to the right, improve=18.50751, (0 missing)
## Surrogate splits:
##      565 < 2.5    to the right, agree=0.937, adj=0.818, (0 split)
##      566 < 17     to the right, agree=0.921, adj=0.773, (0 split)
##      509 < 3      to the right, agree=0.913, adj=0.750, (0 split)
##      538 < 61.5   to the right, agree=0.913, adj=0.750, (0 split)
##      594 < 3      to the right, agree=0.890, adj=0.682, (0 split)
##
## Node number 237: 114 observations
##   predicted class=8   expected loss=0.0877193   P(node) =0.004522912
##   class counts:      0      0      6      0      3      0      0      1      104
##   0
##   probabilities: 0.000 0.000 0.053 0.000 0.026 0.000 0.000 0.009 0.912
##   0.000
##
## Node number 238: 1537 observations,   complexity param=0.00111637
##   predicted class=6   expected loss=0.0540013   P(node) =0.06097996
##   class counts:      0      2      30      1      4      27      1454      1      11

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7
## probabilities: 0.000 0.001 0.020 0.001 0.003 0.018 0.946 0.001 0.007
0.005
## left son=476 (34 obs) right son=477 (1503 obs)
## Primary splits:
## 323 < 161.5 to the right, improve=48.87607, (0 missing)
## 296 < 141.5 to the right, improve=26.03819, (0 missing)
## 324 < 155 to the right, improve=25.77839, (0 missing)
## 217 < 164 to the right, improve=21.99027, (0 missing)
## 218 < 139 to the right, improve=21.17130, (0 missing)
## Surrogate splits:
## 351 < 250 to the right, agree=0.985, adj=0.324, (0 split)
## 296 < 141.5 to the right, agree=0.984, adj=0.294, (0 split)
## 295 < 250.5 to the right, agree=0.983, adj=0.235, (0 split)
## 324 < 166 to the right, agree=0.982, adj=0.206, (0 split)
## 201 < 212 to the right, agree=0.979, adj=0.059, (0 split)
##
## Node number 239: 163 observations, complexity param=0.000870769
## predicted class=5 expected loss=0.5398773 P(node) =0.006466971
## class counts: 0 0 2 4 1 75 37 1 39
4
## probabilities: 0.000 0.000 0.012 0.025 0.006 0.460 0.227 0.006 0.239
0.025
## left son=478 (67 obs) right son=479 (96 obs)
## Primary splits:
## 515 < 12.5 to the left, improve=23.29689, (0 missing)
## 355 < 30.5 to the left, improve=23.03449, (0 missing)
## 488 < 23.5 to the left, improve=22.22119, (0 missing)
## 487 < 5 to the left, improve=21.91009, (0 missing)
## 328 < 10 to the left, improve=21.24660, (0 missing)
## Surrogate splits:
## 487 < 5 to the left, agree=0.883, adj=0.716, (0 split)
## 514 < 65.5 to the left, agree=0.883, adj=0.716, (0 split)
## 516 < 1.5 to the left, agree=0.871, adj=0.687, (0 split)
## 488 < 0.5 to the left, agree=0.865, adj=0.672, (0 split)
## 486 < 41.5 to the left, agree=0.810, adj=0.537, (0 split)
##
## Node number 240: 109 observations, complexity param=0.0005805126
## predicted class=2 expected loss=0.2293578 P(node) =0.004324539
## class counts: 0 0 84 17 0 2 0 0 6
0
## probabilities: 0.000 0.000 0.771 0.156 0.000 0.018 0.000 0.000 0.055
0.000
## left son=480 (87 obs) right son=481 (22 obs)
## Primary splits:
## 379 < 151.5 to the left, improve=21.18397, (0 missing)
## 456 < 3 to the right, improve=17.86108, (0 missing)
## 484 < 2 to the right, improve=15.49374, (0 missing)
## 483 < 1.5 to the right, improve=14.94328, (0 missing)
## 351 < 1 to the left, improve=14.40911, (0 missing)

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## Surrogate splits:
##      351 < 1      to the left,  agree=0.954, adj=0.773, (0 split)
##      378 < 162.5 to the left,  agree=0.945, adj=0.727, (0 split)
##      380 < 155   to the left,  agree=0.917, adj=0.591, (0 split)
##      352 < 66    to the left,  agree=0.908, adj=0.545, (0 split)
##      377 < 162.5 to the left,  agree=0.908, adj=0.545, (0 split)
##
## Node number 241: 112 observations,    complexity param=0.0006251675
## predicted class=5 expected loss=0.2946429 P(node) =0.004443563
## class counts:      0      0      4      7      4      79      2      0      16
##
## probabilities: 0.000 0.000 0.036 0.062 0.036 0.705 0.018 0.000 0.143
## 0.000
## left son=482 (87 obs) right son=483 (25 obs)
## Primary splits:
##      355 < 10     to the left,  improve=21.55950, (0 missing)
##      381 < 6      to the left,  improve=21.24793, (0 missing)
##      382 < 4.5    to the left,  improve=20.59950, (0 missing)
##      354 < 7      to the left,  improve=19.31057, (0 missing)
##      356 < 14.5   to the left,  improve=17.67997, (0 missing)
## Surrogate splits:
##      354 < 63     to the left,  agree=0.973, adj=0.88, (0 split)
##      381 < 74     to the left,  agree=0.964, adj=0.84, (0 split)
##      382 < 4.5    to the left,  agree=0.964, adj=0.84, (0 split)
##      383 < 6      to the left,  agree=0.955, adj=0.80, (0 split)
##      353 < 14     to the left,  agree=0.929, adj=0.68, (0 split)
##
## Node number 242: 1469 observations,    complexity param=0.001629901
## predicted class=4 expected loss=0.1266167 P(node) =0.05828209
## class counts:      0      6      16      16 1283      21      66      10      31
## 20
## probabilities: 0.000 0.004 0.011 0.011 0.873 0.014 0.045 0.007 0.021
## 0.014
## left son=484 (1415 obs) right son=485 (54 obs)
## Primary splits:
##      98 < 3       to the left,  improve=86.42458, (0 missing)
##      97 < 1       to the left,  improve=73.90600, (0 missing)
##      155 < 99.5   to the left,  improve=72.01172, (0 missing)
##      126 < 2      to the left,  improve=70.29448, (0 missing)
##      154 < 64.5   to the left,  improve=67.46091, (0 missing)
## Surrogate splits:
##      99 < 24      to the left,  agree=0.990, adj=0.722, (0 split)
##      97 < 1       to the left,  agree=0.988, adj=0.685, (0 split)
##      70 < 2       to the left,  agree=0.982, adj=0.500, (0 split)
##      126 < 215    to the left,  agree=0.980, adj=0.463, (0 split)
##      71 < 7       to the left,  agree=0.980, adj=0.444, (0 split)
##
## Node number 243: 140 observations,    complexity param=0.0009377512
## predicted class=9 expected loss=0.6642857 P(node) =0.005554453
## class counts:      0      0      7      4      24      21      0      34      3

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47
## probabilities: 0.000 0.000 0.050 0.029 0.171 0.150 0.000 0.243 0.021
0.336
## left son=486 (93 obs) right son=487 (47 obs)
## Primary splits:
## 401 < 2.5 to the right, improve=15.36521, (0 missing)
## 373 < 12 to the left, improve=15.21905, (0 missing)
## 372 < 3 to the left, improve=14.71924, (0 missing)
## 428 < 2 to the left, improve=13.38245, (0 missing)
## 429 < 5 to the left, improve=13.28977, (0 missing)
## Surrogate splits:
## 402 < 3 to the right, agree=0.907, adj=0.723, (0 split)
## 373 < 1 to the right, agree=0.886, adj=0.660, (0 split)
## 374 < 1.5 to the right, agree=0.857, adj=0.574, (0 split)
## 429 < 91.5 to the right, agree=0.857, adj=0.574, (0 split)
## 430 < 94 to the right, agree=0.857, adj=0.574, (0 split)
##
## Node number 244: 581 observations, complexity param=0.0009377512
## predicted class=5 expected loss=0.2340792 P(node) =0.02305098
## class counts: 3 0 14 37 6 445 26 1 9
40
## probabilities: 0.005 0.000 0.024 0.064 0.010 0.766 0.045 0.002 0.015
0.069
## left son=488 (521 obs) right son=489 (60 obs)
## Primary splits:
## 384 < 17.5 to the left, improve=45.16512, (0 missing)
## 356 < 2 to the left, improve=44.03084, (0 missing)
## 385 < 1.5 to the left, improve=42.43825, (0 missing)
## 357 < 4.5 to the left, improve=41.53327, (0 missing)
## 383 < 49.5 to the left, improve=37.52325, (0 missing)
## Surrogate splits:
## 385 < 1.5 to the left, agree=0.981, adj=0.817, (0 split)
## 383 < 49.5 to the left, agree=0.979, adj=0.800, (0 split)
## 412 < 78 to the left, agree=0.978, adj=0.783, (0 split)
## 356 < 2 to the left, agree=0.976, adj=0.767, (0 split)
## 357 < 4.5 to the left, agree=0.974, adj=0.750, (0 split)
##
## Node number 245: 227 observations, complexity param=0.00129499
## predicted class=4 expected loss=0.6123348 P(node) =0.00900615
## class counts: 0 2 5 18 88 0 2 32 28
52
## probabilities: 0.000 0.009 0.022 0.079 0.388 0.000 0.009 0.141 0.123
0.229
## left son=490 (79 obs) right son=491 (148 obs)
## Primary splits:
## 209 < 16.5 to the left, improve=34.57810, (0 missing)
## 208 < 14.5 to the left, improve=33.34277, (0 missing)
## 210 < 95 to the left, improve=22.91833, (0 missing)
## 156 < 1 to the right, improve=20.89619, (0 missing)
## 373 < 40 to the right, improve=18.83432, (0 missing)

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## Surrogate splits:
##      210 < 82.5 to the left, agree=0.912, adj=0.747, (0 split)
##      208 < 1    to the left, agree=0.881, adj=0.658, (0 split)
##      181 < 5    to the left, agree=0.819, adj=0.481, (0 split)
##      182 < 1    to the left, agree=0.802, adj=0.430, (0 split)
##      237 < 18   to the left, agree=0.780, adj=0.367, (0 split)
##
## Node number 246: 406 observations, complexity param=0.002835581
## predicted class=4 expected loss=0.7487685 P(node) =0.01610792
## class counts:      3      0      53      98      102      12      4      1      77
56
## probabilities: 0.007 0.000 0.131 0.241 0.251 0.030 0.010 0.002 0.190
0.138
## left son=492 (178 obs) right son=493 (228 obs)
## Primary splits:
##      624 < 1    to the right, improve=41.06848, (0 missing)
##      400 < 6.5  to the left, improve=41.06288, (0 missing)
##      372 < 2.5  to the left, improve=40.49366, (0 missing)
##      345 < 1    to the left, improve=40.21070, (0 missing)
##      373 < 65   to the left, improve=40.00554, (0 missing)
## Surrogate splits:
##      625 < 90.5 to the right, agree=0.941, adj=0.865, (0 split)
##      623 < 1    to the right, agree=0.936, adj=0.854, (0 split)
##      595 < 0.5  to the right, agree=0.904, adj=0.781, (0 split)
##      596 < 3.5  to the right, agree=0.904, adj=0.781, (0 split)
##      652 < 0.5  to the right, agree=0.887, adj=0.742, (0 split)
##
## Node number 247: 1445 observations, complexity param=0.0006698223
## predicted class=9 expected loss=0.1944637 P(node) =0.05732989
## class counts:      1      0      18      62      92      7      0      54      47
1164
## probabilities: 0.001 0.000 0.012 0.043 0.064 0.005 0.000 0.037 0.033
0.806
## left son=494 (293 obs) right son=495 (1152 obs)
## Primary splits:
##      317 < 1    to the left, improve=48.99596, (0 missing)
##      290 < 3.5  to the left, improve=45.68732, (0 missing)
##      345 < 0.5  to the left, improve=44.17524, (0 missing)
##      289 < 8.5  to the left, improve=39.02495, (0 missing)
##      373 < 0.5  to the left, improve=36.31497, (0 missing)
## Surrogate splits:
##      290 < 13.5 to the left, agree=0.905, adj=0.532, (0 split)
##      345 < 0.5  to the left, agree=0.901, adj=0.512, (0 split)
##      289 < 0.5  to the left, agree=0.878, adj=0.399, (0 split)
##      344 < 0.5  to the left, agree=0.854, adj=0.280, (0 split)
##      263 < 0.5  to the left, agree=0.846, adj=0.239, (0 split)
##
## Node number 248: 175 observations, complexity param=0.0008930964
## predicted class=5 expected loss=0.3428571 P(node) =0.006943067
## class counts:      1      7      4      40      3      115      2      0      1

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2
## probabilities: 0.006 0.040 0.023 0.229 0.017 0.657 0.011 0.000 0.006
0.011
## left son=496 (40 obs) right son=497 (135 obs)
## Primary splits:
## 323 < 1.5 to the right, improve=24.11683, (0 missing)
## 322 < 52 to the right, improve=23.30486, (0 missing)
## 150 < 65 to the right, improve=17.90386, (0 missing)
## 295 < 126 to the right, improve=17.71134, (0 missing)
## 321 < 210 to the right, improve=16.90571, (0 missing)
## Surrogate splits:
## 295 < 140 to the right, agree=0.914, adj=0.625, (0 split)
## 322 < 76 to the right, agree=0.897, adj=0.550, (0 split)
## 324 < 2.5 to the right, agree=0.897, adj=0.550, (0 split)
## 296 < 97 to the right, agree=0.880, adj=0.475, (0 split)
## 294 < 252.5 to the right, agree=0.851, adj=0.350, (0 split)
##
## Node number 249: 138 observations, complexity param=0.00111637
## predicted class=9 expected loss=0.6594203 P(node) =0.005475104
## class counts: 0 5 4 17 27 1 0 8 29
47
## probabilities: 0.000 0.036 0.029 0.123 0.196 0.007 0.000 0.058 0.210
0.341
## left son=498 (46 obs) right son=499 (92 obs)
## Primary splits:
## 434 < 208.5 to the right, improve=19.10145, (0 missing)
## 433 < 12 to the right, improve=17.09489, (0 missing)
## 154 < 1.5 to the right, improve=14.04231, (0 missing)
## 376 < 47.5 to the left, improve=13.70145, (0 missing)
## 375 < 129.5 to the left, improve=13.29010, (0 missing)
## Surrogate splits:
## 461 < 63 to the right, agree=0.899, adj=0.696, (0 split)
## 433 < 17 to the right, agree=0.891, adj=0.674, (0 split)
## 489 < 183.5 to the right, agree=0.862, adj=0.587, (0 split)
## 462 < 193.5 to the right, agree=0.848, adj=0.543, (0 split)
## 488 < 8.5 to the right, agree=0.833, adj=0.500, (0 split)
##
## Node number 250: 93 observations, complexity param=0.0009377512
## predicted class=1 expected loss=0.5591398 P(node) =0.003689744
## class counts: 4 41 24 5 0 2 12 5 0
0
## probabilities: 0.043 0.441 0.258 0.054 0.000 0.022 0.129 0.054 0.000
0.000
## left son=500 (54 obs) right son=501 (39 obs)
## Primary splits:
## 179 < 7 to the left, improve=18.75774, (0 missing)
## 351 < 244 to the right, improve=18.16590, (0 missing)
## 378 < 71.5 to the right, improve=18.01097, (0 missing)
## 323 < 173 to the right, improve=17.50988, (0 missing)
## 178 < 29 to the left, improve=17.14835, (0 missing)

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## Surrogate splits:
##      180 < 49    to the left,  agree=0.968, adj=0.923, (0 split)
##      153 < 53    to the left,  agree=0.946, adj=0.872, (0 split)
##      178 < 4     to the left,  agree=0.946, adj=0.872, (0 split)
##      152 < 19    to the left,  agree=0.925, adj=0.821, (0 split)
##      206 < 1     to the left,  agree=0.925, adj=0.821, (0 split)
##
## Node number 251: 1360 observations,    complexity param=0.0004018934
## predicted class=7 expected loss=0.04705882 P(node) =0.05395755
## class counts:      2      12      21      6      4      0      7 1296      1
11
## probabilities: 0.001 0.009 0.015 0.004 0.003 0.000 0.005 0.953 0.001
0.008
## left son=502 (23 obs) right son=503 (1337 obs)
## Primary splits:
##      153 < 57    to the right, improve=25.10725, (0 missing)
##      154 < 7     to the right, improve=20.15141, (0 missing)
##      152 < 18    to the right, improve=19.96451, (0 missing)
##      151 < 5.5   to the right, improve=17.55849, (0 missing)
##      150 < 219   to the right, improve=17.38734, (0 missing)
## Surrogate splits:
##      154 < 3     to the right, agree=0.996, adj=0.783, (0 split)
##      152 < 98.5  to the right, agree=0.996, adj=0.739, (0 split)
##      124 < 6.5   to the right, agree=0.991, adj=0.478, (0 split)
##      125 < 1.5   to the right, agree=0.991, adj=0.478, (0 split)
##      151 < 87    to the right, agree=0.991, adj=0.478, (0 split)
##
## Node number 252: 132 observations
## predicted class=4 expected loss=0.1969697 P(node) =0.005237056
## class counts:      1      1      8      0 106      1      6      1      1
7
## probabilities: 0.008 0.008 0.061 0.000 0.803 0.008 0.045 0.008 0.008
0.053
##
## Node number 253: 12 observations
## predicted class=6 expected loss=0.25 P(node) =0.000476096
## class counts:      0      0      3      0      0      0      9      0      0
0
## probabilities: 0.000 0.000 0.250 0.000 0.000 0.000 0.750 0.000 0.000
0.000
##
## Node number 254: 50 observations,    complexity param=0.0003125837
## predicted class=7 expected loss=0.68 P(node) =0.001983733
## class counts:      0      0      4      0 12      0      0 16      3
15
## probabilities: 0.000 0.000 0.080 0.000 0.240 0.000 0.000 0.320 0.060
0.300
## left son=508 (24 obs) right son=509 (26 obs)
## Primary splits:
##      429 < 48.5  to the left,  improve=9.358974, (0 missing)

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##      457 < 169.5 to the left, improve=9.358974, (0 missing)
##      205 < 45    to the left, improve=9.039216, (0 missing)
##      428 < 42    to the left, improve=8.314103, (0 missing)
##      232 < 76.5 to the left, improve=7.873016, (0 missing)
## Surrogate splits:
##      457 < 169.5 to the left, agree=0.96, adj=0.917, (0 split)
##      401 < 31    to the left, agree=0.92, adj=0.833, (0 split)
##      428 < 42    to the left, agree=0.92, adj=0.833, (0 split)
##      400 < 3.5   to the left, agree=0.88, adj=0.750, (0 split)
##      456 < 15.5  to the left, agree=0.88, adj=0.750, (0 split)
##
## Node number 255: 168 observations,      complexity param=0.0002902563
## predicted class=9 expected loss=0.1785714 P(node) =0.006665344
## class counts:      0      0      4      1     17      0      1      6      1
138
## probabilities: 0.000 0.000 0.024 0.006 0.101 0.000 0.006 0.036 0.006
0.821
## left son=510 (25 obs) right son=511 (143 obs)
## Primary splits:
##      235 < 0.5   to the left, improve=12.447550, (0 missing)
##      320 < 91.5  to the right, improve=11.288570, (0 missing)
##      326 < 2     to the left, improve=10.129240, (0 missing)
##      354 < 3     to the left, improve= 9.811462, (0 missing)
##      293 < 72    to the right, improve= 9.306647, (0 missing)
## Surrogate splits:
##      320 < 81.5  to the right, agree=0.911, adj=0.40, (0 split)
##      208 < 1.5   to the left, agree=0.905, adj=0.36, (0 split)
##      292 < 181   to the right, agree=0.905, adj=0.36, (0 split)
##      293 < 72    to the right, agree=0.905, adj=0.36, (0 split)
##      347 < 192   to the right, agree=0.899, adj=0.32, (0 split)
##
## Node number 256: 2260 observations
## predicted class=1 expected loss=0.02256637 P(node) =0.08966475
## class counts:      0 2209      4      6      2      5      5      8     19
2
## probabilities: 0.000 0.977 0.002 0.003 0.001 0.002 0.002 0.004 0.008
0.001
##
## Node number 257: 31 observations,      complexity param=0.0001786193
## predicted class=2 expected loss=0.7419355 P(node) =0.001229915
## class counts:      0      5      8      0      5      5      3      0      5
0
## probabilities: 0.000 0.161 0.258 0.000 0.161 0.161 0.097 0.000 0.161
0.000
## left son=514 (19 obs) right son=515 (12 obs)
## Primary splits:
##      623 < 14.5  to the left, improve=4.489530, (0 missing)
##      457 < 152.5 to the right, improve=4.227688, (0 missing)
##      652 < 12.5  to the left, improve=4.095545, (0 missing)
##      432 < 115   to the right, improve=4.062212, (0 missing)

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##      322 < 159   to the left,   improve=4.038402, (0 missing)
##  Surrogate splits:
##      595 < 136.5 to the left,   agree=0.935, adj=0.833, (0 split)
##      624 < 168.5 to the left,   agree=0.935, adj=0.833, (0 split)
##      652 < 12.5  to the left,   agree=0.935, adj=0.833, (0 split)
##      622 < 5.5   to the left,   agree=0.903, adj=0.750, (0 split)
##      651 < 0.5   to the left,   agree=0.903, adj=0.750, (0 split)
##
## Node number 260: 55 observations
##   predicted class=1   expected loss=0.07272727   P(node) =0.002182107
##   class counts:      0    51    1    1    0    1    0    0    1
##   0
##   probabilities: 0.000 0.927 0.018 0.018 0.000 0.018 0.000 0.000 0.018
##   0.000
##
## Node number 261: 17 observations
##   predicted class=5   expected loss=0.2941176   P(node) =0.0006744694
##   class counts:      0    0    0    1    1   12    0    0    3
##   0
##   probabilities: 0.000 0.000 0.000 0.059 0.059 0.706 0.000 0.000 0.176
##   0.000
##
## Node number 268: 13 observations
##   predicted class=2   expected loss=0.3846154   P(node) =0.0005157707
##   class counts:      1    0    8    0    3    0    0    1    0
##   0
##   probabilities: 0.077 0.000 0.615 0.000 0.231 0.000 0.000 0.077 0.000
##   0.000
##
## Node number 269: 11 observations
##   predicted class=6   expected loss=0.5454545   P(node) =0.0004364213
##   class counts:      0    1    0    3    0    0    5    0    2
##   0
##   probabilities: 0.000 0.091 0.000 0.273 0.000 0.000 0.455 0.000 0.182
##   0.000
##
## Node number 272: 93 observations,   complexity param=0.0005805126
##   predicted class=6   expected loss=0.4623656   P(node) =0.003689744
##   class counts:      7   13    9    6    3    3   50    1    0
##   1
##   probabilities: 0.075 0.140 0.097 0.065 0.032 0.032 0.538 0.011 0.000
##   0.011
##   left son=544 (25 obs) right son=545 (68 obs)
##   Primary splits:
##      486 < 67.5   to the left,   improve=15.77872, (0 missing)
##      514 < 7       to the left,   improve=13.63803, (0 missing)
##      458 < 48.5   to the left,   improve=12.53402, (0 missing)
##      487 < 30     to the left,   improve=12.32299, (0 missing)
##      459 < 119.5  to the left,   improve=11.10767, (0 missing)
##   Surrogate splits:

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##      487 < 30    to the left,  agree=0.946, adj=0.80, (0 split)
##      514 < 7     to the left,  agree=0.946, adj=0.80, (0 split)
##      458 < 14.5  to the left,  agree=0.914, adj=0.68, (0 split)
##      485 < 2.5   to the left,  agree=0.903, adj=0.64, (0 split)
##      515 < 24.5  to the left,  agree=0.882, adj=0.56, (0 split)
##
## Node number 273: 159 observations,    complexity param=0.0007591319
##   predicted class=4  expected loss=0.7672956  P(node) =0.006308272
##   class counts:      5    20    22    8    37    21    4    7    6
29
##   probabilities: 0.031 0.126 0.138 0.050 0.233 0.132 0.025 0.044 0.038
0.182
##   left son=546 (67 obs) right son=547 (92 obs)
##   Primary splits:
##       539 < 2      to the right, improve=14.46493, (0 missing)
##       540 < 48     to the right, improve=14.31537, (0 missing)
##       567 < 10.5   to the right, improve=12.80517, (0 missing)
##       681 < 73     to the left,  improve=12.69986, (0 missing)
##       538 < 0.5    to the right, improve=12.23804, (0 missing)
##   Surrogate splits:
##       540 < 2.5    to the right, agree=0.962, adj=0.910, (0 split)
##       512 < 37.5   to the right, agree=0.931, adj=0.836, (0 split)
##       511 < 59.5   to the right, agree=0.906, adj=0.776, (0 split)
##       541 < 57.5   to the right, agree=0.906, adj=0.776, (0 split)
##       567 < 2.5    to the right, agree=0.906, adj=0.776, (0 split)
##
## Node number 276: 95 observations,    complexity param=0.0002232741
##   predicted class=1  expected loss=0.2421053  P(node) =0.003769093
##   class counts:      1    72    1    1    0    3    1    4    8
4
##   probabilities: 0.011 0.758 0.011 0.011 0.000 0.032 0.011 0.042 0.084
0.042
##   left son=552 (77 obs) right son=553 (18 obs)
##   Primary splits:
##       299 < 31     to the left,  improve=12.03746, (0 missing)
##       300 < 2      to the left,  improve=11.65921, (0 missing)
##       155 < 1.5    to the right, improve=11.20692, (0 missing)
##       271 < 27.5   to the left,  improve=11.11690, (0 missing)
##       272 < 170    to the left,  improve=10.82839, (0 missing)
##   Surrogate splits:
##       271 < 43     to the left,  agree=0.979, adj=0.889, (0 split)
##       298 < 219    to the left,  agree=0.968, adj=0.833, (0 split)
##       300 < 2      to the left,  agree=0.968, adj=0.833, (0 split)
##       327 < 19     to the left,  agree=0.968, adj=0.833, (0 split)
##       272 < 60     to the left,  agree=0.958, adj=0.778, (0 split)
##
## Node number 277: 39 observations,    complexity param=0.0003125837
##   predicted class=4  expected loss=0.7435897  P(node) =0.001547312
##   class counts:      2    1    0    3    10    6    3    0    8
6

```

```

## probabilities: 0.051 0.026 0.000 0.077 0.256 0.154 0.077 0.000 0.205
0.154
## left son=554 (11 obs) right son=555 (28 obs)
## Primary splits:
## 627 < 5.5 to the left, improve=6.047286, (0 missing)
## 628 < 87.5 to the left, improve=5.647863, (0 missing)
## 655 < 10.5 to the left, improve=5.136752, (0 missing)
## 625 < 40.5 to the right, improve=5.043185, (0 missing)
## 653 < 106.5 to the left, improve=4.815496, (0 missing)
## Surrogate splits:
## 655 < 10.5 to the left, agree=0.974, adj=0.909, (0 split)
## 628 < 87.5 to the left, agree=0.949, adj=0.818, (0 split)
## 626 < 13 to the left, agree=0.923, adj=0.727, (0 split)
## 598 < 5.5 to the left, agree=0.897, adj=0.636, (0 split)
## 600 < 77.5 to the left, agree=0.897, adj=0.636, (0 split)
##
## Node number 278: 124 observations, complexity param=0.0002902563
## predicted class=8 expected loss=0.2822581 P(node) =0.004919659
## class counts: 1 3 1 15 9 3 0 1 89
2
## probabilities: 0.008 0.024 0.008 0.121 0.073 0.024 0.000 0.008 0.718
0.016
## left son=556 (37 obs) right son=557 (87 obs)
## Primary splits:
## 265 < 15.5 to the left, improve=11.27827, (0 missing)
## 373 < 6 to the right, improve=11.17824, (0 missing)
## 401 < 123 to the right, improve=10.98102, (0 missing)
## 378 < 196 to the left, improve=10.40339, (0 missing)
## 292 < 98.5 to the left, improve=10.24454, (0 missing)
## Surrogate splits:
## 237 < 49 to the left, agree=0.935, adj=0.784, (0 split)
## 264 < 25 to the left, agree=0.935, adj=0.784, (0 split)
## 292 < 126.5 to the left, agree=0.919, adj=0.730, (0 split)
## 238 < 4 to the left, agree=0.895, adj=0.649, (0 split)
## 236 < 40.5 to the left, agree=0.887, adj=0.622, (0 split)
##
## Node number 279: 20 observations
## predicted class=9 expected loss=0.1 P(node) =0.0007934934
## class counts: 0 0 0 0 0 0 0 2 0
18
## probabilities: 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.100 0.000
0.900
##
## Node number 290: 9 observations
## predicted class=6 expected loss=0.4444444 P(node) =0.000357072
## class counts: 0 0 3 1 0 0 5 0 0
0
## probabilities: 0.000 0.000 0.333 0.111 0.000 0.000 0.556 0.000 0.000
0.000
##

```

```

## Node number 291: 11 observations
##   predicted class=8   expected loss=0.09090909   P(node) =0.0004364213
##   class counts:      0      0      0      0      0      0      0      0      10
1
##   probabilities: 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.909
0.091
##
## Node number 292: 21 observations
##   predicted class=1   expected loss=0.1904762   P(node) =0.000833168
##   class counts:      0     17      2      0      0      0      0      0      1
1
##   probabilities: 0.000 0.810 0.095 0.000 0.000 0.000 0.000 0.000 0.048
0.048
##
## Node number 293: 36 observations,   complexity param=0.0004018934
##   predicted class=2   expected loss=0.6388889   P(node) =0.001428288
##   class counts:      0      0     13     10      0      0      3      2      7
1
##   probabilities: 0.000 0.000 0.361 0.278 0.000 0.000 0.083 0.056 0.194
0.028
##   left son=586 (24 obs) right son=587 (12 obs)
##   Primary splits:
##       516 < 7      to the right, improve=6.777778, (0 missing)
##       517 < 88     to the right, improve=6.777778, (0 missing)
##       515 < 1.5    to the right, improve=6.383129, (0 missing)
##       488 < 234    to the right, improve=6.377778, (0 missing)
##       544 < 8      to the left,  improve=5.863492, (0 missing)
##   Surrogate splits:
##       517 < 88     to the right, agree=1.000, adj=1.00, (0 split)
##       488 < 234    to the right, agree=0.917, adj=0.75, (0 split)
##       489 < 152.5  to the right, agree=0.917, adj=0.75, (0 split)
##       515 < 1.5    to the right, agree=0.917, adj=0.75, (0 split)
##       544 < 8      to the right, agree=0.917, adj=0.75, (0 split)
##
## Node number 294: 17 observations
##   predicted class=7   expected loss=0.05882353   P(node) =0.0006744694
##   class counts:      0      0      0      1      0      0      0     16      0
0
##   probabilities: 0.000 0.000 0.000 0.059 0.000 0.000 0.000 0.941 0.000
0.000
##
## Node number 295: 12 observations
##   predicted class=9   expected loss=0.4166667   P(node) =0.000476096
##   class counts:      0      0      0      2      1      0      0      1      1
7
##   probabilities: 0.000 0.000 0.000 0.167 0.083 0.000 0.000 0.083 0.083
0.583
##
## Node number 298: 12 observations
##   predicted class=6   expected loss=0.5   P(node) =0.000476096

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##      class counts:      4      0      2      0      0      0      6      0      0
0
##      probabilities: 0.333 0.000 0.167 0.000 0.000 0.000 0.500 0.000 0.000
0.000
##
## Node number 299: 20 observations,      complexity param=0.0001786193
##      predicted class=8      expected loss=0.5      P(node) =0.0007934934
##      class counts:      0      0      1      0      0      3      0      1      10
5
##      probabilities: 0.000 0.000 0.050 0.000 0.000 0.150 0.000 0.050 0.500
0.250
##      left son=598 (9 obs) right son=599 (11 obs)
##      Primary splits:
##          432 < 47.5 to the left,      improve=5.381818, (0 missing)
##          433 < 173.5 to the left,      improve=5.381818, (0 missing)
##          434 < 181.5 to the left,      improve=5.381818, (0 missing)
##          409 < 183 to the left,      improve=5.000000, (0 missing)
##          410 < 50.5 to the left,      improve=5.000000, (0 missing)
##      Surrogate splits:
##          433 < 173.5 to the left,      agree=1.00, adj=1.000, (0 split)
##          434 < 181.5 to the left,      agree=1.00, adj=1.000, (0 split)
##          406 < 216 to the left,      agree=0.95, adj=0.889, (0 split)
##          461 < 48 to the left,      agree=0.95, adj=0.889, (0 split)
##          431 < 37.5 to the left,      agree=0.90, adj=0.778, (0 split)
##
## Node number 304: 7 observations
##      predicted class=2      expected loss=0.1428571      P(node) =0.0002777227
##      class counts:      0      0      6      1      0      0      0      0      0
0
##      probabilities: 0.000 0.000 0.857 0.143 0.000 0.000 0.000 0.000 0.000
0.000
##
## Node number 305: 52 observations
##      predicted class=3      expected loss=0.07692308      P(node) =0.002063083
##      class counts:      0      0      1      48      0      0      0      2      1
0
##      probabilities: 0.000 0.000 0.019 0.923 0.000 0.000 0.000 0.038 0.019
0.000
##
## Node number 306: 47 observations,      complexity param=0.0004465482
##      predicted class=2      expected loss=0.4893617      P(node) =0.001864709
##      class counts:      0      4      24      8      0      0      0      0      11
0
##      probabilities: 0.000 0.085 0.511 0.170 0.000 0.000 0.000 0.000 0.234
0.000
##      left son=612 (34 obs) right son=613 (13 obs)
##      Primary splits:
##          321 < 195 to the left,      improve=10.735050, (0 missing)
##          293 < 55.5 to the left,      improve= 9.355531, (0 missing)
##          292 < 19.5 to the left,      improve= 8.993085, (0 missing)

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##      600 < 133   to the right, improve= 8.151418, (0 missing)
##      320 < 30    to the left,  improve= 8.006097, (0 missing)
## Surrogate splits:
##      293 < 55.5  to the left,  agree=0.979, adj=0.923, (0 split)
##      292 < 19.5  to the left,  agree=0.957, adj=0.846, (0 split)
##      264 < 80.5  to the left,  agree=0.936, adj=0.769, (0 split)
##      320 < 9.5   to the left,  agree=0.936, adj=0.769, (0 split)
##      265 < 57.5  to the left,  agree=0.915, adj=0.692, (0 split)
##
## Node number 307: 56 observations,      complexity param=0.0001786193
## predicted class=7 expected loss=0.25 P(node) =0.002221781
## class counts:      0      5      2      5      0      0      0      42      1
1
## probabilities: 0.000 0.089 0.036 0.089 0.000 0.000 0.000 0.750 0.018
0.018
## left son=614 (7 obs) right son=615 (49 obs)
## Primary splits:
##      546 < 15    to the left,  improve=6.275510, (0 missing)
##      578 < 59    to the right, improve=5.541667, (0 missing)
##      634 < 94    to the right, improve=4.397959, (0 missing)
##      606 < 105.5 to the right, improve=4.275510, (0 missing)
##      518 < 116   to the left,  improve=4.208333, (0 missing)
## Surrogate splits:
##      518 < 116   to the left,  agree=0.946, adj=0.571, (0 split)
##      573 < 16    to the left,  agree=0.929, adj=0.429, (0 split)
##      574 < 90    to the left,  agree=0.929, adj=0.429, (0 split)
##      315 < 196   to the right, agree=0.911, adj=0.286, (0 split)
##      316 < 178.5 to the right, agree=0.911, adj=0.286, (0 split)
##
## Node number 312: 35 observations,      complexity param=0.0002976988
## predicted class=1 expected loss=0.6285714 P(node) =0.001388613
## class counts:      0      13      0      3      0      1      0      8      9
1
## probabilities: 0.000 0.371 0.000 0.086 0.000 0.029 0.000 0.229 0.257
0.029
## left son=624 (26 obs) right son=625 (9 obs)
## Primary splits:
##      180 < 118.5 to the right, improve=7.936508, (0 missing)
##      269 < 25.5  to the left,  improve=7.431391, (0 missing)
##      268 < 26    to the left,  improve=7.098344, (0 missing)
##      377 < 134.5 to the right, improve=7.071429, (0 missing)
##      233 < 126   to the left,  improve=6.786181, (0 missing)
## Surrogate splits:
##      179 < 7     to the right, agree=0.943, adj=0.778, (0 split)
##      181 < 43    to the right, agree=0.943, adj=0.778, (0 split)
##      377 < 134.5 to the right, agree=0.943, adj=0.778, (0 split)
##      349 < 138.5 to the right, agree=0.914, adj=0.667, (0 split)
##      352 < 251.5 to the left,  agree=0.914, adj=0.667, (0 split)
##
## Node number 313: 45 observations

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## predicted class=8 expected loss=0.2888889 P(node) =0.00178536
## class counts: 0 0 1 3 4 0 0 0 32
5
## probabilities: 0.000 0.000 0.022 0.067 0.089 0.000 0.000 0.000 0.711
0.111
##
## Node number 314: 18 observations
## predicted class=3 expected loss=0.4444444 P(node) =0.000714144
## class counts: 0 0 0 10 0 1 0 3 3
1
## probabilities: 0.000 0.000 0.000 0.556 0.000 0.056 0.000 0.167 0.167
0.056
##
## Node number 315: 26 observations
## predicted class=9 expected loss=0.2307692 P(node) =0.001031541
## class counts: 1 0 0 0 3 0 0 1 1
20
## probabilities: 0.038 0.000 0.000 0.000 0.115 0.000 0.000 0.038 0.038
0.769
##
## Node number 320: 39 observations
## predicted class=1 expected loss=0.1538462 P(node) =0.001547312
## class counts: 0 33 3 0 0 1 0 2 0
0
## probabilities: 0.000 0.846 0.077 0.000 0.000 0.026 0.000 0.051 0.000
0.000
##
## Node number 321: 25 observations
## predicted class=3 expected loss=0.2 P(node) =0.0009918667
## class counts: 0 0 0 20 0 0 0 3 2
0
## probabilities: 0.000 0.000 0.000 0.800 0.000 0.000 0.000 0.120 0.080
0.000
##
## Node number 322: 1393 observations, complexity param=0.0002456015
## predicted class=3 expected loss=0.04020101 P(node) =0.05526681
## class counts: 0 2 10 1337 0 23 0 0 16
5
## probabilities: 0.000 0.001 0.007 0.960 0.000 0.017 0.000 0.000 0.011
0.004
## left son=644 (1370 obs) right son=645 (23 obs)
## Primary splits:
## 317 < 206 to the left, improve=17.86201, (0 missing)
## 289 < 174 to the left, improve=16.71907, (0 missing)
## 487 < 140.5 to the left, improve=16.29442, (0 missing)
## 488 < 58.5 to the left, improve=14.98376, (0 missing)
## 316 < 156 to the left, improve=13.71488, (0 missing)
## Surrogate splits:
## 289 < 151.5 to the left, agree=0.992, adj=0.522, (0 split)
## 316 < 132 to the left, agree=0.992, adj=0.522, (0 split)

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##      288 < 211   to the left,  agree=0.986, adj=0.174, (0 split)
##      290 < 40.5 to the left,  agree=0.984, adj=0.043, (0 split)
##      717 < 142   to the left,  agree=0.984, adj=0.043, (0 split)
##
## Node number 323: 45 observations,      complexity param=0.0002456015
##   predicted class=3   expected loss=0.6222222 P(node) =0.00178536
##   class counts:      0      6      0      17      0      15      0      2      5
##   0
##   probabilities: 0.000 0.133 0.000 0.378 0.000 0.333 0.000 0.044 0.111
##   0.000
##   left son=646 (16 obs) right son=647 (29 obs)
##   Primary splits:
##       296 < 124.5 to the right, improve=7.904885, (0 missing)
##       297 < 146   to the right, improve=7.849679, (0 missing)
##       205 < 103   to the right, improve=7.737020, (0 missing)
##       324 < 169.5 to the right, improve=7.651852, (0 missing)
##       323 < 191.5 to the right, improve=7.538192, (0 missing)
##   Surrogate splits:
##       297 < 25.5  to the right, agree=0.978, adj=0.937, (0 split)
##       268 < 10.5  to the right, agree=0.956, adj=0.875, (0 split)
##       324 < 169.5 to the right, agree=0.956, adj=0.875, (0 split)
##       323 < 191.5 to the right, agree=0.933, adj=0.812, (0 split)
##       269 < 58    to the right, agree=0.911, adj=0.750, (0 split)
##
## Node number 326: 25 observations,      complexity param=0.0002232741
##   predicted class=3   expected loss=0.52 P(node) =0.0009918667
##   class counts:      2      0      0      12      0      5      1      0      4
##   1
##   probabilities: 0.080 0.000 0.000 0.480 0.000 0.200 0.040 0.000 0.160
##   0.040
##   left son=652 (13 obs) right son=653 (12 obs)
##   Primary splits:
##       401 < 112.5 to the left,  improve=7.180513, (0 missing)
##       428 < 4      to the left,  improve=7.180513, (0 missing)
##       429 < 41     to the left,  improve=6.840519, (0 missing)
##       400 < 67     to the left,  improve=6.697662, (0 missing)
##       399 < 42     to the left,  improve=4.960000, (0 missing)
##   Surrogate splits:
##       428 < 4      to the left,  agree=1.00, adj=1.000, (0 split)
##       400 < 67     to the left,  agree=0.96, adj=0.917, (0 split)
##       429 < 41     to the left,  agree=0.96, adj=0.917, (0 split)
##       399 < 42     to the left,  agree=0.92, adj=0.833, (0 split)
##       427 < 4      to the left,  agree=0.92, adj=0.833, (0 split)
##
## Node number 327: 21 observations
##   predicted class=9   expected loss=0.2380952 P(node) =0.000833168
##   class counts:      0      0      0      3      1      0      1      0      0
##   16
##   probabilities: 0.000 0.000 0.000 0.143 0.048 0.000 0.048 0.000 0.000
##   0.762

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##
## Node number 328: 202 observations
## predicted class=3 expected loss=0.06930693 P(node) =0.008014283
## class counts:      2      1      4    188      0      2      0      0      4
1
## probabilities: 0.010 0.005 0.020 0.931 0.000 0.010 0.000 0.000 0.020
0.005
##
## Node number 329: 59 observations, complexity param=0.000379566
## predicted class=3 expected loss=0.6271186 P(node) =0.002340805
## class counts:      5      3      1     22      0     21      3      3      1
0
## probabilities: 0.085 0.051 0.017 0.373 0.000 0.356 0.051 0.051 0.017
0.000
## left son=658 (29 obs) right son=659 (30 obs)
## Primary splits:
## 348 < 235 to the left, improve=11.326320, (0 missing)
## 321 < 120 to the left, improve=10.406780, (0 missing)
## 320 < 11.5 to the left, improve= 9.742619, (0 missing)
## 209 < 30 to the right, improve= 9.666942, (0 missing)
## 294 < 71 to the left, improve= 9.123446, (0 missing)
## Surrogate splits:
## 320 < 105.5 to the left, agree=0.898, adj=0.793, (0 split)
## 347 < 108.5 to the left, agree=0.898, adj=0.793, (0 split)
## 319 < 2 to the left, agree=0.864, adj=0.724, (0 split)
## 321 < 207 to the left, agree=0.831, adj=0.655, (0 split)
## 349 < 250.5 to the left, agree=0.814, adj=0.621, (0 split)
##
## Node number 330: 25 observations
## predicted class=0 expected loss=0.24 P(node) =0.0009918667
## class counts:     19      0      0      0      0      1      2      0      3
0
## probabilities: 0.760 0.000 0.000 0.000 0.000 0.040 0.080 0.000 0.120
0.000
##
## Node number 331: 131 observations, complexity param=0.0005358578
## predicted class=5 expected loss=0.2748092 P(node) =0.005197381
## class counts:      0      0      0     25      0     95      3      1      4
3
## probabilities: 0.000 0.000 0.000 0.191 0.000 0.725 0.023 0.008 0.031
0.023
## left son=662 (30 obs) right son=663 (101 obs)
## Primary splits:
## 299 < 40 to the right, improve=18.01656, (0 missing)
## 298 < 162 to the right, improve=17.94568, (0 missing)
## 326 < 98 to the right, improve=14.96753, (0 missing)
## 327 < 8.5 to the right, improve=13.19848, (0 missing)
## 328 < 56.5 to the right, improve=12.87945, (0 missing)
## Surrogate splits:
## 298 < 80.5 to the right, agree=0.954, adj=0.800, (0 split)

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##      271 < 217   to the right, agree=0.916, adj=0.633, (0 split)
##      297 < 131   to the right, agree=0.916, adj=0.633, (0 split)
##      300 < 0.5   to the right, agree=0.908, adj=0.600, (0 split)
##      270 < 202.5 to the right, agree=0.885, adj=0.500, (0 split)
##
## Node number 332: 85 observations
##   predicted class=1   expected loss=0.07058824   P(node) =0.003372347
##   class counts:      0    79    0    0    1    0    1    4    0
##
##   probabilities: 0.000 0.929 0.000 0.000 0.012 0.000 0.012 0.047 0.000
0.000
##
## Node number 333: 19 observations
##   predicted class=5   expected loss=0.7368421   P(node) =0.0007538187
##   class counts:      0    1    0    4    0    5    0    3    3
##
##   probabilities: 0.000 0.053 0.000 0.211 0.000 0.263 0.000 0.158 0.158
0.158
##
## Node number 334: 58 observations,      complexity param=0.0002232741
##   predicted class=5   expected loss=0.2586207   P(node) =0.002301131
##   class counts:      5    0    1    6    0   43    1    1    1
##
##   probabilities: 0.086 0.000 0.017 0.103 0.000 0.741 0.017 0.017 0.017
0.000
##   left son=668 (7 obs) right son=669 (51 obs)
##   Primary splits:
##      413 < 194   to the right, improve=7.789916, (0 missing)
##      507 < 5.5   to the right, improve=7.442577, (0 missing)
##      456 < 243   to the right, improve=7.220000, (0 missing)
##      455 < 228.5 to the right, improve=6.977324, (0 missing)
##      385 < 3.5   to the right, improve=6.832200, (0 missing)
##   Surrogate splits:
##      385 < 28    to the right, agree=0.983, adj=0.857, (0 split)
##      414 < 28.5  to the right, agree=0.983, adj=0.857, (0 split)
##      330 < 169.5 to the right, agree=0.966, adj=0.714, (0 split)
##      358 < 128.5 to the right, agree=0.966, adj=0.714, (0 split)
##      359 < 52.5  to the right, agree=0.966, adj=0.714, (0 split)
##
## Node number 335: 113 observations,      complexity param=0.001161025
##   predicted class=9   expected loss=0.7256637   P(node) =0.004483237
##   class counts:      0    7    0   16   30    5    7   11    6
##
##   probabilities: 0.000 0.062 0.000 0.142 0.265 0.044 0.062 0.097 0.053
0.274
##   left son=670 (43 obs) right son=671 (70 obs)
##   Primary splits:
##      237 < 2      to the left,  improve=15.18030, (0 missing)
##      210 < 1      to the left,  improve=14.74200, (0 missing)
##      238 < 17     to the left,  improve=14.30474, (0 missing)

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##      209 < 3      to the left,  improve=12.95114, (0 missing)
##      236 < 5.5    to the left,  improve=12.88428, (0 missing)
##      Surrogate splits:
##      210 < 1      to the left,  agree=0.956, adj=0.884, (0 split)
##      238 < 17     to the left,  agree=0.938, adj=0.837, (0 split)
##      209 < 3      to the left,  agree=0.920, adj=0.791, (0 split)
##      236 < 5.5    to the left,  agree=0.858, adj=0.628, (0 split)
##      211 < 2.5    to the left,  agree=0.850, adj=0.605, (0 split)
##
## Node number 338: 112 observations,      complexity param=0.0004465482
##      predicted class=3 expected loss=0.2321429 P(node) =0.004443563
##      class counts:      0      0      0      86      0      4      0      0      16
6
##      probabilities: 0.000 0.000 0.000 0.768 0.000 0.036 0.000 0.000 0.143
0.054
##      left son=676 (101 obs) right son=677 (11 obs)
##      Primary splits:
##      484 < 186    to the left,  improve=14.425810, (0 missing)
##      485 < 113    to the left,  improve=12.845660, (0 missing)
##      483 < 100    to the left,  improve=11.382120, (0 missing)
##      456 < 204.5  to the left,  improve=10.193880, (0 missing)
##      457 < 141    to the left,  improve= 9.204099, (0 missing)
##      Surrogate splits:
##      485 < 113    to the left,  agree=0.991, adj=0.909, (0 split)
##      483 < 100    to the left,  agree=0.964, adj=0.636, (0 split)
##      456 < 204.5  to the left,  agree=0.955, adj=0.545, (0 split)
##      457 < 252.5  to the left,  agree=0.955, adj=0.545, (0 split)
##      512 < 218    to the left,  agree=0.955, adj=0.545, (0 split)
##
## Node number 339: 180 observations,      complexity param=0.0007144771
##      predicted class=5 expected loss=0.6388889 P(node) =0.00714144
##      class counts:      5      1      1      59      0      65      2      3      21
23
##      probabilities: 0.028 0.006 0.006 0.328 0.000 0.361 0.011 0.017 0.117
0.128
##      left son=678 (40 obs) right son=679 (140 obs)
##      Primary splits:
##      176 < 79.5   to the right, improve=14.89206, (0 missing)
##      149 < 81     to the right, improve=14.58492, (0 missing)
##      262 < 5      to the left,  improve=13.83847, (0 missing)
##      263 < 51.5   to the left,  improve=13.79172, (0 missing)
##      148 < 48     to the right, improve=13.79111, (0 missing)
##      Surrogate splits:
##      175 < 3      to the right, agree=0.972, adj=0.875, (0 split)
##      148 < 5.5    to the right, agree=0.944, adj=0.750, (0 split)
##      177 < 213    to the right, agree=0.933, adj=0.700, (0 split)
##      147 < 0.5    to the right, agree=0.922, adj=0.650, (0 split)
##      149 < 46     to the right, agree=0.922, adj=0.650, (0 split)
##
## Node number 340: 23 observations

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```

## predicted class=0 expected loss=0 P(node) =0.0009125174
## class counts: 23 0 0 0 0 0 0 0 0
0
## probabilities: 1.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000
##
## Node number 341: 16 observations
## predicted class=8 expected loss=0.6875 P(node) =0.0006347947
## class counts: 1 0 0 3 1 1 0 0 5
5
## probabilities: 0.062 0.000 0.000 0.188 0.062 0.062 0.000 0.000 0.312
0.312
##
## Node number 342: 33 observations, complexity param=0.0001786193
## predicted class=3 expected loss=0.3333333 P(node) =0.001309264
## class counts: 2 0 0 22 0 5 1 0 2
1
## probabilities: 0.061 0.000 0.000 0.667 0.000 0.152 0.030 0.000 0.061
0.030
## left son=684 (23 obs) right son=685 (10 obs)
## Primary splits:
## 214 < 206 to the left, improve=6.733597, (0 missing)
## 242 < 146 to the left, improve=6.217172, (0 missing)
## 187 < 34.5 to the left, improve=6.133597, (0 missing)
## 243 < 100 to the left, improve=6.041958, (0 missing)
## 244 < 6.5 to the left, improve=6.041958, (0 missing)
## Surrogate splits:
## 187 < 96 to the left, agree=0.97, adj=0.9, (0 split)
## 215 < 65.5 to the left, agree=0.97, adj=0.9, (0 split)
## 216 < 10 to the left, agree=0.97, adj=0.9, (0 split)
## 242 < 104.5 to the left, agree=0.97, adj=0.9, (0 split)
## 243 < 10.5 to the left, agree=0.97, adj=0.9, (0 split)
##
## Node number 343: 440 observations, complexity param=0.0004018934
## predicted class=5 expected loss=0.08863636 P(node) =0.01745685
## class counts: 0 0 0 28 0 401 5 0 4
2
## probabilities: 0.000 0.000 0.000 0.064 0.000 0.911 0.011 0.000 0.009
0.005
## left son=686 (18 obs) right son=687 (422 obs)
## Primary splits:
## 121 < 122.5 to the right, improve=17.09669, (0 missing)
## 262 < 12.5 to the left, improve=14.56608, (0 missing)
## 148 < 159.5 to the right, improve=12.84638, (0 missing)
## 186 < 1 to the left, improve=12.75933, (0 missing)
## 120 < 3.5 to the right, improve=12.66861, (0 missing)
## Surrogate splits:
## 120 < 19.5 to the right, agree=0.989, adj=0.722, (0 split)
## 122 < 193.5 to the right, agree=0.982, adj=0.556, (0 split)
## 148 < 232.5 to the right, agree=0.980, adj=0.500, (0 split)

```

```

##      119 < 3.5   to the right, agree=0.973, adj=0.333, (0 split)
##      118 < 64.5  to the right, agree=0.970, adj=0.278, (0 split)
##
## Node number 344: 70 observations,      complexity param=0.0001786193
## predicted class=4 expected loss=0.1857143 P(node) =0.002777227
## class counts:      0      0      0      1      57      3      4      2      0
3
## probabilities: 0.000 0.000 0.000 0.014 0.814 0.043 0.057 0.029 0.000
0.043
## left son=688 (63 obs) right son=689 (7 obs)
## Primary splits:
##      124 < 37    to the left, improve=8.393651, (0 missing)
##      543 < 17.5  to the left, improve=8.393651, (0 missing)
##      544 < 32    to the left, improve=8.393651, (0 missing)
##      571 < 5     to the left, improve=8.393651, (0 missing)
##      152 < 187.5 to the left, improve=6.585023, (0 missing)
## Surrogate splits:
##      543 < 17.5  to the left, agree=1.000, adj=1.000, (0 split)
##      544 < 32    to the left, agree=1.000, adj=1.000, (0 split)
##      571 < 5     to the left, agree=1.000, adj=1.000, (0 split)
##      123 < 17    to the left, agree=0.986, adj=0.857, (0 split)
##      125 < 76    to the left, agree=0.986, adj=0.857, (0 split)
##
## Node number 345: 15 observations
## predicted class=9 expected loss=0.6666667 P(node) =0.00059512
## class counts:      0      0      0      3      1      4      0      1      1
5
## probabilities: 0.000 0.000 0.000 0.200 0.067 0.267 0.000 0.067 0.067
0.333
##
## Node number 346: 12 observations
## predicted class=0 expected loss=0.6666667 P(node) =0.000476096
## class counts:      4      0      0      2      0      4      0      0      2
0
## probabilities: 0.333 0.000 0.000 0.167 0.000 0.333 0.000 0.000 0.167
0.000
##
## Node number 347: 67 observations
## predicted class=7 expected loss=0.119403 P(node) =0.002658203
## class counts:      0      3      0      3      0      0      0      59      0
2
## probabilities: 0.000 0.045 0.000 0.045 0.000 0.000 0.000 0.881 0.000
0.030
##
## Node number 348: 63 observations
## predicted class=5 expected loss=0.3174603 P(node) =0.002499504
## class counts:      0      0      0      5      4      43      3      1      1
6
## probabilities: 0.000 0.000 0.000 0.079 0.063 0.683 0.048 0.016 0.016
0.095

```

```

##
## Node number 349: 37 observations,    complexity param=0.0004018934
## predicted class=9 expected loss=0.6216216 P(node) =0.001467963
## class counts:    0    2    0    11    6    1    0    1    2
14
## probabilities: 0.000 0.054 0.000 0.297 0.162 0.027 0.000 0.027 0.054
0.378
## left son=698 (9 obs) right son=699 (28 obs)
## Primary splits:
## 468 < 26 to the right, improve=7.974903, (0 missing)
## 496 < 101 to the right, improve=7.974903, (0 missing)
## 294 < 197.5 to the right, improve=7.958420, (0 missing)
## 349 < 249.5 to the right, improve=7.570142, (0 missing)
## 321 < 196 to the right, improve=6.995072, (0 missing)
## Surrogate splits:
## 496 < 101 to the right, agree=1.000, adj=1.000, (0 split)
## 524 < 69 to the right, agree=0.946, adj=0.778, (0 split)
## 467 < 227.5 to the right, agree=0.919, adj=0.667, (0 split)
## 469 < 23 to the right, agree=0.919, adj=0.667, (0 split)
## 497 < 17 to the right, agree=0.919, adj=0.667, (0 split)
##
## Node number 350: 10 observations
## predicted class=3 expected loss=0.2 P(node) =0.0003967467
## class counts:    1    0    0    8    0    1    0    0    0
0
## probabilities: 0.100 0.000 0.000 0.800 0.000 0.100 0.000 0.000 0.000
0.000
##
## Node number 351: 247 observations,    complexity param=0.0002232741
## predicted class=9 expected loss=0.1336032 P(node) =0.009799643
## class counts:    3    0    2    4    8    1    0    10    5
214
## probabilities: 0.012 0.000 0.008 0.016 0.032 0.004 0.000 0.040 0.020
0.866
## left son=702 (9 obs) right son=703 (238 obs)
## Primary splits:
## 515 < 44 to the right, improve=10.555990, (0 missing)
## 543 < 61 to the right, improve= 9.894746, (0 missing)
## 571 < 23.5 to the right, improve= 9.894746, (0 missing)
## 516 < 10.5 to the right, improve= 9.302766, (0 missing)
## 544 < 79 to the right, improve= 8.892397, (0 missing)
## Surrogate splits:
## 516 < 10.5 to the right, agree=0.996, adj=0.889, (0 split)
## 543 < 61 to the right, agree=0.992, adj=0.778, (0 split)
## 571 < 23.5 to the right, agree=0.992, adj=0.778, (0 split)
## 514 < 5.5 to the right, agree=0.988, adj=0.667, (0 split)
## 542 < 0.5 to the right, agree=0.988, adj=0.667, (0 split)
##
## Node number 356: 39 observations,    complexity param=0.0003125837
## predicted class=1 expected loss=0.6410256 P(node) =0.001547312

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##      class counts:      0      14      0      0      8      7      7      0      2
1
##      probabilities: 0.000 0.359 0.000 0.000 0.205 0.179 0.179 0.000 0.051
0.026
##      left son=712 (14 obs) right son=713 (25 obs)
##      Primary splits:
##          457 < 14.5   to the left,   improve=9.035165, (0 missing)
##          402 < 16     to the left,   improve=8.007525, (0 missing)
##          572 < 25.5   to the left,   improve=7.542308, (0 missing)
##          548 < 3.5    to the left,   improve=7.200244, (0 missing)
##          429 < 32     to the left,   improve=6.976518, (0 missing)
##      Surrogate splits:
##          429 < 8      to the left,   agree=0.923, adj=0.786, (0 split)
##          458 < 205.5  to the left,   agree=0.923, adj=0.786, (0 split)
##          160 < 13     to the right,  agree=0.897, adj=0.714, (0 split)
##          161 < 25     to the right,  agree=0.897, adj=0.714, (0 split)
##          402 < 16     to the left,   agree=0.897, adj=0.714, (0 split)
##
##      Node number 357: 44 observations,      complexity param=0.0004018934
##      predicted class=8   expected loss=0.6818182   P(node) =0.001745685
##      class counts:      9      0      12      3      1      0      3      0      14
2
##      probabilities: 0.205 0.000 0.273 0.068 0.023 0.000 0.068 0.000 0.318
0.045
##      left son=714 (9 obs) right son=715 (35 obs)
##      Primary splits:
##          406 < 98     to the left,   improve=7.388456, (0 missing)
##          380 < 1.5    to the left,   improve=6.828010, (0 missing)
##          386 < 75     to the right,  improve=6.214646, (0 missing)
##          414 < 43     to the right,  improve=6.214646, (0 missing)
##          429 < 50.5   to the right,  improve=6.132249, (0 missing)
##      Surrogate splits:
##          386 < 75     to the right,  agree=0.977, adj=0.889, (0 split)
##          414 < 43     to the right,  agree=0.977, adj=0.889, (0 split)
##          358 < 82     to the right,  agree=0.955, adj=0.778, (0 split)
##          380 < 1.5    to the left,   agree=0.955, adj=0.778, (0 split)
##          385 < 31     to the right,  agree=0.932, adj=0.667, (0 split)
##
##      Node number 362: 13 observations
##      predicted class=4   expected loss=0.6923077   P(node) =0.0005157707
##      class counts:      0      0      0      3      4      1      3      0      2
0
##      probabilities: 0.000 0.000 0.000 0.231 0.308 0.077 0.231 0.000 0.154
0.000
##
##      Node number 363: 10 observations
##      predicted class=9   expected loss=0.3   P(node) =0.0003967467
##      class counts:      1      0      0      0      1      1      0      0      0
7
##      probabilities: 0.100 0.000 0.000 0.000 0.100 0.100 0.000 0.000 0.000

```

```

0.700
##
## Node number 366: 21 observations,      complexity param=0.0002009467
## predicted class=5 expected loss=0.5238095 P(node) =0.000833168
## class counts:      0      0      0      3      0      10      8      0      0
0
## probabilities: 0.000 0.000 0.000 0.143 0.000 0.476 0.381 0.000 0.000
0.000
## left son=732 (14 obs) right son=733 (7 obs)
## Primary splits:
##      321 < 93.5 to the right, improve=6.619048, (0 missing)
##      598 < 138.5 to the right, improve=5.011905, (0 missing)
##      400 < 62.5 to the left, improve=5.011905, (0 missing)
##      597 < 135 to the right, improve=4.984127, (0 missing)
##      293 < 84.5 to the right, improve=4.761905, (0 missing)
## Surrogate splits:
##      293 < 11.5 to the right, agree=0.952, adj=0.857, (0 split)
##      430 < 97 to the left, agree=0.952, adj=0.857, (0 split)
##      294 < 44.5 to the right, agree=0.905, adj=0.714, (0 split)
##      401 < 208 to the left, agree=0.905, adj=0.714, (0 split)
##      429 < 190.5 to the left, agree=0.905, adj=0.714, (0 split)
##
## Node number 367: 172 observations
## predicted class=6 expected loss=0.09302326 P(node) =0.006824043
## class counts:      2      0      7      1      0      2      156      0      4
0
## probabilities: 0.012 0.000 0.041 0.006 0.000 0.012 0.907 0.000 0.023
0.000
##
## Node number 372: 12 observations
## predicted class=0 expected loss=0.4166667 P(node) =0.000476096
## class counts:      7      0      0      1      0      3      1      0      0
0
## probabilities: 0.583 0.000 0.000 0.083 0.000 0.250 0.083 0.000 0.000
0.000
##
## Node number 373: 28 observations,      complexity param=0.0002083892
## predicted class=8 expected loss=0.5714286 P(node) =0.001110891
## class counts:      0      0      0      4      0      10      2      0      12
0
## probabilities: 0.000 0.000 0.000 0.143 0.000 0.357 0.071 0.000 0.429
0.000
## left son=746 (16 obs) right son=747 (12 obs)
## Primary splits:
##      297 < 178 to the left, improve=4.863095, (0 missing)
##      468 < 197.5 to the right, improve=4.089377, (0 missing)
##      269 < 10.5 to the left, improve=3.863095, (0 missing)
##      270 < 1 to the left, improve=3.863095, (0 missing)
##      431 < 27.5 to the left, improve=3.771429, (0 missing)
## Surrogate splits:

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##      298 < 3.5   to the left,  agree=0.929, adj=0.833, (0 split)
##      269 < 10.5  to the left,  agree=0.857, adj=0.667, (0 split)
##      270 < 1     to the left,  agree=0.857, adj=0.667, (0 split)
##      296 < 181   to the left,  agree=0.857, adj=0.667, (0 split)
##      548 < 14    to the left,  agree=0.821, adj=0.583, (0 split)
##
## Node number 376: 20 observations
##   predicted class=3   expected loss=0   P(node) =0.0007934934
##   class counts:      0      0      0      20      0      0      0      0      0
##   0
##   probabilities: 0.000 0.000 0.000 1.000 0.000 0.000 0.000 0.000 0.000
##   0.000
##
## Node number 377: 7 observations
##   predicted class=9   expected loss=0.2857143   P(node) =0.0002777227
##   class counts:      0      0      0      1      0      1      0      0      0
##   5
##   probabilities: 0.000 0.000 0.000 0.143 0.000 0.143 0.000 0.000 0.000
##   0.714
##
## Node number 380: 13 observations
##   predicted class=0   expected loss=0.5384615   P(node) =0.0005157707
##   class counts:      6      0      1      0      0      0      1      0      5
##   0
##   probabilities: 0.462 0.000 0.077 0.000 0.000 0.000 0.077 0.000 0.385
##   0.000
##
## Node number 381: 15 observations
##   predicted class=3   expected loss=0.4666667   P(node) =0.00059512
##   class counts:      0      0      0      8      0      6      0      0      0
##   1
##   probabilities: 0.000 0.000 0.000 0.533 0.000 0.400 0.000 0.000 0.000
##   0.067
##
## Node number 382: 57 observations,   complexity param=0.0002344378
##   predicted class=8   expected loss=0.4385965   P(node) =0.002261456
##   class counts:      1      0      18      3      0      1      1      1      32
##   0
##   probabilities: 0.018 0.000 0.316 0.053 0.000 0.018 0.018 0.018 0.561
##   0.000
##   left son=764 (24 obs) right son=765 (33 obs)
##   Primary splits:
##       126 < 44.5   to the right, improve=11.622810, (0 missing)
##       125 < 27     to the right, improve=11.084970, (0 missing)
##       154 < 246.5  to the right, improve=10.226700, (0 missing)
##       606 < 250.5  to the right, improve= 9.847131, (0 missing)
##       608 < 57     to the right, improve= 9.819103, (0 missing)
##   Surrogate splits:
##       127 < 24     to the right, agree=0.965, adj=0.917, (0 split)
##       128 < 5.5    to the right, agree=0.947, adj=0.875, (0 split)

```



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##      125 < 1.5   to the right, agree=0.930, adj=0.833, (0 split)
##      129 < 2.5   to the right, agree=0.912, adj=0.792, (0 split)
##      154 < 237   to the right, agree=0.877, adj=0.708, (0 split)
##
## Node number 383: 345 observations,      complexity param=0.0001786193
## predicted class=8 expected loss=0.09275362 P(node) =0.01368776
## class counts:      1      0      0      12      0      6      10      0      313
3
## probabilities: 0.003 0.000 0.000 0.035 0.000 0.017 0.029 0.000 0.907
0.009
## left son=766 (36 obs) right son=767 (309 obs)
## Primary splits:
##      439 < 250.5 to the right, improve=9.676202, (0 missing)
##      459 < 15     to the left,  improve=8.315192, (0 missing)
##      428 < 119    to the right, improve=7.693051, (0 missing)
##      440 < 156.5  to the right, improve=7.585100, (0 missing)
##      468 < 249.5  to the right, improve=7.509916, (0 missing)
## Surrogate splits:
##      440 < 72.5   to the right, agree=0.965, adj=0.667, (0 split)
##      468 < 242    to the right, agree=0.965, adj=0.667, (0 split)
##      412 < 4       to the right, agree=0.945, adj=0.472, (0 split)
##      411 < 130     to the right, agree=0.942, adj=0.444, (0 split)
##      441 < 1       to the right, agree=0.936, adj=0.389, (0 split)
##
## Node number 384: 1623 observations
## predicted class=0 expected loss=0.01047443 P(node) =0.06439199
## class counts: 1606      0      1      0      1      2      12      0      0
1
## probabilities: 0.990 0.000 0.001 0.000 0.001 0.001 0.007 0.000 0.000
0.001
##
## Node number 385: 332 observations,      complexity param=0.0001786193
## predicted class=0 expected loss=0.1686747 P(node) =0.01317199
## class counts:  276      0      25      7      0      14      5      4      0
1
## probabilities: 0.831 0.000 0.075 0.021 0.000 0.042 0.015 0.012 0.000
0.003
## left son=770 (299 obs) right son=771 (33 obs)
## Primary splits:
##      545 < 198.5 to the left,  improve=14.54646, (0 missing)
##      517 < 13     to the left,  improve=13.77057, (0 missing)
##      544 < 83.5   to the left,  improve=13.00613, (0 missing)
##      398 < 10.5   to the right, improve=12.99808, (0 missing)
##      370 < 8       to the right, improve=12.75578, (0 missing)
## Surrogate splits:
##      517 < 7       to the left,  agree=0.961, adj=0.606, (0 split)
##      546 < 239.5  to the left,  agree=0.961, adj=0.606, (0 split)
##      544 < 145.5  to the left,  agree=0.958, adj=0.576, (0 split)
##      518 < 93.5   to the left,  agree=0.949, adj=0.485, (0 split)
##      490 < 13.5   to the left,  agree=0.934, adj=0.333, (0 split)

```

```

##
## Node number 390: 30 observations
## predicted class=3 expected loss=0.3 P(node) =0.00119024
## class counts: 4 0 1 21 0 4 0 0 0
0
## probabilities: 0.133 0.000 0.033 0.700 0.000 0.133 0.000 0.000 0.000
0.000
##
## Node number 391: 27 observations
## predicted class=5 expected loss=0.2592593 P(node) =0.001071216
## class counts: 1 0 1 2 0 20 3 0 0
0
## probabilities: 0.037 0.000 0.037 0.074 0.000 0.741 0.111 0.000 0.000
0.000
##
## Node number 394: 13 observations
## predicted class=5 expected loss=0.5384615 P(node) =0.0005157707
## class counts: 2 0 3 2 0 6 0 0 0
0
## probabilities: 0.154 0.000 0.231 0.154 0.000 0.462 0.000 0.000 0.000
0.000
##
## Node number 395: 26 observations
## predicted class=6 expected loss=0.1538462 P(node) =0.001031541
## class counts: 1 0 0 0 0 3 22 0 0
0
## probabilities: 0.038 0.000 0.000 0.000 0.000 0.115 0.846 0.000 0.000
0.000
##
## Node number 396: 55 observations, complexity param=0.0002679289
## predicted class=3 expected loss=0.4363636 P(node) =0.002182107
## class counts: 3 1 10 31 0 7 1 2 0
0
## probabilities: 0.055 0.018 0.182 0.564 0.000 0.127 0.018 0.036 0.000
0.000
## left son=792 (11 obs) right son=793 (44 obs)
## Primary splits:
## 514 < 4 to the right, improve=6.409091, (0 missing)
## 485 < 9.5 to the right, improve=6.357049, (0 missing)
## 513 < 37.5 to the right, improve=6.234343, (0 missing)
## 571 < 209.5 to the left, improve=6.188865, (0 missing)
## 541 < 187 to the right, improve=6.146518, (0 missing)
## Surrogate splits:
## 513 < 37.5 to the right, agree=0.982, adj=0.909, (0 split)
## 485 < 9.5 to the right, agree=0.964, adj=0.818, (0 split)
## 486 < 44.5 to the right, agree=0.964, adj=0.818, (0 split)
## 487 < 22 to the right, agree=0.945, adj=0.727, (0 split)
## 515 < 2 to the right, agree=0.945, adj=0.727, (0 split)
##
## Node number 397: 10 observations

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## predicted class=5 expected loss=0.3 P(node) =0.0003967467
## class counts:      0      0      0      0      0      7      2      0      1
0
## probabilities: 0.000 0.000 0.000 0.000 0.000 0.700 0.200 0.000 0.100
0.000
##
## Node number 412: 44 observations, complexity param=0.0002976988
## predicted class=8 expected loss=0.7272727 P(node) =0.001745685
## class counts:      4      0      8      3      1     10      6      0     12
0
## probabilities: 0.091 0.000 0.182 0.068 0.023 0.227 0.136 0.000 0.273
0.000
## left son=824 (34 obs) right son=825 (10 obs)
## Primary splits:
##      407 < 63 to the left, improve=6.379144, (0 missing)
##      682 < 20.5 to the left, improve=6.313131, (0 missing)
##      684 < 31.5 to the left, improve=5.933341, (0 missing)
##      685 < 43.5 to the left, improve=5.933341, (0 missing)
##      380 < 118.5 to the left, improve=5.772727, (0 missing)
## Surrogate splits:
##      380 < 118.5 to the left, agree=0.977, adj=0.9, (0 split)
##      378 < 89.5 to the left, agree=0.955, adj=0.8, (0 split)
##      379 < 107.5 to the left, agree=0.955, adj=0.8, (0 split)
##      405 < 197.5 to the left, agree=0.955, adj=0.8, (0 split)
##      406 < 130.5 to the left, agree=0.955, adj=0.8, (0 split)
##
## Node number 413: 20 observations
## predicted class=6 expected loss=0.15 P(node) =0.0007934934
## class counts:      1      0      1      1      0      0     17      0      0
0
## probabilities: 0.050 0.000 0.050 0.050 0.000 0.000 0.850 0.000 0.000
0.000
##
## Node number 418: 25 observations, complexity param=0.0003572385
## predicted class=5 expected loss=0.52 P(node) =0.0009918667
## class counts:      8      0      0      1      0     12      3      0      1
0
## probabilities: 0.320 0.000 0.000 0.040 0.000 0.480 0.120 0.000 0.040
0.000
## left son=836 (8 obs) right son=837 (17 obs)
## Primary splits:
##      370 < 3 to the right, improve=8.357647, (0 missing)
##      386 < 2 to the right, improve=8.357647, (0 missing)
##      443 < 22 to the right, improve=8.357647, (0 missing)
##      470 < 1 to the right, improve=8.357647, (0 missing)
##      398 < 36 to the right, improve=8.087222, (0 missing)
## Surrogate splits:
##      386 < 2 to the right, agree=1.00, adj=1.000, (0 split)
##      443 < 22 to the right, agree=1.00, adj=1.000, (0 split)
##      470 < 1 to the right, agree=1.00, adj=1.000, (0 split)

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##      358 < 62    to the right, agree=0.96, adj=0.875, (0 split)
##      359 < 16.5  to the right, agree=0.96, adj=0.875, (0 split)
##
## Node number 419: 33 observations,      complexity param=0.0004018934
## predicted class=2 expected loss=0.6060606 P(node) =0.001309264
## class counts:      2      0      13      1      3      0      0      1      0
13
## probabilities: 0.061 0.000 0.394 0.030 0.091 0.000 0.000 0.030 0.000
0.394
## left son=838 (19 obs) right son=839 (14 obs)
## Primary splits:
##      343 < 29    to the left, improve=9.152654, (0 missing)
##      371 < 64.5  to the left, improve=9.152654, (0 missing)
##      315 < 3.5   to the left, improve=7.658586, (0 missing)
##      372 < 2.5   to the left, improve=7.560383, (0 missing)
##      261 < 72.5  to the left, improve=7.560383, (0 missing)
## Surrogate splits:
##      371 < 6     to the left, agree=0.939, adj=0.857, (0 split)
##      315 < 3.5   to the left, agree=0.909, adj=0.786, (0 split)
##      316 < 38    to the left, agree=0.909, adj=0.786, (0 split)
##      261 < 72.5  to the left, agree=0.879, adj=0.714, (0 split)
##      288 < 62.5  to the left, agree=0.879, adj=0.714, (0 split)
##
## Node number 430: 24 observations
## predicted class=4 expected loss=0.2916667 P(node) =0.000952192
## class counts:      1      0      1      0      17      0      0      2      0
3
## probabilities: 0.042 0.000 0.042 0.000 0.708 0.000 0.000 0.083 0.000
0.125
##
## Node number 431: 82 observations
## predicted class=9 expected loss=0.2560976 P(node) =0.003253323
## class counts:      0      0      2      0      6      0      1      11      1
61
## probabilities: 0.000 0.000 0.024 0.000 0.073 0.000 0.012 0.134 0.012
0.744
##
## Node number 432: 16 observations
## predicted class=3 expected loss=0.1875 P(node) =0.0006347947
## class counts:      0      0      0      13      1      2      0      0      0
0
## probabilities: 0.000 0.000 0.000 0.813 0.062 0.125 0.000 0.000 0.000
0.000
##
## Node number 433: 37 observations,      complexity param=0.0001786193
## predicted class=5 expected loss=0.5945946 P(node) =0.001467963
## class counts:      1      7      0      4      0      15      8      0      0
2
## probabilities: 0.027 0.189 0.000 0.108 0.000 0.405 0.216 0.000 0.000
0.054

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## left son=866 (28 obs) right son=867 (9 obs)
## Primary splits:
##      541 < 12   to the left,   improve=5.368726, (0 missing)
##      550 < 9.5  to the left,   improve=5.322938, (0 missing)
##      487 < 65   to the left,   improve=5.116345, (0 missing)
##      488 < 40.5 to the left,   improve=4.987356, (0 missing)
##      551 < 1.5  to the left,   improve=4.917297, (0 missing)
## Surrogate splits:
##      540 < 46.5 to the left,   agree=0.973, adj=0.889, (0 split)
##      482 < 12.5 to the left,   agree=0.946, adj=0.778, (0 split)
##      510 < 40   to the left,   agree=0.946, adj=0.778, (0 split)
##      511 < 13   to the left,   agree=0.946, adj=0.778, (0 split)
##      512 < 91   to the left,   agree=0.946, adj=0.778, (0 split)
##
## Node number 436: 7 observations
## predicted class=3 expected loss=0.4285714 P(node) =0.0002777227
## class counts:      0      0      1      4      0      0      0      0
2
## probabilities: 0.000 0.000 0.143 0.571 0.000 0.000 0.000 0.000 0.000
0.286
##
## Node number 437: 24 observations
## predicted class=4 expected loss=0.2083333 P(node) =0.000952192
## class counts:      0      0      0      0     19      1      0      3      0
1
## probabilities: 0.000 0.000 0.000 0.000 0.792 0.042 0.000 0.125 0.000
0.042
##
## Node number 444: 14 observations
## predicted class=5 expected loss=0.2857143 P(node) =0.0005554453
## class counts:      0      2      0      1      0     10      1      0      0
0
## probabilities: 0.000 0.143 0.000 0.071 0.000 0.714 0.071 0.000 0.000
0.000
##
## Node number 445: 16 observations
## predicted class=4 expected loss=0.5 P(node) =0.0006347947
## class counts:      0      0      1      0      8      0      0      2      0
5
## probabilities: 0.000 0.000 0.062 0.000 0.500 0.000 0.000 0.125 0.000
0.312
##
## Node number 446: 19 observations
## predicted class=3 expected loss=0.7368421 P(node) =0.0007538187
## class counts:      3      1      3      5      0      4      0      1      0
2
## probabilities: 0.158 0.053 0.158 0.263 0.000 0.211 0.000 0.053 0.000
0.105
##
## Node number 447: 629 observations

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## predicted class=7 expected loss=0.03656598 P(node) =0.02495537
## class counts: 5 0 1 2 4 3 3 606 0
5
## probabilities: 0.008 0.000 0.002 0.003 0.006 0.005 0.005 0.963 0.000
0.008
##
## Node number 448: 922 observations, complexity param=0.0002679289
## predicted class=2 expected loss=0.04338395 P(node) =0.03658004
## class counts: 0 0 882 15 0 1 0 12 11
1
## probabilities: 0.000 0.000 0.957 0.016 0.000 0.001 0.000 0.013 0.012
0.001
## left son=896 (912 obs) right son=897 (10 obs)
## Primary splits:
## 345 < 104.5 to the left, improve=12.406900, (0 missing)
## 346 < 70.5 to the left, improve=12.406900, (0 missing)
## 681 < 18 to the left, improve= 6.490996, (0 missing)
## 680 < 41 to the left, improve= 5.718800, (0 missing)
## 683 < 44.5 to the left, improve= 5.615033, (0 missing)
## Surrogate splits:
## 346 < 70.5 to the left, agree=1.000, adj=1.0, (0 split)
## 318 < 245.5 to the left, agree=0.991, adj=0.2, (0 split)
## 373 < 241.5 to the left, agree=0.991, adj=0.2, (0 split)
## 317 < 230 to the left, agree=0.990, adj=0.1, (0 split)
## 374 < 230.5 to the left, agree=0.990, adj=0.1, (0 split)
##
## Node number 449: 14 observations
## predicted class=8 expected loss=0 P(node) =0.0005554453
## class counts: 0 0 0 0 0 0 0 0 14
0
## probabilities: 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 1.000
0.000
##
## Node number 450: 35 observations, complexity param=0.000491203
## predicted class=2 expected loss=0.5142857 P(node) =0.001388613
## class counts: 3 0 17 0 2 0 2 0 0
11
## probabilities: 0.086 0.000 0.486 0.000 0.057 0.000 0.057 0.000 0.000
0.314
## left son=900 (22 obs) right son=901 (13 obs)
## Primary splits:
## 570 < 169.5 to the right, improve=11.14266, (0 missing)
## 597 < 4.5 to the right, improve=11.14266, (0 missing)
## 598 < 93.5 to the right, improve=11.14266, (0 missing)
## 599 < 19.5 to the right, improve=11.14058, (0 missing)
## 626 < 2.5 to the right, improve=11.14058, (0 missing)
## Surrogate splits:
## 597 < 4.5 to the right, agree=1.000, adj=1.000, (0 split)
## 598 < 93.5 to the right, agree=1.000, adj=1.000, (0 split)
## 599 < 19.5 to the right, agree=0.971, adj=0.923, (0 split)

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##      625 < 2.5   to the right, agree=0.971, adj=0.923, (0 split)
##      626 < 2.5   to the right, agree=0.971, adj=0.923, (0 split)
##
## Node number 451: 50 observations
##   predicted class=8   expected loss=0.18   P(node) =0.001983733
##   class counts:      0      0      3      1      0      1      0      0      41
4
##   probabilities: 0.000 0.000 0.060 0.020 0.000 0.020 0.000 0.000 0.820
0.080
##
## Node number 452: 246 observations,   complexity param=0.002589979
##   predicted class=1   expected loss=0.5934959   P(node) =0.009759968
##   class counts:      0    100     19      1    60      5    48      8      3
2
##   probabilities: 0.000 0.407 0.077 0.004 0.244 0.020 0.195 0.033 0.012
0.008
##   left son=904 (135 obs) right son=905 (111 obs)
##   Primary splits:
##       344 < 1.5   to the left,   improve=56.73869, (0 missing)
##       456 < 1     to the left,   improve=55.85903, (0 missing)
##       372 < 10    to the left,   improve=55.65413, (0 missing)
##       428 < 2     to the left,   improve=55.43471, (0 missing)
##       316 < 1     to the left,   improve=55.18781, (0 missing)
##   Surrogate splits:
##       316 < 1     to the left,   agree=0.967, adj=0.928, (0 split)
##       372 < 10    to the left,   agree=0.967, adj=0.928, (0 split)
##       400 < 4.5   to the left,   agree=0.947, adj=0.883, (0 split)
##       288 < 0.5   to the left,   agree=0.939, adj=0.865, (0 split)
##       289 < 0.5   to the left,   agree=0.935, adj=0.856, (0 split)
##
## Node number 453: 241 observations,   complexity param=0.002634634
##   predicted class=2   expected loss=0.6473029   P(node) =0.009561595
##   class counts:      2      2     85      5      2      5      0     49     19
72
##   probabilities: 0.008 0.008 0.353 0.021 0.008 0.021 0.000 0.203 0.079
0.299
##   left son=906 (150 obs) right son=907 (91 obs)
##   Primary splits:
##       371 < 1.5   to the left,   improve=41.69612, (0 missing)
##       344 < 110   to the left,   improve=41.20927, (0 missing)
##       372 < 67    to the left,   improve=39.75462, (0 missing)
##       343 < 1     to the left,   improve=35.41713, (0 missing)
##       399 < 3     to the left,   improve=34.26607, (0 missing)
##   Surrogate splits:
##       343 < 1     to the left,   agree=0.946, adj=0.857, (0 split)
##       399 < 8.5   to the left,   agree=0.934, adj=0.824, (0 split)
##       344 < 66.5  to the left,   agree=0.925, adj=0.802, (0 split)
##       316 < 139   to the left,   agree=0.913, adj=0.769, (0 split)
##       372 < 58    to the left,   agree=0.909, adj=0.758, (0 split)
##

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## Node number 454: 128 observations
##   predicted class=7   expected loss=0.03125   P(node) =0.005078357
##   class counts:      0      0      3      1      0      0      0   124      0
##   probabilities: 0.000 0.000 0.023 0.008 0.000 0.000 0.000 0.969 0.000
##   0.000
##
## Node number 455: 8 observations
##   predicted class=8   expected loss=0.25   P(node) =0.0003173973
##   class counts:      0      0      0      0      1      0      0      0      6
##   1
##   probabilities: 0.000 0.000 0.000 0.000 0.125 0.000 0.000 0.000 0.750
##   0.125
##
## Node number 456: 20 observations,   complexity param=0.0002232741
##   predicted class=8   expected loss=0.7   P(node) =0.0007934934
##   class counts:      5      0      5      0      1      0      3      0      6
##   0
##   probabilities: 0.250 0.000 0.250 0.000 0.050 0.000 0.150 0.000 0.300
##   0.000
##   left son=912 (13 obs) right son=913 (7 obs)
##   Primary splits:
##       522 < 13.5   to the right, improve=5.024176, (0 missing)
##       495 < 32.5   to the right, improve=5.024176, (0 missing)
##       493 < 165.5  to the right, improve=4.800000, (0 missing)
##       494 < 80     to the right, improve=4.450000, (0 missing)
##       521 < 125    to the right, improve=4.450000, (0 missing)
##   Surrogate splits:
##       495 < 32.5   to the right, agree=1.00, adj=1.000, (0 split)
##       440 < 205    to the right, agree=0.95, adj=0.857, (0 split)
##       441 < 13.5   to the right, agree=0.95, adj=0.857, (0 split)
##       467 < 121.5  to the right, agree=0.95, adj=0.857, (0 split)
##       468 < 19     to the right, agree=0.95, adj=0.857, (0 split)
##
## Node number 457: 101 observations
##   predicted class=5   expected loss=0.06930693   P(node) =0.004007141
##   class counts:      0      0      2      0      2      94      1      0      2
##   0
##   probabilities: 0.000 0.000 0.020 0.000 0.020 0.931 0.010 0.000 0.020
##   0.000
##
## Node number 458: 155 observations,   complexity param=0.0005805126
##   predicted class=4   expected loss=0.316129   P(node) =0.006149573
##   class counts:      0      0      13      0   106      1      13      13      7
##   2
##   probabilities: 0.000 0.000 0.084 0.000 0.684 0.006 0.084 0.084 0.045
##   0.013
##   left son=916 (132 obs) right son=917 (23 obs)
##   Primary splits:
##       268 < 136    to the left, improve=20.08729, (0 missing)

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##      295 < 173   to the left,  improve=17.80890, (0 missing)
##      429 < 55    to the right, improve=16.97293, (0 missing)
##      126 < 6.5   to the right, improve=16.01735, (0 missing)
##      127 < 2.5   to the right, improve=15.84815, (0 missing)
## Surrogate splits:
##      295 < 173   to the left,  agree=0.981, adj=0.870, (0 split)
##      267 < 184.5 to the left,  agree=0.961, adj=0.739, (0 split)
##      296 < 210.5 to the left,  agree=0.948, adj=0.652, (0 split)
##      240 < 68.5  to the left,  agree=0.942, adj=0.609, (0 split)
##      294 < 228   to the left,  agree=0.935, adj=0.565, (0 split)
##
## Node number 459: 209 observations,      complexity param=0.001674556
## predicted class=2 expected loss=0.7464115 P(node) =0.008292006
## class counts:    14      0    53      0    19      1      2    35    34
51
## probabilities: 0.067 0.000 0.254 0.000 0.091 0.005 0.010 0.167 0.163
0.244
## left son=918 (85 obs) right son=919 (124 obs)
## Primary splits:
##      567 < 25    to the right, improve=24.04753, (0 missing)
##      568 < 77    to the right, improve=22.73472, (0 missing)
##      708 < 1.5   to the left,  improve=22.62774, (0 missing)
##      709 < 6.5   to the left,  improve=21.41509, (0 missing)
##      155 < 9.5   to the right, improve=20.79665, (0 missing)
## Surrogate splits:
##      568 < 172.5 to the right, agree=0.919, adj=0.800, (0 split)
##      566 < 2     to the right, agree=0.904, adj=0.765, (0 split)
##      595 < 8.5   to the right, agree=0.895, adj=0.741, (0 split)
##      539 < 7.5   to the right, agree=0.876, adj=0.694, (0 split)
##      594 < 0.5   to the right, agree=0.871, adj=0.682, (0 split)
##
## Node number 460: 21 observations
## predicted class=4 expected loss=0.0952381 P(node) =0.000833168
## class counts:      0      0      0      0    19      0      0      0      2
0
## probabilities: 0.000 0.000 0.000 0.000 0.905 0.000 0.000 0.000 0.095
0.000
##
## Node number 461: 53 observations,      complexity param=0.0004465482
## predicted class=8 expected loss=0.754717 P(node) =0.002102757
## class counts:    10      0      1      0      2      9      5      0    13
13
## probabilities: 0.189 0.000 0.019 0.000 0.038 0.170 0.094 0.000 0.245
0.245
## left son=922 (36 obs) right son=923 (17 obs)
## Primary splits:
##      597 < 24.5  to the right, improve=9.657849, (0 missing)
##      570 < 22.5  to the right, improve=9.326491, (0 missing)
##      598 < 10.5  to the right, improve=9.164385, (0 missing)
##      569 < 2.5   to the right, improve=9.100859, (0 missing)

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##      627 < 2.5   to the right, improve=8.688021, (0 missing)
##      Surrogate splits:
##      569 < 96    to the right, agree=0.943, adj=0.824, (0 split)
##      598 < 39    to the right, agree=0.943, adj=0.824, (0 split)
##      626 < 16    to the right, agree=0.943, adj=0.824, (0 split)
##      568 < 7     to the right, agree=0.906, adj=0.706, (0 split)
##      570 < 22.5  to the right, agree=0.906, adj=0.706, (0 split)
##
## Node number 462: 47 observations,      complexity param=0.0002456015
## predicted class=8 expected loss=0.5106383 P(node) =0.001864709
## class counts:      4      0      0      2      1     12      1      2     23
2
## probabilities: 0.085 0.000 0.000 0.043 0.021 0.255 0.021 0.043 0.489
0.043
## left son=924 (20 obs) right son=925 (27 obs)
## Primary splits:
##      600 < 214   to the right, improve=11.983290, (0 missing)
##      485 < 32.5  to the left,  improve= 8.681651, (0 missing)
##      486 < 1.5   to the left,  improve= 8.681651, (0 missing)
##      572 < 6     to the right, improve= 8.433531, (0 missing)
##      628 < 251.5 to the right, improve= 7.878917, (0 missing)
## Surrogate splits:
##      572 < 132   to the right, agree=0.894, adj=0.75, (0 split)
##      599 < 226.5 to the right, agree=0.894, adj=0.75, (0 split)
##      601 < 71    to the right, agree=0.851, adj=0.65, (0 split)
##      265 < 237   to the right, agree=0.830, adj=0.60, (0 split)
##      373 < 145.5 to the right, agree=0.830, adj=0.60, (0 split)
##
## Node number 463: 588 observations
## predicted class=8 expected loss=0.04591837 P(node) =0.0233287
## class counts:      3      0      4      3      2      2      3      6     561
4
## probabilities: 0.005 0.000 0.007 0.005 0.003 0.003 0.005 0.010 0.954
0.007
##
## Node number 464: 32 observations,      complexity param=0.0003125837
## predicted class=1 expected loss=0.3125 P(node) =0.001269589
## class counts:      1     22      7      0      1      0      0      0      1
0
## probabilities: 0.031 0.688 0.219 0.000 0.031 0.000 0.000 0.000 0.031
0.000
## left son=928 (24 obs) right son=929 (8 obs)
## Primary splits:
##      127 < 5     to the left,  improve=9.750000, (0 missing)
##      128 < 106.5 to the left,  improve=9.750000, (0 missing)
##      154 < 2.5   to the left,  improve=9.750000, (0 missing)
##      577 < 48    to the left,  improve=9.730000, (0 missing)
##      155 < 1     to the left,  improve=8.177536, (0 missing)
## Surrogate splits:
##      128 < 106.5 to the left,  agree=1.000, adj=1.000, (0 split)

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##      154 < 2.5   to the left,  agree=1.000, adj=1.000, (0 split)
##      126 < 11    to the left,  agree=0.969, adj=0.875, (0 split)
##      155 < 1     to the left,  agree=0.969, adj=0.875, (0 split)
##      577 < 48    to the left,  agree=0.969, adj=0.875, (0 split)
##
## Node number 465: 286 observations,      complexity param=0.0002232741
##   predicted class=2  expected loss=0.1153846  P(node) =0.01134695
##   class counts:      1      3    253      2      7      0      3      9      3
5
##   probabilities: 0.003 0.010 0.885 0.007 0.024 0.000 0.010 0.031 0.010
0.017
##   left son=930 (275 obs) right son=931 (11 obs)
##   Primary splits:
##       398 < 100.5 to the left,  improve=12.80392, (0 missing)
##       371 < 119   to the left,  improve=12.03539, (0 missing)
##       370 < 183   to the left,  improve=11.69353, (0 missing)
##       343 < 21.5  to the left,  improve=11.44725, (0 missing)
##       399 < 157   to the left,  improve=11.43237, (0 missing)
##   Surrogate splits:
##       370 < 183   to the left,  agree=0.997, adj=0.909, (0 split)
##       399 < 230   to the left,  agree=0.990, adj=0.727, (0 split)
##       315 < 251   to the left,  agree=0.986, adj=0.636, (0 split)
##       371 < 245.5 to the left,  agree=0.986, adj=0.636, (0 split)
##       397 < 10.5  to the left,  agree=0.986, adj=0.636, (0 split)
##
## Node number 468: 48 observations
##   predicted class=4  expected loss=0.5  P(node) =0.001904384
##   class counts:      0      1      5      0     24      1      0      2      4
11
##   probabilities: 0.000 0.021 0.104 0.000 0.500 0.021 0.000 0.042 0.083
0.229
##
## Node number 469: 25 observations
##   predicted class=6  expected loss=0.24  P(node) =0.0009918667
##   class counts:      0      0      4      0      0      0     19      2      0
0
##   probabilities: 0.000 0.000 0.160 0.000 0.000 0.000 0.760 0.080 0.000
0.000
##
## Node number 472: 83 observations
##   predicted class=2  expected loss=0.1566265  P(node) =0.003292997
##   class counts:      3      0     70      3      0      0      2      0      5
0
##   probabilities: 0.036 0.000 0.843 0.036 0.000 0.000 0.024 0.000 0.060
0.000
##
## Node number 473: 44 observations,      complexity param=0.0004465482
##   predicted class=4  expected loss=0.7272727  P(node) =0.001745685
##   class counts:      0      1      2      0     12      1     12      1     10
5

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## probabilities: 0.000 0.023 0.045 0.000 0.273 0.023 0.273 0.023 0.227
0.114
## left son=946 (12 obs) right son=947 (32 obs)
## Primary splits:
## 220 < 30 to the right, improve=7.079545, (0 missing)
## 415 < 42.5 to the right, improve=5.933911, (0 missing)
## 443 < 3.5 to the right, improve=5.933911, (0 missing)
## 470 < 27 to the right, improve=5.933911, (0 missing)
## 442 < 40.5 to the right, improve=5.848485, (0 missing)
## Surrogate splits:
## 248 < 98 to the right, agree=0.932, adj=0.750, (0 split)
## 221 < 15.5 to the right, agree=0.886, adj=0.583, (0 split)
## 247 < 107 to the right, agree=0.864, adj=0.500, (0 split)
## 275 < 242.5 to the right, agree=0.864, adj=0.500, (0 split)
## 249 < 14 to the right, agree=0.841, adj=0.417, (0 split)
##
## Node number 476: 34 observations
## predicted class=2 expected loss=0.2352941 P(node) =0.001348939
## class counts: 0 2 26 0 2 0 1 1 2
0
## probabilities: 0.000 0.059 0.765 0.000 0.059 0.000 0.029 0.029 0.059
0.000
##
## Node number 477: 1503 observations, complexity param=0.000491203
## predicted class=6 expected loss=0.0332668 P(node) =0.05963103
## class counts: 0 0 4 1 2 27 1453 0 9
7
## probabilities: 0.000 0.000 0.003 0.001 0.001 0.018 0.967 0.000 0.006
0.005
## left son=954 (18 obs) right son=955 (1485 obs)
## Primary splits:
## 217 < 164 to the right, improve=22.62187, (0 missing)
## 218 < 139 to the right, improve=21.71964, (0 missing)
## 215 < 165 to the right, improve=20.87881, (0 missing)
## 191 < 40 to the right, improve=19.28097, (0 missing)
## 192 < 25 to the right, improve=18.87744, (0 missing)
## Surrogate splits:
## 218 < 139 to the right, agree=0.997, adj=0.778, (0 split)
## 216 < 194.5 to the right, agree=0.997, adj=0.722, (0 split)
## 219 < 34 to the right, agree=0.995, adj=0.556, (0 split)
## 215 < 236.5 to the right, agree=0.994, adj=0.500, (0 split)
## 220 < 82 to the right, agree=0.994, adj=0.500, (0 split)
##
## Node number 478: 67 observations, complexity param=0.0002232741
## predicted class=5 expected loss=0.1641791 P(node) =0.002658203
## class counts: 0 0 0 2 1 56 6 0 2
0
## probabilities: 0.000 0.000 0.000 0.030 0.015 0.836 0.090 0.000 0.030
0.000
## left son=956 (58 obs) right son=957 (9 obs)

```

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## Primary splits:
## 456 < 140 to the left, improve=9.097101, (0 missing)
## 484 < 104.5 to the left, improve=6.276934, (0 missing)
## 485 < 100.5 to the left, improve=4.330817, (0 missing)
## 427 < 39 to the left, improve=4.108595, (0 missing)
## 428 < 154 to the left, improve=3.775949, (0 missing)
## Surrogate splits:
## 427 < 39 to the left, agree=0.940, adj=0.556, (0 split)
## 455 < 35.5 to the left, agree=0.940, adj=0.556, (0 split)
## 405 < 16 to the right, agree=0.925, adj=0.444, (0 split)
## 484 < 104.5 to the left, agree=0.925, adj=0.444, (0 split)
## 428 < 154 to the left, agree=0.910, adj=0.333, (0 split)
##
## Node number 479: 96 observations, complexity param=0.000870769
## predicted class=8 expected loss=0.6145833 P(node) =0.003808768
## class counts: 0 0 2 2 0 19 31 1 37
4
## probabilities: 0.000 0.000 0.021 0.021 0.000 0.198 0.323 0.010 0.385
0.042
## left son=958 (34 obs) right son=959 (62 obs)
## Primary splits:
## 457 < 103 to the right, improve=13.42750, (0 missing)
## 429 < 14 to the right, improve=13.11877, (0 missing)
## 328 < 10 to the left, improve=12.90833, (0 missing)
## 131 < 9.5 to the right, improve=12.26006, (0 missing)
## 430 < 226 to the right, improve=11.99758, (0 missing)
## Surrogate splits:
## 429 < 22.5 to the right, agree=0.885, adj=0.676, (0 split)
## 485 < 150.5 to the right, agree=0.885, adj=0.676, (0 split)
## 456 < 9.5 to the right, agree=0.854, adj=0.588, (0 split)
## 458 < 246 to the right, agree=0.854, adj=0.588, (0 split)
## 484 < 17 to the right, agree=0.833, adj=0.529, (0 split)
##
## Node number 480: 87 observations
## predicted class=2 expected loss=0.05747126 P(node) =0.003451696
## class counts: 0 0 82 2 0 2 0 0 1
0
## probabilities: 0.000 0.000 0.943 0.023 0.000 0.023 0.000 0.000 0.011
0.000
##
## Node number 481: 22 observations, complexity param=0.0002232741
## predicted class=3 expected loss=0.3181818 P(node) =0.0008728427
## class counts: 0 0 2 15 0 0 0 0 5
0
## probabilities: 0.000 0.000 0.091 0.682 0.000 0.000 0.000 0.000 0.227
0.000
## left son=962 (15 obs) right son=963 (7 obs)
## Primary splits:
## 484 < 42.5 to the left, improve=7.597403, (0 missing)
## 485 < 86 to the left, improve=7.597403, (0 missing)

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##      512 < 106   to the left,   improve=7.597403, (0 missing)
##      511 < 45.5  to the left,   improve=6.204545, (0 missing)
##      513 < 2.5   to the left,   improve=6.204545, (0 missing)
##      Surrogate splits:
##      485 < 86    to the left,   agree=1.000, adj=1.000, (0 split)
##      512 < 106   to the left,   agree=1.000, adj=1.000, (0 split)
##      511 < 45.5  to the left,   agree=0.955, adj=0.857, (0 split)
##      513 < 2.5   to the left,   agree=0.955, adj=0.857, (0 split)
##      321 < 12    to the left,   agree=0.909, adj=0.714, (0 split)
##
## Node number 482: 87 observations
##   predicted class=5   expected loss=0.1034483   P(node) =0.003451696
##   class counts:      0      0      2      5      0      78      1      0      1
##   0
##   probabilities: 0.000 0.000 0.023 0.057 0.000 0.897 0.011 0.000 0.011
##   0.000
##
## Node number 483: 25 observations,   complexity param=0.0001786193
##   predicted class=8   expected loss=0.4   P(node) =0.0009918667
##   class counts:      0      0      2      2      4      1      1      0      15
##   0
##   probabilities: 0.000 0.000 0.080 0.080 0.160 0.040 0.040 0.000 0.600
##   0.000
##   left son=966 (7 obs) right son=967 (18 obs)
##   Primary splits:
##      400 < 192   to the right, improve=5.626667, (0 missing)
##      485 < 88.5  to the left,  improve=5.055238, (0 missing)
##      401 < 201.5 to the right, improve=4.890556, (0 missing)
##      512 < 17.5  to the left,  improve=4.769524, (0 missing)
##      439 < 38    to the right, improve=4.652308, (0 missing)
##   Surrogate splits:
##      427 < 25.5  to the right, agree=0.96, adj=0.857, (0 split)
##      398 < 3     to the right, agree=0.92, adj=0.714, (0 split)
##      399 < 97.5  to the right, agree=0.92, adj=0.714, (0 split)
##      401 < 201.5 to the right, agree=0.92, adj=0.714, (0 split)
##      426 < 3     to the right, agree=0.92, adj=0.714, (0 split)
##
## Node number 484: 1415 observations,   complexity param=0.0008037867
##   predicted class=4   expected loss=0.09399293   P(node) =0.05613965
##   class counts:      0      6      14      16 1282      21      15      10      31
##   20
##   probabilities: 0.000 0.004 0.010 0.011 0.906 0.015 0.011 0.007 0.022
##   0.014
##   left son=968 (1344 obs) right son=969 (71 obs)
##   Primary splits:
##      155 < 120.5 to the left,   improve=61.80734, (0 missing)
##      183 < 31.5  to the left,   improve=46.27412, (0 missing)
##      154 < 128   to the left,   improve=37.69171, (0 missing)
##      156 < 179   to the left,   improve=33.33936, (0 missing)
##      429 < 29.5  to the right, improve=24.05030, (0 missing)

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## Surrogate splits:
##      183 < 82      to the left,  agree=0.983, adj=0.662, (0 split)
##      154 < 169.5  to the left,  agree=0.972, adj=0.437, (0 split)
##      156 < 221    to the left,  agree=0.970, adj=0.394, (0 split)
##      127 < 72     to the left,  agree=0.965, adj=0.296, (0 split)
##      182 < 240.5  to the left,  agree=0.963, adj=0.268, (0 split)
##
## Node number 485: 54 observations
## predicted class=6 expected loss=0.05555556 P(node) =0.002142432
## class counts:      0      0      2      0      1      0      51      0      0
##
## probabilities: 0.000 0.000 0.037 0.000 0.019 0.000 0.944 0.000 0.000
0.000
##
## Node number 486: 93 observations, complexity param=0.0006251675
## predicted class=9 expected loss=0.5806452 P(node) =0.003689744
## class counts:      0      0      2      2      24      20      0      5      1
39
## probabilities: 0.000 0.000 0.022 0.022 0.258 0.215 0.000 0.054 0.011
0.419
## left son=972 (21 obs) right son=973 (72 obs)
## Primary splits:
##      247 < 1.5    to the right, improve=11.82066, (0 missing)
##      381 < 4      to the left,  improve=11.37190, (0 missing)
##      353 < 5      to the left,  improve=10.84927, (0 missing)
##      248 < 1.5    to the right, improve=10.22326, (0 missing)
##      354 < 2      to the left,  improve=10.20015, (0 missing)
## Surrogate splits:
##      246 < 68.5   to the right, agree=0.968, adj=0.857, (0 split)
##      248 < 1.5    to the right, agree=0.946, adj=0.762, (0 split)
##      275 < 10.5   to the right, agree=0.935, adj=0.714, (0 split)
##      218 < 29     to the right, agree=0.925, adj=0.667, (0 split)
##      219 < 2      to the right, agree=0.925, adj=0.667, (0 split)
##
## Node number 487: 47 observations, complexity param=0.0003125837
## predicted class=7 expected loss=0.3829787 P(node) =0.001864709
## class counts:      0      0      5      2      0      1      0      29      2
8
## probabilities: 0.000 0.000 0.106 0.043 0.000 0.021 0.000 0.617 0.043
0.170
## left son=974 (36 obs) right son=975 (11 obs)
## Primary splits:
##      455 < 81.5   to the left, improve=9.107135, (0 missing)
##      426 < 9      to the left, improve=8.740324, (0 missing)
##      427 < 1      to the left, improve=8.740324, (0 missing)
##      370 < 112    to the left, improve=8.707174, (0 missing)
##      371 < 190.5  to the left, improve=8.707174, (0 missing)
## Surrogate splits:
##      426 < 26     to the left, agree=0.957, adj=0.818, (0 split)
##      427 < 1      to the left, agree=0.936, adj=0.727, (0 split)

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##      370 < 144   to the left,  agree=0.915, adj=0.636, (0 split)
##      398 < 90    to the left,  agree=0.915, adj=0.636, (0 split)
##      454 < 5.5   to the left,  agree=0.915, adj=0.636, (0 split)
##
## Node number 488: 521 observations,      complexity param=0.0009377512
##   predicted class=5   expected loss=0.1516315   P(node) =0.0206705
##   class counts:      0      0      1      35      1      442      24      1      0
17
##   probabilities: 0.000 0.000 0.002 0.067 0.002 0.848 0.046 0.002 0.000
0.033
##   left son=976 (494 obs) right son=977 (27 obs)
##   Primary splits:
##       516 < 166.5 to the left,  improve=37.42924, (0 missing)
##       544 < 240.5 to the left,  improve=35.78384, (0 missing)
##       100 < 22     to the left,  improve=35.66911, (0 missing)
##       101 < 1.5    to the left,  improve=33.93476, (0 missing)
##       543 < 40     to the left,  improve=28.88534, (0 missing)
##   Surrogate splits:
##       100 < 22     to the left,  agree=0.988, adj=0.778, (0 split)
##       544 < 240.5 to the left,  agree=0.988, adj=0.778, (0 split)
##       101 < 1.5    to the left,  agree=0.987, adj=0.741, (0 split)
##       515 < 67.5   to the left,  agree=0.981, adj=0.630, (0 split)
##       543 < 40     to the left,  agree=0.981, adj=0.630, (0 split)
##
## Node number 489: 60 observations,      complexity param=0.0005805126
##   predicted class=9   expected loss=0.6166667   P(node) =0.00238048
##   class counts:      3      0      13      2      5      3      2      0      9
23
##   probabilities: 0.050 0.000 0.217 0.033 0.083 0.050 0.033 0.000 0.150
0.383
##   left son=978 (25 obs) right son=979 (35 obs)
##   Primary splits:
##       596 < 14     to the right, improve=11.298100, (0 missing)
##       155 < 24     to the right, improve= 9.944947, (0 missing)
##       597 < 21.5   to the right, improve= 9.661661, (0 missing)
##       595 < 9      to the right, improve= 9.196044, (0 missing)
##       154 < 7      to the right, improve= 9.104167, (0 missing)
##   Surrogate splits:
##       597 < 44.5   to the right, agree=0.950, adj=0.88, (0 split)
##       595 < 9      to the right, agree=0.933, adj=0.84, (0 split)
##       539 < 13.5   to the right, agree=0.900, adj=0.76, (0 split)
##       567 < 4.5    to the right, agree=0.900, adj=0.76, (0 split)
##       568 < 2      to the right, agree=0.900, adj=0.76, (0 split)
##
## Node number 490: 79 observations
##   predicted class=4   expected loss=0.1392405   P(node) =0.003134299
##   class counts:      0      1      1      1      68      0      0      4      1
3
##   probabilities: 0.000 0.013 0.013 0.013 0.861 0.000 0.000 0.051 0.013
0.038

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##
## Node number 491: 148 observations,    complexity param=0.0008037867
## predicted class=9 expected loss=0.6689189 P(node) =0.005871851
## class counts:      0      1      4      17      20      0      2      28      27
49
## probabilities: 0.000 0.007 0.027 0.115 0.135 0.000 0.014 0.189 0.182
0.331
## left son=982 (127 obs) right son=983 (21 obs)
## Primary splits:
##      544 < 172.5 to the left, improve=15.29669, (0 missing)
##      346 < 0.5   to the left, improve=14.10428, (0 missing)
##      345 < 4     to the left, improve=13.30087, (0 missing)
##      572 < 43    to the left, improve=13.08108, (0 missing)
##      373 < 3.5   to the left, improve=12.66705, (0 missing)
## Surrogate splits:
##      516 < 159   to the left, agree=0.966, adj=0.762, (0 split)
##      543 < 1     to the left, agree=0.939, adj=0.571, (0 split)
##      571 < 7.5   to the left, agree=0.939, adj=0.571, (0 split)
##      572 < 165.5 to the left, agree=0.932, adj=0.524, (0 split)
##      517 < 252.5 to the left, agree=0.926, adj=0.476, (0 split)
##
## Node number 492: 178 observations,    complexity param=0.001607573
## predicted class=3 expected loss=0.5393258 P(node) =0.007062091
## class counts:      2      0      44      82      1      8      3      0      27
11
## probabilities: 0.011 0.000 0.247 0.461 0.006 0.045 0.017 0.000 0.152
0.062
## left son=984 (99 obs) right son=985 (79 obs)
## Primary splits:
##      484 < 46    to the left, improve=36.93243, (0 missing)
##      483 < 2.5   to the left, improve=34.73228, (0 missing)
##      485 < 2     to the left, improve=29.35907, (0 missing)
##      379 < 121   to the left, improve=29.01655, (0 missing)
##      511 < 69.5  to the left, improve=28.38304, (0 missing)
## Surrogate splits:
##      483 < 2.5   to the left, agree=0.938, adj=0.861, (0 split)
##      485 < 2     to the left, agree=0.904, adj=0.785, (0 split)
##      511 < 31.5  to the left, agree=0.904, adj=0.785, (0 split)
##      512 < 6     to the left, agree=0.904, adj=0.785, (0 split)
##      457 < 47.5  to the left, agree=0.876, adj=0.722, (0 split)
##
## Node number 493: 228 observations,    complexity param=0.001607573
## predicted class=4 expected loss=0.5570175 P(node) =0.009045824
## class counts:      1      0      9      16     101      4      1      1      50
45
## probabilities: 0.004 0.000 0.039 0.070 0.443 0.018 0.004 0.004 0.219
0.197
## left son=986 (138 obs) right son=987 (90 obs)
## Primary splits:
##      428 < 25    to the right, improve=29.39194, (0 missing)

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##      658 < 3.5   to the left,   improve=29.31754, (0 missing)
##      544 < 104   to the left,   improve=29.17931, (0 missing)
##      427 < 2.5   to the right,  improve=27.69817, (0 missing)
##      657 < 62    to the left,   improve=27.61997, (0 missing)
## Surrogate splits:
##      456 < 1.5   to the right,  agree=0.912, adj=0.778, (0 split)
##      400 < 31    to the right,  agree=0.904, adj=0.756, (0 split)
##      429 < 109.5 to the right,  agree=0.882, adj=0.700, (0 split)
##      427 < 2.5   to the right,  agree=0.877, adj=0.689, (0 split)
##      457 < 32    to the right,  agree=0.873, adj=0.678, (0 split)
##
## Node number 494: 293 observations,      complexity param=0.0006698223
## predicted class=9 expected loss=0.5119454 P(node) =0.01162468
## class counts:      1      0      17      52      23      1      0      43      13
143
## probabilities: 0.003 0.000 0.058 0.177 0.078 0.003 0.000 0.147 0.044
0.488
## left son=988 (176 obs) right son=989 (117 obs)
## Primary splits:
##      319 < 108.5 to the left,   improve=23.69464, (0 missing)
##      320 < 2.5   to the left,   improve=22.47628, (0 missing)
##      318 < 3.5   to the left,   improve=21.91279, (0 missing)
##      347 < 71    to the left,   improve=21.76380, (0 missing)
##      292 < 66.5  to the left,   improve=20.70928, (0 missing)
## Surrogate splits:
##      347 < 71    to the left,   agree=0.973, adj=0.932, (0 split)
##      320 < 2.5   to the left,   agree=0.959, adj=0.897, (0 split)
##      292 < 85.5  to the left,   agree=0.952, adj=0.880, (0 split)
##      318 < 1     to the left,   agree=0.939, adj=0.846, (0 split)
##      291 < 13.5  to the left,   agree=0.928, adj=0.821, (0 split)
##
## Node number 495: 1152 observations,      complexity param=0.0006698223
## predicted class=9 expected loss=0.1137153 P(node) =0.04570522
## class counts:      0      0      1      10      69      6      0      11      34
1021
## probabilities: 0.000 0.000 0.001 0.009 0.060 0.005 0.000 0.010 0.030
0.886
## left son=990 (66 obs) right son=991 (1086 obs)
## Primary splits:
##      212 < 14    to the left,   improve=28.50180, (0 missing)
##      219 < 193   to the right,  improve=22.58637, (0 missing)
##      191 < 63    to the right,  improve=22.43587, (0 missing)
##      220 < 2     to the right,  improve=20.35757, (0 missing)
##      213 < 0.5   to the left,   improve=18.59774, (0 missing)
## Surrogate splits:
##      191 < 166   to the right,  agree=0.948, adj=0.091, (0 split)
##      154 < 96    to the right,  agree=0.947, adj=0.076, (0 split)
##      164 < 9.5   to the right,  agree=0.947, adj=0.076, (0 split)
##      192 < 27.5  to the right,  agree=0.946, adj=0.061, (0 split)
##      219 < 200.5 to the right,  agree=0.946, adj=0.061, (0 split)

```

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##
## Node number 496: 40 observations,    complexity param=0.0002679289
## predicted class=3 expected loss=0.4 P(node) =0.001586987
## class counts:    1    6    0    24    3    4    1    0    0
1
## probabilities: 0.025 0.150 0.000 0.600 0.075 0.100 0.025 0.000 0.000
0.025
## left son=992 (26 obs) right son=993 (14 obs)
## Primary splits:
## 490 < 1 to the left, improve=9.945055, (0 missing)
## 462 < 37.5 to the left, improve=9.367521, (0 missing)
## 518 < 24 to the right, improve=9.133903, (0 missing)
## 517 < 7 to the right, improve=8.523810, (0 missing)
## 545 < 19.5 to the right, improve=8.523810, (0 missing)
## Surrogate splits:
## 462 < 37.5 to the left, agree=0.975, adj=0.929, (0 split)
## 518 < 24 to the left, agree=0.975, adj=0.929, (0 split)
## 517 < 7 to the left, agree=0.950, adj=0.857, (0 split)
## 545 < 19.5 to the left, agree=0.950, adj=0.857, (0 split)
## 546 < 15.5 to the left, agree=0.925, adj=0.786, (0 split)
##
## Node number 497: 135 observations,    complexity param=0.0002679289
## predicted class=5 expected loss=0.1777778 P(node) =0.00535608
## class counts:    0    1    4    16    0    111    1    0    1
1
## probabilities: 0.000 0.007 0.030 0.119 0.000 0.822 0.007 0.000 0.007
0.007
## left son=994 (25 obs) right son=995 (110 obs)
## Primary splits:
## 150 < 65 to the right, improve=10.710710, (0 missing)
## 151 < 133.5 to the right, improve=10.355560, (0 missing)
## 149 < 46 to the right, improve=10.235900, (0 missing)
## 176 < 25.5 to the right, improve= 8.979616, (0 missing)
## 152 < 138.5 to the right, improve= 8.784127, (0 missing)
## Surrogate splits:
## 151 < 227.5 to the right, agree=0.948, adj=0.72, (0 split)
## 149 < 25.5 to the right, agree=0.941, adj=0.68, (0 split)
## 123 < 9.5 to the right, agree=0.933, adj=0.64, (0 split)
## 122 < 3.5 to the right, agree=0.926, adj=0.60, (0 split)
## 152 < 138.5 to the right, agree=0.904, adj=0.48, (0 split)
##
## Node number 498: 46 observations,    complexity param=0.0004018934
## predicted class=8 expected loss=0.4347826 P(node) =0.001825035
## class counts:    0    5    2    9    0    0    0    3    26
1
## probabilities: 0.000 0.109 0.043 0.196 0.000 0.000 0.000 0.065 0.565
0.022
## left son=996 (18 obs) right son=997 (28 obs)
## Primary splits:
## 348 < 11.5 to the left, improve=13.425810, (0 missing)

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##      347 < 20.5  to the left,  improve=10.983680, (0 missing)
##      376 < 113   to the left,  improve=10.578990, (0 missing)
##      319 < 3     to the left,  improve=10.226420, (0 missing)
##      377 < 111.5 to the left,  improve= 9.637319, (0 missing)
## Surrogate splits:
##      347 < 20.5  to the left,  agree=0.935, adj=0.833, (0 split)
##      376 < 113   to the left,  agree=0.913, adj=0.778, (0 split)
##      377 < 111.5 to the left,  agree=0.913, adj=0.778, (0 split)
##      351 < 148   to the right, agree=0.891, adj=0.722, (0 split)
##      319 < 3     to the left,  agree=0.870, adj=0.667, (0 split)
##
## Node number 499: 92 observations,      complexity param=0.0008484415
## predicted class=9 expected loss=0.5 P(node) =0.003650069
## class counts:      0      0      2      8      27      1      0      5      3
46
## probabilities: 0.000 0.000 0.022 0.087 0.293 0.011 0.000 0.054 0.033
0.500
## left son=998 (32 obs) right son=999 (60 obs)
## Primary splits:
##      210 < 49    to the left,  improve=15.898190, (0 missing)
##      211 < 18    to the left,  improve=14.630380, (0 missing)
##      237 < 12.5  to the left,  improve=12.035720, (0 missing)
##      212 < 19    to the left,  improve=10.219870, (0 missing)
##      238 < 8     to the left,  improve= 9.997799, (0 missing)
## Surrogate splits:
##      209 < 3     to the left,  agree=0.891, adj=0.687, (0 split)
##      211 < 11.5  to the left,  agree=0.891, adj=0.687, (0 split)
##      237 < 1.5   to the left,  agree=0.848, adj=0.562, (0 split)
##      212 < 19    to the left,  agree=0.815, adj=0.469, (0 split)
##      238 < 0.5   to the left,  agree=0.815, adj=0.469, (0 split)
##
## Node number 500: 54 observations,      complexity param=0.000491203
## predicted class=1 expected loss=0.2962963 P(node) =0.002142432
## class counts:      2      38      0      1      0      2      11      0      0
0
## probabilities: 0.037 0.704 0.000 0.019 0.000 0.037 0.204 0.000 0.000
0.000
## left son=1000 (39 obs) right son=1001 (15 obs)
## Primary splits:
##      568 < 14    to the left,  improve=16.36980, (0 missing)
##      268 < 40    to the right, improve=15.85899, (0 missing)
##      296 < 37.5  to the right, improve=15.65485, (0 missing)
##      295 < 10.5  to the right, improve=15.54233, (0 missing)
##      323 < 23    to the right, improve=15.54233, (0 missing)
## Surrogate splits:
##      567 < 18.5  to the left,  agree=0.981, adj=0.933, (0 split)
##      569 < 28    to the left,  agree=0.981, adj=0.933, (0 split)
##      596 < 77    to the left,  agree=0.981, adj=0.933, (0 split)
##      597 < 144   to the left,  agree=0.981, adj=0.933, (0 split)
##      296 < 37.5  to the right, agree=0.963, adj=0.867, (0 split)

```

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##
## Node number 501: 39 observations
## predicted class=2 expected loss=0.3846154 P(node) =0.001547312
## class counts:      2      3      24      4      0      0      1      5      0
0
## probabilities: 0.051 0.077 0.615 0.103 0.000 0.000 0.026 0.128 0.000
0.000
##
## Node number 502: 23 observations, complexity param=0.0002232741
## predicted class=2 expected loss=0.5652174 P(node) =0.0009125174
## class counts:      0      3      10      2      1      0      5      1      1
0
## probabilities: 0.000 0.130 0.435 0.087 0.043 0.000 0.217 0.043 0.043
0.000
## left son=1004 (12 obs) right son=1005 (11 obs)
## Primary splits:
## 176 < 25.5 to the right, improve=5.899868, (0 missing)
## 202 < 6.5 to the right, improve=5.899868, (0 missing)
## 203 < 13 to the right, improve=5.899868, (0 missing)
## 177 < 77.5 to the right, improve=5.546488, (0 missing)
## 210 < 201 to the right, improve=5.369565, (0 missing)
## Surrogate splits:
## 202 < 6.5 to the right, agree=1.000, adj=1.000, (0 split)
## 203 < 13 to the right, agree=1.000, adj=1.000, (0 split)
## 175 < 27 to the right, agree=0.957, adj=0.909, (0 split)
## 177 < 77.5 to the right, agree=0.957, adj=0.909, (0 split)
## 240 < 50 to the right, agree=0.957, adj=0.909, (0 split)
##
## Node number 503: 1337 observations, complexity param=0.0003572385
## predicted class=7 expected loss=0.03141361 P(node) =0.05304503
## class counts:      2      9      11      4      3      0      2 1295      0
11
## probabilities: 0.001 0.007 0.008 0.003 0.002 0.000 0.001 0.969 0.000
0.008
## left son=1006 (10 obs) right son=1007 (1327 obs)
## Primary splits:
## 158 < 54 to the right, improve=16.191000, (0 missing)
## 159 < 24.5 to the right, improve=14.330360, (0 missing)
## 157 < 3 to the right, improve=12.494870, (0 missing)
## 461 < 219.5 to the right, improve=11.010110, (0 missing)
## 433 < 113.5 to the right, improve= 6.680192, (0 missing)
## Surrogate splits:
## 159 < 24.5 to the right, agree=0.999, adj=0.9, (0 split)
## 157 < 3 to the right, agree=0.999, adj=0.8, (0 split)
## 130 < 4.5 to the right, agree=0.996, adj=0.4, (0 split)
## 131 < 35.5 to the right, agree=0.996, adj=0.4, (0 split)
## 160 < 78.5 to the right, agree=0.995, adj=0.3, (0 split)
##
## Node number 508: 24 observations
## predicted class=7 expected loss=0.3333333 P(node) =0.000952192

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##      class counts:      0      0      4      0      2      0      0      16      0
2
##      probabilities: 0.000 0.000 0.167 0.000 0.083 0.000 0.000 0.667 0.000
0.083
##
## Node number 509: 26 observations,      complexity param=0.0003125837
##      predicted class=9      expected loss=0.5      P(node) =0.001031541
##      class counts:      0      0      0      0      10      0      0      0      3
13
##      probabilities: 0.000 0.000 0.000 0.000 0.385 0.000 0.000 0.000 0.115
0.500
##      left son=1018 (12 obs) right son=1019 (14 obs)
##      Primary splits:
##          382 < 178.5 to the left,      improve=6.902930, (0 missing)
##          355 < 79      to the left,      improve=6.786480, (0 missing)
##          383 < 20.5 to the left,      improve=6.786480, (0 missing)
##          410 < 175 to the left,      improve=5.615385, (0 missing)
##          344 < 3      to the left,      improve=4.557692, (0 missing)
##      Surrogate splits:
##          355 < 79      to the left,      agree=0.962, adj=0.917, (0 split)
##          383 < 20.5 to the left,      agree=0.962, adj=0.917, (0 split)
##          410 < 51      to the left,      agree=0.885, adj=0.750, (0 split)
##          354 < 243.5 to the left,      agree=0.846, adj=0.667, (0 split)
##          327 < 35      to the left,      agree=0.808, adj=0.583, (0 split)
##
## Node number 510: 25 observations,      complexity param=0.0002902563
##      predicted class=4      expected loss=0.44      P(node) =0.0009918667
##      class counts:      0      0      1      0      14      0      0      1      0
9
##      probabilities: 0.000 0.000 0.040 0.000 0.560 0.000 0.000 0.040 0.000
0.360
##      left son=1020 (17 obs) right son=1021 (8 obs)
##      Primary splits:
##          434 < 94      to the left,      improve=8.545882, (0 missing)
##          267 < 139.5 to the right,      improve=4.590000, (0 missing)
##          351 < 104 to the right,      improve=4.590000, (0 missing)
##          456 < 179.5 to the right,      improve=4.411429, (0 missing)
##          492 < 225.5 to the right,      improve=4.333506, (0 missing)
##      Surrogate splits:
##          433 < 49      to the left,      agree=0.92, adj=0.750, (0 split)
##          406 < 4      to the left,      agree=0.88, adj=0.625, (0 split)
##          464 < 218 to the right,      agree=0.88, adj=0.625, (0 split)
##          490 < 102 to the right,      agree=0.88, adj=0.625, (0 split)
##          243 < 132.5 to the left,      agree=0.84, adj=0.500, (0 split)
##
## Node number 511: 143 observations
##      predicted class=9      expected loss=0.0979021      P(node) =0.005673477
##      class counts:      0      0      3      1      3      0      1      5      1
129
##      probabilities: 0.000 0.000 0.021 0.007 0.021 0.000 0.007 0.035 0.007

```

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0.902
##
## Node number 514: 19 observations
## predicted class=2 expected loss=0.5789474 P(node) =0.0007538187
## class counts:      0      0      8      0      5      4      2      0      0
0
## probabilities: 0.000 0.000 0.421 0.000 0.263 0.211 0.105 0.000 0.000
0.000
##
## Node number 515: 12 observations
## predicted class=1 expected loss=0.5833333 P(node) =0.000476096
## class counts:      0      5      0      0      0      1      1      0      5
0
## probabilities: 0.000 0.417 0.000 0.000 0.000 0.083 0.083 0.000 0.417
0.000
##
## Node number 544: 25 observations, complexity param=0.0002232741
## predicted class=1 expected loss=0.48 P(node) =0.0009918667
## class counts:      0     13      3      5      2      1      0      1      0
0
## probabilities: 0.000 0.520 0.120 0.200 0.080 0.040 0.000 0.040 0.000
0.000
## left son=1088 (16 obs) right son=1089 (9 obs)
## Primary splits:
##      603 < 181 to the right, improve=5.959444, (0 missing)
##      631 < 32.5 to the right, improve=5.959444, (0 missing)
##      185 < 9.5 to the left, improve=5.782857, (0 missing)
##      374 < 32.5 to the left, improve=5.211429, (0 missing)
##      265 < 230 to the right, improve=5.211429, (0 missing)
## Surrogate splits:
##      631 < 32.5 to the right, agree=1.00, adj=1.000, (0 split)
##      325 < 10.5 to the left, agree=0.92, adj=0.778, (0 split)
##      326 < 8 to the left, agree=0.92, adj=0.778, (0 split)
##      599 < 25.5 to the left, agree=0.92, adj=0.778, (0 split)
##      604 < 102.5 to the right, agree=0.92, adj=0.778, (0 split)
##
## Node number 545: 68 observations, complexity param=0.0002232741
## predicted class=6 expected loss=0.2647059 P(node) =0.002697877
## class counts:      7      0      6      1      1      2     50      0      0
1
## probabilities: 0.103 0.000 0.088 0.015 0.015 0.029 0.735 0.000 0.000
0.015
## left son=1090 (12 obs) right son=1091 (56 obs)
## Primary splits:
##      244 < 56 to the right, improve=8.191877, (0 missing)
##      567 < 224.5 to the right, improve=7.572943, (0 missing)
##      123 < 192.5 to the right, improve=7.446756, (0 missing)
##      150 < 251.5 to the right, improve=7.446756, (0 missing)
##      151 < 133 to the right, improve=7.446756, (0 missing)
## Surrogate splits:

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##      243 < 190.5 to the right, agree=0.956, adj=0.750, (0 split)
##      245 < 10    to the right, agree=0.956, adj=0.750, (0 split)
##      272 < 2.5   to the right, agree=0.941, adj=0.667, (0 split)
##      217 < 97    to the right, agree=0.926, adj=0.583, (0 split)
##      271 < 142.5 to the right, agree=0.926, adj=0.583, (0 split)
##
## Node number 546: 67 observations,      complexity param=0.000491203
##   predicted class=2 expected loss=0.6865672 P(node) =0.002658203
##   class counts:      5      6      21      6      4      19      1      0      5
##   0
##   probabilities: 0.075 0.090 0.313 0.090 0.060 0.284 0.015 0.000 0.075
##   0.000
##   left son=1092 (13 obs) right son=1093 (54 obs)
##   Primary splits:
##       552 < 26    to the right, improve=9.399668, (0 missing)
##       553 < 31.5  to the right, improve=9.399668, (0 missing)
##       554 < 40    to the right, improve=9.399668, (0 missing)
##       555 < 12.5  to the right, improve=9.399668, (0 missing)
##       524 < 8     to the right, improve=8.635048, (0 missing)
##   Surrogate splits:
##       553 < 79.5  to the right, agree=0.970, adj=0.846, (0 split)
##       524 < 197   to the right, agree=0.940, adj=0.692, (0 split)
##       554 < 40    to the right, agree=0.940, adj=0.692, (0 split)
##       555 < 12.5  to the right, agree=0.940, adj=0.692, (0 split)
##       525 < 186   to the right, agree=0.925, adj=0.615, (0 split)
##
## Node number 547: 92 observations,      complexity param=0.0007144771
##   predicted class=4 expected loss=0.6413043 P(node) =0.003650069
##   class counts:      0      14      1      2      33      2      3      7      1
##   29
##   probabilities: 0.000 0.152 0.011 0.022 0.359 0.022 0.033 0.076 0.011
##   0.315
##   left son=1094 (22 obs) right son=1095 (70 obs)
##   Primary splits:
##       456 < 13.5  to the right, improve=12.39633, (0 missing)
##       429 < 115.5 to the right, improve=12.32083, (0 missing)
##       401 < 130.5 to the right, improve=11.91346, (0 missing)
##       428 < 0.5   to the right, improve=11.63469, (0 missing)
##       467 < 2.5   to the right, improve=11.42450, (0 missing)
##   Surrogate splits:
##       428 < 60    to the right, agree=0.957, adj=0.818, (0 split)
##       457 < 198.5 to the right, agree=0.946, adj=0.773, (0 split)
##       429 < 160   to the right, agree=0.935, adj=0.727, (0 split)
##       455 < 2     to the right, agree=0.935, adj=0.727, (0 split)
##       484 < 7     to the right, agree=0.935, adj=0.727, (0 split)
##
## Node number 552: 77 observations
##   predicted class=1 expected loss=0.09090909 P(node) =0.003054949
##   class counts:      0      70      1      0      0      1      1      2      1
##   1

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## probabilities: 0.000 0.909 0.013 0.000 0.000 0.013 0.013 0.026 0.013
0.013
##
## Node number 553: 18 observations
## predicted class=8 expected loss=0.6111111 P(node) =0.000714144
## class counts: 1 2 0 1 0 2 0 2 7
3
## probabilities: 0.056 0.111 0.000 0.056 0.000 0.111 0.000 0.111 0.389
0.167
##
## Node number 554: 11 observations
## predicted class=4 expected loss=0.1818182 P(node) =0.0004364213
## class counts: 0 0 0 0 9 0 1 0 0
1
## probabilities: 0.000 0.000 0.000 0.000 0.818 0.000 0.091 0.000 0.000
0.091
##
## Node number 555: 28 observations, complexity param=0.0002679289
## predicted class=8 expected loss=0.7142857 P(node) =0.001110891
## class counts: 2 1 0 3 1 6 2 0 8
5
## probabilities: 0.071 0.036 0.000 0.107 0.036 0.214 0.071 0.000 0.286
0.179
## left son=1110 (7 obs) right son=1111 (21 obs)
## Primary splits:
## 379 < 17.5 to the left, improve=5.047619, (0 missing)
## 378 < 119 to the left, improve=4.857143, (0 missing)
## 406 < 165 to the left, improve=4.279365, (0 missing)
## 407 < 62 to the left, improve=4.279365, (0 missing)
## 408 < 141.5 to the left, improve=3.913553, (0 missing)
## Surrogate splits:
## 378 < 119 to the left, agree=0.964, adj=0.857, (0 split)
## 240 < 232.5 to the left, agree=0.929, adj=0.714, (0 split)
## 267 < 214 to the left, agree=0.893, adj=0.571, (0 split)
## 277 < 3.5 to the right, agree=0.893, adj=0.571, (0 split)
## 380 < 15.5 to the left, agree=0.893, adj=0.571, (0 split)
##
## Node number 556: 37 observations, complexity param=0.0002902563
## predicted class=3 expected loss=0.6486486 P(node) =0.001467963
## class counts: 1 1 1 13 5 2 0 1 12
1
## probabilities: 0.027 0.027 0.027 0.351 0.135 0.054 0.000 0.027 0.324
0.027
## left son=1112 (19 obs) right son=1113 (18 obs)
## Primary splits:
## 317 < 4.5 to the left, improve=8.604078, (0 missing)
## 232 < 12 to the left, improve=8.288288, (0 missing)
## 318 < 65.5 to the left, improve=7.824003, (0 missing)
## 544 < 31 to the left, improve=7.645013, (0 missing)
## 289 < 12.5 to the left, improve=7.627682, (0 missing)

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## Surrogate splits:
##      289 < 3.5   to the left,  agree=0.973, adj=0.944, (0 split)
##      318 < 164.5 to the left,  agree=0.973, adj=0.944, (0 split)
##      290 < 3     to the left,  agree=0.892, adj=0.778, (0 split)
##      316 < 6.5   to the left,  agree=0.865, adj=0.722, (0 split)
##      403 < 153   to the right, agree=0.865, adj=0.722, (0 split)
##
## Node number 557: 87 observations
##   predicted class=8   expected loss=0.1149425   P(node) =0.003451696
##   class counts:      0      2      0      2      4      1      0      0      77
1
##   probabilities: 0.000 0.023 0.000 0.023 0.046 0.011 0.000 0.000 0.885
0.011
##
## Node number 586: 24 observations,   complexity param=0.0001786193
##   predicted class=2   expected loss=0.4583333   P(node) =0.000952192
##   class counts:      0      0     13      1      0      0      3      1      6
0
##   probabilities: 0.000 0.000 0.542 0.042 0.000 0.000 0.125 0.042 0.250
0.000
##   left son=1172 (16 obs) right son=1173 (8 obs)
##   Primary splits:
##      270 < 4.5   to the left,  improve=4.25, (0 missing)
##      470 < 11.5  to the right, improve=3.50, (0 missing)
##      471 < 11.5  to the right, improve=3.50, (0 missing)
##      472 < 1.5   to the right, improve=3.50, (0 missing)
##      498 < 68.5  to the right, improve=3.50, (0 missing)
##   Surrogate splits:
##      242 < 3     to the left,  agree=0.958, adj=0.875, (0 split)
##      214 < 2.5   to the left,  agree=0.917, adj=0.750, (0 split)
##      241 < 120.5 to the left,  agree=0.917, adj=0.750, (0 split)
##      269 < 136   to the left,  agree=0.917, adj=0.750, (0 split)
##      607 < 221.5 to the left,  agree=0.917, adj=0.750, (0 split)
##
## Node number 587: 12 observations
##   predicted class=3   expected loss=0.25   P(node) =0.000476096
##   class counts:      0      0      0      9      0      0      0      1      1
1
##   probabilities: 0.000 0.000 0.000 0.750 0.000 0.000 0.000 0.083 0.083
0.083
##
## Node number 598: 9 observations
##   predicted class=9   expected loss=0.5555556   P(node) =0.000357072
##   class counts:      0      0      1      0      0      3      0      1      0
4
##   probabilities: 0.000 0.000 0.111 0.000 0.000 0.333 0.000 0.111 0.000
0.444
##
## Node number 599: 11 observations
##   predicted class=8   expected loss=0.09090909   P(node) =0.0004364213

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##      class counts:      0      0      0      0      0      0      0      0      10
1
##      probabilities: 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.909
0.091
##
## Node number 612: 34 observations,      complexity param=0.0003125837
##      predicted class=2      expected loss=0.2941176      P(node) =0.001348939
##      class counts:      0      1      24      8      0      0      0      0      1
0
##      probabilities: 0.000 0.029 0.706 0.235 0.000 0.000 0.000 0.000 0.029
0.000
##      left son=1224 (24 obs) right son=1225 (10 obs)
##      Primary splits:
##          543 < 81      to the right, improve=9.800980, (0 missing)
##          544 < 69      to the right, improve=8.477331, (0 missing)
##          516 < 79.5    to the right, improve=8.024314, (0 missing)
##          571 < 14.5    to the right, improve=7.921880, (0 missing)
##          600 < 120     to the right, improve=7.921880, (0 missing)
##      Surrogate splits:
##          516 < 79.5    to the right, agree=0.971, adj=0.9, (0 split)
##          544 < 69      to the right, agree=0.971, adj=0.9, (0 split)
##          571 < 185     to the right, agree=0.941, adj=0.8, (0 split)
##          600 < 120     to the right, agree=0.912, adj=0.7, (0 split)
##          572 < 3.5     to the right, agree=0.882, adj=0.6, (0 split)
##
## Node number 613: 13 observations
##      predicted class=8      expected loss=0.2307692      P(node) =0.0005157707
##      class counts:      0      3      0      0      0      0      0      0      10
0
##      probabilities: 0.000 0.231 0.000 0.000 0.000 0.000 0.000 0.000 0.769
0.000
##
## Node number 614: 7 observations
##      predicted class=3      expected loss=0.2857143      P(node) =0.0002777227
##      class counts:      0      0      0      5      0      0      0      1      1
0
##      probabilities: 0.000 0.000 0.000 0.714 0.000 0.000 0.000 0.143 0.143
0.000
##
## Node number 615: 49 observations
##      predicted class=7      expected loss=0.1632653      P(node) =0.001944059
##      class counts:      0      5      2      0      0      0      0      41      0
1
##      probabilities: 0.000 0.102 0.041 0.000 0.000 0.000 0.000 0.837 0.000
0.020
##
## Node number 624: 26 observations,      complexity param=0.0002976988
##      predicted class=1      expected loss=0.5      P(node) =0.001031541
##      class counts:      0      13      0      3      0      1      0      0      9
0

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## probabilities: 0.000 0.500 0.000 0.115 0.000 0.038 0.000 0.000 0.346
0.000
## left son=1248 (14 obs) right son=1249 (12 obs)
## Primary splits:
## 269 < 25.5 to the left, improve=8.309524, (0 missing)
## 573 < 251.5 to the left, improve=7.825000, (0 missing)
## 268 < 169 to the left, improve=6.923077, (0 missing)
## 241 < 7.5 to the left, improve=6.896970, (0 missing)
## 374 < 14.5 to the left, improve=6.896970, (0 missing)
## Surrogate splits:
## 241 < 7.5 to the left, agree=0.962, adj=0.917, (0 split)
## 268 < 169 to the left, agree=0.962, adj=0.917, (0 split)
## 212 < 99 to the left, agree=0.923, adj=0.833, (0 split)
## 213 < 19.5 to the left, agree=0.923, adj=0.833, (0 split)
## 240 < 115 to the left, agree=0.923, adj=0.833, (0 split)
##
## Node number 625: 9 observations
## predicted class=7 expected loss=0.1111111 P(node) =0.000357072
## class counts: 0 0 0 0 0 0 0 8 0
1
## probabilities: 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.889 0.000
0.111
##
## Node number 644: 1370 observations, complexity param=0.0002456015
## predicted class=3 expected loss=0.02773723 P(node) =0.05435429
## class counts: 0 2 10 1332 0 14 0 0 12
0
## probabilities: 0.000 0.001 0.007 0.972 0.000 0.010 0.000 0.000 0.009
0.000
## left son=1288 (1360 obs) right son=1289 (10 obs)
## Primary splits:
## 487 < 148 to the left, improve=14.791020, (0 missing)
## 488 < 58.5 to the left, improve=13.689060, (0 missing)
## 341 < 70 to the left, improve=12.826310, (0 missing)
## 342 < 147.5 to the left, improve=10.885130, (0 missing)
## 313 < 154 to the left, improve= 9.880721, (0 missing)
## Surrogate splits:
## 488 < 63 to the left, agree=0.997, adj=0.6, (0 split)
## 515 < 248.5 to the left, agree=0.996, adj=0.4, (0 split)
##
## Node number 645: 23 observations, complexity param=0.0002232741
## predicted class=5 expected loss=0.6086957 P(node) =0.0009125174
## class counts: 0 0 0 5 0 9 0 0 4
5
## probabilities: 0.000 0.000 0.000 0.217 0.000 0.391 0.000 0.000 0.174
0.217
## left son=1290 (16 obs) right son=1291 (7 obs)
## Primary splits:
## 524 < 20 to the right, improve=4.090839, (0 missing)
## 496 < 36 to the right, improve=3.958696, (0 missing)

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##      296 < 16      to the left,  improve=3.701003, (0 missing)
##      580 < 1       to the right, improve=3.558696, (0 missing)
##      294 < 109.5   to the right, improve=3.555124, (0 missing)
##      Surrogate splits:
##      496 < 36      to the right, agree=0.957, adj=0.857, (0 split)
##      552 < 23.5    to the right, agree=0.957, adj=0.857, (0 split)
##      205 < 66      to the right, agree=0.870, adj=0.571, (0 split)
##      468 < 36      to the right, agree=0.870, adj=0.571, (0 split)
##      492 < 29      to the left,  agree=0.870, adj=0.571, (0 split)
##
## Node number 646: 16 observations
##      predicted class=3  expected loss=0.1875  P(node) =0.0006347947
##      class counts:      0      0      0      13      0      0      0      1      2
##      0
##      probabilities: 0.000 0.000 0.000 0.813 0.000 0.000 0.000 0.062 0.125
##      0.000
##
## Node number 647: 29 observations,      complexity param=0.0002456015
##      predicted class=5  expected loss=0.4827586  P(node) =0.001150565
##      class counts:      0      6      0      4      0      15      0      1      3
##      0
##      probabilities: 0.000 0.207 0.000 0.138 0.000 0.517 0.000 0.034 0.103
##      0.000
##      left son=1294 (12 obs) right son=1295 (17 obs)
##      Primary splits:
##      185 < 63.5    to the left,  improve=8.074037, (0 missing)
##      213 < 0.5     to the left,  improve=6.834218, (0 missing)
##      466 < 27.5    to the left,  improve=6.752799, (0 missing)
##      628 < 16.5    to the left,  improve=6.752799, (0 missing)
##      629 < 27      to the left,  improve=6.752799, (0 missing)
##      Surrogate splits:
##      213 < 0.5     to the left,  agree=0.966, adj=0.917, (0 split)
##      157 < 9        to the left,  agree=0.931, adj=0.833, (0 split)
##      158 < 4        to the left,  agree=0.931, adj=0.833, (0 split)
##      186 < 18       to the left,  agree=0.931, adj=0.833, (0 split)
##      156 < 8        to the left,  agree=0.897, adj=0.750, (0 split)
##
## Node number 652: 13 observations
##      predicted class=3  expected loss=0.07692308  P(node) =0.0005157707
##      class counts:      1      0      0      12      0      0      0      0      0
##      0
##      probabilities: 0.077 0.000 0.000 0.923 0.000 0.000 0.000 0.000 0.000
##      0.000
##
## Node number 653: 12 observations
##      predicted class=5  expected loss=0.5833333  P(node) =0.000476096
##      class counts:      1      0      0      0      0      5      1      0      4
##      1
##      probabilities: 0.083 0.000 0.000 0.000 0.000 0.417 0.083 0.000 0.333
##      0.083

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##
## Node number 658: 29 observations
## predicted class=3 expected loss=0.3103448 P(node) =0.001150565
## class counts:    0    3    1    20    0    2    3    0    0
0
## probabilities: 0.000 0.103 0.034 0.690 0.000 0.069 0.103 0.000 0.000
0.000
##
## Node number 659: 30 observations, complexity param=0.0002232741
## predicted class=5 expected loss=0.3666667 P(node) =0.00119024
## class counts:    5    0    0    2    0    19    0    3    1
0
## probabilities: 0.167 0.000 0.000 0.067 0.000 0.633 0.000 0.100 0.033
0.000
## left son=1318 (7 obs) right son=1319 (23 obs)
## Primary splits:
## 412 < 5.5 to the right, improve=6.480331, (0 missing)
## 384 < 6 to the right, improve=5.536232, (0 missing)
## 356 < 8.5 to the right, improve=5.416667, (0 missing)
## 357 < 2.5 to the right, improve=5.416667, (0 missing)
## 440 < 15.5 to the right, improve=5.089027, (0 missing)
## Surrogate splits:
## 330 < 239.5 to the right, agree=0.967, adj=0.857, (0 split)
## 357 < 111.5 to the right, agree=0.967, adj=0.857, (0 split)
## 384 < 70.5 to the right, agree=0.967, adj=0.857, (0 split)
## 385 < 40.5 to the right, agree=0.967, adj=0.857, (0 split)
## 413 < 95.5 to the right, agree=0.967, adj=0.857, (0 split)
##
## Node number 662: 30 observations, complexity param=0.0002232741
## predicted class=3 expected loss=0.4333333 P(node) =0.00119024
## class counts:    0    0    0    17    0    5    2    1    2
3
## probabilities: 0.000 0.000 0.000 0.567 0.000 0.167 0.067 0.033 0.067
0.100
## left son=1324 (22 obs) right son=1325 (8 obs)
## Primary splits:
## 324 < 153.5 to the right, improve=6.228788, (0 missing)
## 352 < 239 to the right, improve=6.058333, (0 missing)
## 187 < 208.5 to the right, improve=5.403922, (0 missing)
## 439 < 26.5 to the right, improve=5.403922, (0 missing)
## 353 < 117 to the right, improve=5.333333, (0 missing)
## Surrogate splits:
## 323 < 120.5 to the right, agree=0.933, adj=0.750, (0 split)
## 325 < 66.5 to the right, agree=0.933, adj=0.750, (0 split)
## 236 < 3.5 to the right, agree=0.900, adj=0.625, (0 split)
## 247 < 60.5 to the left, agree=0.900, adj=0.625, (0 split)
## 274 < 187 to the left, agree=0.900, adj=0.625, (0 split)
##
## Node number 663: 101 observations, complexity param=0.0002232741
## predicted class=5 expected loss=0.1089109 P(node) =0.004007141

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##      class counts:      0      0      0      8      0      90      1      0      2
0
##      probabilities: 0.000 0.000 0.000 0.079 0.000 0.891 0.010 0.000 0.020
0.000
##      left son=1326 (8 obs) right son=1327 (93 obs)
##      Primary splits:
##          124 < 83      to the right, improve=9.105371, (0 missing)
##          125 < 130     to the right, improve=6.255909, (0 missing)
##          97 < 12.5     to the right, improve=4.693280, (0 missing)
##          440 < 252.5   to the right, improve=4.693280, (0 missing)
##          552 < 170     to the right, improve=4.693280, (0 missing)
##      Surrogate splits:
##          122 < 0.5     to the right, agree=0.98, adj=0.750, (0 split)
##          123 < 60      to the right, agree=0.98, adj=0.750, (0 split)
##          96 < 43       to the right, agree=0.97, adj=0.625, (0 split)
##          152 < 116.5   to the right, agree=0.97, adj=0.625, (0 split)
##          94 < 61.5     to the right, agree=0.96, adj=0.500, (0 split)
##
##      Node number 668: 7 observations
##      predicted class=0 expected loss=0.2857143 P(node) =0.0002777227
##      class counts:      5      0      0      2      0      0      0      0      0
0
##      probabilities: 0.714 0.000 0.000 0.286 0.000 0.000 0.000 0.000 0.000
0.000
##
##      Node number 669: 51 observations
##      predicted class=5 expected loss=0.1568627 P(node) =0.002023408
##      class counts:      0      0      1      4      0      43      1      1      1
0
##      probabilities: 0.000 0.000 0.020 0.078 0.000 0.843 0.020 0.020 0.020
0.000
##
##      Node number 670: 43 observations,      complexity param=0.0002456015
##      predicted class=4 expected loss=0.3953488 P(node) =0.001706011
##      class counts:      0      0      0      6      26      0      1      10      0
0
##      probabilities: 0.000 0.000 0.000 0.140 0.605 0.000 0.023 0.233 0.000
0.000
##      left son=1340 (23 obs) right son=1341 (20 obs)
##      Primary splits:
##          231 < 13      to the right, improve=8.879980, (0 missing)
##          203 < 3       to the right, improve=7.843023, (0 missing)
##          259 < 5       to the right, improve=7.584251, (0 missing)
##          204 < 9.5     to the right, improve=7.133023, (0 missing)
##          322 < 136     to the left,  improve=6.586236, (0 missing)
##      Surrogate splits:
##          259 < 5       to the right, agree=0.977, adj=0.95, (0 split)
##          232 < 13.5    to the right, agree=0.930, adj=0.85, (0 split)
##          260 < 11.5    to the right, agree=0.930, adj=0.85, (0 split)
##          287 < 60.5    to the right, agree=0.930, adj=0.85, (0 split)

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##      203 < 3      to the right, agree=0.907, adj=0.80, (0 split)
##
## Node number 671: 70 observations,      complexity param=0.0003125837
## predicted class=9 expected loss=0.5571429 P(node) =0.002777227
## class counts:      0      7      0      10      4      5      6      1      6
31
## probabilities: 0.000 0.100 0.000 0.143 0.057 0.071 0.086 0.014 0.086
0.443
## left son=1342 (27 obs) right son=1343 (43 obs)
## Primary splits:
##      325 < 5      to the left, improve=11.360110, (0 missing)
##      182 < 5      to the right, improve=10.020820, (0 missing)
##      324 < 167.5 to the left, improve= 8.603102, (0 missing)
##      155 < 60.5 to the right, improve= 8.141367, (0 missing)
##      353 < 42     to the left, improve= 8.109524, (0 missing)
## Surrogate splits:
##      324 < 80.5 to the left, agree=0.900, adj=0.741, (0 split)
##      297 < 11    to the left, agree=0.871, adj=0.667, (0 split)
##      353 < 31.5 to the left, agree=0.871, adj=0.667, (0 split)
##      352 < 127.5 to the left, agree=0.843, adj=0.593, (0 split)
##      155 < 25.5 to the right, agree=0.814, adj=0.519, (0 split)
##
## Node number 676: 101 observations
## predicted class=3 expected loss=0.1485149 P(node) =0.004007141
## class counts:      0      0      0      86      0      3      0      0      6
6
## probabilities: 0.000 0.000 0.000 0.851 0.000 0.030 0.000 0.000 0.059
0.059
##
## Node number 677: 11 observations
## predicted class=8 expected loss=0.09090909 P(node) =0.0004364213
## class counts:      0      0      0      0      0      1      0      0      10
0
## probabilities: 0.000 0.000 0.000 0.000 0.000 0.091 0.000 0.000 0.909
0.000
##
## Node number 678: 40 observations,      complexity param=0.0001786193
## predicted class=3 expected loss=0.2 P(node) =0.001586987
## class counts:      0      0      0      32      0      6      0      0      2
0
## probabilities: 0.000 0.000 0.000 0.800 0.000 0.150 0.000 0.000 0.050
0.000
## left son=1356 (32 obs) right son=1357 (8 obs)
## Primary splits:
##      288 < 216 to the left, improve=7.212500, (0 missing)
##      260 < 176.5 to the left, improve=6.131183, (0 missing)
##      289 < 234.5 to the left, improve=5.642424, (0 missing)
##      261 < 168.5 to the left, improve=5.337500, (0 missing)
##      287 < 29.5 to the left, improve=5.266667, (0 missing)
## Surrogate splits:

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##      289 < 234.5 to the left,  agree=0.975, adj=0.875, (0 split)
##      287 < 29.5  to the left,  agree=0.950, adj=0.750, (0 split)
##      260 < 110   to the left,  agree=0.925, adj=0.625, (0 split)
##      316 < 239   to the left,  agree=0.900, adj=0.500, (0 split)
##      428 < 222.5 to the left,  agree=0.900, adj=0.500, (0 split)
##
## Node number 679: 140 observations,      complexity param=0.0004465482
##   predicted class=5  expected loss=0.5785714  P(node) =0.005554453
##   class counts:      5      1      1      27      0      59      2      3      19
23
##   probabilities: 0.036 0.007 0.007 0.193 0.000 0.421 0.014 0.021 0.136
0.164
##   left son=1358 (102 obs) right son=1359 (38 obs)
##   Primary splits:
##       294 < 3      to the right, improve=11.174260, (0 missing)
##       293 < 70     to the right, improve=11.042710, (0 missing)
##       320 < 182.5 to the right, improve=10.150730, (0 missing)
##       247 < 16.5   to the right, improve=10.000000, (0 missing)
##       596 < 15     to the right, improve= 9.077527, (0 missing)
##   Surrogate splits:
##       295 < 32     to the right, agree=0.914, adj=0.684, (0 split)
##       293 < 42     to the right, agree=0.907, adj=0.658, (0 split)
##       322 < 192    to the right, agree=0.864, adj=0.500, (0 split)
##       321 < 166    to the right, agree=0.843, adj=0.421, (0 split)
##       320 < 164    to the right, agree=0.829, adj=0.368, (0 split)
##
## Node number 684: 23 observations
##   predicted class=3  expected loss=0.08695652  P(node) =0.0009125174
##   class counts:      0      0      0      21      0      0      0      0      1
1
##   probabilities: 0.000 0.000 0.000 0.913 0.000 0.000 0.000 0.000 0.043
0.043
##
## Node number 685: 10 observations
##   predicted class=5  expected loss=0.5  P(node) =0.0003967467
##   class counts:      2      0      0      1      0      5      1      0      1
0
##   probabilities: 0.200 0.000 0.000 0.100 0.000 0.500 0.100 0.000 0.100
0.000
##
## Node number 686: 18 observations
##   predicted class=3  expected loss=0.2777778  P(node) =0.000714144
##   class counts:      0      0      0      13      0      4      0      0      1
0
##   probabilities: 0.000 0.000 0.000 0.722 0.000 0.222 0.000 0.000 0.056
0.000
##
## Node number 687: 422 observations
##   predicted class=5  expected loss=0.05924171  P(node) =0.01674271
##   class counts:      0      0      0      15      0      397      5      0      3

```

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2
## probabilities: 0.000 0.000 0.000 0.036 0.000 0.941 0.012 0.000 0.007
0.005
##
## Node number 688: 63 observations
## predicted class=4 expected loss=0.0952381 P(node) =0.002499504
## class counts: 0 0 0 1 57 0 0 2 0
3
## probabilities: 0.000 0.000 0.000 0.016 0.905 0.000 0.000 0.032 0.000
0.048
##
## Node number 689: 7 observations
## predicted class=6 expected loss=0.4285714 P(node) =0.0002777227
## class counts: 0 0 0 0 0 3 4 0 0
0
## probabilities: 0.000 0.000 0.000 0.000 0.000 0.429 0.571 0.000 0.000
0.000
##
## Node number 698: 9 observations
## predicted class=3 expected loss=0 P(node) =0.000357072
## class counts: 0 0 0 9 0 0 0 0 0
0
## probabilities: 0.000 0.000 0.000 1.000 0.000 0.000 0.000 0.000 0.000
0.000
##
## Node number 699: 28 observations
## predicted class=9 expected loss=0.5 P(node) =0.001110891
## class counts: 0 2 0 2 6 1 0 1 2
14
## probabilities: 0.000 0.071 0.000 0.071 0.214 0.036 0.000 0.036 0.071
0.500
##
## Node number 702: 9 observations
## predicted class=8 expected loss=0.4444444 P(node) =0.000357072
## class counts: 2 0 2 0 0 0 0 0 5
0
## probabilities: 0.222 0.000 0.222 0.000 0.000 0.000 0.000 0.000 0.556
0.000
##
## Node number 703: 238 observations
## predicted class=9 expected loss=0.1008403 P(node) =0.009442571
## class counts: 1 0 0 4 8 1 0 10 0
214
## probabilities: 0.004 0.000 0.000 0.017 0.034 0.004 0.000 0.042 0.000
0.899
##
## Node number 712: 14 observations
## predicted class=1 expected loss=0.07142857 P(node) =0.0005554453
## class counts: 0 13 0 0 0 0 1 0 0
0

```

```

## probabilities: 0.000 0.929 0.000 0.000 0.000 0.000 0.071 0.000 0.000
0.000
##
## Node number 713: 25 observations, complexity param=0.0003125837
## predicted class=4 expected loss=0.68 P(node) =0.0009918667
## class counts: 0 1 0 0 8 7 6 0 2
1
## probabilities: 0.000 0.040 0.000 0.000 0.320 0.280 0.240 0.000 0.080
0.040
## left son=1426 (17 obs) right son=1427 (8 obs)
## Primary splits:
## 293 < 127.5 to the left, improve=6.108824, (0 missing)
## 572 < 19.5 to the left, improve=5.319481, (0 missing)
## 294 < 94 to the left, improve=5.235897, (0 missing)
## 320 < 22.5 to the left, improve=5.235897, (0 missing)
## 321 < 63 to the left, improve=5.235897, (0 missing)
## Surrogate splits:
## 273 < 155 to the left, agree=0.92, adj=0.750, (0 split)
## 274 < 20.5 to the left, agree=0.92, adj=0.750, (0 split)
## 292 < 20.5 to the left, agree=0.92, adj=0.750, (0 split)
## 246 < 18.5 to the left, agree=0.88, adj=0.625, (0 split)
## 265 < 14.5 to the left, agree=0.88, adj=0.625, (0 split)
##
## Node number 714: 9 observations
## predicted class=0 expected loss=0.1111111 P(node) =0.000357072
## class counts: 8 0 0 0 0 0 1 0 0
0
## probabilities: 0.889 0.000 0.000 0.000 0.000 0.000 0.111 0.000 0.000
0.000
##
## Node number 715: 35 observations, complexity param=0.0004018934
## predicted class=8 expected loss=0.6 P(node) =0.001388613
## class counts: 1 0 12 3 1 0 2 0 14
2
## probabilities: 0.029 0.000 0.343 0.086 0.029 0.000 0.057 0.000 0.400
0.057
## left son=1430 (16 obs) right son=1431 (19 obs)
## Primary splits:
## 550 < 139 to the right, improve=6.933647, (0 missing)
## 577 < 205.5 to the right, improve=6.177640, (0 missing)
## 551 < 219.5 to the right, improve=5.885714, (0 missing)
## 552 < 217.5 to the right, improve=5.134161, (0 missing)
## 545 < 59.5 to the right, improve=5.004295, (0 missing)
## Surrogate splits:
## 551 < 41 to the right, agree=0.943, adj=0.875, (0 split)
## 578 < 3.5 to the right, agree=0.886, adj=0.750, (0 split)
## 579 < 21.5 to the right, agree=0.886, adj=0.750, (0 split)
## 464 < 1.5 to the left, agree=0.829, adj=0.625, (0 split)
## 523 < 37.5 to the right, agree=0.829, adj=0.625, (0 split)
##

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## Node number 732: 14 observations
##   predicted class=5   expected loss=0.2857143   P(node) =0.0005554453
##   class counts:      0      0      0      3      0      10      1      0      0
##   probabilities: 0.000 0.000 0.000 0.214 0.000 0.714 0.071 0.000 0.000
##   0.000
##
## Node number 733: 7 observations
##   predicted class=6   expected loss=0   P(node) =0.0002777227
##   class counts:      0      0      0      0      0      0      7      0      0
##   probabilities: 0.000 0.000 0.000 0.000 0.000 0.000 1.000 0.000 0.000
##   0.000
##
## Node number 746: 16 observations
##   predicted class=5   expected loss=0.375   P(node) =0.0006347947
##   class counts:      0      0      0      2      0      10      1      0      3
##   probabilities: 0.000 0.000 0.000 0.125 0.000 0.625 0.062 0.000 0.188
##   0.000
##
## Node number 747: 12 observations
##   predicted class=8   expected loss=0.25   P(node) =0.000476096
##   class counts:      0      0      0      2      0      0      1      0      9
##   probabilities: 0.000 0.000 0.000 0.167 0.000 0.000 0.083 0.000 0.750
##   0.000
##
## Node number 764: 24 observations,   complexity param=0.0001786193
##   predicted class=2   expected loss=0.2916667   P(node) =0.000952192
##   class counts:      0      0      17      1      0      0      1      0      5
##   probabilities: 0.000 0.000 0.708 0.042 0.000 0.000 0.042 0.000 0.208
##   0.000
##   left son=1528 (17 obs) right son=1529 (7 obs)
##   Primary splits:
##       602 < 175   to the right, improve=5.808123, (0 missing)
##       212 < 2     to the right, improve=4.708333, (0 missing)
##       574 < 0.5   to the right, improve=4.708333, (0 missing)
##       603 < 251.5 to the right, improve=4.708333, (0 missing)
##       347 < 36.5  to the left,  improve=4.665266, (0 missing)
##   Surrogate splits:
##       574 < 0.5   to the right, agree=0.958, adj=0.857, (0 split)
##       603 < 207.5 to the right, agree=0.958, adj=0.857, (0 split)
##       184 < 160   to the right, agree=0.917, adj=0.714, (0 split)
##       486 < 246   to the right, agree=0.917, adj=0.714, (0 split)
##       575 < 25    to the right, agree=0.917, adj=0.714, (0 split)
##
## Node number 765: 33 observations
##   predicted class=8   expected loss=0.1818182   P(node) =0.001309264

```

```

##      class counts:      1      0      1      2      0      1      0      1      27
0
##      probabilities: 0.030 0.000 0.030 0.061 0.000 0.030 0.000 0.030 0.818
0.000
##
## Node number 766: 36 observations,      complexity param=0.0001786193
##      predicted class=8      expected loss=0.5      P(node) =0.001428288
##      class counts:      0      0      0      10      0      5      2      0      18
1
##      probabilities: 0.000 0.000 0.000 0.278 0.000 0.139 0.056 0.000 0.500
0.028
##      left son=1532 (11 obs) right son=1533 (25 obs)
##      Primary splits:
##          289 < 1.5      to the left,      improve=7.614343, (0 missing)
##          260 < 30      to the left,      improve=6.635642, (0 missing)
##          288 < 8.5      to the left,      improve=6.539391, (0 missing)
##          298 < 5.5      to the left,      improve=5.462963, (0 missing)
##          268 < 147.5 to the right, improve=5.388889, (0 missing)
##      Surrogate splits:
##          261 < 2      to the left,      agree=0.944, adj=0.818, (0 split)
##          288 < 8.5      to the left,      agree=0.944, adj=0.818, (0 split)
##          268 < 147.5 to the right, agree=0.889, adj=0.636, (0 split)
##          290 < 19      to the left,      agree=0.889, adj=0.636, (0 split)
##          295 < 232      to the right, agree=0.889, adj=0.636, (0 split)
##
## Node number 767: 309 observations
##      predicted class=8      expected loss=0.04530744      P(node) =0.01225947
##      class counts:      1      0      0      2      0      1      8      0      295
2
##      probabilities: 0.003 0.000 0.000 0.006 0.000 0.003 0.026 0.000 0.955
0.006
##
## Node number 770: 299 observations,      complexity param=0.0001786193
##      predicted class=0      expected loss=0.1170569      P(node) =0.01186273
##      class counts:      264      0      9      7      0      14      3      1      0
1
##      probabilities: 0.883 0.000 0.030 0.023 0.000 0.047 0.010 0.003 0.000
0.003
##      left son=1540 (267 obs) right son=1541 (32 obs)
##      Primary splits:
##          296 < 135      to the left,      improve=14.112060, (0 missing)
##          295 < 40.5      to the left,      improve=10.053470, (0 missing)
##          323 < 37      to the left,      improve= 8.928094, (0 missing)
##          324 < 29.5      to the left,      improve= 8.732347, (0 missing)
##          214 < 0.5      to the right, improve= 8.321044, (0 missing)
##      Surrogate splits:
##          324 < 29.5      to the left,      agree=0.963, adj=0.656, (0 split)
##          295 < 237.5 to the left,      agree=0.950, adj=0.531, (0 split)
##          323 < 37      to the left,      agree=0.936, adj=0.406, (0 split)
##          268 < 248      to the left,      agree=0.926, adj=0.313, (0 split)

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##      563 < 11.5  to the left,  agree=0.913, adj=0.187, (0 split)
##
## Node number 771: 33 observations,      complexity param=0.0001786193
## predicted class=2  expected loss=0.5151515  P(node) =0.001309264
##   class counts:    12      0    16      0      0      0      2      3      0
##
##   probabilities: 0.364 0.000 0.485 0.000 0.000 0.000 0.061 0.091 0.000
## 0.000
## left son=1542 (11 obs) right son=1543 (22 obs)
## Primary splits:
##      455 < 4      to the right, improve=7.666667, (0 missing)
##      482 < 13.5  to the right, improve=7.666667, (0 missing)
##      483 < 76    to the right, improve=7.666667, (0 missing)
##      214 < 158   to the right, improve=7.521613, (0 missing)
##      369 < 40.5  to the right, improve=6.884848, (0 missing)
## Surrogate splits:
##      483 < 76    to the right, agree=1.000, adj=1.000, (0 split)
##      482 < 45.5  to the right, agree=0.970, adj=0.909, (0 split)
##      511 < 207.5 to the right, agree=0.970, adj=0.909, (0 split)
##      510 < 172.5 to the right, agree=0.939, adj=0.818, (0 split)
##      454 < 3     to the right, agree=0.909, adj=0.727, (0 split)
##
## Node number 792: 11 observations
## predicted class=2  expected loss=0.4545455  P(node) =0.0004364213
##   class counts:    1      1      6      0      0      2      1      0      0
##
##   probabilities: 0.091 0.091 0.545 0.000 0.000 0.182 0.091 0.000 0.000
## 0.000
##
## Node number 793: 44 observations
## predicted class=3  expected loss=0.2954545  P(node) =0.001745685
##   class counts:    2      0      4     31      0      5      0      2      0
##
##   probabilities: 0.045 0.000 0.091 0.705 0.000 0.114 0.000 0.045 0.000
## 0.000
##
## Node number 824: 34 observations,      complexity param=0.0002976988
## predicted class=5  expected loss=0.7058824  P(node) =0.001348939
##   class counts:    4      0      8      3      1     10      5      0      3
##
##   probabilities: 0.118 0.000 0.235 0.088 0.029 0.294 0.147 0.000 0.088
## 0.000
## left son=1648 (10 obs) right son=1649 (24 obs)
## Primary splits:
##      580 < 144   to the right, improve=4.645098, (0 missing)
##      554 < 19    to the right, improve=4.438220, (0 missing)
##      582 < 7.5   to the right, improve=4.438220, (0 missing)
##      247 < 3     to the left,  improve=4.200226, (0 missing)
##      579 < 69    to the right, improve=4.189542, (0 missing)
## Surrogate splits:

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##      581 < 28    to the right, agree=0.971, adj=0.9, (0 split)
##      552 < 116.5 to the right, agree=0.941, adj=0.8, (0 split)
##      553 < 20.5  to the right, agree=0.941, adj=0.8, (0 split)
##      554 < 19    to the right, agree=0.912, adj=0.7, (0 split)
##      582 < 7.5   to the right, agree=0.912, adj=0.7, (0 split)
##
## Node number 825: 10 observations
##   predicted class=8   expected loss=0.1   P(node) =0.0003967467
##   class counts:      0      0      0      0      0      0      1      0      9
0
##   probabilities: 0.000 0.000 0.000 0.000 0.000 0.000 0.100 0.000 0.900
0.000
##
## Node number 836: 8 observations
##   predicted class=0   expected loss=0   P(node) =0.0003173973
##   class counts:      8      0      0      0      0      0      0      0      0
0
##   probabilities: 1.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000
##
## Node number 837: 17 observations
##   predicted class=5   expected loss=0.2941176   P(node) =0.0006744694
##   class counts:      0      0      0      1      0      12      3      0      1
0
##   probabilities: 0.000 0.000 0.000 0.059 0.000 0.706 0.176 0.000 0.059
0.000
##
## Node number 838: 19 observations
##   predicted class=2   expected loss=0.3157895   P(node) =0.0007538187
##   class counts:      2      0      13      1      2      0      0      0      0
1
##   probabilities: 0.105 0.000 0.684 0.053 0.105 0.000 0.000 0.000 0.000
0.053
##
## Node number 839: 14 observations
##   predicted class=9   expected loss=0.1428571   P(node) =0.0005554453
##   class counts:      0      0      0      0      1      0      0      1      0
12
##   probabilities: 0.000 0.000 0.000 0.000 0.071 0.000 0.000 0.071 0.000
0.857
##
## Node number 866: 28 observations,   complexity param=0.0001786193
##   predicted class=6   expected loss=0.7142857   P(node) =0.001110891
##   class counts:      1      7      0      4      0      6      8      0      0
2
##   probabilities: 0.036 0.250 0.000 0.143 0.000 0.214 0.286 0.000 0.000
0.071
##   left son=1732 (18 obs) right son=1733 (10 obs)
##   Primary splits:
##      515 < 28.5  to the left,   improve=5.084127, (0 missing)

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##      544 < 196.5 to the left, improve=4.978571, (0 missing)
##      657 < 96    to the left, improve=4.747285, (0 missing)
##      188 < 14.5  to the right, improve=4.678571, (0 missing)
##      656 < 8.5   to the left, improve=4.602368, (0 missing)
## Surrogate splits:
##      516 < 173.5 to the left, agree=0.964, adj=0.9, (0 split)
##      487 < 16    to the left, agree=0.929, adj=0.8, (0 split)
##      488 < 203.5 to the left, agree=0.929, adj=0.8, (0 split)
##      544 < 12    to the left, agree=0.929, adj=0.8, (0 split)
##      543 < 22    to the left, agree=0.893, adj=0.7, (0 split)
##
## Node number 867: 9 observations
## predicted class=5 expected loss=0 P(node) =0.000357072
## class counts:      0      0      0      0      0      9      0      0      0
0
## probabilities: 0.000 0.000 0.000 0.000 0.000 1.000 0.000 0.000 0.000
0.000
##
## Node number 896: 912 observations
## predicted class=2 expected loss=0.03399123 P(node) =0.0361833
## class counts:      0      0  881  15      0      0      0  12      4
0
## probabilities: 0.000 0.000 0.966 0.016 0.000 0.000 0.000 0.013 0.004
0.000
##
## Node number 897: 10 observations
## predicted class=8 expected loss=0.3 P(node) =0.0003967467
## class counts:      0      0      1      0      0      1      0      0      7
1
## probabilities: 0.000 0.000 0.100 0.000 0.000 0.100 0.000 0.000 0.700
0.100
##
## Node number 900: 22 observations
## predicted class=2 expected loss=0.2272727 P(node) =0.0008728427
## class counts:      3      0  17      0      0      0      2      0      0
0
## probabilities: 0.136 0.000 0.773 0.000 0.000 0.000 0.091 0.000 0.000
0.000
##
## Node number 901: 13 observations
## predicted class=9 expected loss=0.1538462 P(node) =0.0005157707
## class counts:      0      0      0      0      2      0      0      0      0
11
## probabilities: 0.000 0.000 0.000 0.000 0.154 0.000 0.000 0.000 0.000
0.846
##
## Node number 904: 135 observations, complexity param=0.0005805126
## predicted class=1 expected loss=0.2592593 P(node) =0.00535608
## class counts:      0  100  17      1      2      3      6      6      0
0

```



```

## probabilities: 0.000 0.741 0.126 0.007 0.015 0.022 0.044 0.044 0.000
0.000
## left son=1808 (107 obs) right son=1809 (28 obs)
## Primary splits:
## 520 < 3 to the left, improve=23.79034, (0 missing)
## 351 < 79 to the right, improve=23.07407, (0 missing)
## 519 < 49.5 to the left, improve=23.00462, (0 missing)
## 510 < 2.5 to the left, improve=22.79906, (0 missing)
## 352 < 194 to the right, improve=22.79529, (0 missing)
## Surrogate splits:
## 519 < 69.5 to the left, agree=0.963, adj=0.821, (0 split)
## 547 < 2.5 to the left, agree=0.956, adj=0.786, (0 split)
## 492 < 71 to the left, agree=0.948, adj=0.750, (0 split)
## 521 < 3 to the left, agree=0.941, adj=0.714, (0 split)
## 464 < 139.5 to the left, agree=0.933, adj=0.679, (0 split)
##
## Node number 905: 111 observations, complexity param=0.001384299
## predicted class=4 expected loss=0.4774775 P(node) =0.004403888
## class counts: 0 0 2 0 58 2 42 2 3
2
## probabilities: 0.000 0.000 0.018 0.000 0.523 0.018 0.378 0.018 0.027
0.018
## left son=1810 (72 obs) right son=1811 (39 obs)
## Primary splits:
## 573 < 221 to the left, improve=26.92487, (0 missing)
## 216 < 3.5 to the right, improve=26.23956, (0 missing)
## 438 < 73 to the right, improve=24.46467, (0 missing)
## 574 < 101 to the left, improve=23.81049, (0 missing)
## 488 < 105.5 to the right, improve=23.70271, (0 missing)
## Surrogate splits:
## 572 < 142 to the left, agree=0.883, adj=0.667, (0 split)
## 574 < 142.5 to the left, agree=0.865, adj=0.615, (0 split)
## 601 < 70.5 to the left, agree=0.865, adj=0.615, (0 split)
## 488 < 43.5 to the right, agree=0.847, adj=0.564, (0 split)
## 459 < 5 to the right, agree=0.829, adj=0.513, (0 split)
##
## Node number 906: 150 observations, complexity param=0.000982406
## predicted class=2 expected loss=0.46 P(node) =0.0059512
## class counts: 0 2 81 5 1 0 0 46 6
9
## probabilities: 0.000 0.013 0.540 0.033 0.007 0.000 0.000 0.307 0.040
0.060
## left son=1812 (127 obs) right son=1813 (23 obs)
## Primary splits:
## 678 < 45.5 to the left, improve=19.60675, (0 missing)
## 566 < 74 to the right, improve=17.50022, (0 missing)
## 706 < 3.5 to the left, improve=16.47333, (0 missing)
## 538 < 25 to the right, improve=16.11102, (0 missing)
## 679 < 102.5 to the left, improve=15.70316, (0 missing)
## Surrogate splits:

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##      677 < 3      to the left,  agree=0.973, adj=0.826, (0 split)
##      706 < 3.5    to the left,  agree=0.967, adj=0.783, (0 split)
##      650 < 50.5   to the left,  agree=0.960, adj=0.739, (0 split)
##      705 < 8      to the left,  agree=0.960, adj=0.739, (0 split)
##      679 < 0.5    to the left,  agree=0.953, adj=0.696, (0 split)
##
## Node number 907: 91 observations,      complexity param=0.0004465482
##   predicted class=9   expected loss=0.3076923   P(node) =0.003610395
##   class counts:      2      0      4      0      1      5      0      3      13
63
##   probabilities: 0.022 0.000 0.044 0.000 0.011 0.055 0.000 0.033 0.143
0.692
##   left son=1814 (28 obs) right son=1815 (63 obs)
##   Primary splits:
##       599 < 6.5    to the right, improve=18.85958, (0 missing)
##       627 < 74.5   to the right, improve=14.62795, (0 missing)
##       598 < 26     to the right, improve=14.29277, (0 missing)
##       626 < 29.5   to the right, improve=14.18974, (0 missing)
##       403 < 0.5    to the right, improve=13.52410, (0 missing)
##   Surrogate splits:
##       598 < 26     to the right, agree=0.945, adj=0.821, (0 split)
##       627 < 74.5   to the right, agree=0.934, adj=0.786, (0 split)
##       600 < 4      to the right, agree=0.923, adj=0.750, (0 split)
##       626 < 29.5   to the right, agree=0.923, adj=0.750, (0 split)
##       570 < 36.5   to the right, agree=0.912, adj=0.714, (0 split)
##
## Node number 912: 13 observations
##   predicted class=0   expected loss=0.6153846   P(node) =0.0005157707
##   class counts:      5      0      5      0      0      0      3      0      0
0
##   probabilities: 0.385 0.000 0.385 0.000 0.000 0.000 0.231 0.000 0.000
0.000
##
## Node number 913: 7 observations
##   predicted class=8   expected loss=0.1428571   P(node) =0.0002777227
##   class counts:      0      0      0      0      1      0      0      0      6
0
##   probabilities: 0.000 0.000 0.000 0.000 0.143 0.000 0.000 0.000 0.857
0.000
##
## Node number 916: 132 observations,      complexity param=0.0004018934
##   predicted class=4   expected loss=0.1969697   P(node) =0.005237056
##   class counts:      0      0      10      0      106      1      13      0      2
0
##   probabilities: 0.000 0.000 0.076 0.000 0.803 0.008 0.098 0.000 0.015
0.000
##   left son=1832 (18 obs) right son=1833 (114 obs)
##   Primary splits:
##       127 < 2.5    to the right, improve=19.72116, (0 missing)
##       126 < 6.5    to the left,  improve=19.47208, (0 missing)

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##      125 < 34    to the left,  improve=18.35517, (0 missing)
##      97 < 2     to the left,  improve=16.73281, (0 missing)
##      128 < 6.5  to the right, improve=15.73523, (0 missing)
## Surrogate splits:
##      99 < 1     to the right, agree=0.970, adj=0.778, (0 split)
##      128 < 6.5  to the right, agree=0.970, adj=0.778, (0 split)
##      126 < 6.5  to the right, agree=0.962, adj=0.722, (0 split)
##      129 < 19   to the right, agree=0.947, adj=0.611, (0 split)
##      98 < 68.5  to the right, agree=0.939, adj=0.556, (0 split)
##
## Node number 917: 23 observations,      complexity param=0.0002232741
## predicted class=7 expected loss=0.4347826 P(node) =0.0009125174
## class counts:      0      0      3      0      0      0      0      13      5
2
## probabilities: 0.000 0.000 0.130 0.000 0.000 0.000 0.000 0.565 0.217
0.087
## left son=1834 (8 obs) right son=1835 (15 obs)
## Primary splits:
##      486 < 162.5 to the right, improve=6.783333, (0 missing)
##      376 < 55    to the left,  improve=6.283333, (0 missing)
##      430 < 5.5   to the left,  improve=6.267857, (0 missing)
##      458 < 56    to the right, improve=6.150000, (0 missing)
##      290 < 13.5  to the right, improve=5.732143, (0 missing)
## Surrogate splits:
##      485 < 50    to the right, agree=0.957, adj=0.875, (0 split)
##      513 < 132   to the right, agree=0.957, adj=0.875, (0 split)
##      458 < 56    to the right, agree=0.913, adj=0.750, (0 split)
##      459 < 187.5 to the right, agree=0.913, adj=0.750, (0 split)
##      460 < 247.5 to the right, agree=0.913, adj=0.750, (0 split)
##
## Node number 918: 85 observations,      complexity param=0.0008037867
## predicted class=2 expected loss=0.4823529 P(node) =0.003372347
## class counts:      12      0      44      0      1      1      1      2      23
1
## probabilities: 0.141 0.000 0.518 0.000 0.012 0.012 0.012 0.024 0.271
0.012
## left son=1836 (56 obs) right son=1837 (29 obs)
## Primary splits:
##      654 < 33    to the left,  improve=16.81152, (0 missing)
##      653 < 28.5  to the left,  improve=14.56957, (0 missing)
##      655 < 20    to the left,  improve=14.16532, (0 missing)
##      348 < 206.5 to the left,  improve=13.32259, (0 missing)
##      525 < 33.5  to the right, improve=12.24566, (0 missing)
## Surrogate splits:
##      653 < 28.5  to the left,  agree=0.953, adj=0.862, (0 split)
##      655 < 4.5   to the left,  agree=0.953, adj=0.862, (0 split)
##      652 < 56.5  to the left,  agree=0.906, adj=0.724, (0 split)
##      656 < 5.5   to the left,  agree=0.906, adj=0.724, (0 split)
##      627 < 180.5 to the left,  agree=0.871, adj=0.621, (0 split)
##

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## Node number 919: 124 observations,    complexity param=0.0007591319
##   predicted class=9   expected loss=0.5967742   P(node) =0.004919659
##   class counts:      2      0      9      0      18      0      1      33      11
50
##   probabilities: 0.016 0.000 0.073 0.000 0.145 0.000 0.008 0.266 0.089
0.403
##   left son=1838 (71 obs) right son=1839 (53 obs)
##   Primary splits:
##       458 < 5      to the left,   improve=13.01018, (0 missing)
##       457 < 5.5    to the right,  improve=12.63663, (0 missing)
##       429 < 9.5    to the left,   improve=12.35484, (0 missing)
##       681 < 233.5  to the right,  improve=11.61812, (0 missing)
##       709 < 168.5  to the left,   improve=11.53778, (0 missing)
##   Surrogate splits:
##       457 < 17.5   to the left,   agree=0.919, adj=0.811, (0 split)
##       459 < 13.5   to the left,   agree=0.895, adj=0.755, (0 split)
##       429 < 20.5   to the left,   agree=0.879, adj=0.717, (0 split)
##       456 < 5.5    to the left,   agree=0.863, adj=0.679, (0 split)
##       430 < 88.5   to the left,   agree=0.855, adj=0.660, (0 split)
##
## Node number 922: 36 observations,    complexity param=0.0004465482
##   predicted class=8   expected loss=0.6388889   P(node) =0.001428288
##   class counts:      10      0      1      0      0      8      4      0      13
0
##   probabilities: 0.278 0.000 0.028 0.000 0.000 0.222 0.111 0.000 0.361
0.000
##   left son=1844 (14 obs) right son=1845 (22 obs)
##   Primary splits:
##       266 < 251.5  to the right,  improve=7.745310, (0 missing)
##       434 < 5      to the left,   improve=7.349206, (0 missing)
##       382 < 7      to the right,  improve=6.699182, (0 missing)
##       293 < 218    to the right,  improve=6.102778, (0 missing)
##       354 < 29.5   to the right,  improve=5.940115, (0 missing)
##   Surrogate splits:
##       293 < 218    to the right,  agree=0.889, adj=0.714, (0 split)
##       294 < 223    to the right,  agree=0.889, adj=0.714, (0 split)
##       574 < 225    to the right,  agree=0.889, adj=0.714, (0 split)
##       295 < 21     to the right,  agree=0.861, adj=0.643, (0 split)
##       322 < 3      to the right,  agree=0.861, adj=0.643, (0 split)
##
## Node number 923: 17 observations
##   predicted class=9   expected loss=0.2352941   P(node) =0.0006744694
##   class counts:      0      0      0      0      2      1      1      0      0
13
##   probabilities: 0.000 0.000 0.000 0.000 0.118 0.059 0.059 0.000 0.000
0.765
##
## Node number 924: 20 observations,    complexity param=0.0001786193
##   predicted class=5   expected loss=0.45   P(node) =0.0007934934
##   class counts:      4      0      0      2      1      11      0      1      0

```

```

1
## probabilities: 0.200 0.000 0.000 0.100 0.050 0.550 0.000 0.050 0.000
0.050
## left son=1848 (8 obs) right son=1849 (12 obs)
## Primary splits:
## 327 < 46.5 to the right, improve=5.716667, (0 missing)
## 355 < 30.5 to the right, improve=5.716667, (0 missing)
## 382 < 12 to the right, improve=5.200000, (0 missing)
## 435 < 204.5 to the left, improve=4.975824, (0 missing)
## 354 < 58 to the right, improve=4.966667, (0 missing)
## Surrogate splits:
## 355 < 30.5 to the right, agree=1.00, adj=1.000, (0 split)
## 328 < 26.5 to the right, agree=0.95, adj=0.875, (0 split)
## 289 < 20 to the left, agree=0.90, adj=0.750, (0 split)
## 354 < 58 to the right, agree=0.90, adj=0.750, (0 split)
## 382 < 12 to the right, agree=0.90, adj=0.750, (0 split)
##
## Node number 925: 27 observations
## predicted class=8 expected loss=0.1481481 P(node) =0.001071216
## class counts: 0 0 0 0 0 1 1 1 23
1
## probabilities: 0.000 0.000 0.000 0.000 0.000 0.037 0.037 0.037 0.852
0.037
##
## Node number 928: 24 observations
## predicted class=1 expected loss=0.08333333 P(node) =0.000952192
## class counts: 0 22 0 0 1 0 0 0 1
0
## probabilities: 0.000 0.917 0.000 0.000 0.042 0.000 0.000 0.000 0.042
0.000
##
## Node number 929: 8 observations
## predicted class=2 expected loss=0.125 P(node) =0.0003173973
## class counts: 1 0 7 0 0 0 0 0 0
0
## probabilities: 0.125 0.000 0.875 0.000 0.000 0.000 0.000 0.000 0.000
0.000
##
## Node number 930: 275 observations, complexity param=0.0001786193
## predicted class=2 expected loss=0.08 P(node) =0.01091053
## class counts: 1 3 253 2 3 0 1 9 3
0
## probabilities: 0.004 0.011 0.920 0.007 0.011 0.000 0.004 0.033 0.011
0.000
## left son=1860 (268 obs) right son=1861 (7 obs)
## Primary splits:
## 681 < 13 to the left, improve=7.816926, (0 missing)
## 348 < 41 to the left, improve=6.281745, (0 missing)
## 349 < 37.5 to the left, improve=6.281745, (0 missing)
## 320 < 35.5 to the left, improve=6.132054, (0 missing)

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##      321 < 12.5  to the left,  improve=5.425455, (0 missing)
##      Surrogate splits:
##      680 < 11.5  to the left,  agree=0.985, adj=0.429, (0 split)
##      682 < 42.5  to the left,  agree=0.985, adj=0.429, (0 split)
##      679 < 56    to the left,  agree=0.982, adj=0.286, (0 split)
##      708 < 26.5  to the left,  agree=0.982, adj=0.286, (0 split)
##      709 < 77.5  to the left,  agree=0.982, adj=0.286, (0 split)
##
## Node number 931: 11 observations
## predicted class=9 expected loss=0.5454545 P(node) =0.0004364213
## class counts:      0      0      0      0      4      0      2      0      0
5
## probabilities: 0.000 0.000 0.000 0.000 0.364 0.000 0.182 0.000 0.000
0.455
##
## Node number 946: 12 observations
## predicted class=4 expected loss=0.1666667 P(node) =0.000476096
## class counts:      0      0      0      0     10      1      0      0      1
0
## probabilities: 0.000 0.000 0.000 0.000 0.833 0.083 0.000 0.000 0.083
0.000
##
## Node number 947: 32 observations, complexity param=0.0003572385
## predicted class=6 expected loss=0.625 P(node) =0.001269589
## class counts:      0      1      2      0      2      0     12      1      9
5
## probabilities: 0.000 0.031 0.062 0.000 0.062 0.000 0.375 0.031 0.281
0.156
## left son=1894 (15 obs) right son=1895 (17 obs)
## Primary splits:
##      494 < 33.5  to the right, improve=6.282843, (0 missing)
##      456 < 30.5  to the right, improve=5.583502, (0 missing)
##      484 < 131.5 to the right, improve=5.583502, (0 missing)
##      415 < 5     to the right, improve=5.087121, (0 missing)
##      442 < 40.5  to the right, improve=5.087121, (0 missing)
## Surrogate splits:
##      467 < 13    to the right, agree=0.906, adj=0.800, (0 split)
##      468 < 3.5   to the right, agree=0.906, adj=0.800, (0 split)
##      495 < 3.5   to the right, agree=0.906, adj=0.800, (0 split)
##      428 < 121.5 to the right, agree=0.875, adj=0.733, (0 split)
##      455 < 43.5  to the right, agree=0.875, adj=0.733, (0 split)
##
## Node number 954: 18 observations
## predicted class=5 expected loss=0.2777778 P(node) =0.000714144
## class counts:      0      0      0      0      0     13      2      0      2
1
## probabilities: 0.000 0.000 0.000 0.000 0.000 0.722 0.111 0.000 0.111
0.056
##
## Node number 955: 1485 observations, complexity param=0.0001786193

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## predicted class=6 expected loss=0.02289562 P(node) =0.05891688
## class counts:      0      0      4      1      2      14 1451      0      7
6
## probabilities: 0.000 0.000 0.003 0.001 0.001 0.009 0.977 0.000 0.005
0.004
## left son=1910 (1478 obs) right son=1911 (7 obs)
## Primary splits:
##      662 < 2      to the left, improve=9.656883, (0 missing)
##      651 < 2      to the left, improve=6.903935, (0 missing)
##      652 < 132.5 to the left, improve=6.903935, (0 missing)
##      653 < 122    to the left, improve=6.903935, (0 missing)
##      624 < 225.5 to the left, improve=4.762589, (0 missing)
## Surrogate splits:
##      661 < 3      to the left, agree=0.999, adj=0.857, (0 split)
##      690 < 9.5    to the left, agree=0.998, adj=0.571, (0 split)
##      660 < 1      to the left, agree=0.997, adj=0.429, (0 split)
##      663 < 30     to the left, agree=0.997, adj=0.429, (0 split)
##      689 < 4      to the left, agree=0.997, adj=0.429, (0 split)
##
## Node number 956: 58 observations
## predicted class=5 expected loss=0.05172414 P(node) =0.002301131
## class counts:      0      0      0      2      0      55      0      0      1
0
## probabilities: 0.000 0.000 0.000 0.034 0.000 0.948 0.000 0.000 0.017
0.000
##
## Node number 957: 9 observations
## predicted class=6 expected loss=0.3333333 P(node) =0.000357072
## class counts:      0      0      0      0      1      1      6      0      1
0
## probabilities: 0.000 0.000 0.000 0.000 0.111 0.111 0.667 0.000 0.111
0.000
##
## Node number 958: 34 observations
## predicted class=6 expected loss=0.2647059 P(node) =0.001348939
## class counts:      0      0      0      0      0      3      25      0      4
2
## probabilities: 0.000 0.000 0.000 0.000 0.000 0.088 0.735 0.000 0.118
0.059
##
## Node number 959: 62 observations, complexity param=0.0003125837
## predicted class=8 expected loss=0.4677419 P(node) =0.002459829
## class counts:      0      0      2      2      0      16      6      1      33
2
## probabilities: 0.000 0.000 0.032 0.032 0.000 0.258 0.097 0.016 0.532
0.032
## left son=1918 (29 obs) right son=1919 (33 obs)
## Primary splits:
##      354 < 0.5    to the left, improve=8.548522, (0 missing)
##      355 < 30.5   to the left, improve=8.537137, (0 missing)

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##      467 < 5.5   to the right, improve=8.294507, (0 missing)
##      488 < 0.5   to the left,  improve=7.360993, (0 missing)
##      466 < 218.5 to the right, improve=6.812832, (0 missing)
## Surrogate splits:
##      355 < 3.5   to the left,  agree=0.984, adj=0.966, (0 split)
##      356 < 1.5   to the left,  agree=0.919, adj=0.828, (0 split)
##      382 < 137.5 to the left,  agree=0.903, adj=0.793, (0 split)
##      381 < 30    to the left,  agree=0.855, adj=0.690, (0 split)
##      383 < 1     to the left,  agree=0.839, adj=0.655, (0 split)
##
## Node number 962: 15 observations
## predicted class=3 expected loss=0 P(node) =0.00059512
## class counts:      0      0      0      15      0      0      0      0      0
##
## probabilities: 0.000 0.000 0.000 1.000 0.000 0.000 0.000 0.000 0.000
0.000
##
## Node number 963: 7 observations
## predicted class=8 expected loss=0.2857143 P(node) =0.0002777227
## class counts:      0      0      2      0      0      0      0      0      5
##
## probabilities: 0.000 0.000 0.286 0.000 0.000 0.000 0.000 0.000 0.714
0.000
##
## Node number 966: 7 observations
## predicted class=4 expected loss=0.4285714 P(node) =0.0002777227
## class counts:      0      0      2      1      4      0      0      0      0
##
## probabilities: 0.000 0.000 0.286 0.143 0.571 0.000 0.000 0.000 0.000
0.000
##
## Node number 967: 18 observations
## predicted class=8 expected loss=0.1666667 P(node) =0.000714144
## class counts:      0      0      0      1      0      1      1      0      15
##
## probabilities: 0.000 0.000 0.000 0.056 0.000 0.056 0.056 0.000 0.833
0.000
##
## Node number 968: 1344 observations, complexity param=0.0004018934
## predicted class=4 expected loss=0.05208333 P(node) =0.05332275
## class counts:      0      6      8      9 1274      2      14      10      5
16
## probabilities: 0.000 0.004 0.006 0.007 0.948 0.001 0.010 0.007 0.004
0.012
## left son=1936 (1325 obs) right son=1937 (19 obs)
## Primary splits:
##      295 < 222   to the left,  improve=21.51074, (0 missing)
##      294 < 222.5 to the left,  improve=20.11547, (0 missing)
##      322 < 47    to the left,  improve=16.49136, (0 missing)
##      95 < 32     to the left,  improve=15.59351, (0 missing)

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##      96 < 2      to the left,  improve=15.59351, (0 missing)
##      Surrogate splits:
##      294 < 245.5 to the left,  agree=0.992, adj=0.421, (0 split)
##      322 < 210.5 to the left,  agree=0.992, adj=0.421, (0 split)
##      323 < 253.5 to the left,  agree=0.987, adj=0.105, (0 split)
##      740 < 159   to the left,  agree=0.987, adj=0.105, (0 split)
##      255 < 222   to the left,  agree=0.987, adj=0.053, (0 split)
##
## Node number 969: 71 observations,      complexity param=0.0005358578
## predicted class=8 expected loss=0.6338028 P(node) =0.002816901
## class counts:      0      0      6      7      8      19      1      0      26
4
## probabilities: 0.000 0.000 0.085 0.099 0.113 0.268 0.014 0.000 0.366
0.056
## left son=1938 (48 obs) right son=1939 (23 obs)
## Primary splits:
##      516 < 47    to the left,  improve=11.28641, (0 missing)
##      544 < 95.5  to the left,  improve=10.56403, (0 missing)
##      517 < 20    to the left,  improve=10.35095, (0 missing)
##      572 < 46    to the left,  improve=10.16924, (0 missing)
##      489 < 177.5 to the left,  improve=10.07118, (0 missing)
## Surrogate splits:
##      544 < 131.5 to the left,  agree=0.958, adj=0.870, (0 split)
##      489 < 177.5 to the left,  agree=0.930, adj=0.783, (0 split)
##      543 < 16.5  to the left,  agree=0.930, adj=0.783, (0 split)
##      517 < 28.5  to the left,  agree=0.901, adj=0.696, (0 split)
##      515 < 3     to the left,  agree=0.887, adj=0.652, (0 split)
##
## Node number 972: 21 observations
## predicted class=5 expected loss=0.2380952 P(node) =0.000833168
## class counts:      0      0      0      0      2      16      0      0      1
2
## probabilities: 0.000 0.000 0.000 0.000 0.095 0.762 0.000 0.000 0.048
0.095
##
## Node number 973: 72 observations,      complexity param=0.0006251675
## predicted class=9 expected loss=0.4861111 P(node) =0.002856576
## class counts:      0      0      2      2      22      4      0      5      0
37
## probabilities: 0.000 0.000 0.028 0.028 0.306 0.056 0.000 0.069 0.000
0.514
## left son=1946 (32 obs) right son=1947 (40 obs)
## Primary splits:
##      237 < 23.5  to the left,  improve=12.383330, (0 missing)
##      238 < 158.5 to the left,  improve=10.583330, (0 missing)
##      375 < 35.5  to the right, improve= 9.861111, (0 missing)
##      186 < 4     to the right, improve= 8.873974, (0 missing)
##      263 < 5.5   to the left,  improve= 8.694444, (0 missing)
## Surrogate splits:
##      238 < 142.5 to the left,  agree=0.944, adj=0.875, (0 split)

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##      236 < 2      to the left,  agree=0.917, adj=0.812, (0 split)
##      263 < 15     to the left,  agree=0.861, adj=0.688, (0 split)
##      347 < 137.5 to the right, agree=0.861, adj=0.688, (0 split)
##      265 < 235   to the left,  agree=0.847, adj=0.656, (0 split)
##
## Node number 974: 36 observations
##   predicted class=7  expected loss=0.1944444  P(node) =0.001428288
##   class counts:      0      0      2      2      0      0      0      29      2
1
##   probabilities: 0.000 0.000 0.056 0.056 0.000 0.000 0.000 0.806 0.056
0.028
##
## Node number 975: 11 observations
##   predicted class=9  expected loss=0.3636364  P(node) =0.0004364213
##   class counts:      0      0      3      0      0      1      0      0      0
7
##   probabilities: 0.000 0.000 0.273 0.000 0.000 0.091 0.000 0.000 0.000
0.636
##
## Node number 976: 494 observations,      complexity param=0.0003572385
##   predicted class=5  expected loss=0.1093117  P(node) =0.01959929
##   class counts:      0      0      1      35      1      440      0      1      0
16
##   probabilities: 0.000 0.000 0.002 0.071 0.002 0.891 0.000 0.002 0.000
0.032
##   left son=1952 (24 obs) right son=1953 (470 obs)
##   Primary splits:
##      322 < 187.5 to the right, improve=16.81794, (0 missing)
##      217 < 1      to the left,  improve=15.29740, (0 missing)
##      216 < 1.5    to the left,  improve=15.15130, (0 missing)
##      188 < 2      to the left,  improve=14.52128, (0 missing)
##      263 < 8.5    to the left,  improve=14.33422, (0 missing)
##   Surrogate splits:
##      321 < 252.5 to the right, agree=0.962, adj=0.208, (0 split)
##      323 < 62.5  to the right, agree=0.957, adj=0.125, (0 split)
##      649 < 245    to the right, agree=0.957, adj=0.125, (0 split)
##      203 < 253.5 to the right, agree=0.953, adj=0.042, (0 split)
##      324 < 117.5 to the right, agree=0.953, adj=0.042, (0 split)
##
## Node number 977: 27 observations
##   predicted class=6  expected loss=0.1111111  P(node) =0.001071216
##   class counts:      0      0      0      0      0      2      24      0      0
1
##   probabilities: 0.000 0.000 0.000 0.000 0.000 0.074 0.889 0.000 0.000
0.037
##
## Node number 978: 25 observations,      complexity param=0.0002679289
##   predicted class=2  expected loss=0.48  P(node) =0.0009918667
##   class counts:      3      0      13      1      0      0      2      0      6
0

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## probabilities: 0.120 0.000 0.520 0.040 0.000 0.000 0.080 0.000 0.240
0.000
## left son=1956 (18 obs) right son=1957 (7 obs)
## Primary splits:
## 685 < 1.5 to the left, improve=6.636825, (0 missing)
## 684 < 3 to the left, improve=6.414603, (0 missing)
## 683 < 8.5 to the left, improve=6.401765, (0 missing)
## 358 < 61.5 to the left, improve=6.084156, (0 missing)
## 466 < 239 to the right, improve=5.483590, (0 missing)
## Surrogate splits:
## 436 < 252.5 to the left, agree=0.96, adj=0.857, (0 split)
## 683 < 8.5 to the left, agree=0.96, adj=0.857, (0 split)
## 684 < 7 to the left, agree=0.96, adj=0.857, (0 split)
## 232 < 2.5 to the left, agree=0.92, adj=0.714, (0 split)
## 233 < 58 to the left, agree=0.92, adj=0.714, (0 split)
##
## Node number 979: 35 observations, complexity param=0.0001786193
## predicted class=9 expected loss=0.3428571 P(node) =0.001388613
## class counts: 0 0 0 1 5 3 0 0 3
23
## probabilities: 0.000 0.000 0.000 0.029 0.143 0.086 0.000 0.000 0.086
0.657
## left son=1958 (11 obs) right son=1959 (24 obs)
## Primary splits:
## 242 < 14.5 to the left, improve=7.424026, (0 missing)
## 347 < 176.5 to the right, improve=6.867888, (0 missing)
## 243 < 0.5 to the left, improve=6.508571, (0 missing)
## 155 < 24 to the right, improve=5.841534, (0 missing)
## 320 < 144.5 to the right, improve=5.708571, (0 missing)
## Surrogate splits:
## 243 < 0.5 to the left, agree=0.971, adj=0.909, (0 split)
## 241 < 2 to the left, agree=0.943, adj=0.818, (0 split)
## 347 < 221 to the right, agree=0.914, adj=0.727, (0 split)
## 154 < 7 to the right, agree=0.857, adj=0.545, (0 split)
## 213 < 57 to the left, agree=0.857, adj=0.545, (0 split)
##
## Node number 982: 127 observations, complexity param=0.0007144771
## predicted class=9 expected loss=0.6141732 P(node) =0.005038683
## class counts: 0 1 3 16 20 0 1 28 9
49
## probabilities: 0.000 0.008 0.024 0.126 0.157 0.000 0.008 0.220 0.071
0.386
## left son=1964 (60 obs) right son=1965 (67 obs)
## Primary splits:
## 373 < 9.5 to the left, improve=14.28025, (0 missing)
## 345 < 4 to the left, improve=14.01165, (0 missing)
## 346 < 1 to the left, improve=13.03548, (0 missing)
## 205 < 46 to the right, improve=11.38308, (0 missing)
## 318 < 1 to the left, improve=11.35079, (0 missing)
## Surrogate splits:

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##      345 < 4      to the left,  agree=0.929, adj=0.850, (0 split)
##      401 < 30.5  to the left,  agree=0.874, adj=0.733, (0 split)
##      317 < 1     to the left,  agree=0.858, adj=0.700, (0 split)
##      374 < 55    to the left,  agree=0.835, adj=0.650, (0 split)
##      346 < 1     to the left,  agree=0.811, adj=0.600, (0 split)
##
## Node number 983: 21 observations
##   predicted class=8  expected loss=0.1428571  P(node) =0.000833168
##   class counts:      0      0      1      1      0      0      1      0      18
##   0
##   probabilities: 0.000 0.000 0.048 0.048 0.000 0.000 0.048 0.000 0.857
##   0.000
##
## Node number 984: 99 observations,  complexity param=0.0002679289
##   predicted class=3  expected loss=0.2323232  P(node) =0.003927792
##   class counts:      1      0      2      76      1      7      0      0      2
##   10
##   probabilities: 0.010 0.000 0.020 0.768 0.010 0.071 0.000 0.000 0.020
##   0.101
##   left son=1968 (77 obs) right son=1969 (22 obs)
##   Primary splits:
##       373 < 63      to the left,  improve=15.06349, (0 missing)
##       318 < 22      to the left,  improve=13.10780, (0 missing)
##       346 < 167.5   to the left,  improve=12.38503, (0 missing)
##       345 < 13      to the left,  improve=12.08025, (0 missing)
##       319 < 116.5   to the left,  improve=11.25532, (0 missing)
##   Surrogate splits:
##       345 < 13      to the left,  agree=0.949, adj=0.773, (0 split)
##       374 < 209     to the left,  agree=0.949, adj=0.773, (0 split)
##       346 < 83.5    to the left,  agree=0.919, adj=0.636, (0 split)
##       372 < 16      to the left,  agree=0.909, adj=0.591, (0 split)
##       402 < 251.5   to the left,  agree=0.909, adj=0.591, (0 split)
##
## Node number 985: 79 observations,  complexity param=0.0009377512
##   predicted class=2  expected loss=0.4683544  P(node) =0.003134299
##   class counts:      1      0      42      6      0      1      3      0      25
##   1
##   probabilities: 0.013 0.000 0.532 0.076 0.000 0.013 0.038 0.000 0.316
##   0.013
##   left son=1970 (46 obs) right son=1971 (33 obs)
##   Primary splits:
##       465 < 96.5    to the right, improve=20.78167, (0 missing)
##       521 < 6.5     to the right, improve=19.34563, (0 missing)
##       492 < 114.5   to the right, improve=18.17561, (0 missing)
##       379 < 146.5   to the left,  improve=17.94013, (0 missing)
##       599 < 126.5   to the right, improve=17.68251, (0 missing)
##   Surrogate splits:
##       493 < 41      to the right, agree=0.937, adj=0.848, (0 split)
##       437 < 121     to the right, agree=0.911, adj=0.788, (0 split)
##       492 < 59.5    to the right, agree=0.899, adj=0.758, (0 split)

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##      464 < 99      to the right, agree=0.886, adj=0.727, (0 split)
##      520 < 86.5    to the right, agree=0.861, adj=0.667, (0 split)
##
## Node number 986: 138 observations,      complexity param=0.0004465482
## predicted class=4 expected loss=0.3333333 P(node) =0.005475104
## class counts:      0      0      5      7      92      2      1      0      5
26
## probabilities: 0.000 0.000 0.036 0.051 0.667 0.014 0.007 0.000 0.036
0.188
## left son=1972 (90 obs) right son=1973 (48 obs)
## Primary splits:
##      207 < 10      to the left, improve=19.72005, (0 missing)
##      181 < 126     to the left, improve=18.83848, (0 missing)
##      180 < 1.5     to the left, improve=18.44868, (0 missing)
##      208 < 31      to the left, improve=17.91859, (0 missing)
##      179 < 6       to the left, improve=15.51269, (0 missing)
## Surrogate splits:
##      208 < 88.5    to the left, agree=0.942, adj=0.833, (0 split)
##      180 < 1.5     to the left, agree=0.920, adj=0.771, (0 split)
##      179 < 2.5     to the left, agree=0.913, adj=0.750, (0 split)
##      235 < 109     to the left, agree=0.899, adj=0.708, (0 split)
##      181 < 152.5   to the left, agree=0.891, adj=0.687, (0 split)
##
## Node number 987: 90 observations,      complexity param=0.0004465482
## predicted class=8 expected loss=0.5 P(node) =0.00357072
## class counts:      1      0      4      9      9      2      0      1      45
19
## probabilities: 0.011 0.000 0.044 0.100 0.100 0.022 0.000 0.011 0.500
0.211
## left son=1974 (50 obs) right son=1975 (40 obs)
## Primary splits:
##      544 < 147     to the left, improve=17.02444, (0 missing)
##      516 < 55      to the left, improve=14.42222, (0 missing)
##      517 < 192.5   to the left, improve=12.81599, (0 missing)
##      543 < 12      to the left, improve=11.52738, (0 missing)
##      545 < 131     to the left, improve=10.43108, (0 missing)
## Surrogate splits:
##      516 < 55      to the left, agree=0.900, adj=0.775, (0 split)
##      543 < 12      to the left, agree=0.900, adj=0.775, (0 split)
##      572 < 239.5   to the left, agree=0.878, adj=0.725, (0 split)
##      517 < 149     to the left, agree=0.867, adj=0.700, (0 split)
##      571 < 52      to the left, agree=0.867, adj=0.700, (0 split)
##
## Node number 988: 176 observations,      complexity param=0.0006698223
## predicted class=9 expected loss=0.6931818 P(node) =0.006982742
## class counts:      1      0      17      51      8      0      0      39      6
54
## probabilities: 0.006 0.000 0.097 0.290 0.045 0.000 0.000 0.222 0.034
0.307
## left son=1976 (119 obs) right son=1977 (57 obs)

```

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## Primary splits:
## 342 < 10 to the left, improve=36.80002, (0 missing)
## 371 < 3 to the left, improve=36.32649, (0 missing)
## 370 < 2.5 to the left, improve=33.43193, (0 missing)
## 399 < 5.5 to the left, improve=33.30885, (0 missing)
## 315 < 51 to the left, improve=32.74784, (0 missing)
## Surrogate splits:
## 371 < 3 to the left, agree=0.972, adj=0.912, (0 split)
## 370 < 2.5 to the left, agree=0.960, adj=0.877, (0 split)
## 314 < 5.5 to the left, agree=0.949, adj=0.842, (0 split)
## 343 < 10 to the left, agree=0.949, adj=0.842, (0 split)
## 315 < 32 to the left, agree=0.938, adj=0.807, (0 split)
##
## Node number 989: 117 observations, complexity param=0.0003572385
## predicted class=9 expected loss=0.2393162 P(node) =0.004641936
## class counts: 0 0 0 1 15 1 0 4 7
89
## probabilities: 0.000 0.000 0.000 0.009 0.128 0.009 0.000 0.034 0.060
0.761
## left son=1978 (20 obs) right son=1979 (97 obs)
## Primary splits:
## 428 < 71.5 to the right, improve=13.05703, (0 missing)
## 456 < 1 to the right, improve=11.83117, (0 missing)
## 213 < 3.5 to the left, improve=11.66334, (0 missing)
## 212 < 83 to the left, improve=11.41880, (0 missing)
## 427 < 0.5 to the right, improve=10.77495, (0 missing)
## Surrogate splits:
## 400 < 12 to the right, agree=0.966, adj=0.80, (0 split)
## 427 < 0.5 to the right, agree=0.966, adj=0.80, (0 split)
## 456 < 2.5 to the right, agree=0.949, adj=0.70, (0 split)
## 401 < 244.5 to the right, agree=0.940, adj=0.65, (0 split)
## 455 < 16 to the right, agree=0.932, adj=0.60, (0 split)
##
## Node number 990: 66 observations, complexity param=0.0006698223
## predicted class=4 expected loss=0.4848485 P(node) =0.002618528
## class counts: 0 0 0 0 34 0 0 1 2
29
## probabilities: 0.000 0.000 0.000 0.000 0.515 0.000 0.000 0.015 0.030
0.439
## left son=1980 (31 obs) right son=1981 (35 obs)
## Primary splits:
## 319 < 195 to the right, improve=23.27404, (0 missing)
## 206 < 5.5 to the left, improve=22.77634, (0 missing)
## 261 < 29 to the left, improve=21.84444, (0 missing)
## 291 < 141.5 to the right, improve=21.32479, (0 missing)
## 234 < 142 to the left, improve=21.27350, (0 missing)
## Surrogate splits:
## 292 < 99.5 to the right, agree=0.939, adj=0.871, (0 split)
## 320 < 6 to the right, agree=0.939, adj=0.871, (0 split)
## 346 < 235.5 to the right, agree=0.939, adj=0.871, (0 split)

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##      347 < 33.5  to the right, agree=0.939, adj=0.871, (0 split)
##      261 < 29    to the left,  agree=0.924, adj=0.839, (0 split)
##
## Node number 991: 1086 observations,      complexity param=0.0003125837
## predicted class=9 expected loss=0.08655617 P(node) =0.04308669
## class counts:      0      0      1      10      35      6      0      10      32
992
## probabilities: 0.000 0.000 0.001 0.009 0.032 0.006 0.000 0.009 0.029
0.913
## left son=1982 (72 obs) right son=1983 (1014 obs)
## Primary splits:
##      204 < 10.5  to the right, improve=12.80996, (0 missing)
##      437 < 2.5   to the left,  improve=12.02509, (0 missing)
##      203 < 12    to the right, improve=11.64847, (0 missing)
##      232 < 132.5 to the right, improve=11.64608, (0 missing)
##      177 < 119   to the right, improve=11.10262, (0 missing)
## Surrogate splits:
##      232 < 212.5 to the right, agree=0.977, adj=0.653, (0 split)
##      205 < 91.5  to the right, agree=0.975, adj=0.625, (0 split)
##      231 < 16.5  to the right, agree=0.969, adj=0.528, (0 split)
##      203 < 0.5   to the right, agree=0.967, adj=0.500, (0 split)
##      259 < 195   to the right, agree=0.966, adj=0.486, (0 split)
##
## Node number 992: 26 observations
## predicted class=3 expected loss=0.07692308 P(node) =0.001031541
## class counts:      0      0      0      24      1      1      0      0      0
0
## probabilities: 0.000 0.000 0.000 0.923 0.038 0.038 0.000 0.000 0.000
0.000
##
## Node number 993: 14 observations
## predicted class=1 expected loss=0.5714286 P(node) =0.0005554453
## class counts:      1      6      0      0      2      3      1      0      0
1
## probabilities: 0.071 0.429 0.000 0.000 0.143 0.214 0.071 0.000 0.000
0.071
##
## Node number 994: 25 observations,      complexity param=0.0002679289
## predicted class=3 expected loss=0.52 P(node) =0.0009918667
## class counts:      0      1      2      12      0      9      0      0      1
0
## probabilities: 0.000 0.040 0.080 0.480 0.000 0.360 0.000 0.000 0.040
0.000
## left son=1988 (16 obs) right son=1989 (9 obs)
## Primary splits:
##      233 < 6     to the left,  improve=9.135000, (0 missing)
##      261 < 11.5  to the left,  improve=8.893333, (0 missing)
##      234 < 58.5  to the left,  improve=7.357222, (0 missing)
##      289 < 21    to the left,  improve=7.305455, (0 missing)
##      262 < 83.5  to the left,  improve=6.315556, (0 missing)

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## Surrogate splits:
##      261 < 11.5 to the left, agree=0.96, adj=0.889, (0 split)
##      234 < 58.5 to the left, agree=0.92, adj=0.778, (0 split)
##      262 < 83.5 to the left, agree=0.92, adj=0.778, (0 split)
##      289 < 21 to the left, agree=0.92, adj=0.778, (0 split)
##      205 < 227.5 to the left, agree=0.88, adj=0.667, (0 split)
##
## Node number 995: 110 observations
## predicted class=5 expected loss=0.07272727 P(node) =0.004364213
## class counts:      0      0      2      4      0    102      1      0      0
1
## probabilities: 0.000 0.000 0.018 0.036 0.000 0.927 0.009 0.000 0.000
0.009
##
## Node number 996: 18 observations
## predicted class=3 expected loss=0.5 P(node) =0.000714144
## class counts:      0      5      0      9      0      0      0      3      0
1
## probabilities: 0.000 0.278 0.000 0.500 0.000 0.000 0.000 0.167 0.000
0.056
##
## Node number 997: 28 observations
## predicted class=8 expected loss=0.07142857 P(node) =0.001110891
## class counts:      0      0      2      0      0      0      0      0      26
0
## probabilities: 0.000 0.000 0.071 0.000 0.000 0.000 0.000 0.000 0.929
0.000
##
## Node number 998: 32 observations
## predicted class=4 expected loss=0.3125 P(node) =0.001269589
## class counts:      0      0      1      2      22      1      0      3      0
3
## probabilities: 0.000 0.000 0.031 0.062 0.688 0.031 0.000 0.094 0.000
0.094
##
## Node number 999: 60 observations, complexity param=0.0002232741
## predicted class=9 expected loss=0.2833333 P(node) =0.00238048
## class counts:      0      0      1      6      5      0      0      2      3
43
## probabilities: 0.000 0.000 0.017 0.100 0.083 0.000 0.000 0.033 0.050
0.717
## left son=1998 (7 obs) right son=1999 (53 obs)
## Primary splits:
##      623 < 10 to the right, improve=7.237916, (0 missing)
##      375 < 20.5 to the left, improve=6.194771, (0 missing)
##      624 < 9 to the right, improve=6.194771, (0 missing)
##      567 < 11.5 to the right, improve=5.809344, (0 missing)
##      595 < 33.5 to the right, improve=5.809344, (0 missing)
## Surrogate splits:
##      157 < 96 to the right, agree=0.983, adj=0.857, (0 split)

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##      158 < 25    to the right, agree=0.983, adj=0.857, (0 split)
##      376 < 47.5  to the left,  agree=0.967, adj=0.714, (0 split)
##      494 < 248.5 to the right, agree=0.967, adj=0.714, (0 split)
##      567 < 11.5  to the right, agree=0.967, adj=0.714, (0 split)
##
## Node number 1000: 39 observations
##   predicted class=1 expected loss=0.02564103 P(node) =0.001547312
##   class counts:    0    38    0    0    0    1    0    0    0
##   0
##   probabilities: 0.000 0.974 0.000 0.000 0.000 0.026 0.000 0.000 0.000
##   0.000
##
## Node number 1001: 15 observations
##   predicted class=6 expected loss=0.2666667 P(node) =0.00059512
##   class counts:    2    0    0    1    0    1    11    0    0
##   0
##   probabilities: 0.133 0.000 0.000 0.067 0.000 0.067 0.733 0.000 0.000
##   0.000
##
## Node number 1004: 12 observations
##   predicted class=2 expected loss=0.1666667 P(node) =0.000476096
##   class counts:    0    0    10    2    0    0    0    0    0
##   0
##   probabilities: 0.000 0.000 0.833 0.167 0.000 0.000 0.000 0.000 0.000
##   0.000
##
## Node number 1005: 11 observations
##   predicted class=6 expected loss=0.5454545 P(node) =0.0004364213
##   class counts:    0    3    0    0    1    0    5    1    1
##   0
##   probabilities: 0.000 0.273 0.000 0.000 0.091 0.000 0.455 0.091 0.091
##   0.000
##
## Node number 1006: 10 observations
##   predicted class=1 expected loss=0.2 P(node) =0.0003967467
##   class counts:    2    8    0    0    0    0    0    0    0
##   0
##   probabilities: 0.200 0.800 0.000 0.000 0.000 0.000 0.000 0.000 0.000
##   0.000
##
## Node number 1007: 1327 observations
##   predicted class=7 expected loss=0.02411454 P(node) =0.05264828
##   class counts:    0    1    11    4    3    0    2 1295    0
##   11
##   probabilities: 0.000 0.001 0.008 0.003 0.002 0.000 0.002 0.976 0.000
##   0.008
##
## Node number 1018: 12 observations
##   predicted class=4 expected loss=0.25 P(node) =0.000476096
##   class counts:    0    0    0    0    9    0    0    0    2

```

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1
## probabilities: 0.000 0.000 0.000 0.000 0.750 0.000 0.000 0.000 0.167
0.083
##
## Node number 1019: 14 observations
## predicted class=9 expected loss=0.1428571 P(node) =0.0005554453
## class counts: 0 0 0 0 1 0 0 0 1
12
## probabilities: 0.000 0.000 0.000 0.000 0.071 0.000 0.000 0.000 0.071
0.857
##
## Node number 1020: 17 observations
## predicted class=4 expected loss=0.1764706 P(node) =0.0006744694
## class counts: 0 0 1 0 14 0 0 1 0
1
## probabilities: 0.000 0.000 0.059 0.000 0.824 0.000 0.000 0.059 0.000
0.059
##
## Node number 1021: 8 observations
## predicted class=9 expected loss=0 P(node) =0.0003173973
## class counts: 0 0 0 0 0 0 0 0 0
8
## probabilities: 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
1.000
##
## Node number 1088: 16 observations
## predicted class=1 expected loss=0.1875 P(node) =0.0006347947
## class counts: 0 13 1 0 2 0 0 0 0
0
## probabilities: 0.000 0.813 0.062 0.000 0.125 0.000 0.000 0.000 0.000
0.000
##
## Node number 1089: 9 observations
## predicted class=3 expected loss=0.4444444 P(node) =0.000357072
## class counts: 0 0 2 5 0 1 0 1 0
0
## probabilities: 0.000 0.000 0.222 0.556 0.000 0.111 0.000 0.111 0.000
0.000
##
## Node number 1090: 12 observations
## predicted class=0 expected loss=0.4166667 P(node) =0.000476096
## class counts: 7 0 1 1 0 1 2 0 0
0
## probabilities: 0.583 0.000 0.083 0.083 0.000 0.083 0.167 0.000 0.000
0.000
##
## Node number 1091: 56 observations
## predicted class=6 expected loss=0.1428571 P(node) =0.002221781
## class counts: 0 0 5 0 1 1 48 0 0
1

```

```

## probabilities: 0.000 0.000 0.089 0.000 0.018 0.018 0.857 0.000 0.000
0.018
##
## Node number 1092: 13 observations
## predicted class=2 expected loss=0 P(node) =0.0005157707
## class counts: 0 0 13 0 0 0 0 0 0
0
## probabilities: 0.000 0.000 1.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000
##
## Node number 1093: 54 observations, complexity param=0.0002456015
## predicted class=5 expected loss=0.6481481 P(node) =0.002142432
## class counts: 5 6 8 6 4 19 1 0 5
0
## probabilities: 0.093 0.111 0.148 0.111 0.074 0.352 0.019 0.000 0.093
0.000
## left son=2186 (31 obs) right son=2187 (23 obs)
## Primary splits:
## 458 < 16.5 to the right, improve=7.384448, (0 missing)
## 459 < 70.5 to the right, improve=7.209402, (0 missing)
## 460 < 205 to the right, improve=7.043791, (0 missing)
## 431 < 134.5 to the right, improve=5.979118, (0 missing)
## 430 < 113.5 to the right, improve=5.956678, (0 missing)
## Surrogate splits:
## 459 < 27 to the right, agree=0.907, adj=0.783, (0 split)
## 486 < 209.5 to the right, agree=0.889, adj=0.739, (0 split)
## 457 < 11 to the right, agree=0.870, adj=0.696, (0 split)
## 460 < 40.5 to the right, agree=0.833, adj=0.609, (0 split)
## 485 < 171.5 to the right, agree=0.833, adj=0.609, (0 split)
##
## Node number 1094: 22 observations
## predicted class=4 expected loss=0.09090909 P(node) =0.0008728427
## class counts: 0 0 0 1 20 0 0 1 0
0
## probabilities: 0.000 0.000 0.000 0.045 0.909 0.000 0.000 0.045 0.000
0.000
##
## Node number 1095: 70 observations, complexity param=0.0003125837
## predicted class=9 expected loss=0.5857143 P(node) =0.002777227
## class counts: 0 14 1 1 13 2 3 6 1
29
## probabilities: 0.000 0.200 0.014 0.014 0.186 0.029 0.043 0.086 0.014
0.414
## left son=2190 (37 obs) right son=2191 (33 obs)
## Primary splits:
## 381 < 210.5 to the left, improve=7.800889, (0 missing)
## 321 < 230 to the right, improve=7.766667, (0 missing)
## 237 < 75 to the left, improve=7.444655, (0 missing)
## 322 < 217 to the right, improve=7.150018, (0 missing)
## 681 < 72 to the left, improve=7.022782, (0 missing)

```

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## Surrogate splits:
##      353 < 249.5 to the left,  agree=0.900, adj=0.788, (0 split)
##      354 < 109   to the left,  agree=0.886, adj=0.758, (0 split)
##      382 < 15.5  to the left,  agree=0.871, adj=0.727, (0 split)
##      326 < 129.5 to the left,  agree=0.857, adj=0.697, (0 split)
##      408 < 230   to the left,  agree=0.843, adj=0.667, (0 split)
##
## Node number 1110: 7 observations
## predicted class=5 expected loss=0.1428571 P(node) =0.0002777227
## class counts:      0      0      0      1      0      6      0      0      0
##
## probabilities: 0.000 0.000 0.000 0.143 0.000 0.857 0.000 0.000 0.000
0.000
##
## Node number 1111: 21 observations, complexity param=0.0001786193
## predicted class=8 expected loss=0.6190476 P(node) =0.000833168
## class counts:      2      1      0      2      1      0      2      0      8
5
## probabilities: 0.095 0.048 0.000 0.095 0.048 0.000 0.095 0.000 0.381
0.238
## left son=2222 (10 obs) right son=2223 (11 obs)
## Primary splits:
##      653 < 111.5 to the right, improve=3.477056, (0 missing)
##      625 < 80    to the right, improve=3.383700, (0 missing)
##      487 < 134   to the right, improve=3.373016, (0 missing)
##      330 < 2.5   to the right, improve=3.095238, (0 missing)
##      566 < 79.5  to the right, improve=3.095238, (0 missing)
## Surrogate splits:
##      623 < 19    to the right, agree=0.952, adj=0.9, (0 split)
##      624 < 189   to the right, agree=0.952, adj=0.9, (0 split)
##      625 < 151.5 to the right, agree=0.952, adj=0.9, (0 split)
##      651 < 0.5   to the right, agree=0.952, adj=0.9, (0 split)
##      652 < 53    to the right, agree=0.952, adj=0.9, (0 split)
##
## Node number 1112: 19 observations
## predicted class=3 expected loss=0.3157895 P(node) =0.0007538187
## class counts:      0      1      1      13      2      1      0      0      0
1
## probabilities: 0.000 0.053 0.053 0.684 0.105 0.053 0.000 0.000 0.000
0.053
##
## Node number 1113: 18 observations
## predicted class=8 expected loss=0.3333333 P(node) =0.000714144
## class counts:      1      0      0      0      3      1      0      1      12
0
## probabilities: 0.056 0.000 0.000 0.000 0.167 0.056 0.000 0.056 0.667
0.000
##
## Node number 1172: 16 observations
## predicted class=2 expected loss=0.3125 P(node) =0.0006347947

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##      class counts:      0      0      11      1      0      0      3      1      0
0
##      probabilities: 0.000 0.000 0.688 0.062 0.000 0.000 0.188 0.062 0.000
0.000
##
## Node number 1173: 8 observations
##      predicted class=8      expected loss=0.25      P(node) =0.0003173973
##      class counts:      0      0      2      0      0      0      0      0      6
0
##      probabilities: 0.000 0.000 0.250 0.000 0.000 0.000 0.000 0.000 0.750
0.000
##
## Node number 1224: 24 observations
##      predicted class=2      expected loss=0.04166667      P(node) =0.000952192
##      class counts:      0      0      23      0      0      0      0      0      1
0
##      probabilities: 0.000 0.000 0.958 0.000 0.000 0.000 0.000 0.000 0.042
0.000
##
## Node number 1225: 10 observations
##      predicted class=3      expected loss=0.2      P(node) =0.0003967467
##      class counts:      0      1      1      8      0      0      0      0      0
0
##      probabilities: 0.000 0.100 0.100 0.800 0.000 0.000 0.000 0.000 0.000
0.000
##
## Node number 1248: 14 observations
##      predicted class=1      expected loss=0.07142857      P(node) =0.0005554453
##      class counts:      0      13      0      0      0      0      0      0      1
0
##      probabilities: 0.000 0.929 0.000 0.000 0.000 0.000 0.000 0.000 0.071
0.000
##
## Node number 1249: 12 observations
##      predicted class=8      expected loss=0.3333333      P(node) =0.000476096
##      class counts:      0      0      0      3      0      1      0      0      8
0
##      probabilities: 0.000 0.000 0.000 0.250 0.000 0.083 0.000 0.000 0.667
0.000
##
## Node number 1288: 1360 observations,      complexity param=0.0002456015
##      predicted class=3      expected loss=0.02058824      P(node) =0.05395755
##      class counts:      0      2      8      1332      0      13      0      0      5
0
##      probabilities: 0.000 0.001 0.006 0.979 0.000 0.010 0.000 0.000 0.004
0.000
##      left son=2576 (1350 obs) right son=2577 (10 obs)
##      Primary splits:
##          341 < 70      to the left,      improve=12.981990, (0 missing)
##          342 < 147.5 to the left,      improve=11.016070, (0 missing)

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##      313 < 154   to the left,   improve=10.020510, (0 missing)
##      369 < 98    to the left,   improve= 8.555135, (0 missing)
##      314 < 160.5 to the left,   improve= 8.256068, (0 missing)
## Surrogate splits:
##      313 < 154   to the left,   agree=0.999, adj=0.8, (0 split)
##      369 < 98    to the left,   agree=0.998, adj=0.7, (0 split)
##      314 < 160.5 to the left,   agree=0.997, adj=0.6, (0 split)
##      342 < 147.5 to the left,   agree=0.997, adj=0.6, (0 split)
##      340 < 5     to the left,   agree=0.996, adj=0.5, (0 split)
##
## Node number 1289: 10 observations
## predicted class=8 expected loss=0.3 P(node) =0.0003967467
## class counts:      0      0      2      0      0      1      0      0      7
##
## probabilities: 0.000 0.000 0.200 0.000 0.000 0.100 0.000 0.000 0.700
##
## Node number 1290: 16 observations
## predicted class=5 expected loss=0.4375 P(node) =0.0006347947
## class counts:      0      0      0      4      0      9      0      0      3
##
## probabilities: 0.000 0.000 0.000 0.250 0.000 0.562 0.000 0.000 0.188
##
## Node number 1291: 7 observations
## predicted class=9 expected loss=0.2857143 P(node) =0.0002777227
## class counts:      0      0      0      1      0      0      0      0      1
##
## probabilities: 0.000 0.000 0.000 0.143 0.000 0.000 0.000 0.000 0.143
##
## Node number 1294: 12 observations
## predicted class=1 expected loss=0.5 P(node) =0.000476096
## class counts:      0      6      0      4      0      0      0      1      1
##
## probabilities: 0.000 0.500 0.000 0.333 0.000 0.000 0.000 0.083 0.083
##
## Node number 1295: 17 observations
## predicted class=5 expected loss=0.1176471 P(node) =0.0006744694
## class counts:      0      0      0      0      0      15      0      0      2
##
## probabilities: 0.000 0.000 0.000 0.000 0.000 0.882 0.000 0.000 0.118
##
## Node number 1318: 7 observations
## predicted class=0 expected loss=0.2857143 P(node) =0.0002777227
## class counts:      5      0      0      1      0      0      0      1      0
##
## probabilities: 0.714 0.000 0.000 0.143 0.000 0.000 0.000 0.143 0.000

```

```

0.000
##
## Node number 1319: 23 observations
## predicted class=5 expected loss=0.173913 P(node) =0.0009125174
## class counts: 0 0 0 1 0 19 0 2 1
0
## probabilities: 0.000 0.000 0.000 0.043 0.000 0.826 0.000 0.087 0.043
0.000
##
## Node number 1324: 22 observations
## predicted class=3 expected loss=0.2272727 P(node) =0.0008728427
## class counts: 0 0 0 17 0 0 2 0 2
1
## probabilities: 0.000 0.000 0.000 0.773 0.000 0.000 0.091 0.000 0.091
0.045
##
## Node number 1325: 8 observations
## predicted class=5 expected loss=0.375 P(node) =0.0003173973
## class counts: 0 0 0 0 0 5 0 1 0
2
## probabilities: 0.000 0.000 0.000 0.000 0.000 0.625 0.000 0.125 0.000
0.250
##
## Node number 1326: 8 observations
## predicted class=3 expected loss=0.25 P(node) =0.0003173973
## class counts: 0 0 0 6 0 1 0 0 1
0
## probabilities: 0.000 0.000 0.000 0.750 0.000 0.125 0.000 0.000 0.125
0.000
##
## Node number 1327: 93 observations
## predicted class=5 expected loss=0.04301075 P(node) =0.003689744
## class counts: 0 0 0 2 0 89 1 0 1
0
## probabilities: 0.000 0.000 0.000 0.022 0.000 0.957 0.011 0.000 0.011
0.000
##
## Node number 1340: 23 observations
## predicted class=4 expected loss=0.04347826 P(node) =0.0009125174
## class counts: 0 0 0 0 22 0 0 1 0
0
## probabilities: 0.000 0.000 0.000 0.000 0.957 0.000 0.000 0.043 0.000
0.000
##
## Node number 1341: 20 observations, complexity param=0.0002456015
## predicted class=7 expected loss=0.55 P(node) =0.0007934934
## class counts: 0 0 0 6 4 0 1 9 0
0
## probabilities: 0.000 0.000 0.000 0.300 0.200 0.000 0.050 0.450 0.000
0.000

```

```

## left son=2682 (11 obs) right son=2683 (9 obs)
## Primary splits:
##      345 < 12   to the left,   improve=7.118182, (0 missing)
##      346 < 93   to the left,   improve=6.700000, (0 missing)
##      183 < 18   to the right,  improve=6.047253, (0 missing)
##      327 < 13.5 to the left,   improve=5.800000, (0 missing)
##      328 < 2.5  to the left,   improve=5.800000, (0 missing)
## Surrogate splits:
##      327 < 13.5 to the left,   agree=0.95, adj=0.889, (0 split)
##      328 < 2.5  to the left,   agree=0.95, adj=0.889, (0 split)
##      343 < 18   to the left,   agree=0.95, adj=0.889, (0 split)
##      344 < 42.5 to the left,   agree=0.95, adj=0.889, (0 split)
##      346 < 93   to the left,   agree=0.95, adj=0.889, (0 split)
##
## Node number 1342: 27 observations,   complexity param=0.0002232741
## predicted class=1 expected loss=0.7407407 P(node) =0.001071216
## class counts:      0      7      0      3      2      5      6      0      4
0
## probabilities: 0.000 0.259 0.000 0.111 0.074 0.185 0.222 0.000 0.148
0.000
## left son=2684 (13 obs) right son=2685 (14 obs)
## Primary splits:
##      154 < 20   to the right,  improve=4.016687, (0 missing)
##      521 < 3.5  to the left,   improve=4.016687, (0 missing)
##      214 < 19.5 to the left,   improve=3.962963, (0 missing)
##      465 < 3    to the left,   improve=3.862841, (0 missing)
##      572 < 142  to the left,   improve=3.806397, (0 missing)
## Surrogate splits:
##      465 < 3    to the left,   agree=0.926, adj=0.846, (0 split)
##      182 < 97.5 to the right,  agree=0.889, adj=0.769, (0 split)
##      437 < 11   to the left,   agree=0.889, adj=0.769, (0 split)
##      493 < 17   to the left,   agree=0.852, adj=0.692, (0 split)
##      155 < 75   to the right,  agree=0.815, adj=0.615, (0 split)
##
## Node number 1343: 43 observations
## predicted class=9 expected loss=0.2790698 P(node) =0.001706011
## class counts:      0      0      0      7      2      0      0      1      2
31
## probabilities: 0.000 0.000 0.000 0.163 0.047 0.000 0.000 0.023 0.047
0.721
##
## Node number 1356: 32 observations
## predicted class=3 expected loss=0.03125 P(node) =0.001269589
## class counts:      0      0      0      31      0      1      0      0      0
0
## probabilities: 0.000 0.000 0.000 0.969 0.000 0.031 0.000 0.000 0.000
0.000
##
## Node number 1357: 8 observations
## predicted class=5 expected loss=0.375 P(node) =0.0003173973

```



```

##      class counts:      0      0      0      1      0      5      0      0      2
0
##      probabilities: 0.000 0.000 0.000 0.125 0.000 0.625 0.000 0.000 0.250
0.000
##
## Node number 1358: 102 observations,      complexity param=0.0004465482
##      predicted class=5      expected loss=0.4803922      P(node) =0.004046816
##      class counts:      5      1      1      25      0      53      2      3      3
9
##      probabilities: 0.049 0.010 0.010 0.245 0.000 0.520 0.020 0.029 0.029
0.088
##      left son=2716 (25 obs) right son=2717 (77 obs)
##      Primary splits:
##          125 < 40.5      to the right, improve=8.196486, (0 missing)
##          535 < 1.5      to the right, improve=7.889258, (0 missing)
##          124 < 62.5      to the right, improve=7.225490, (0 missing)
##          247 < 16.5      to the left, improve=7.091031, (0 missing)
##          263 < 52.5      to the left, improve=6.857765, (0 missing)
##      Surrogate splits:
##          124 < 0.5      to the right, agree=0.961, adj=0.84, (0 split)
##          126 < 40      to the right, agree=0.922, adj=0.68, (0 split)
##          123 < 8.5      to the right, agree=0.902, adj=0.60, (0 split)
##          153 < 222      to the right, agree=0.892, adj=0.56, (0 split)
##          127 < 163.5      to the right, agree=0.882, adj=0.52, (0 split)
##
## Node number 1359: 38 observations,      complexity param=0.0003572385
##      predicted class=8      expected loss=0.5789474      P(node) =0.001507637
##      class counts:      0      0      0      2      0      6      0      0      16
14
##      probabilities: 0.000 0.000 0.000 0.053 0.000 0.158 0.000 0.000 0.421
0.368
##      left son=2718 (30 obs) right son=2719 (8 obs)
##      Primary splits:
##          545 < 45.5      to the left, improve=6.119298, (0 missing)
##          546 < 170      to the left, improve=6.119298, (0 missing)
##          157 < 11      to the left, improve=5.778785, (0 missing)
##          156 < 77.5      to the left, improve=5.692632, (0 missing)
##          431 < 13      to the left, improve=5.684211, (0 missing)
##      Surrogate splits:
##          546 < 170      to the left, agree=1.000, adj=1.000, (0 split)
##          490 < 41      to the left, agree=0.974, adj=0.875, (0 split)
##          518 < 32      to the left, agree=0.974, adj=0.875, (0 split)
##          573 < 186      to the left, agree=0.974, adj=0.875, (0 split)
##          464 < 247.5      to the left, agree=0.947, adj=0.750, (0 split)
##
## Node number 1426: 17 observations
##      predicted class=4      expected loss=0.5294118      P(node) =0.0006744694
##      class counts:      0      1      0      0      8      0      6      0      1
1
##      probabilities: 0.000 0.059 0.000 0.000 0.471 0.000 0.353 0.000 0.059

```

```

0.059
##
## Node number 1427: 8 observations
## predicted class=5 expected loss=0.125 P(node) =0.0003173973
## class counts: 0 0 0 0 0 7 0 0 1
0
## probabilities: 0.000 0.000 0.000 0.000 0.000 0.875 0.000 0.000 0.125
0.000
##
## Node number 1430: 16 observations
## predicted class=2 expected loss=0.3125 P(node) =0.0006347947
## class counts: 0 0 11 1 1 0 1 0 1
1
## probabilities: 0.000 0.000 0.688 0.062 0.062 0.000 0.062 0.000 0.062
0.062
##
## Node number 1431: 19 observations
## predicted class=8 expected loss=0.3157895 P(node) =0.0007538187
## class counts: 1 0 1 2 0 0 1 0 13
1
## probabilities: 0.053 0.000 0.053 0.105 0.000 0.000 0.053 0.000 0.684
0.053
##
## Node number 1528: 17 observations
## predicted class=2 expected loss=0.05882353 P(node) =0.0006744694
## class counts: 0 0 16 0 0 0 1 0 0
0
## probabilities: 0.000 0.000 0.941 0.000 0.000 0.000 0.059 0.000 0.000
0.000
##
## Node number 1529: 7 observations
## predicted class=8 expected loss=0.2857143 P(node) =0.0002777227
## class counts: 0 0 1 1 0 0 0 0 5
0
## probabilities: 0.000 0.000 0.143 0.143 0.000 0.000 0.000 0.000 0.714
0.000
##
## Node number 1532: 11 observations
## predicted class=3 expected loss=0.1818182 P(node) =0.0004364213
## class counts: 0 0 0 9 0 0 1 0 1
0
## probabilities: 0.000 0.000 0.000 0.818 0.000 0.000 0.091 0.000 0.091
0.000
##
## Node number 1533: 25 observations, complexity param=0.0001786193
## predicted class=8 expected loss=0.32 P(node) =0.0009918667
## class counts: 0 0 0 1 0 5 1 0 17
1
## probabilities: 0.000 0.000 0.000 0.040 0.000 0.200 0.040 0.000 0.680
0.040

```

```

## left son=3066 (8 obs) right son=3067 (17 obs)
## Primary splits:
##      270 < 126   to the left,  improve=5.937647, (0 missing)
##      130 < 11    to the right, improve=5.510476, (0 missing)
##      297 < 48    to the left,  improve=5.510476, (0 missing)
##      298 < 23.5  to the left,  improve=5.510476, (0 missing)
##      158 < 203.5 to the right, improve=4.889444, (0 missing)
## Surrogate splits:
##      298 < 180   to the left,  agree=0.96, adj=0.875, (0 split)
##      130 < 40.5  to the right, agree=0.92, adj=0.750, (0 split)
##      129 < 80.5  to the right, agree=0.88, adj=0.625, (0 split)
##      131 < 6     to the right, agree=0.88, adj=0.625, (0 split)
##      242 < 112.5 to the left,  agree=0.88, adj=0.625, (0 split)
##
## Node number 1540: 267 observations
## predicted class=0 expected loss=0.05617978 P(node) =0.01059314
## class counts:  252    0    7    1    0    2    3    1    0
1
## probabilities: 0.944 0.000 0.026 0.004 0.000 0.007 0.011 0.004 0.000
0.004
##
## Node number 1541: 32 observations, complexity param=0.0001786193
## predicted class=0 expected loss=0.625 P(node) =0.001269589
## class counts:  12    0    2    6    0   12    0    0    0
0
## probabilities: 0.375 0.000 0.062 0.188 0.000 0.375 0.000 0.000 0.000
0.000
## left son=3082 (18 obs) right son=3083 (14 obs)
## Primary splits:
##      239 < 145   to the right, improve=8.511905, (0 missing)
##      241 < 21    to the right, improve=8.250000, (0 missing)
##      238 < 157   to the right, improve=7.750000, (0 missing)
##      240 < 1.5   to the right, improve=6.816667, (0 missing)
##      267 < 251   to the right, improve=6.575397, (0 missing)
## Surrogate splits:
##      212 < 30.5  to the right, agree=0.938, adj=0.857, (0 split)
##      238 < 157   to the right, agree=0.938, adj=0.857, (0 split)
##      240 < 61.5  to the right, agree=0.906, adj=0.786, (0 split)
##      211 < 30    to the right, agree=0.875, adj=0.714, (0 split)
##      241 < 26.5  to the right, agree=0.844, adj=0.643, (0 split)
##
## Node number 1542: 11 observations
## predicted class=0 expected loss=0.09090909 P(node) =0.0004364213
## class counts:  10    0    1    0    0    0    0    0    0
0
## probabilities: 0.909 0.000 0.091 0.000 0.000 0.000 0.000 0.000 0.000
0.000
##
## Node number 1543: 22 observations
## predicted class=2 expected loss=0.3181818 P(node) =0.0008728427

```

```

##      class counts:      2      0     15      0      0      0      2      3      0
0
##      probabilities: 0.091 0.000 0.682 0.000 0.000 0.000 0.091 0.136 0.000
0.000
##
## Node number 1648: 10 observations
##      predicted class=2 expected loss=0.3 P(node) =0.0003967467
##      class counts:      0      0      7      1      0      0      2      0      0
0
##      probabilities: 0.000 0.000 0.700 0.100 0.000 0.000 0.200 0.000 0.000
0.000
##
## Node number 1649: 24 observations,      complexity param=0.0001786193
##      predicted class=5 expected loss=0.5833333 P(node) =0.000952192
##      class counts:      4      0      1      2      1     10      3      0      3
0
##      probabilities: 0.167 0.000 0.042 0.083 0.042 0.417 0.125 0.000 0.125
0.000
##      left son=3298 (10 obs) right son=3299 (14 obs)
##      Primary splits:
##          627 < 242 to the right, improve=4.195238, (0 missing)
##          247 < 3 to the left, improve=4.049020, (0 missing)
##          184 < 227 to the right, improve=4.000000, (0 missing)
##          430 < 193.5 to the right, improve=3.528011, (0 missing)
##          183 < 137.5 to the right, improve=3.131702, (0 missing)
##      Surrogate splits:
##          214 < 148.5 to the right, agree=0.917, adj=0.8, (0 split)
##          403 < 240 to the right, agree=0.917, adj=0.8, (0 split)
##          184 < 240.5 to the right, agree=0.875, adj=0.7, (0 split)
##          431 < 108.5 to the right, agree=0.875, adj=0.7, (0 split)
##          183 < 219.5 to the right, agree=0.833, adj=0.6, (0 split)
##
## Node number 1732: 18 observations
##      predicted class=1 expected loss=0.6666667 P(node) =0.000714144
##      class counts:      1      6      0      4      0      5      0      0      0
2
##      probabilities: 0.056 0.333 0.000 0.222 0.000 0.278 0.000 0.000 0.000
0.111
##
## Node number 1733: 10 observations
##      predicted class=6 expected loss=0.2 P(node) =0.0003967467
##      class counts:      0      1      0      0      0      1      8      0      0
0
##      probabilities: 0.000 0.100 0.000 0.000 0.000 0.100 0.800 0.000 0.000
0.000
##
## Node number 1808: 107 observations
##      predicted class=1 expected loss=0.07476636 P(node) =0.004245189
##      class counts:      0     99      3      0      1      1      0      3      0
0

```

```

## probabilities: 0.000 0.925 0.028 0.000 0.009 0.009 0.000 0.028 0.000
0.000
##
## Node number 1809: 28 observations, complexity param=0.0001786193
## predicted class=2 expected loss=0.5 P(node) =0.001110891
## class counts: 0 1 14 1 1 2 6 3 0
0
## probabilities: 0.000 0.036 0.500 0.036 0.036 0.071 0.214 0.107 0.000
0.000
## left son=3618 (14 obs) right son=3619 (14 obs)
## Primary splits:
## 431 < 8.5 to the right, improve=5.428571, (0 missing)
## 410 < 3 to the right, improve=5.346066, (0 missing)
## 331 < 48 to the left, improve=5.238095, (0 missing)
## 359 < 14.5 to the left, improve=5.238095, (0 missing)
## 387 < 42 to the left, improve=5.238095, (0 missing)
## Surrogate splits:
## 430 < 32.5 to the right, agree=0.964, adj=0.929, (0 split)
## 429 < 11.5 to the right, agree=0.929, adj=0.857, (0 split)
## 432 < 11.5 to the right, agree=0.893, adj=0.786, (0 split)
## 458 < 149.5 to the right, agree=0.893, adj=0.786, (0 split)
## 459 < 216 to the right, agree=0.893, adj=0.786, (0 split)
##
## Node number 1810: 72 observations, complexity param=0.0001786193
## predicted class=4 expected loss=0.25 P(node) =0.002856576
## class counts: 0 0 2 0 54 2 7 2 3
2
## probabilities: 0.000 0.000 0.028 0.000 0.750 0.028 0.097 0.028 0.042
0.028
## left son=3620 (63 obs) right son=3621 (9 obs)
## Primary splits:
## 292 < 124 to the left, improve=7.678571, (0 missing)
## 293 < 96 to the left, improve=7.678571, (0 missing)
## 294 < 33.5 to the left, improve=7.678571, (0 missing)
## 265 < 89 to the left, improve=7.456349, (0 missing)
## 266 < 56.5 to the left, improve=7.456349, (0 missing)
## Surrogate splits:
## 293 < 96 to the left, agree=1.000, adj=1.000, (0 split)
## 294 < 33.5 to the left, agree=1.000, adj=1.000, (0 split)
## 320 < 14.5 to the left, agree=0.986, adj=0.889, (0 split)
## 321 < 7.5 to the left, agree=0.986, adj=0.889, (0 split)
## 265 < 89 to the left, agree=0.972, adj=0.778, (0 split)
##
## Node number 1811: 39 observations
## predicted class=6 expected loss=0.1025641 P(node) =0.001547312
## class counts: 0 0 0 0 4 0 35 0 0
0
## probabilities: 0.000 0.000 0.000 0.000 0.103 0.000 0.897 0.000 0.000
0.000
##

```

```

## Node number 1812: 127 observations,    complexity param=0.0005805126
##   predicted class=2   expected loss=0.3622047   P(node) =0.005038683
##   class counts:      0      2      81      5      0      0      0      24      6
9
##   probabilities: 0.000 0.016 0.638 0.039 0.000 0.000 0.000 0.189 0.047
0.071
##   left son=3624 (109 obs) right son=3625 (18 obs)
##   Primary splits:
##       712 < 40.5   to the left,   improve=14.50879, (0 missing)
##       713 < 7      to the left,   improve=13.22317, (0 missing)
##       568 < 142.5 to the right, improve=11.55354, (0 missing)
##       569 < 17     to the right, improve=11.38362, (0 missing)
##       566 < 74     to the right, improve=10.29529, (0 missing)
##   Surrogate splits:
##       711 < 21.5   to the left,   agree=0.953, adj=0.667, (0 split)
##       710 < 1.5    to the left,   agree=0.945, adj=0.611, (0 split)
##       684 < 94.5   to the left,   agree=0.937, adj=0.556, (0 split)
##       713 < 149    to the left,   agree=0.937, adj=0.556, (0 split)
##       683 < 224.5 to the left,   agree=0.921, adj=0.444, (0 split)
##
## Node number 1813: 23 observations
##   predicted class=7   expected loss=0.04347826   P(node) =0.0009125174
##   class counts:      0      0      0      0      1      0      0      22      0
0
##   probabilities: 0.000 0.000 0.000 0.000 0.043 0.000 0.000 0.957 0.000
0.000
##
## Node number 1814: 28 observations,    complexity param=0.0001786193
##   predicted class=8   expected loss=0.5357143   P(node) =0.001110891
##   class counts:      2      0      2      0      1      5      0      2      13
3
##   probabilities: 0.071 0.000 0.071 0.000 0.036 0.179 0.000 0.071 0.464
0.107
##   left son=3628 (14 obs) right son=3629 (14 obs)
##   Primary splits:
##       467 < 4      to the right, improve=5.571429, (0 missing)
##       398 < 105.5 to the right, improve=4.663492, (0 missing)
##       487 < 1      to the left,  improve=4.535714, (0 missing)
##       496 < 49.5   to the right, improve=4.374603, (0 missing)
##       426 < 17.5   to the right, improve=4.157059, (0 missing)
##   Surrogate splits:
##       440 < 14.5   to the right, agree=0.893, adj=0.786, (0 split)
##       468 < 16.5   to the right, agree=0.893, adj=0.786, (0 split)
##       398 < 105.5 to the right, agree=0.857, adj=0.714, (0 split)
##       439 < 12     to the right, agree=0.857, adj=0.714, (0 split)
##       496 < 13.5   to the right, agree=0.857, adj=0.714, (0 split)
##
## Node number 1815: 63 observations
##   predicted class=9   expected loss=0.04761905   P(node) =0.002499504
##   class counts:      0      0      2      0      0      0      0      1      0

```

```

60
## probabilities: 0.000 0.000 0.032 0.000 0.000 0.000 0.000 0.016 0.000
0.952
##
## Node number 1832: 18 observations
## predicted class=2 expected loss=0.5 P(node) =0.000714144
## class counts: 0 0 9 0 0 0 8 0 1
0
## probabilities: 0.000 0.000 0.500 0.000 0.000 0.000 0.444 0.000 0.056
0.000
##
## Node number 1833: 114 observations
## predicted class=4 expected loss=0.07017544 P(node) =0.004522912
## class counts: 0 0 1 0 106 1 5 0 1
0
## probabilities: 0.000 0.000 0.009 0.000 0.930 0.009 0.044 0.000 0.009
0.000
##
## Node number 1834: 8 observations
## predicted class=8 expected loss=0.375 P(node) =0.0003173973
## class counts: 0 0 3 0 0 0 0 0 5
0
## probabilities: 0.000 0.000 0.375 0.000 0.000 0.000 0.000 0.000 0.625
0.000
##
## Node number 1835: 15 observations
## predicted class=7 expected loss=0.1333333 P(node) =0.00059512
## class counts: 0 0 0 0 0 0 0 13 0
2
## probabilities: 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.867 0.000
0.133
##
## Node number 1836: 56 observations
## predicted class=2 expected loss=0.25 P(node) =0.002221781
## class counts: 6 0 42 0 1 1 1 1 3
1
## probabilities: 0.107 0.000 0.750 0.000 0.018 0.018 0.018 0.018 0.054
0.018
##
## Node number 1837: 29 observations, complexity param=0.0002679289
## predicted class=8 expected loss=0.3103448 P(node) =0.001150565
## class counts: 6 0 2 0 0 0 0 1 20
0
## probabilities: 0.207 0.000 0.069 0.000 0.000 0.000 0.000 0.034 0.690
0.000
## left son=3674 (9 obs) right son=3675 (20 obs)
## Primary splits:
## 492 < 236 to the right, improve=9.348659, (0 missing)
## 464 < 251.5 to the right, improve=8.888342, (0 missing)
## 520 < 247 to the right, improve=8.888342, (0 missing)

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##      406 < 18      to the left,  improve=8.638342, (0 missing)
##      438 < 232    to the right, improve=8.638342, (0 missing)
##      Surrogate splits:
##      406 < 18      to the left,  agree=0.966, adj=0.889, (0 split)
##      438 < 232    to the right, agree=0.966, adj=0.889, (0 split)
##      464 < 242.5  to the right, agree=0.966, adj=0.889, (0 split)
##      520 < 247    to the right, agree=0.966, adj=0.889, (0 split)
##      433 < 95.5   to the left,  agree=0.931, adj=0.778, (0 split)
##
## Node number 1838: 71 observations,      complexity param=0.000491203
##      predicted class=7 expected loss=0.5352113 P(node) =0.002816901
##      class counts:      1      0      6      0      5      0      1      33      9
16
##      probabilities: 0.014 0.000 0.085 0.000 0.070 0.000 0.014 0.465 0.127
0.225
##      left son=3676 (43 obs) right son=3677 (28 obs)
##      Primary splits:
##      404 < 25      to the left,  improve=12.44179, (0 missing)
##      709 < 4       to the left,  improve=11.68334, (0 missing)
##      708 < 1       to the left,  improve=11.53947, (0 missing)
##      405 < 123.5   to the left,  improve=10.77252, (0 missing)
##      710 < 7.5     to the left,  improve=10.09426, (0 missing)
##      Surrogate splits:
##      376 < 40      to the left,  agree=0.958, adj=0.893, (0 split)
##      405 < 123.5   to the left,  agree=0.958, adj=0.893, (0 split)
##      377 < 15.5    to the left,  agree=0.944, adj=0.857, (0 split)
##      403 < 43      to the left,  agree=0.930, adj=0.821, (0 split)
##      432 < 13      to the left,  agree=0.930, adj=0.821, (0 split)
##
## Node number 1839: 53 observations,      complexity param=0.0002456015
##      predicted class=9 expected loss=0.3584906 P(node) =0.002102757
##      class counts:      1      0      3      0      13      0      0      0      2
34
##      probabilities: 0.019 0.000 0.057 0.000 0.245 0.000 0.000 0.000 0.038
0.642
##      left son=3678 (24 obs) right son=3679 (29 obs)
##      Primary splits:
##      402 < 234.5   to the right, improve=8.051941, (0 missing)
##      237 < 21      to the left,  improve=7.578157, (0 missing)
##      264 < 34      to the left,  improve=7.493425, (0 missing)
##      375 < 166.5   to the right, improve=6.766152, (0 missing)
##      349 < 13      to the right, improve=6.300890, (0 missing)
##      Surrogate splits:
##      375 < 60.5    to the right, agree=0.887, adj=0.750, (0 split)
##      403 < 63.5    to the right, agree=0.868, adj=0.708, (0 split)
##      374 < 227.5   to the right, agree=0.849, adj=0.667, (0 split)
##      347 < 152.5   to the right, agree=0.830, adj=0.625, (0 split)
##      376 < 9       to the right, agree=0.830, adj=0.625, (0 split)
##
## Node number 1844: 14 observations

```



```

## predicted class=0 expected loss=0.2857143 P(node) =0.0005554453
## class counts: 10 0 0 0 0 4 0 0 0
0
## probabilities: 0.714 0.000 0.000 0.000 0.000 0.286 0.000 0.000 0.000
0.000
##
## Node number 1845: 22 observations
## predicted class=8 expected loss=0.4090909 P(node) =0.0008728427
## class counts: 0 0 1 0 0 4 4 0 13
0
## probabilities: 0.000 0.000 0.045 0.000 0.000 0.182 0.182 0.000 0.591
0.000
##
## Node number 1848: 8 observations
## predicted class=0 expected loss=0.5 P(node) =0.0003173973
## class counts: 4 0 0 2 0 0 0 1 0
1
## probabilities: 0.500 0.000 0.000 0.250 0.000 0.000 0.000 0.125 0.000
0.125
##
## Node number 1849: 12 observations
## predicted class=5 expected loss=0.08333333 P(node) =0.000476096
## class counts: 0 0 0 0 1 11 0 0 0
0
## probabilities: 0.000 0.000 0.000 0.000 0.083 0.917 0.000 0.000 0.000
0.000
##
## Node number 1860: 268 observations
## predicted class=2 expected loss=0.05970149 P(node) =0.01063281
## class counts: 0 3 252 2 3 0 1 4 3
0
## probabilities: 0.000 0.011 0.940 0.007 0.011 0.000 0.004 0.015 0.011
0.000
##
## Node number 1861: 7 observations
## predicted class=7 expected loss=0.2857143 P(node) =0.0002777227
## class counts: 1 0 1 0 0 0 0 5 0
0
## probabilities: 0.143 0.000 0.143 0.000 0.000 0.000 0.000 0.714 0.000
0.000
##
## Node number 1894: 15 observations
## predicted class=6 expected loss=0.2666667 P(node) =0.00059512
## class counts: 0 0 1 0 2 0 11 0 0
1
## probabilities: 0.000 0.000 0.067 0.000 0.133 0.000 0.733 0.000 0.000
0.067
##
## Node number 1895: 17 observations
## predicted class=8 expected loss=0.4705882 P(node) =0.0006744694

```

```

##      class counts:      0      1      1      0      0      0      1      1      9
4
##      probabilities: 0.000 0.059 0.059 0.000 0.000 0.000 0.059 0.059 0.529
0.235
##
## Node number 1910: 1478 observations
##      predicted class=6 expected loss=0.01826793 P(node) =0.05863916
##      class counts:      0      0      4      1      1      12      1451      0      7
2
##      probabilities: 0.000 0.000 0.003 0.001 0.001 0.008 0.982 0.000 0.005
0.001
##
## Node number 1911: 7 observations
##      predicted class=9 expected loss=0.4285714 P(node) =0.0002777227
##      class counts:      0      0      0      0      1      2      0      0      0
4
##      probabilities: 0.000 0.000 0.000 0.000 0.143 0.286 0.000 0.000 0.000
0.571
##
## Node number 1918: 29 observations,      complexity param=0.0002232741
##      predicted class=5 expected loss=0.5517241 P(node) =0.001150565
##      class counts:      0      0      1      2      0      13      6      1      6
0
##      probabilities: 0.000 0.000 0.034 0.069 0.000 0.448 0.207 0.034 0.207
0.000
##      left son=3836 (13 obs) right son=3837 (16 obs)
##      Primary splits:
##          186 < 160 to the left, improve=5.098143, (0 missing)
##          346 < 142 to the right, improve=4.416092, (0 missing)
##          187 < 3 to the right, improve=4.412052, (0 missing)
##          374 < 133 to the right, improve=4.319297, (0 missing)
##          128 < 127 to the left, improve=4.261706, (0 missing)
##      Surrogate splits:
##          214 < 41 to the left, agree=0.897, adj=0.769, (0 split)
##          187 < 130 to the left, agree=0.862, adj=0.692, (0 split)
##          374 < 133 to the left, agree=0.862, adj=0.692, (0 split)
##          185 < 157 to the left, agree=0.828, adj=0.615, (0 split)
##          402 < 132.5 to the left, agree=0.828, adj=0.615, (0 split)
##
## Node number 1919: 33 observations
##      predicted class=8 expected loss=0.1818182 P(node) =0.001309264
##      class counts:      0      0      1      0      0      3      0      0      27
2
##      probabilities: 0.000 0.000 0.030 0.000 0.000 0.091 0.000 0.000 0.818
0.061
##
## Node number 1936: 1325 observations,      complexity param=0.0003572385
##      predicted class=4 expected loss=0.03924528 P(node) =0.05256893
##      class counts:      0      6      5      7      1273      0      14      0      5
15

```

```

## probabilities: 0.000 0.005 0.004 0.005 0.961 0.000 0.011 0.000 0.004
0.011
## left son=3872 (1313 obs) right son=3873 (12 obs)
## Primary splits:
## 95 < 32 to the left, improve=15.836140, (0 missing)
## 96 < 2 to the left, improve=15.836140, (0 missing)
## 94 < 3.5 to the left, improve=10.278060, (0 missing)
## 437 < 1 to the right, improve=10.010500, (0 missing)
## 123 < 251.5 to the left, improve= 9.190573, (0 missing)
## Surrogate splits:
## 94 < 3.5 to the left, agree=0.998, adj=0.750, (0 split)
## 96 < 39 to the left, agree=0.998, adj=0.750, (0 split)
## 67 < 11 to the left, agree=0.995, adj=0.500, (0 split)
## 68 < 47 to the left, agree=0.995, adj=0.417, (0 split)
## 123 < 251.5 to the left, agree=0.994, adj=0.333, (0 split)
##
## Node number 1937: 19 observations
## predicted class=7 expected loss=0.4736842 P(node) =0.0007538187
## class counts: 0 0 3 2 1 2 0 10 0
1
## probabilities: 0.000 0.000 0.158 0.105 0.053 0.105 0.000 0.526 0.000
0.053
##
## Node number 1938: 48 observations, complexity param=0.0002232741
## predicted class=5 expected loss=0.625 P(node) =0.001904384
## class counts: 0 0 5 7 8 18 0 0 6
4
## probabilities: 0.000 0.000 0.104 0.146 0.167 0.375 0.000 0.000 0.125
0.083
## left son=3876 (24 obs) right son=3877 (24 obs)
## Primary splits:
## 354 < 4 to the left, improve=6.458333, (0 missing)
## 215 < 11 to the right, improve=6.229167, (0 missing)
## 492 < 53.5 to the left, improve=6.136111, (0 missing)
## 326 < 43 to the left, improve=5.991667, (0 missing)
## 327 < 9.5 to the right, improve=5.901467, (0 missing)
## Surrogate splits:
## 326 < 43 to the left, agree=0.917, adj=0.833, (0 split)
## 327 < 32 to the left, agree=0.875, adj=0.750, (0 split)
## 382 < 23 to the left, agree=0.875, adj=0.750, (0 split)
## 381 < 31 to the left, agree=0.854, adj=0.708, (0 split)
## 298 < 5 to the left, agree=0.833, adj=0.667, (0 split)
##
## Node number 1939: 23 observations
## predicted class=8 expected loss=0.1304348 P(node) =0.0009125174
## class counts: 0 0 1 0 0 1 1 0 20
0
## probabilities: 0.000 0.000 0.043 0.000 0.000 0.043 0.043 0.000 0.870
0.000
##

```

```

## Node number 1946: 32 observations,    complexity param=0.0002232741
##   predicted class=4   expected loss=0.34375   P(node) =0.001269589
##   class counts:      0      0      1      1     21      2      0      0      0
7
##   probabilities: 0.000 0.000 0.031 0.031 0.656 0.062 0.000 0.000 0.000
0.219
##   left son=3892 (24 obs) right son=3893 (8 obs)
##   Primary splits:
##       323 < 1      to the right, improve=6.083333, (0 missing)
##       244 < 73.5   to the left,  improve=5.435065, (0 missing)
##       324 < 39     to the right, improve=4.884314, (0 missing)
##       300 < 6.5    to the left,  improve=4.833333, (0 missing)
##       245 < 14     to the left,  improve=4.637143, (0 missing)
##   Surrogate splits:
##       295 < 90.5   to the right, agree=0.938, adj=0.750, (0 split)
##       296 < 17     to the right, agree=0.938, adj=0.750, (0 split)
##       244 < 73.5   to the left,  agree=0.906, adj=0.625, (0 split)
##       245 < 14     to the left,  agree=0.906, adj=0.625, (0 split)
##       265 < 186    to the left,  agree=0.906, adj=0.625, (0 split)
##
## Node number 1947: 40 observations
##   predicted class=9   expected loss=0.25   P(node) =0.001586987
##   class counts:      0      0      1      1      1      2      0      5      0
30
##   probabilities: 0.000 0.000 0.025 0.025 0.025 0.050 0.000 0.125 0.000
0.750
##
## Node number 1952: 24 observations,    complexity param=0.0003125837
##   predicted class=3   expected loss=0.3333333   P(node) =0.000952192
##   class counts:      0      0      0     16      0      8      0      0      0
0
##   probabilities: 0.000 0.000 0.000 0.667 0.000 0.333 0.000 0.000 0.000
0.000
##   left son=3904 (15 obs) right son=3905 (9 obs)
##   Primary splits:
##       265 < 169.5  to the left,  improve=8.888889, (0 missing)
##       179 < 3.5    to the right, improve=8.784314, (0 missing)
##       180 < 3.5    to the right, improve=8.784314, (0 missing)
##       217 < 48.5   to the left,  improve=8.784314, (0 missing)
##       218 < 38.5   to the left,  improve=8.784314, (0 missing)
##   Surrogate splits:
##       264 < 8.5    to the left,  agree=0.958, adj=0.889, (0 split)
##       573 < 56     to the left,  agree=0.958, adj=0.889, (0 split)
##       574 < 126    to the left,  agree=0.958, adj=0.889, (0 split)
##       179 < 3.5    to the right, agree=0.917, adj=0.778, (0 split)
##       180 < 3.5    to the right, agree=0.917, adj=0.778, (0 split)
##
## Node number 1953: 470 observations,    complexity param=0.0002232741
##   predicted class=5   expected loss=0.08085106   P(node) =0.01864709
##   class counts:      0      0      1     19      1    432      0      1      0

```

```

16
## probabilities: 0.000 0.000 0.002 0.040 0.002 0.919 0.000 0.002 0.000
0.034
## left son=3906 (9 obs) right son=3907 (461 obs)
## Primary splits:
## 123 < 180.5 to the right, improve=9.456185, (0 missing)
## 718 < 37 to the left, improve=8.900252, (0 missing)
## 188 < 2 to the right, improve=8.580909, (0 missing)
## 215 < 27 to the left, improve=8.377046, (0 missing)
## 216 < 1.5 to the left, improve=7.969778, (0 missing)
## Surrogate splits:
## 122 < 11 to the right, agree=0.998, adj=0.889, (0 split)
## 124 < 251.5 to the right, agree=0.994, adj=0.667, (0 split)
## 121 < 13 to the right, agree=0.991, adj=0.556, (0 split)
## 125 < 121.5 to the right, agree=0.991, adj=0.556, (0 split)
## 120 < 1.5 to the right, agree=0.989, adj=0.444, (0 split)
##
## Node number 1956: 18 observations
## predicted class=2 expected loss=0.2777778 P(node) =0.000714144
## class counts: 3 0 13 0 0 0 2 0 0
0
## probabilities: 0.167 0.000 0.722 0.000 0.000 0.000 0.111 0.000 0.000
0.000
##
## Node number 1957: 7 observations
## predicted class=8 expected loss=0.1428571 P(node) =0.0002777227
## class counts: 0 0 0 1 0 0 0 0 6
0
## probabilities: 0.000 0.000 0.000 0.143 0.000 0.000 0.000 0.000 0.857
0.000
##
## Node number 1958: 11 observations
## predicted class=4 expected loss=0.5454545 P(node) =0.0004364213
## class counts: 0 0 0 0 5 2 0 0 3
1
## probabilities: 0.000 0.000 0.000 0.000 0.455 0.182 0.000 0.000 0.273
0.091
##
## Node number 1959: 24 observations
## predicted class=9 expected loss=0.08333333 P(node) =0.000952192
## class counts: 0 0 0 1 0 1 0 0 0
22
## probabilities: 0.000 0.000 0.000 0.042 0.000 0.042 0.000 0.000 0.000
0.917
##
## Node number 1964: 60 observations, complexity param=0.000491203
## predicted class=7 expected loss=0.5666667 P(node) =0.00238048
## class counts: 0 1 3 14 1 0 1 26 4
10
## probabilities: 0.000 0.017 0.050 0.233 0.017 0.000 0.017 0.433 0.067

```

```

0.167
## left son=3928 (23 obs) right son=3929 (37 obs)
## Primary splits:
## 377 < 4 to the right, improve=10.137090, (0 missing)
## 406 < 243 to the right, improve= 9.846812, (0 missing)
## 405 < 95.5 to the right, improve= 9.406748, (0 missing)
## 574 < 18.5 to the left, improve= 8.147813, (0 missing)
## 546 < 8 to the left, improve= 7.998405, (0 missing)
## Surrogate splits:
## 405 < 163 to the right, agree=0.917, adj=0.783, (0 split)
## 378 < 142.5 to the right, agree=0.867, adj=0.652, (0 split)
## 406 < 223.5 to the right, agree=0.867, adj=0.652, (0 split)
## 376 < 17.5 to the right, agree=0.850, adj=0.609, (0 split)
## 461 < 124 to the left, agree=0.833, adj=0.565, (0 split)
##
## Node number 1965: 67 observations, complexity param=0.0005805126
## predicted class=9 expected loss=0.4179104 P(node) =0.002658203
## class counts: 0 0 0 2 19 0 0 2 5
39
## probabilities: 0.000 0.000 0.000 0.030 0.284 0.000 0.000 0.030 0.075
0.582
## left son=3930 (13 obs) right son=3931 (54 obs)
## Primary splits:
## 454 < 2 to the right, improve=13.86235, (0 missing)
## 455 < 101.5 to the right, improve=13.86235, (0 missing)
## 483 < 11.5 to the right, improve=13.86235, (0 missing)
## 482 < 3 to the right, improve=12.56336, (0 missing)
## 456 < 226.5 to the right, improve=12.10794, (0 missing)
## Surrogate splits:
## 455 < 101.5 to the right, agree=1.000, adj=1.000, (0 split)
## 483 < 11.5 to the right, agree=1.000, adj=1.000, (0 split)
## 456 < 226.5 to the right, agree=0.985, adj=0.923, (0 split)
## 482 < 3 to the right, agree=0.985, adj=0.923, (0 split)
## 484 < 82.5 to the right, agree=0.970, adj=0.846, (0 split)
##
## Node number 1968: 77 observations
## predicted class=3 expected loss=0.05194805 P(node) =0.003054949
## class counts: 0 0 1 73 0 0 0 0 1
2
## probabilities: 0.000 0.000 0.013 0.948 0.000 0.000 0.000 0.000 0.013
0.026
##
## Node number 1969: 22 observations, complexity param=0.0002679289
## predicted class=9 expected loss=0.6363636 P(node) =0.0008728427
## class counts: 1 0 1 3 1 7 0 0 1
8
## probabilities: 0.045 0.000 0.045 0.136 0.045 0.318 0.000 0.000 0.045
0.364
## left son=3938 (14 obs) right son=3939 (8 obs)
## Primary splits:

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##      188 < 3.5   to the right, improve=6.701299, (0 missing)
##      376 < 110   to the right, improve=6.187257, (0 missing)
##      160 < 85.5  to the right, improve=5.951299, (0 missing)
##      467 < 194   to the right, improve=5.951299, (0 missing)
##      161 < 68.5  to the right, improve=5.708625, (0 missing)
## Surrogate splits:
##      376 < 110   to the right, agree=0.955, adj=0.875, (0 split)
##      681 < 6.5   to the left,  agree=0.955, adj=0.875, (0 split)
##      158 < 65    to the right, agree=0.909, adj=0.750, (0 split)
##      159 < 16    to the right, agree=0.909, adj=0.750, (0 split)
##      187 < 96    to the right, agree=0.909, adj=0.750, (0 split)
##
## Node number 1970: 46 observations
##   predicted class=2   expected loss=0.1521739   P(node) =0.001825035
##   class counts:      0      0      39      4      0      1      0      0      1
1
##   probabilities: 0.000 0.000 0.848 0.087 0.000 0.022 0.000 0.000 0.022
0.022
##
## Node number 1971: 33 observations
##   predicted class=8   expected loss=0.2727273   P(node) =0.001309264
##   class counts:      1      0      3      2      0      0      3      0      24
0
##   probabilities: 0.030 0.000 0.091 0.061 0.000 0.000 0.091 0.000 0.727
0.000
##
## Node number 1972: 90 observations
##   predicted class=4   expected loss=0.1   P(node) =0.00357072
##   class counts:      0      0      3      0      81      0      1      0      0
5
##   probabilities: 0.000 0.000 0.033 0.000 0.900 0.000 0.011 0.000 0.000
0.056
##
## Node number 1973: 48 observations,   complexity param=0.0003572385
##   predicted class=9   expected loss=0.5625   P(node) =0.001904384
##   class counts:      0      0      2      7      11      2      0      0      5
21
##   probabilities: 0.000 0.000 0.042 0.146 0.229 0.042 0.000 0.000 0.104
0.438
##   left son=3946 (10 obs) right son=3947 (38 obs)
##   Primary splits:
##      183 < 239   to the left,  improve=6.762281, (0 missing)
##      403 < 157   to the right, improve=6.670290, (0 missing)
##      376 < 2.5   to the right, improve=5.578042, (0 missing)
##      372 < 11.5  to the left,  improve=5.352564, (0 missing)
##      178 < 250   to the right, improve=5.238386, (0 missing)
##   Surrogate splits:
##      182 < 34.5  to the left,  agree=0.896, adj=0.5, (0 split)
##      181 < 15.5  to the left,  agree=0.875, adj=0.4, (0 split)
##      155 < 33    to the left,  agree=0.854, adj=0.3, (0 split)

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##      156 < 9      to the left,  agree=0.854, adj=0.3, (0 split)
##      208 < 31.5  to the left,  agree=0.854, adj=0.3, (0 split)
##
## Node number 1974: 50 observations,      complexity param=0.0003572385
## predicted class=9 expected loss=0.64 P(node) =0.001983733
## class counts:      0      0      3      9      9      2      0      1      8
18
## probabilities: 0.000 0.000 0.060 0.180 0.180 0.040 0.000 0.020 0.160
0.360
## left son=3948 (14 obs) right son=3949 (36 obs)
## Primary splits:
##      374 < 58      to the left,  improve=5.950159, (0 missing)
##      407 < 139.5 to the left,  improve=5.825263, (0 missing)
##      179 < 239      to the right, improve=5.676341, (0 missing)
##      151 < 8        to the right, improve=5.131765, (0 missing)
##      178 < 62.5     to the right, improve=5.131765, (0 missing)
## Surrogate splits:
##      346 < 8        to the left,  agree=0.98, adj=0.929, (0 split)
##      318 < 4        to the left,  agree=0.94, adj=0.786, (0 split)
##      375 < 4        to the left,  agree=0.94, adj=0.786, (0 split)
##      347 < 3.5      to the left,  agree=0.90, adj=0.643, (0 split)
##      402 < 2.5      to the left,  agree=0.90, adj=0.643, (0 split)
##
## Node number 1975: 40 observations
## predicted class=8 expected loss=0.075 P(node) =0.001586987
## class counts:      1      0      1      0      0      0      0      0      37
1
## probabilities: 0.025 0.000 0.025 0.000 0.000 0.000 0.000 0.000 0.925
0.025
##
## Node number 1976: 119 observations,      complexity param=0.0006698223
## predicted class=3 expected loss=0.5798319 P(node) =0.004721285
## class counts:      1      0      16     50      6      0      0     39      2
5
## probabilities: 0.008 0.000 0.134 0.420 0.050 0.000 0.000 0.328 0.017
0.042
## left son=3952 (66 obs) right son=3953 (53 obs)
## Primary splits:
##      518 < 96.5     to the left,  improve=20.87927, (0 missing)
##      545 < 130.5    to the left,  improve=18.94055, (0 missing)
##      573 < 90.5     to the left,  improve=18.81878, (0 missing)
##      577 < 10.5     to the right, improve=18.25678, (0 missing)
##      550 < 3        to the right, improve=18.11945, (0 missing)
## Surrogate splits:
##      546 < 101      to the left,  agree=0.924, adj=0.830, (0 split)
##      517 < 1.5      to the left,  agree=0.882, adj=0.736, (0 split)
##      490 < 217.5    to the left,  agree=0.874, adj=0.717, (0 split)
##      545 < 7.5      to the left,  agree=0.866, adj=0.698, (0 split)
##      573 < 160      to the left,  agree=0.824, adj=0.604, (0 split)
##

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## Node number 1977: 57 observations
##   predicted class=9   expected loss=0.1403509   P(node) =0.002261456
##   class counts:      0      0      1      1      2      0      0      0      4
49
##   probabilities: 0.000 0.000 0.018 0.018 0.035 0.000 0.000 0.000 0.070
0.860
##
## Node number 1978: 20 observations
##   predicted class=4   expected loss=0.35   P(node) =0.0007934934
##   class counts:      0      0      0      1     13      1      0      0      0
5
##   probabilities: 0.000 0.000 0.000 0.050 0.650 0.050 0.000 0.000 0.000
0.250
##
## Node number 1979: 97 observations
##   predicted class=9   expected loss=0.1340206   P(node) =0.003848443
##   class counts:      0      0      0      0      2      0      0      4      7
84
##   probabilities: 0.000 0.000 0.000 0.000 0.021 0.000 0.000 0.041 0.072
0.866
##
## Node number 1980: 31 observations
##   predicted class=4   expected loss=0.03225806   P(node) =0.001229915
##   class counts:      0      0      0      0     30      0      0      0      1
0
##   probabilities: 0.000 0.000 0.000 0.000 0.968 0.000 0.000 0.000 0.032
0.000
##
## Node number 1981: 35 observations
##   predicted class=9   expected loss=0.1714286   P(node) =0.001388613
##   class counts:      0      0      0      0      4      0      0      1      1
29
##   probabilities: 0.000 0.000 0.000 0.000 0.114 0.000 0.000 0.029 0.029
0.829
##
## Node number 1982: 72 observations,   complexity param=0.0003125837
##   predicted class=9   expected loss=0.4305556   P(node) =0.002856576
##   class counts:      0      0      0      4      5      2      0      3     17
41
##   probabilities: 0.000 0.000 0.000 0.056 0.069 0.028 0.000 0.042 0.236
0.569
##   left son=3964 (24 obs) right son=3965 (48 obs)
##   Primary splits:
##       438 < 130.5 to the left,   improve=15.34722, (0 missing)
##       400 < 25   to the left,   improve=14.57825, (0 missing)
##       544 < 138  to the left,   improve=14.19766, (0 missing)
##       429 < 19.5 to the left,   improve=13.87868, (0 missing)
##       517 < 198  to the right,  improve=13.83532, (0 missing)
##   Surrogate splits:
##       410 < 165  to the left,   agree=0.875, adj=0.625, (0 split)

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##      466 < 75      to the left,  agree=0.875, adj=0.625, (0 split)
##      544 < 107.5  to the right, agree=0.861, adj=0.583, (0 split)
##      411 < 13.5   to the left,  agree=0.847, adj=0.542, (0 split)
##      430 < 45.5   to the left,  agree=0.847, adj=0.542, (0 split)
##
## Node number 1983: 1014 observations
##   predicted class=9  expected loss=0.06213018  P(node) =0.04023011
##   class counts:      0      0      1      6      30      4      0      7      15
951
##   probabilities: 0.000 0.000 0.001 0.006 0.030 0.004 0.000 0.007 0.015
0.938
##
## Node number 1988: 16 observations
##   predicted class=3  expected loss=0.25  P(node) =0.0006347947
##   class counts:      0      1      2      12      0      0      0      0      1
0
##   probabilities: 0.000 0.062 0.125 0.750 0.000 0.000 0.000 0.000 0.062
0.000
##
## Node number 1989: 9 observations
##   predicted class=5  expected loss=0  P(node) =0.000357072
##   class counts:      0      0      0      0      0      9      0      0      0
0
##   probabilities: 0.000 0.000 0.000 0.000 0.000 1.000 0.000 0.000 0.000
0.000
##
## Node number 1998: 7 observations
##   predicted class=3  expected loss=0.1428571  P(node) =0.0002777227
##   class counts:      0      0      0      6      0      0      0      0      0
1
##   probabilities: 0.000 0.000 0.000 0.857 0.000 0.000 0.000 0.000 0.000
0.143
##
## Node number 1999: 53 observations
##   predicted class=9  expected loss=0.2075472  P(node) =0.002102757
##   class counts:      0      0      1      0      5      0      0      2      3
42
##   probabilities: 0.000 0.000 0.019 0.000 0.094 0.000 0.000 0.038 0.057
0.792
##
## Node number 2186: 31 observations,      complexity param=0.0002456015
##   predicted class=2  expected loss=0.7741935  P(node) =0.001229915
##   class counts:      4      6      7      3      4      2      1      0      4
0
##   probabilities: 0.129 0.194 0.226 0.097 0.129 0.065 0.032 0.000 0.129
0.000
##   left son=4372 (20 obs) right son=4373 (11 obs)
##   Primary splits:
##       652 < 147      to the left,  improve=4.476246, (0 missing)
##       653 < 128.5    to the left,  improve=4.476246, (0 missing)

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##      654 < 14    to the left,  improve=4.476246, (0 missing)
##      160 < 49.5 to the left,  improve=4.155500, (0 missing)
##      626 < 149  to the left,  improve=4.126486, (0 missing)
## Surrogate splits:
##      653 < 128.5 to the left,  agree=1.000, adj=1.000, (0 split)
##      654 < 14    to the left,  agree=1.000, adj=1.000, (0 split)
##      626 < 149  to the left,  agree=0.968, adj=0.909, (0 split)
##      160 < 49.5 to the left,  agree=0.935, adj=0.818, (0 split)
##      651 < 34   to the left,  agree=0.935, adj=0.818, (0 split)
##
## Node number 2187: 23 observations
## predicted class=5 expected loss=0.2608696 P(node) =0.0009125174
## class counts:      1      0      1      3      0      17      0      0      1
0
## probabilities: 0.043 0.000 0.043 0.130 0.000 0.739 0.000 0.000 0.043
0.000
##
## Node number 2190: 37 observations,      complexity param=0.0003125837
## predicted class=1 expected loss=0.6756757 P(node) =0.001467963
## class counts:      0      12      1      1      8      2      3      5      0
5
## probabilities: 0.000 0.324 0.027 0.027 0.216 0.054 0.081 0.135 0.000
0.135
## left son=4380 (15 obs) right son=4381 (22 obs)
## Primary splits:
##      405 < 205.5 to the right, improve=6.039803, (0 missing)
##      377 < 245   to the right, improve=5.747548, (0 missing)
##      349 < 248   to the right, improve=5.137150, (0 missing)
##      321 < 189.5 to the right, improve=4.770690, (0 missing)
##      375 < 155   to the left,  improve=4.407336, (0 missing)
## Surrogate splits:
##      377 < 62    to the right, agree=0.838, adj=0.600, (0 split)
##      180 < 54    to the right, agree=0.811, adj=0.533, (0 split)
##      433 < 240.5 to the right, agree=0.811, adj=0.533, (0 split)
##      153 < 159.5 to the right, agree=0.784, adj=0.467, (0 split)
##      181 < 97.5  to the right, agree=0.784, adj=0.467, (0 split)
##
## Node number 2191: 33 observations
## predicted class=9 expected loss=0.2727273 P(node) =0.001309264
## class counts:      0      2      0      0      5      0      0      1      1
24
## probabilities: 0.000 0.061 0.000 0.000 0.152 0.000 0.000 0.030 0.030
0.727
##
## Node number 2222: 10 observations
## predicted class=8 expected loss=0.3 P(node) =0.0003967467
## class counts:      1      1      0      0      1      0      0      0      7
0
## probabilities: 0.100 0.100 0.000 0.000 0.100 0.000 0.000 0.000 0.700
0.000

```

```

##
## Node number 2223: 11 observations
## predicted class=9 expected loss=0.5454545 P(node) =0.0004364213
## class counts: 1 0 0 2 0 0 2 0 1
5
## probabilities: 0.091 0.000 0.000 0.182 0.000 0.000 0.182 0.000 0.091
0.455
##
## Node number 2576: 1350 observations
## predicted class=3 expected loss=0.01407407 P(node) =0.0535608
## class counts: 0 2 8 1331 0 6 0 0 3
0
## probabilities: 0.000 0.001 0.006 0.986 0.000 0.004 0.000 0.000 0.002
0.000
##
## Node number 2577: 10 observations
## predicted class=5 expected loss=0.3 P(node) =0.0003967467
## class counts: 0 0 0 1 0 7 0 0 2
0
## probabilities: 0.000 0.000 0.000 0.100 0.000 0.700 0.000 0.000 0.200
0.000
##
## Node number 2682: 11 observations
## predicted class=3 expected loss=0.4545455 P(node) =0.0004364213
## class counts: 0 0 0 6 4 0 1 0 0
0
## probabilities: 0.000 0.000 0.000 0.545 0.364 0.000 0.091 0.000 0.000
0.000
##
## Node number 2683: 9 observations
## predicted class=7 expected loss=0 P(node) =0.000357072
## class counts: 0 0 0 0 0 0 0 9 0
0
## probabilities: 0.000 0.000 0.000 0.000 0.000 0.000 0.000 1.000 0.000
0.000
##
## Node number 2684: 13 observations
## predicted class=1 expected loss=0.4615385 P(node) =0.0005157707
## class counts: 0 7 0 0 0 0 2 0 4
0
## probabilities: 0.000 0.538 0.000 0.000 0.000 0.000 0.154 0.000 0.308
0.000
##
## Node number 2685: 14 observations
## predicted class=5 expected loss=0.6428571 P(node) =0.0005554453
## class counts: 0 0 0 3 2 5 4 0 0
0
## probabilities: 0.000 0.000 0.000 0.214 0.143 0.357 0.286 0.000 0.000
0.000
##

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```

## Node number 2716: 25 observations,    complexity param=0.0002232741
##   predicted class=3   expected loss=0.36   P(node) =0.0009918667
##   class counts:      0      1      1      16      0      6      0      0      1
0
##   probabilities: 0.000 0.040 0.040 0.640 0.000 0.240 0.000 0.000 0.040
0.000
##   left son=5432 (16 obs) right son=5433 (9 obs)
##   Primary splits:
##       270 < 13.5   to the right, improve=6.658333, (0 missing)
##       269 < 88.5   to the right, improve=6.302941, (0 missing)
##       262 < 248    to the left,  improve=6.302941, (0 missing)
##       268 < 65.5   to the right, improve=6.152381, (0 missing)
##       242 < 122    to the right, improve=5.533333, (0 missing)
##   Surrogate splits:
##       242 < 122    to the right, agree=0.96, adj=0.889, (0 split)
##       269 < 88.5   to the right, agree=0.96, adj=0.889, (0 split)
##       261 < 103    to the left,  agree=0.92, adj=0.778, (0 split)
##       268 < 65.5   to the right, agree=0.92, adj=0.778, (0 split)
##       296 < 233.5 to the right, agree=0.92, adj=0.778, (0 split)
##
## Node number 2717: 77 observations,    complexity param=0.0002232741
##   predicted class=5   expected loss=0.3896104   P(node) =0.003054949
##   class counts:      5      0      0      9      0      47      2      3      2
9
##   probabilities: 0.065 0.000 0.000 0.117 0.000 0.610 0.026 0.039 0.026
0.117
##   left son=5434 (8 obs) right son=5435 (69 obs)
##   Primary splits:
##       455 < 193.5 to the right, improve=6.716685, (0 missing)
##       329 < 218.5 to the right, improve=6.662338, (0 missing)
##       358 < 11     to the right, improve=6.509649, (0 missing)
##       482 < 197    to the right, improve=6.348052, (0 missing)
##       597 < 38.5   to the right, improve=6.068789, (0 missing)
##   Surrogate splits:
##       456 < 196.5 to the right, agree=0.987, adj=0.875, (0 split)
##       428 < 246.5 to the right, agree=0.974, adj=0.750, (0 split)
##       454 < 80     to the right, agree=0.961, adj=0.625, (0 split)
##       483 < 167.5 to the right, agree=0.961, adj=0.625, (0 split)
##       484 < 251.5 to the right, agree=0.961, adj=0.625, (0 split)
##
## Node number 2718: 30 observations,    complexity param=0.0001786193
##   predicted class=8   expected loss=0.4666667   P(node) =0.00119024
##   class counts:      0      0      0      2      0      6      0      0      16
6
##   probabilities: 0.000 0.000 0.000 0.067 0.000 0.200 0.000 0.000 0.533
0.200
##   left son=5436 (14 obs) right son=5437 (16 obs)
##   Primary splits:
##       431 < 10.5   to the left,  improve=5.719048, (0 missing)
##       433 < 9      to the left,  improve=4.869985, (0 missing)

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##      432 < 92    to the left,  improve=4.851885, (0 missing)
##      405 < 194.5 to the left,  improve=4.560128, (0 missing)
##      466 < 105.5 to the right, improve=4.526094, (0 missing)
## Surrogate splits:
##      432 < 27.5  to the left,  agree=0.867, adj=0.714, (0 split)
##      402 < 249.5 to the left,  agree=0.833, adj=0.643, (0 split)
##      403 < 161.5 to the left,  agree=0.833, adj=0.643, (0 split)
##      430 < 160   to the left,  agree=0.833, adj=0.643, (0 split)
##      458 < 13    to the left,  agree=0.833, adj=0.643, (0 split)
##
## Node number 2719: 8 observations
## predicted class=9 expected loss=0 P(node) =0.0003173973
## class counts:      0      0      0      0      0      0      0      0      0
8
## probabilities: 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
1.000
##
## Node number 3066: 8 observations
## predicted class=5 expected loss=0.375 P(node) =0.0003173973
## class counts:      0      0      0      0      0      5      1      0      1
1
## probabilities: 0.000 0.000 0.000 0.000 0.000 0.625 0.125 0.000 0.125
0.125
##
## Node number 3067: 17 observations
## predicted class=8 expected loss=0.05882353 P(node) =0.0006744694
## class counts:      0      0      0      1      0      0      0      0      16
0
## probabilities: 0.000 0.000 0.000 0.059 0.000 0.000 0.000 0.000 0.941
0.000
##
## Node number 3082: 18 observations
## predicted class=0 expected loss=0.3888889 P(node) =0.000714144
## class counts:     11      0      2      5      0      0      0      0      0
0
## probabilities: 0.611 0.000 0.111 0.278 0.000 0.000 0.000 0.000 0.000
0.000
##
## Node number 3083: 14 observations
## predicted class=5 expected loss=0.1428571 P(node) =0.0005554453
## class counts:      1      0      0      1      0     12      0      0      0
0
## probabilities: 0.071 0.000 0.000 0.071 0.000 0.857 0.000 0.000 0.000
0.000
##
## Node number 3298: 10 observations
## predicted class=0 expected loss=0.6 P(node) =0.0003967467
## class counts:      4      0      1      1      0      0      2      0      2
0
## probabilities: 0.400 0.000 0.100 0.100 0.000 0.000 0.200 0.000 0.200

```

```

0.000
##
## Node number 3299: 14 observations
## predicted class=5 expected loss=0.2857143 P(node) =0.0005554453
## class counts: 0 0 0 1 1 10 1 0 1
0
## probabilities: 0.000 0.000 0.000 0.071 0.071 0.714 0.071 0.000 0.071
0.000
##
## Node number 3618: 14 observations
## predicted class=2 expected loss=0.1428571 P(node) =0.0005554453
## class counts: 0 0 12 1 1 0 0 0 0
0
## probabilities: 0.000 0.000 0.857 0.071 0.071 0.000 0.000 0.000 0.000
0.000
##
## Node number 3619: 14 observations
## predicted class=6 expected loss=0.5714286 P(node) =0.0005554453
## class counts: 0 1 2 0 0 2 6 3 0
0
## probabilities: 0.000 0.071 0.143 0.000 0.000 0.143 0.429 0.214 0.000
0.000
##
## Node number 3620: 63 observations, complexity param=0.0001786193
## predicted class=4 expected loss=0.1428571 P(node) =0.002499504
## class counts: 0 0 1 0 54 0 7 0 0
1
## probabilities: 0.000 0.000 0.016 0.000 0.857 0.000 0.111 0.000 0.000
0.016
## left son=7240 (56 obs) right son=7241 (7 obs)
## Primary splits:
## 94 < 7.5 to the left, improve=8.404762, (0 missing)
## 438 < 65 to the right, improve=5.231293, (0 missing)
## 121 < 54 to the left, improve=4.680986, (0 missing)
## 410 < 16.5 to the right, improve=4.640147, (0 missing)
## 489 < 80.5 to the right, improve=4.554762, (0 missing)
## Surrogate splits:
## 93 < 1.5 to the left, agree=0.984, adj=0.857, (0 split)
## 95 < 19 to the left, agree=0.984, adj=0.857, (0 split)
## 542 < 252.5 to the left, agree=0.952, adj=0.571, (0 split)
## 39 < 55 to the left, agree=0.937, adj=0.429, (0 split)
## 40 < 5 to the left, agree=0.937, adj=0.429, (0 split)
##
## Node number 3621: 9 observations
## predicted class=8 expected loss=0.6666667 P(node) =0.000357072
## class counts: 0 0 1 0 0 2 0 2 3
1
## probabilities: 0.000 0.000 0.111 0.000 0.000 0.222 0.000 0.222 0.333
0.111
##

```

```

## Node number 3624: 109 observations
##   predicted class=2   expected loss=0.266055   P(node) =0.004324539
##   class counts:      0      2      80      5      0      0      0      10      4
8
##   probabilities: 0.000 0.018 0.734 0.046 0.000 0.000 0.000 0.092 0.037
0.073
##
## Node number 3625: 18 observations
##   predicted class=7   expected loss=0.2222222   P(node) =0.000714144
##   class counts:      0      0      1      0      0      0      0      14      2
1
##   probabilities: 0.000 0.000 0.056 0.000 0.000 0.000 0.000 0.778 0.111
0.056
##
## Node number 3628: 14 observations
##   predicted class=5   expected loss=0.6428571   P(node) =0.0005554453
##   class counts:      2      0      1      0      1      5      0      2      1
2
##   probabilities: 0.143 0.000 0.071 0.000 0.071 0.357 0.000 0.143 0.071
0.143
##
## Node number 3629: 14 observations
##   predicted class=8   expected loss=0.1428571   P(node) =0.0005554453
##   class counts:      0      0      1      0      0      0      0      0      12
1
##   probabilities: 0.000 0.000 0.071 0.000 0.000 0.000 0.000 0.000 0.857
0.071
##
## Node number 3674: 9 observations
##   predicted class=0   expected loss=0.3333333   P(node) =0.000357072
##   class counts:      6      0      2      0      0      0      0      1      0
0
##   probabilities: 0.667 0.000 0.222 0.000 0.000 0.000 0.000 0.111 0.000
0.000
##
## Node number 3675: 20 observations
##   predicted class=8   expected loss=0           P(node) =0.0007934934
##   class counts:      0      0      0      0      0      0      0      0      20
0
##   probabilities: 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 1.000
0.000
##
## Node number 3676: 43 observations,      complexity param=0.0001786193
##   predicted class=7   expected loss=0.255814   P(node) =0.001706011
##   class counts:      1      0      4      0      1      0      1      32      0
4
##   probabilities: 0.023 0.000 0.093 0.000 0.023 0.000 0.023 0.744 0.000
0.093
##   left son=7352 (10 obs) right son=7353 (33 obs)
##   Primary splits:

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##      680 < 83      to the left,  improve=9.232699, (0 missing)
##      708 < 1       to the left,  improve=8.162943, (0 missing)
##      513 < 26      to the right, improve=8.162943, (0 missing)
##      540 < 25      to the right, improve=8.162943, (0 missing)
##      709 < 4       to the left,  improve=7.014517, (0 missing)
## Surrogate splits:
##      708 < 1       to the left,  agree=0.977, adj=0.9, (0 split)
##      709 < 4       to the left,  agree=0.953, adj=0.8, (0 split)
##      513 < 26      to the right, agree=0.930, adj=0.7, (0 split)
##      540 < 25      to the right, agree=0.930, adj=0.7, (0 split)
##      154 < 1.5     to the right, agree=0.907, adj=0.6, (0 split)
##
## Node number 3677: 28 observations,      complexity param=0.0003572385
## predicted class=9 expected loss=0.5714286 P(node) =0.001110891
## class counts:      0      0      2      0      4      0      0      1      9
12
## probabilities: 0.000 0.000 0.071 0.000 0.143 0.000 0.000 0.036 0.321
0.429
## left son=7354 (15 obs) right son=7355 (13 obs)
## Primary splits:
##      655 < 18.5    to the right, improve=6.875824, (0 missing)
##      706 < 57.5    to the left,  improve=6.056391, (0 missing)
##      707 < 23.5    to the left,  improve=5.839286, (0 missing)
##      651 < 14.5    to the left,  improve=5.642857, (0 missing)
##      683 < 35.5    to the left,  improve=5.564286, (0 missing)
## Surrogate splits:
##      627 < 117     to the right, agree=0.964, adj=0.923, (0 split)
##      654 < 196     to the right, agree=0.929, adj=0.846, (0 split)
##      182 < 1.5     to the right, agree=0.893, adj=0.769, (0 split)
##      183 < 92.5    to the right, agree=0.893, adj=0.769, (0 split)
##      679 < 35.5    to the left,  agree=0.857, adj=0.692, (0 split)
##
## Node number 3678: 24 observations,      complexity param=0.0002456015
## predicted class=4 expected loss=0.4583333 P(node) =0.000952192
## class counts:      1      0      1      0     13      0      0      0      1
8
## probabilities: 0.042 0.000 0.042 0.000 0.542 0.000 0.000 0.000 0.042
0.333
## left son=7356 (15 obs) right son=7357 (9 obs)
## Primary splits:
##      456 < 71      to the right, improve=5.633333, (0 missing)
##      455 < 68.5    to the right, improve=5.117716, (0 missing)
##      427 < 6.5     to the right, improve=4.628205, (0 missing)
##      428 < 180.5   to the right, improve=4.628205, (0 missing)
##      485 < 54      to the right, improve=4.423810, (0 missing)
## Surrogate splits:
##      428 < 91.5    to the right, agree=0.958, adj=0.889, (0 split)
##      429 < 245.5   to the right, agree=0.958, adj=0.889, (0 split)
##      455 < 8.5     to the right, agree=0.958, adj=0.889, (0 split)
##      400 < 14.5    to the right, agree=0.917, adj=0.778, (0 split)

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##      401 < 191   to the right, agree=0.917, adj=0.778, (0 split)
##
## Node number 3679: 29 observations
##   predicted class=9   expected loss=0.1034483   P(node) =0.001150565
##   class counts:      0      0      2      0      0      0      0      0      1
26
##   probabilities: 0.000 0.000 0.069 0.000 0.000 0.000 0.000 0.000 0.034
0.897
##
## Node number 3836: 13 observations
##   predicted class=6   expected loss=0.5384615   P(node) =0.0005157707
##   class counts:      0      0      1      2      0      1      6      1      2
0
##   probabilities: 0.000 0.000 0.077 0.154 0.000 0.077 0.462 0.077 0.154
0.000
##
## Node number 3837: 16 observations
##   predicted class=5   expected loss=0.25   P(node) =0.0006347947
##   class counts:      0      0      0      0      0      12      0      0      4
0
##   probabilities: 0.000 0.000 0.000 0.000 0.000 0.750 0.000 0.000 0.250
0.000
##
## Node number 3872: 1313 observations
##   predicted class=4   expected loss=0.03198781   P(node) =0.05209284
##   class counts:      0      6      5      7 1271      0      4      0      5
15
##   probabilities: 0.000 0.005 0.004 0.005 0.968 0.000 0.003 0.000 0.004
0.011
##
## Node number 3873: 12 observations
##   predicted class=6   expected loss=0.1666667   P(node) =0.000476096
##   class counts:      0      0      0      0      2      0      10      0      0
0
##   probabilities: 0.000 0.000 0.000 0.000 0.167 0.000 0.833 0.000 0.000
0.000
##
## Node number 3876: 24 observations
##   predicted class=5   expected loss=0.2916667   P(node) =0.000952192
##   class counts:      0      0      1      2      2      17      0      0      1
1
##   probabilities: 0.000 0.000 0.042 0.083 0.083 0.708 0.000 0.000 0.042
0.042
##
## Node number 3877: 24 observations,      complexity param=0.0002232741
##   predicted class=4   expected loss=0.75   P(node) =0.000952192
##   class counts:      0      0      4      5      6      1      0      0      5
3
##   probabilities: 0.000 0.000 0.167 0.208 0.250 0.042 0.000 0.000 0.208
0.125

```

```

## left son=7754 (7 obs) right son=7755 (17 obs)
## Primary splits:
## 461 < 201.5 to the right, improve=4.677871, (0 missing)
## 460 < 94 to the right, improve=4.333333, (0 missing)
## 378 < 199.5 to the right, improve=4.123249, (0 missing)
## 186 < 26.5 to the left, improve=4.083333, (0 missing)
## 351 < 17 to the right, improve=3.958333, (0 missing)
## Surrogate splits:
## 185 < 71 to the left, agree=0.917, adj=0.714, (0 split)
## 186 < 29 to the left, agree=0.917, adj=0.714, (0 split)
## 207 < 5 to the left, agree=0.917, adj=0.714, (0 split)
## 488 < 14.5 to the right, agree=0.917, adj=0.714, (0 split)
## 153 < 43 to the left, agree=0.875, adj=0.571, (0 split)
##
## Node number 3892: 24 observations
## predicted class=4 expected loss=0.1666667 P(node) =0.000952192
## class counts: 0 0 1 1 20 1 0 0 0
1
## probabilities: 0.000 0.000 0.042 0.042 0.833 0.042 0.000 0.000 0.000
0.042
##
## Node number 3893: 8 observations
## predicted class=9 expected loss=0.25 P(node) =0.0003173973
## class counts: 0 0 0 0 1 1 0 0 0
6
## probabilities: 0.000 0.000 0.000 0.000 0.125 0.125 0.000 0.000 0.000
0.750
##
## Node number 3904: 15 observations
## predicted class=3 expected loss=0 P(node) =0.00059512
## class counts: 0 0 0 15 0 0 0 0 0
0
## probabilities: 0.000 0.000 0.000 1.000 0.000 0.000 0.000 0.000 0.000
0.000
##
## Node number 3905: 9 observations
## predicted class=5 expected loss=0.1111111 P(node) =0.000357072
## class counts: 0 0 0 1 0 8 0 0 0
0
## probabilities: 0.000 0.000 0.000 0.111 0.000 0.889 0.000 0.000 0.000
0.000
##
## Node number 3906: 9 observations
## predicted class=3 expected loss=0.2222222 P(node) =0.000357072
## class counts: 0 0 0 7 0 2 0 0 0
0
## probabilities: 0.000 0.000 0.000 0.778 0.000 0.222 0.000 0.000 0.000
0.000
##
## Node number 3907: 461 observations, complexity param=0.0001786193

```

```

## predicted class=5 expected loss=0.06724512 P(node) =0.01829002
## class counts:      0      0      1      12      1      430      0      1      0
16
## probabilities: 0.000 0.000 0.002 0.026 0.002 0.933 0.000 0.002 0.000
0.035
## left son=7814 (450 obs) right son=7815 (11 obs)
## Primary splits:
##      718 < 37      to the left, improve=9.084851, (0 missing)
##      326 < 7.5     to the left, improve=7.839553, (0 missing)
##      717 < 195.5   to the left, improve=6.760310, (0 missing)
##      628 < 0.5     to the right, improve=6.449194, (0 missing)
##      627 < 0.5     to the right, improve=6.242185, (0 missing)
## Surrogate splits:
##      717 < 195.5   to the left, agree=0.993, adj=0.727, (0 split)
##      719 < 15      to the left, agree=0.989, adj=0.545, (0 split)
##      326 < 163.5   to the left, agree=0.980, adj=0.182, (0 split)
##      691 < 252.5   to the left, agree=0.980, adj=0.182, (0 split)
##      720 < 14      to the left, agree=0.980, adj=0.182, (0 split)
##
## Node number 3928: 23 observations, complexity param=0.0002679289
## predicted class=3 expected loss=0.5217391 P(node) =0.0009125174
## class counts:      0      1      0      11      1      0      1      0      2
7
## probabilities: 0.000 0.043 0.000 0.478 0.043 0.000 0.043 0.000 0.087
0.304
## left son=7856 (11 obs) right son=7857 (12 obs)
## Primary splits:
##      180 < 95      to the right, improve=5.986166, (0 missing)
##      179 < 36      to the right, improve=4.888963, (0 missing)
##      347 < 13      to the left, improve=4.748792, (0 missing)
##      350 < 42.5    to the right, improve=4.713439, (0 missing)
##      292 < 5       to the left, improve=4.531621, (0 missing)
## Surrogate splits:
##      179 < 36      to the right, agree=0.957, adj=0.909, (0 split)
##      292 < 5       to the left, agree=0.957, adj=0.909, (0 split)
##      181 < 110.5   to the right, agree=0.913, adj=0.818, (0 split)
##      265 < 22      to the left, agree=0.913, adj=0.818, (0 split)
##      152 < 2       to the right, agree=0.870, adj=0.727, (0 split)
##
## Node number 3929: 37 observations
## predicted class=7 expected loss=0.2972973 P(node) =0.001467963
## class counts:      0      0      3      3      0      0      0      26      2
3
## probabilities: 0.000 0.000 0.081 0.081 0.000 0.000 0.000 0.703 0.054
0.081
##
## Node number 3930: 13 observations
## predicted class=4 expected loss=0 P(node) =0.0005157707
## class counts:      0      0      0      0      13      0      0      0      0
0

```

```

## probabilities: 0.000 0.000 0.000 0.000 1.000 0.000 0.000 0.000 0.000
0.000
##
## Node number 3931: 54 observations
## predicted class=9 expected loss=0.2777778 P(node) =0.002142432
## class counts: 0 0 0 2 6 0 0 2 5
39
## probabilities: 0.000 0.000 0.000 0.037 0.111 0.000 0.000 0.037 0.093
0.722
##
## Node number 3938: 14 observations
## predicted class=5 expected loss=0.5 P(node) =0.0005554453
## class counts: 1 0 1 3 1 7 0 0 1
0
## probabilities: 0.071 0.000 0.071 0.214 0.071 0.500 0.000 0.000 0.071
0.000
##
## Node number 3939: 8 observations
## predicted class=9 expected loss=0 P(node) =0.0003173973
## class counts: 0 0 0 0 0 0 0 0 0
8
## probabilities: 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
1.000
##
## Node number 3946: 10 observations
## predicted class=4 expected loss=0.2 P(node) =0.0003967467
## class counts: 0 0 1 1 8 0 0 0 0
0
## probabilities: 0.000 0.000 0.100 0.100 0.800 0.000 0.000 0.000 0.000
0.000
##
## Node number 3947: 38 observations, complexity param=0.0002679289
## predicted class=9 expected loss=0.4473684 P(node) =0.001507637
## class counts: 0 0 1 6 3 2 0 0 5
21
## probabilities: 0.000 0.000 0.026 0.158 0.079 0.053 0.000 0.000 0.132
0.553
## left son=7894 (8 obs) right son=7895 (30 obs)
## Primary splits:
## 372 < 11.5 to the left, improve=6.837719, (0 missing)
## 378 < 85.5 to the right, improve=6.051305, (0 missing)
## 178 < 250 to the right, improve=5.951007, (0 missing)
## 151 < 9.5 to the right, improve=5.861529, (0 missing)
## 316 < 22 to the left, improve=5.740918, (0 missing)
## Surrogate splits:
## 400 < 35.5 to the left, agree=0.974, adj=0.875, (0 split)
## 316 < 22 to the left, agree=0.921, adj=0.625, (0 split)
## 317 < 32 to the left, agree=0.921, adj=0.625, (0 split)
## 344 < 10 to the left, agree=0.921, adj=0.625, (0 split)
## 345 < 18.5 to the left, agree=0.921, adj=0.625, (0 split)

```

```

##
## Node number 3948: 14 observations
## predicted class=3 expected loss=0.4285714 P(node) =0.0005554453
## class counts:    0    0    2    8    1    0    0    1    2
0
## probabilities: 0.000 0.000 0.143 0.571 0.071 0.000 0.000 0.071 0.143
0.000
##
## Node number 3949: 36 observations, complexity param=0.0003125837
## predicted class=9 expected loss=0.5 P(node) =0.001428288
## class counts:    0    0    1    1    8    2    0    0    6
18
## probabilities: 0.000 0.000 0.028 0.028 0.222 0.056 0.000 0.000 0.167
0.500
## left son=7898 (9 obs) right son=7899 (27 obs)
## Primary splits:
## 407 < 122 to the left, improve=6.796296, (0 missing)
## 379 < 5.5 to the left, improve=5.553737, (0 missing)
## 353 < 227.5 to the left, improve=5.236508, (0 missing)
## 242 < 2 to the left, improve=5.081530, (0 missing)
## 297 < 28 to the left, improve=4.893651, (0 missing)
## Surrogate splits:
## 379 < 5.5 to the left, agree=0.944, adj=0.778, (0 split)
## 212 < 85.5 to the left, agree=0.889, adj=0.556, (0 split)
## 380 < 116 to the left, agree=0.889, adj=0.556, (0 split)
## 408 < 188 to the left, agree=0.889, adj=0.556, (0 split)
## 184 < 166 to the left, agree=0.861, adj=0.444, (0 split)
##
## Node number 3952: 66 observations, complexity param=0.000491203
## predicted class=3 expected loss=0.3484848 P(node) =0.002618528
## class counts:    0    0    14    43    1    0    0    3    1
4
## probabilities: 0.000 0.000 0.212 0.652 0.015 0.000 0.000 0.045 0.015
0.061
## left son=7904 (12 obs) right son=7905 (54 obs)
## Primary splits:
## 512 < 30 to the right, improve=13.66162, (0 missing)
## 658 < 0.5 to the right, improve=11.47786, (0 missing)
## 685 < 8 to the right, improve=10.72371, (0 missing)
## 513 < 19.5 to the right, improve=10.60606, (0 missing)
## 511 < 3 to the right, improve=10.55051, (0 missing)
## Surrogate splits:
## 513 < 19.5 to the right, agree=0.970, adj=0.833, (0 split)
## 511 < 10.5 to the right, agree=0.955, adj=0.750, (0 split)
## 485 < 175 to the right, agree=0.939, adj=0.667, (0 split)
## 539 < 25.5 to the right, agree=0.924, adj=0.583, (0 split)
## 540 < 24 to the right, agree=0.924, adj=0.583, (0 split)
##
## Node number 3953: 53 observations, complexity param=0.0002232741
## predicted class=7 expected loss=0.3207547 P(node) =0.002102757

```

```

##      class counts:      1      0      2      7      5      0      0      36      1
1
##      probabilities: 0.019 0.000 0.038 0.132 0.094 0.000 0.000 0.679 0.019
0.019
##      left son=7906 (9 obs) right son=7907 (44 obs)
##      Primary splits:
##          209 < 29      to the left,  improve=7.831999, (0 missing)
##          348 < 108     to the right, improve=7.496646, (0 missing)
##          349 < 38      to the right, improve=7.496646, (0 missing)
##          320 < 66      to the right, improve=7.223837, (0 missing)
##          321 < 125     to the right, improve=7.223837, (0 missing)
##      Surrogate splits:
##          348 < 108     to the right, agree=0.981, adj=0.889, (0 split)
##          349 < 38      to the right, agree=0.981, adj=0.889, (0 split)
##          320 < 66      to the right, agree=0.962, adj=0.778, (0 split)
##          321 < 125     to the right, agree=0.962, adj=0.778, (0 split)
##          347 < 52.5    to the right, agree=0.962, adj=0.778, (0 split)
##
##      Node number 3964: 24 observations
##      predicted class=8 expected loss=0.3333333 P(node) =0.000952192
##      class counts:      0      0      0      2      3      0      0      1      16
2
##      probabilities: 0.000 0.000 0.000 0.083 0.125 0.000 0.000 0.042 0.667
0.083
##
##      Node number 3965: 48 observations
##      predicted class=9 expected loss=0.1875 P(node) =0.001904384
##      class counts:      0      0      0      2      2      2      0      2      1
39
##      probabilities: 0.000 0.000 0.000 0.042 0.042 0.042 0.000 0.042 0.021
0.812
##
##      Node number 4372: 20 observations,      complexity param=0.0001786193
##      predicted class=2 expected loss=0.65 P(node) =0.0007934934
##      class counts:      3      0      7      3      4      2      1      0      0
0
##      probabilities: 0.150 0.000 0.350 0.150 0.200 0.100 0.050 0.000 0.000
0.000
##      left son=8744 (8 obs) right son=8745 (12 obs)
##      Primary splits:
##          405 < 210     to the right, improve=4.683333, (0 missing)
##          266 < 187     to the left,  improve=3.400000, (0 missing)
##          321 < 228     to the left,  improve=3.400000, (0 missing)
##          349 < 252.5   to the left,  improve=3.400000, (0 missing)
##          432 < 63      to the right, improve=3.400000, (0 missing)
##      Surrogate splits:
##          265 < 4        to the left,  agree=0.9, adj=0.75, (0 split)
##          266 < 156.5    to the left,  agree=0.9, adj=0.75, (0 split)
##          293 < 65       to the left,  agree=0.9, adj=0.75, (0 split)
##          321 < 124.5    to the left,  agree=0.9, adj=0.75, (0 split)

```

```

##      349 < 252.5 to the left,  agree=0.9, adj=0.75, (0 split)
##
## Node number 4373: 11 observations
##   predicted class=1  expected loss=0.4545455  P(node) =0.0004364213
##   class counts:      1      6      0      0      0      0      0      0      4
0
##   probabilities: 0.091 0.545 0.000 0.000 0.000 0.000 0.000 0.000 0.364
0.000
##
## Node number 4380: 15 observations
##   predicted class=1  expected loss=0.2666667  P(node) =0.00059512
##   class counts:      0     11      0      0      0      0      2      0      0
2
##   probabilities: 0.000 0.733 0.000 0.000 0.000 0.000 0.133 0.000 0.000
0.133
##
## Node number 4381: 22 observations
##   predicted class=4  expected loss=0.6363636  P(node) =0.0008728427
##   class counts:      0      1      1      1      8      2      1      5      0
3
##   probabilities: 0.000 0.045 0.045 0.045 0.364 0.091 0.045 0.227 0.000
0.136
##
## Node number 5432: 16 observations
##   predicted class=3  expected loss=0.0625  P(node) =0.0006347947
##   class counts:      0      0      1     15      0      0      0      0      0
0
##   probabilities: 0.000 0.000 0.062 0.937 0.000 0.000 0.000 0.000 0.000
0.000
##
## Node number 5433: 9 observations
##   predicted class=5  expected loss=0.3333333  P(node) =0.000357072
##   class counts:      0      1      0      1      0      6      0      0      1
0
##   probabilities: 0.000 0.111 0.000 0.111 0.000 0.667 0.000 0.000 0.111
0.000
##
## Node number 5434: 8 observations
##   predicted class=0  expected loss=0.375  P(node) =0.0003173973
##   class counts:      5      0      0      0      0      0      2      0      0
1
##   probabilities: 0.625 0.000 0.000 0.000 0.000 0.000 0.250 0.000 0.000
0.125
##
## Node number 5435: 69 observations,      complexity param=0.0001786193
##   predicted class=5  expected loss=0.3188406  P(node) =0.002737552
##   class counts:      0      0      0      9      0     47      0      3      2
8
##   probabilities: 0.000 0.000 0.000 0.130 0.000 0.681 0.000 0.043 0.029
0.116

```



```

## left son=10870 (54 obs) right son=10871 (15 obs)
## Primary splits:
##      597 < 38.5 to the right, improve=7.369726, (0 missing)
##      598 < 61   to the right, improve=7.113953, (0 missing)
##      596 < 2.5  to the right, improve=6.577728, (0 missing)
##      568 < 77   to the right, improve=5.824031, (0 missing)
##      570 < 7    to the right, improve=5.577185, (0 missing)
## Surrogate splits:
##      596 < 2.5  to the right, agree=0.928, adj=0.667, (0 split)
##      568 < 2.5  to the right, agree=0.913, adj=0.600, (0 split)
##      625 < 74   to the right, agree=0.913, adj=0.600, (0 split)
##      598 < 32   to the right, agree=0.899, adj=0.533, (0 split)
##      710 < 158.5 to the left, agree=0.884, adj=0.467, (0 split)
##
## Node number 5436: 14 observations
## predicted class=9 expected loss=0.5714286 P(node) =0.0005554453
## class counts:      0      0      0      2      0      4      0      0      2
6
## probabilities: 0.000 0.000 0.000 0.143 0.000 0.286 0.000 0.000 0.143
0.429
##
## Node number 5437: 16 observations
## predicted class=8 expected loss=0.125 P(node) =0.0006347947
## class counts:      0      0      0      0      0      2      0      0      14
0
## probabilities: 0.000 0.000 0.000 0.000 0.000 0.125 0.000 0.000 0.875
0.000
##
## Node number 7240: 56 observations
## predicted class=4 expected loss=0.05357143 P(node) =0.002221781
## class counts:      0      0      1      0      53      0      1      0      0
1
## probabilities: 0.000 0.000 0.018 0.000 0.946 0.000 0.018 0.000 0.000
0.018
##
## Node number 7241: 7 observations
## predicted class=6 expected loss=0.1428571 P(node) =0.0002777227
## class counts:      0      0      0      0      1      0      6      0      0
0
## probabilities: 0.000 0.000 0.000 0.000 0.143 0.000 0.857 0.000 0.000
0.000
##
## Node number 7352: 10 observations
## predicted class=2 expected loss=0.6 P(node) =0.0003967467
## class counts:      1      0      4      0      1      0      1      0      0
3
## probabilities: 0.100 0.000 0.400 0.000 0.100 0.000 0.100 0.000 0.000
0.300
##
## Node number 7353: 33 observations

```

```

## predicted class=7 expected loss=0.03030303 P(node) =0.001309264
## class counts: 0 0 0 0 0 0 0 32 0
1
## probabilities: 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.970 0.000
0.030
##
## Node number 7354: 15 observations
## predicted class=8 expected loss=0.4 P(node) =0.00059512
## class counts: 0 0 1 0 3 0 0 1 9
1
## probabilities: 0.000 0.000 0.067 0.000 0.200 0.000 0.000 0.067 0.600
0.067
##
## Node number 7355: 13 observations
## predicted class=9 expected loss=0.1538462 P(node) =0.0005157707
## class counts: 0 0 1 0 1 0 0 0 0
11
## probabilities: 0.000 0.000 0.077 0.000 0.077 0.000 0.000 0.000 0.000
0.846
##
## Node number 7356: 15 observations
## predicted class=4 expected loss=0.2 P(node) =0.00059512
## class counts: 1 0 1 0 12 0 0 0 0
1
## probabilities: 0.067 0.000 0.067 0.000 0.800 0.000 0.000 0.000 0.000
0.067
##
## Node number 7357: 9 observations
## predicted class=9 expected loss=0.2222222 P(node) =0.000357072
## class counts: 0 0 0 0 1 0 0 0 1
7
## probabilities: 0.000 0.000 0.000 0.000 0.111 0.000 0.000 0.000 0.111
0.778
##
## Node number 7754: 7 observations
## predicted class=4 expected loss=0.1428571 P(node) =0.0002777227
## class counts: 0 0 1 0 6 0 0 0 0
0
## probabilities: 0.000 0.000 0.143 0.000 0.857 0.000 0.000 0.000 0.000
0.000
##
## Node number 7755: 17 observations
## predicted class=3 expected loss=0.7058824 P(node) =0.0006744694
## class counts: 0 0 3 5 0 1 0 0 5
3
## probabilities: 0.000 0.000 0.176 0.294 0.000 0.059 0.000 0.000 0.294
0.176
##
## Node number 7814: 450 observations
## predicted class=5 expected loss=0.05111111 P(node) =0.0178536

```

```

##      class counts:      0      0      1      12      1      427      0      0      0
9
##      probabilities: 0.000 0.000 0.002 0.027 0.002 0.949 0.000 0.000 0.000
0.020
##
## Node number 7815: 11 observations
##      predicted class=9      expected loss=0.3636364      P(node) =0.0004364213
##      class counts:      0      0      0      0      0      3      0      1      0
7
##      probabilities: 0.000 0.000 0.000 0.000 0.000 0.273 0.000 0.091 0.000
0.636
##
## Node number 7856: 11 observations
##      predicted class=3      expected loss=0.09090909      P(node) =0.0004364213
##      class counts:      0      0      0      10      0      0      0      0      1
0
##      probabilities: 0.000 0.000 0.000 0.909 0.000 0.000 0.000 0.000 0.091
0.000
##
## Node number 7857: 12 observations
##      predicted class=9      expected loss=0.4166667      P(node) =0.000476096
##      class counts:      0      1      0      1      1      0      1      0      1
7
##      probabilities: 0.000 0.083 0.000 0.083 0.083 0.000 0.083 0.000 0.083
0.583
##
## Node number 7894: 8 observations
##      predicted class=3      expected loss=0.25      P(node) =0.0003173973
##      class counts:      0      0      1      6      0      0      0      0      1
0
##      probabilities: 0.000 0.000 0.125 0.750 0.000 0.000 0.000 0.000 0.125
0.000
##
## Node number 7895: 30 observations
##      predicted class=9      expected loss=0.3      P(node) =0.00119024
##      class counts:      0      0      0      0      3      2      0      0      4
21
##      probabilities: 0.000 0.000 0.000 0.000 0.100 0.067 0.000 0.000 0.133
0.700
##
## Node number 7898: 9 observations
##      predicted class=4      expected loss=0.2222222      P(node) =0.000357072
##      class counts:      0      0      0      0      7      1      0      0      1
0
##      probabilities: 0.000 0.000 0.000 0.000 0.778 0.111 0.000 0.000 0.111
0.000
##
## Node number 7899: 27 observations,      complexity param=0.0001786193
##      predicted class=9      expected loss=0.3333333      P(node) =0.001071216
##      class counts:      0      0      1      1      1      1      0      0      5

```

```

18
## probabilities: 0.000 0.000 0.037 0.037 0.037 0.037 0.000 0.000 0.185
0.667
## left son=15798 (8 obs) right son=15799 (19 obs)
## Primary splits:
## 551 < 139 to the right, improve=5.741715, (0 missing)
## 552 < 7.5 to the right, improve=5.741715, (0 missing)
## 579 < 150 to the right, improve=5.741715, (0 missing)
## 580 < 7.5 to the right, improve=5.741715, (0 missing)
## 495 < 29.5 to the right, improve=5.383069, (0 missing)
## Surrogate splits:
## 552 < 7.5 to the right, agree=1.000, adj=1.000, (0 split)
## 579 < 150 to the right, agree=1.000, adj=1.000, (0 split)
## 580 < 7.5 to the right, agree=1.000, adj=1.000, (0 split)
## 205 < 123.5 to the right, agree=0.963, adj=0.875, (0 split)
## 495 < 29.5 to the right, agree=0.963, adj=0.875, (0 split)
##
## Node number 7904: 12 observations
## predicted class=2 expected loss=0.08333333 P(node) =0.000476096
## class counts: 0 0 11 0 0 0 0 0 1
0
## probabilities: 0.000 0.000 0.917 0.000 0.000 0.000 0.000 0.000 0.083
0.000
##
## Node number 7905: 54 observations
## predicted class=3 expected loss=0.2037037 P(node) =0.002142432
## class counts: 0 0 3 43 1 0 0 3 0
4
## probabilities: 0.000 0.000 0.056 0.796 0.019 0.000 0.000 0.056 0.000
0.074
##
## Node number 7906: 9 observations
## predicted class=4 expected loss=0.4444444 P(node) =0.000357072
## class counts: 1 0 1 0 5 0 0 0 1
1
## probabilities: 0.111 0.000 0.111 0.000 0.556 0.000 0.000 0.000 0.111
0.111
##
## Node number 7907: 44 observations, complexity param=0.0001786193
## predicted class=7 expected loss=0.1818182 P(node) =0.001745685
## class counts: 0 0 1 7 0 0 0 36 0
0
## probabilities: 0.000 0.000 0.023 0.159 0.000 0.000 0.000 0.818 0.000
0.000
## left son=15814 (9 obs) right son=15815 (35 obs)
## Primary splits:
## 437 < 4 to the left, improve=7.021789, (0 missing)
## 464 < 12.5 to the left, improve=6.482450, (0 missing)
## 436 < 201 to the left, improve=6.067914, (0 missing)
## 576 < 152.5 to the right, improve=6.067914, (0 missing)

```

```

##      463 < 212.5 to the left, improve=5.381313, (0 missing)
## Surrogate splits:
##      436 < 201   to the left, agree=0.977, adj=0.889, (0 split)
##      464 < 38.5  to the left, agree=0.977, adj=0.889, (0 split)
##      463 < 235   to the left, agree=0.955, adj=0.778, (0 split)
##      410 < 3     to the left, agree=0.932, adj=0.667, (0 split)
##      438 < 12.5  to the left, agree=0.932, adj=0.667, (0 split)
##
## Node number 8744: 8 observations
## predicted class=2 expected loss=0.125 P(node) =0.0003173973
## class counts:      0      0      7      1      0      0      0      0      0
0
## probabilities: 0.000 0.000 0.875 0.125 0.000 0.000 0.000 0.000 0.000
0.000
##
## Node number 8745: 12 observations
## predicted class=4 expected loss=0.6666667 P(node) =0.000476096
## class counts:      3      0      0      2      4      2      1      0      0
0
## probabilities: 0.250 0.000 0.000 0.167 0.333 0.167 0.083 0.000 0.000
0.000
##
## Node number 10870: 54 observations
## predicted class=5 expected loss=0.1851852 P(node) =0.002142432
## class counts:      0      0      0      8      0     44      0      0      1
1
## probabilities: 0.000 0.000 0.000 0.148 0.000 0.815 0.000 0.000 0.019
0.019
##
## Node number 10871: 15 observations
## predicted class=9 expected loss=0.5333333 P(node) =0.00059512
## class counts:      0      0      0      1      0      3      0      3      1
7
## probabilities: 0.000 0.000 0.000 0.067 0.000 0.200 0.000 0.200 0.067
0.467
##
## Node number 15798: 8 observations
## predicted class=8 expected loss=0.375 P(node) =0.0003173973
## class counts:      0      0      0      1      0      1      0      0      5
1
## probabilities: 0.000 0.000 0.000 0.125 0.000 0.125 0.000 0.000 0.625
0.125
##
## Node number 15799: 19 observations
## predicted class=9 expected loss=0.1052632 P(node) =0.0007538187
## class counts:      0      0      1      0      1      0      0      0      0
17
## probabilities: 0.000 0.000 0.053 0.000 0.053 0.000 0.000 0.000 0.000
0.895
##

```

```

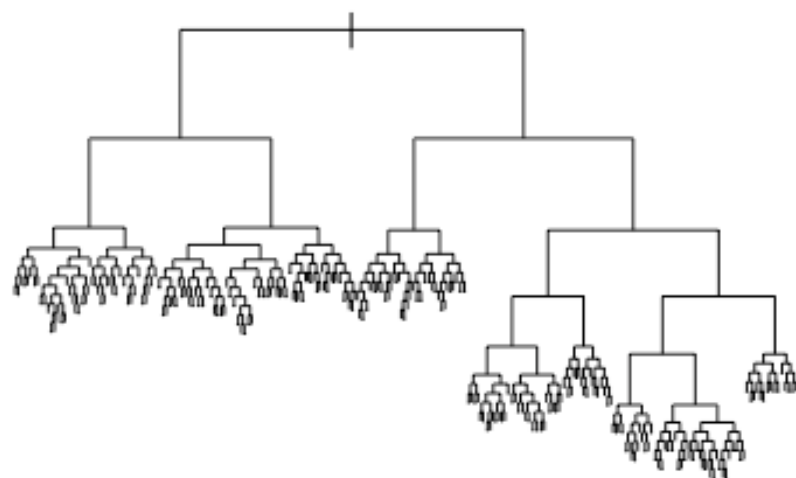
## Node number 15814: 9 observations
##   predicted class=3   expected loss=0.3333333   P(node) =0.000357072
##   class counts:      0      0      1      6      0      0      0      2      0
##   probabilities: 0.000 0.000 0.111 0.667 0.000 0.000 0.000 0.222 0.000
##   0.000
##
## Node number 15815: 35 observations
##   predicted class=7   expected loss=0.02857143   P(node) =0.001388613
##   class counts:      0      0      0      1      0      0      0      34      0
##   probabilities: 0.000 0.000 0.000 0.029 0.000 0.000 0.000 0.971 0.000
##   0.000
##
## Classification tree:
## rpart(formula = label ~ ., data = trainDF, method = "class",
##       control = rpart.control(cp = 0))
##
## Variables actually used in tree construction:
##   [1] 103 121 123 124 125 126 127 131 150 152 153 154 155 156 158 159 176
##   179
##   [19] 180 183 185 186 188 204 205 206 207 208 209 210 211 212 213 214 215
##   217
##   [37] 220 231 233 234 235 237 239 240 241 242 244 247 264 265 266 267 268
##   269
##   [55] 270 271 274 276 287 288 289 290 291 292 293 294 295 296 297 299 300
##   301
##   [73] 315 317 318 319 320 321 322 323 324 325 327 329 341 342 343 344 345
##   346
##   [91] 347 348 349 350 351 352 353 354 355 359 370 371 372 373 374 375 376
##   377
##  [109] 379 380 381 382 384 386 398 400 401 402 404 405 406 407 412 413 427
##   428
##  [127] 429 431 432 434 435 436 437 438 439 442 454 455 456 457 458 459 460
##   461
##  [145] 462 463 465 466 467 468 470 484 486 487 488 489 490 492 493 494 512
##   513
##  [163] 514 515 516 518 520 522 524 527 537 538 539 541 542 543 544 545 546
##   550
##  [181] 551 552 567 568 570 572 573 574 575 580 584 596 597 599 600 601 602
##   603
##  [199] 608 623 624 626 627 652 653 654 655 656 657 658 662 678 680 681 683
##   685
##  [217] 686 709 711 712 717 718 94   95   98
##
## Root node error: 22394/25205 = 0.88847
##
## n= 25205
##

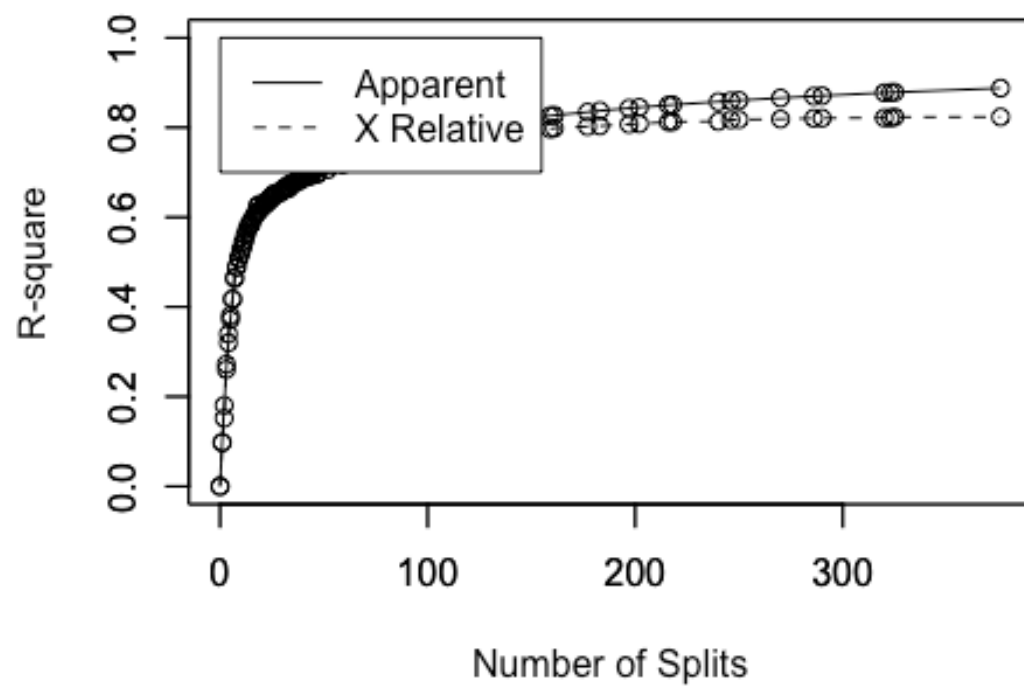
```

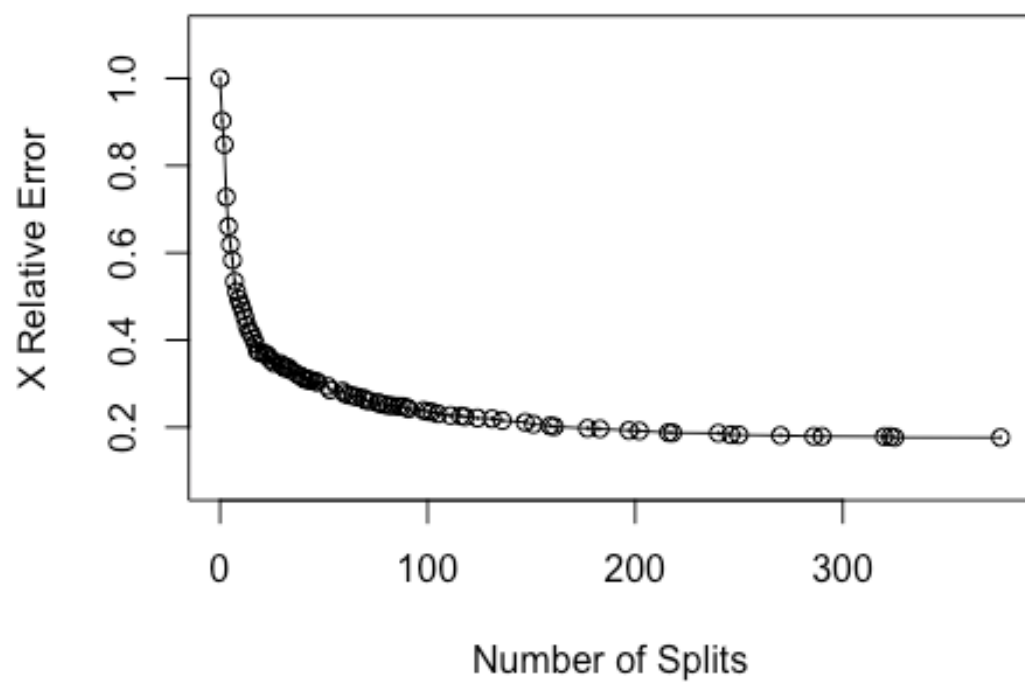
##	CP	nsplit	rel error	xerror	xstd
## 1	0.09779405	0	1.00000	1.00000	0.0022316
## 2	0.08256676	1	0.90221	0.90301	0.0028235
## 3	0.08020005	2	0.81964	0.84822	0.0030549
## 4	0.05956953	3	0.73944	0.72783	0.0033888
## 5	0.05193355	4	0.67987	0.66040	0.0034910
## 6	0.04572653	5	0.62794	0.61914	0.0035269
## 7	0.04505671	6	0.58221	0.58337	0.0035423
## 8	0.02545325	7	0.53715	0.53456	0.0035403
## 9	0.02138966	8	0.51170	0.51112	0.0035298
## 10	0.01866571	9	0.49031	0.49361	0.0035179
## 11	0.01576315	10	0.47164	0.48102	0.0035071
## 12	0.01549522	11	0.45588	0.46745	0.0034935
## 13	0.01330714	12	0.44039	0.45159	0.0034749
## 14	0.01107439	13	0.42708	0.43391	0.0034506
## 15	0.00835045	14	0.41600	0.42051	0.0034296
## 16	0.00696615	15	0.40765	0.41547	0.0034211
## 17	0.00611771	16	0.40069	0.40350	0.0033998
## 18	0.00482272	17	0.39457	0.39149	0.0033766
## 19	0.00477807	18	0.38975	0.37470	0.0033409
## 20	0.00473341	19	0.38497	0.37113	0.0033329
## 21	0.00468876	21	0.37550	0.36916	0.0033284
## 22	0.00464410	22	0.37081	0.36800	0.0033257
## 23	0.00442083	23	0.36617	0.36461	0.0033177
## 24	0.00428686	24	0.36175	0.35679	0.0032988
## 25	0.00392962	25	0.35746	0.35286	0.0032889
## 26	0.00379566	26	0.35353	0.34710	0.0032741
## 27	0.00375100	29	0.34215	0.34594	0.0032711
## 28	0.00348308	30	0.33839	0.34183	0.0032601
## 29	0.00339377	31	0.33491	0.33661	0.0032459
## 30	0.00334911	32	0.33152	0.33647	0.0032455
## 31	0.00330446	33	0.32817	0.33647	0.0032455
## 32	0.00285791	34	0.32486	0.33174	0.0032323
## 33	0.00283558	37	0.31629	0.32218	0.0032045
## 34	0.00263463	39	0.31062	0.31705	0.0031890
## 35	0.00258998	40	0.30798	0.31312	0.0031769
## 36	0.00254532	41	0.30539	0.31053	0.0031687
## 37	0.00250067	42	0.30285	0.30977	0.0031663
## 38	0.00245602	43	0.30035	0.30848	0.0031622
## 39	0.00238903	44	0.29789	0.30731	0.0031585
## 40	0.00236671	46	0.29311	0.30450	0.0031494
## 41	0.00227740	47	0.29075	0.30383	0.0031472
## 42	0.00205412	52	0.27932	0.29401	0.0031144
## 43	0.00200947	53	0.27726	0.28539	0.0030843
## 44	0.00183085	59	0.26520	0.28320	0.0030764
## 45	0.00169688	60	0.26337	0.27713	0.0030542
## 46	0.00167456	62	0.25998	0.27396	0.0030423
## 47	0.00162990	64	0.25663	0.27226	0.0030359
## 48	0.00160757	66	0.25337	0.26936	0.0030248
## 49	0.00147361	69	0.24855	0.26704	0.0030158

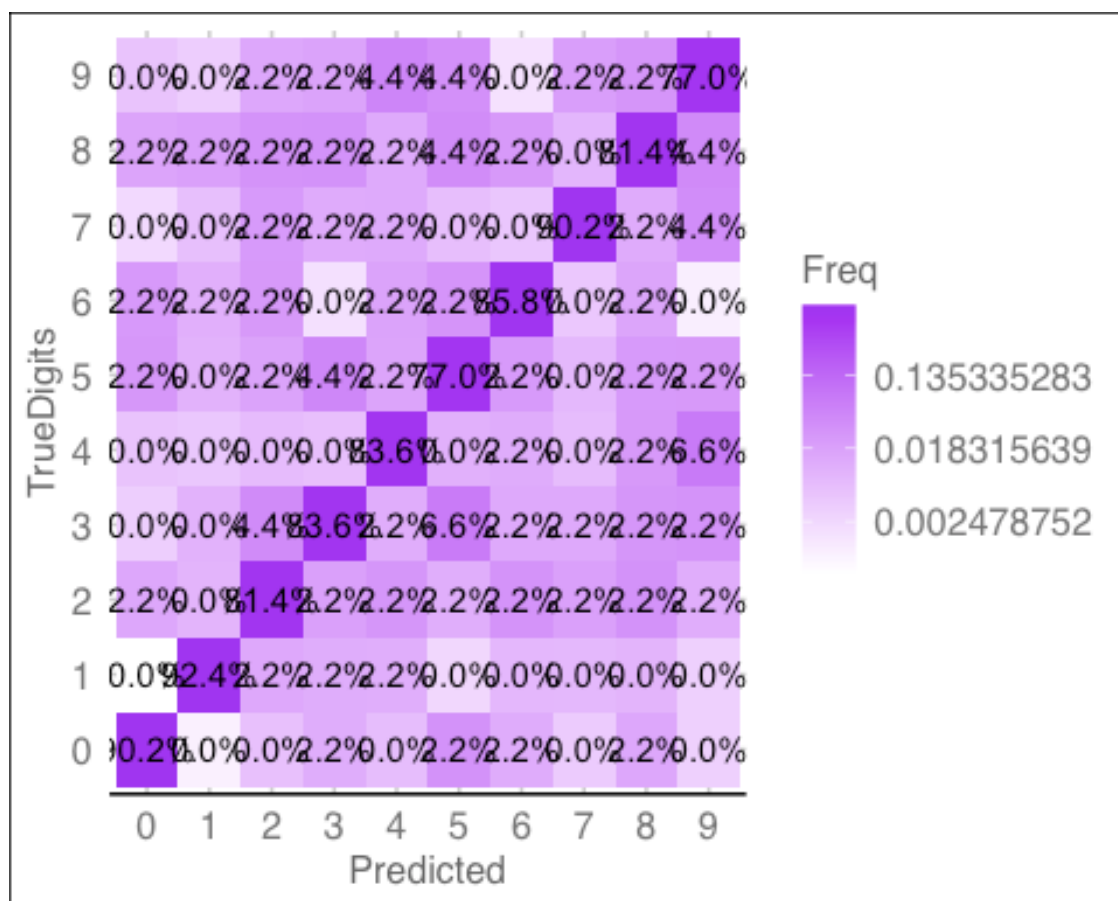
## 50	0.00140663	70	0.24708	0.26230	0.0029972
## 51	0.00138430	72	0.24426	0.26007	0.0029883
## 52	0.00129499	76	0.23872	0.25677	0.0029749
## 53	0.00125033	77	0.23743	0.25431	0.0029648
## 54	0.00116103	79	0.23493	0.25230	0.0029565
## 55	0.00111637	81	0.23261	0.24993	0.0029466
## 56	0.00109404	83	0.23037	0.24931	0.0029439
## 57	0.00107172	86	0.22689	0.24779	0.0029375
## 58	0.00102706	88	0.22475	0.24761	0.0029368
## 59	0.00098241	90	0.22269	0.24493	0.0029253
## 60	0.00093775	91	0.22171	0.24221	0.0029135
## 61	0.00089310	98	0.21515	0.23846	0.0028969
## 62	0.00087077	100	0.21336	0.23636	0.0028876
## 63	0.00084844	102	0.21162	0.23524	0.0028826
## 64	0.00080379	105	0.20907	0.23095	0.0028630
## 65	0.00075913	111	0.20425	0.22694	0.0028444
## 66	0.00073680	116	0.20046	0.22595	0.0028398
## 67	0.00071448	118	0.19898	0.22417	0.0028313
## 68	0.00066982	124	0.19470	0.22109	0.0028166
## 69	0.00062517	131	0.18938	0.21966	0.0028097
## 70	0.00058051	136	0.18626	0.21537	0.0027887
## 71	0.00053586	147	0.17987	0.21149	0.0027694
## 72	0.00049120	151	0.17773	0.20693	0.0027462
## 73	0.00046888	159	0.17380	0.20340	0.0027279
## 74	0.00044655	161	0.17286	0.20157	0.0027183
## 75	0.00042422	177	0.16562	0.19764	0.0026974
## 76	0.00040189	183	0.16259	0.19644	0.0026909
## 77	0.00037957	197	0.15696	0.19273	0.0026707
## 78	0.00035724	202	0.15504	0.19170	0.0026650
## 79	0.00033491	216	0.15004	0.18773	0.0026429
## 80	0.00031258	218	0.14937	0.18733	0.0026406
## 81	0.00029770	240	0.14245	0.18639	0.0026353
## 82	0.00029026	246	0.14066	0.18295	0.0026157
## 83	0.00026793	250	0.13950	0.18241	0.0026126
## 84	0.00024560	270	0.13414	0.18116	0.0026053
## 85	0.00023444	286	0.13017	0.17933	0.0025946
## 86	0.00022327	290	0.12923	0.17916	0.0025936
## 87	0.00020839	320	0.12253	0.17857	0.0025902
## 88	0.00020095	323	0.12191	0.17857	0.0025902
## 89	0.00017862	325	0.12151	0.17670	0.0025791
## 90	0.00015629	376	0.11226	0.17643	0.0025775

Warning in rsq.rpart(treeModel): may not be applicable for this method









```
## n= 25205
##
## node), split, n, loss, yval, (yprob)
##      * denotes terminal node
##
##      1) root 25205 22394 1 (0.098 0.11 0.099 0.1 0.097 0.09 0.099 0.1 0.097
0.1)
##      2) 350>=120.5 9068 6479 1 (0.021 0.29 0.053 0.23 0.026 0.11 0.056
0.025 0.13 0.059)
##      4) 489>=44.5 4400 1969 1 (0.0064 0.55 0.077 0.036 0.025 0.024
0.063 0.027 0.15 0.036)
##      8) 234< 0.5 3250 861 1 (0.0055 0.74 0.048 0.017 0.023 0.028
0.049 0.0074 0.066 0.021)
##     16) 347< 1.5 2607 328 1 (0.00038 0.87 0.047 0.0077 0.0054
0.0092 0.012 0.0035 0.038 0.0027)
##     32) 550< 0.5 2456 189 1 (0 0.92 0.013 0.0049 0.0041 0.0098
0.0033 0.0033 0.037 0.0024)
##     64) 300< 21.5 2312 96 1 (0 0.96 0.013 0.003 0.003 0.0043
0.0035 0.0035 0.01 0.00087)
##    128) 608< 6 2291 77 1 (0 0.97 0.0052 0.0026 0.0031
0.0044 0.0035 0.0035 0.01 0.00087)
##    256) 484< 8 2260 51 1 (0 0.98 0.0018 0.0027 0.00088
0.0022 0.0022 0.0035 0.0084 0.00088) *
```

```

##          257) 484>=8 31      23 2 (0 0.16 0.26 0 0.16 0.16 0.097 0
0.16 0)
##          514) 623< 14.5 19      11 2 (0 0 0.42 0 0.26 0.21 0.11 0
0 0) *
##          515) 623>=14.5 12      7 1 (0 0.42 0 0 0 0.083 0.083 0
0.42 0) *
##          129) 608>=6 21      3 2 (0 0.095 0.86 0.048 0 0 0 0 0) *
##          65) 300>=21.5 144      78 8 (0 0.35 0.0069 0.035 0.021 0.097
0 0 0.46 0.028)
##          130) 265< 1.5 72      21 1 (0 0.71 0.014 0.028 0.014 0.18 0
0 0.056 0)
##          260) 487>=145 55      4 1 (0 0.93 0.018 0.018 0 0.018 0 0
0.018 0) *
##          261) 487< 145 17      5 5 (0 0 0 0.059 0.059 0.71 0 0
0.18 0) *
##          131) 265>=1.5 72      10 8 (0 0 0 0.042 0.028 0.014 0 0 0.86
0.056) *
##          33) 550>=0.5 151      59 2 (0.0066 0.079 0.61 0.053 0.026 0
0.15 0.0066 0.066 0.0066)
##          66) 152>=12 108      25 2 (0 0.1 0.77 0.046 0.0093 0 0 0
0.074 0)
##          132) 292< 58.5 91      9 2 (0 0.022 0.9 0.055 0 0 0 0 0.022
0) *
##          133) 292>=58.5 17      8 1 (0 0.53 0.059 0 0.059 0 0 0 0.35
0) *
##          67) 152< 12 43      21 6 (0.023 0.023 0.21 0.07 0.07 0 0.51
0.023 0.047 0.023)
##          134) 212>=22 24      16 2 (0.042 0.042 0.33 0.12 0.12 0 0.21
0.042 0.083 0)
##          268) 349< 206.5 13      5 2 (0.077 0 0.62 0 0.23 0 0
0.077 0 0) *
##          269) 349>=206.5 11      6 6 (0 0.091 0 0.27 0 0 0.45 0
0.18 0) *
##          135) 212< 22 19      2 6 (0 0 0.053 0 0 0 0.89 0 0 0.053) *
##          17) 347>=1.5 643      515 6 (0.026 0.17 0.053 0.056 0.096 0.1 0.2
0.023 0.18 0.093)
##          34) 103< 1.5 564      451 8 (0.028 0.19 0.059 0.059 0.11 0.12
0.1 0.027 0.2 0.11)
##          68) 657< 1.5 286      232 5 (0.042 0.12 0.11 0.049 0.15 0.19
0.19 0.028 0.028 0.1)
##          136) 276< 44.5 252      198 6 (0.048 0.13 0.12 0.056 0.16
0.095 0.21 0.032 0.024 0.12)
##          272) 574>=233 93      43 6 (0.075 0.14 0.097 0.065 0.032
0.032 0.54 0.011 0 0.011)
##          544) 486< 67.5 25      12 1 (0 0.52 0.12 0.2 0.08 0.04 0
0.04 0 0)
##          1088) 603>=181 16      3 1 (0 0.81 0.062 0 0.12 0 0 0
0 0) *
##          1089) 603< 181 9      4 3 (0 0 0.22 0.56 0 0.11 0 0.11
0 0) *

```

```

##          545) 486>=67.5 68      18 6 (0.1 0 0.088 0.015 0.015
0.029 0.74 0 0 0.015)
##          1090) 244>=56 12      5 0 (0.58 0 0.083 0.083 0 0.083
0.17 0 0 0) *
##          1091) 244< 56 56      8 6 (0 0 0.089 0 0.018 0.018
0.86 0 0 0.018) *
##          273) 574< 233 159    122 4 (0.031 0.13 0.14 0.05 0.23
0.13 0.025 0.044 0.038 0.18)
##          546) 539>=2 67      46 2 (0.075 0.09 0.31 0.09 0.06 0.28
0.015 0 0.075 0)
##          1092) 552>=26 13      0 2 (0 0 1 0 0 0 0 0 0) *
##          1093) 552< 26 54      35 5 (0.093 0.11 0.15 0.11 0.074
0.35 0.019 0 0.093 0)
##          2186) 458>=16.5 31    24 2 (0.13 0.19 0.23 0.097
0.13 0.065 0.032 0 0.13 0)
##          4372) 652< 147 20    13 2 (0.15 0 0.35 0.15 0.2
0.1 0.05 0 0 0)
##          8744) 405>=210 8      1 2 (0 0 0.88 0.12 0 0 0 0
0 0) *
##          8745) 405< 210 12     8 4 (0.25 0 0 0.17 0.33
0.17 0.083 0 0 0) *
##          4373) 652>=147 11     5 1 (0.091 0.55 0 0 0 0 0 0
0.36 0) *
##          2187) 458< 16.5 23     6 5 (0.043 0 0.043 0.13 0
0.74 0 0 0.043 0) *
##          547) 539< 2 92      59 4 (0 0.15 0.011 0.022 0.36 0.022
0.033 0.076 0.011 0.32)
##          1094) 456>=13.5 22     2 4 (0 0 0 0.045 0.91 0 0
0.045 0 0) *
##          1095) 456< 13.5 70    41 9 (0 0.2 0.014 0.014 0.19
0.029 0.043 0.086 0.014 0.41)
##          2190) 381< 210.5 37    25 1 (0 0.32 0.027 0.027
0.22 0.054 0.081 0.14 0 0.14)
##          4380) 405>=205.5 15     4 1 (0 0.73 0 0 0 0 0.13
0 0 0.13) *
##          4381) 405< 205.5 22    14 4 (0 0.045 0.045 0.045
0.36 0.091 0.045 0.23 0 0.14) *
##          2191) 381>=210.5 33     9 9 (0 0.061 0 0 0.15 0 0
0.03 0.03 0.73) *
##          137) 276>=44.5 34      4 5 (0 0 0 0 0.059 0.88 0 0 0.059 0)
*
##          69) 657>=1.5 278     173 8 (0.014 0.27 0.0072 0.068 0.068
0.043 0.014 0.025 0.38 0.11)
##          138) 294>=216 134     61 1 (0.022 0.54 0.0075 0.03 0.075
0.067 0.03 0.03 0.12 0.075)
##          276) 429< 10.5 95     23 1 (0.011 0.76 0.011 0.011 0
0.032 0.011 0.042 0.084 0.042)
##          552) 299< 31 77       7 1 (0 0.91 0.013 0 0 0.013 0.013
0.026 0.013 0.013) *
##          553) 299>=31 18       11 8 (0.056 0.11 0 0.056 0 0.11 0

```

```

0.11 0.39 0.17) *
##          277) 429>=10.5 39      29 4 (0.051 0.026 0 0.077 0.26 0.15
0.077 0 0.21 0.15)
##          554) 627< 5.5 11      2 4 (0 0 0 0 0.82 0 0.091 0 0
0.091) *
##          555) 627>=5.5 28      20 8 (0.071 0.036 0 0.11 0.036
0.21 0.071 0 0.29 0.18)
##          1110) 379< 17.5 7      1 5 (0 0 0 0.14 0 0.86 0 0 0 0)
*
##          1111) 379>=17.5 21      13 8 (0.095 0.048 0 0.095 0.048
0 0.095 0 0.38 0.24)
##          2222) 653>=111.5 10      3 8 (0.1 0.1 0 0 0.1 0 0 0
0.7 0) *
##          2223) 653< 111.5 11      6 9 (0.091 0 0 0.18 0 0
0.18 0 0.091 0.45) *
##          139) 294< 216 144      55 8 (0.0069 0.021 0.0069 0.1 0.062
0.021 0 0.021 0.62 0.14)
##          278) 711< 94.5 124      35 8 (0.0081 0.024 0.0081 0.12
0.073 0.024 0 0.0081 0.72 0.016)
##          556) 265< 15.5 37      24 3 (0.027 0.027 0.027 0.35 0.14
0.054 0 0.027 0.32 0.027)
##          1112) 317< 4.5 19      6 3 (0 0.053 0.053 0.68 0.11
0.053 0 0 0 0.053) *
##          1113) 317>=4.5 18      6 8 (0.056 0 0 0 0.17 0.056 0
0.056 0.67 0) *
##          557) 265>=15.5 87      10 8 (0 0.023 0 0.023 0.046 0.011
0 0 0.89 0.011) *
##          279) 711>=94.5 20      2 9 (0 0 0 0 0 0 0 0.1 0 0.9) *
##          35) 103>=1.5 79      9 6 (0.013 0.013 0.013 0.038 0.013 0.013
0.89 0 0.013 0) *
##          9) 234>=0.5 1150      690 8 (0.0087 0.037 0.16 0.09 0.031 0.012 0.1
0.083 0.4 0.079)
##          18) 658< 13.5 434      291 2 (0.012 0.044 0.33 0.035 0.03 0.014
0.26 0.065 0.085 0.12)
##          36) 345< 18 228      94 2 (0 0.075 0.59 0.066 0.0044 0.0044
0.039 0.092 0.088 0.044)
##          72) 541>=1.5 142      23 2 (0 0 0.84 0.014 0 0.007 0.042
0.014 0.077 0.007)
##          144) 301< 3.5 122      6 2 (0 0 0.95 0.0082 0 0.0082 0.0082
0.016 0.0082 0) *
##          145) 301>=3.5 20      10 8 (0 0 0.15 0.05 0 0 0.25 0 0.5
0.05)
##          290) 291< 86 9      4 6 (0 0 0.33 0.11 0 0 0.56 0 0 0) *
##          291) 291>=86 11      1 8 (0 0 0 0 0 0 0 0.91 0.091) *
##          73) 541< 1.5 86      67 7 (0 0.2 0.17 0.15 0.012 0 0.035 0.22
0.1 0.1)
##          146) 683< 18 57      40 1 (0 0.3 0.26 0.18 0 0 0.053 0.035
0.14 0.035)
##          292) 459< 5.5 21      4 1 (0 0.81 0.095 0 0 0 0 0.048
0.048) *

```



```

##          293) 459>=5.5 36      23 2 (0 0 0.36 0.28 0 0 0.083 0.056
0.19 0.028)
##          586) 516>=7 24       11 2 (0 0 0.54 0.042 0 0 0.12 0.042
0.25 0)
##          1172) 270< 4.5 16      5 2 (0 0 0.69 0.062 0 0 0.19
0.062 0 0) *
##          1173) 270>=4.5 8      2 8 (0 0 0.25 0 0 0 0 0 0.75 0)
*
##          587) 516< 7 12        3 3 (0 0 0 0.75 0 0 0 0.083 0.083
0.083) *
##          147) 683>=18 29      12 7 (0 0 0 0.1 0.034 0 0 0.59 0.034
0.24)
##          294) 349< 102.5 17     1 7 (0 0 0 0.059 0 0 0 0.94 0 0)
*
##          295) 349>=102.5 12     5 9 (0 0 0 0.17 0.083 0 0 0.083
0.083 0.58) *
##          37) 345>=18 206      101 6 (0.024 0.0097 0.044 0 0.058 0.024
0.51 0.034 0.083 0.21)
##          74) 575>=51.5 144     39 6 (0.035 0.014 0.021 0 0.021 0.035
0.73 0.035 0.069 0.042)
##          148) 213< 25.5 112    13 6 (0.0089 0.018 0 0 0.027 0.018
0.88 0.036 0 0.0089) *
##          149) 213>=25.5 32     22 8 (0.12 0 0.094 0 0 0.094 0.19
0.031 0.31 0.16)
##          298) 442>=27 12       6 6 (0.33 0 0.17 0 0 0 0.5 0 0 0) *
##          299) 442< 27 20      10 8 (0 0 0.05 0 0 0.15 0 0.05 0.5
0.25)
##          598) 432< 47.5 9      5 9 (0 0 0.11 0 0 0.33 0 0.11 0
0.44) *
##          599) 432>=47.5 11     1 8 (0 0 0 0 0 0 0 0 0.91 0.091)
*
##          75) 575< 51.5 62      24 9 (0 0 0.097 0 0.15 0 0 0.032 0.11
0.61)
##          150) 210< 21.5 19     10 4 (0 0 0.16 0 0.47 0 0 0.053 0.16
0.16) *
##          151) 210>=21.5 43     8 9 (0 0 0.07 0 0 0 0 0.023 0.093
0.81) *
##          19) 658>=13.5 716     293 8 (0.007 0.032 0.052 0.12 0.032 0.011
0.007 0.094 0.59 0.052)
##          38) 319< 2 218      154 3 (0.0046 0.041 0.16 0.29 0.023 0.0046
0.014 0.2 0.23 0.032)
##          76) 344< 24 162      100 3 (0 0.056 0.2 0.38 0 0 0 0.27 0.08
0.0062)
##          152) 404>=228 59      10 3 (0 0 0.12 0.83 0 0 0 0.034 0.017
0)
##          304) 527>=25.5 7      1 2 (0 0 0.86 0.14 0 0 0 0 0 0) *
##          305) 527< 25.5 52     4 3 (0 0 0.019 0.92 0 0 0 0.038
0.019 0) *
##          153) 404< 228 103     61 7 (0 0.087 0.25 0.13 0 0 0 0.41
0.12 0.0097)

```

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##          306) 153>=121 47      23 2 (0 0.085 0.51 0.17 0 0 0 0 0.23
0)
##          612) 321< 195 34      10 2 (0 0.029 0.71 0.24 0 0 0 0
0.029 0)
##          1224) 543>=81 24      1 2 (0 0 0.96 0 0 0 0 0 0.042 0)
*
##          1225) 543< 81 10      2 3 (0 0.1 0.1 0.8 0 0 0 0 0 0)
*
##          613) 321>=195 13      3 8 (0 0.23 0 0 0 0 0 0 0.77 0) *
##          307) 153< 121 56      14 7 (0 0.089 0.036 0.089 0 0 0 0.75
0.018 0.018)
##          614) 546< 15 7        2 3 (0 0 0 0.71 0 0 0 0.14 0.14 0)
*
##          615) 546>=15 49       8 7 (0 0.1 0.041 0 0 0 0 0.84 0
0.02) *
##          77) 344>=24 56       19 8 (0.018 0 0.018 0.036 0.089 0.018
0.054 0 0.66 0.11)
##          154) 516< 53 14       8 9 (0 0 0 0.071 0.36 0 0 0 0.14 0.43)
*
##          155) 516>=53 42       7 8 (0.024 0 0.024 0.024 0 0.024 0.071
0 0.83 0) *
##          39) 319>=2 498      125 8 (0.008 0.028 0.006 0.048 0.036 0.014
0.004 0.046 0.75 0.06)
##          78) 543< 9.5 124      79 8 (0.0081 0.1 0.0081 0.13 0.056
0.016 0 0.097 0.36 0.22)
##          156) 401< 173 80      39 8 (0 0.16 0.013 0.075 0.05 0.013 0
0.1 0.51 0.075)
##          312) 294>=148.5 35    22 1 (0 0.37 0 0.086 0 0.029 0
0.23 0.26 0.029)
##          624) 180>=118.5 26    13 1 (0 0.5 0 0.12 0 0.038 0 0
0.35 0)
##          1248) 269< 25.5 14     1 1 (0 0.93 0 0 0 0 0 0 0.071
0) *
##          1249) 269>=25.5 12     4 8 (0 0 0 0.25 0 0.083 0 0
0.67 0) *
##          625) 180< 118.5 9     1 7 (0 0 0 0 0 0 0 0.89 0 0.11)
*
##          313) 294< 148.5 45    13 8 (0 0 0.022 0.067 0.089 0 0 0
0.71 0.11) *
##          157) 401>=173 44      23 9 (0.023 0 0 0.23 0.068 0.023 0
0.091 0.091 0.48)
##          314) 206>=125 18      8 3 (0 0 0 0.56 0 0.056 0 0.17 0.17
0.056) *
##          315) 206< 125 26      6 9 (0.038 0 0 0 0.12 0 0 0.038
0.038 0.77) *
##          79) 543>=9.5 374      46 8 (0.008 0.0027 0.0053 0.021 0.029
0.013 0.0053 0.029 0.88 0.008)
##          158) 470>=156.5 19    13 7 (0.11 0 0.053 0.21 0.053 0.16 0
0.32 0.11 0) *
##          159) 470< 156.5 355   29 8 (0.0028 0.0028 0.0028 0.011

```

```

0.028 0.0056 0.0056 0.014 0.92 0.0085) *
##          5) 489< 44.5 4668 2714 3 (0.036 0.034 0.032 0.42 0.027 0.18 0.05
0.024 0.11 0.082)
##          10) 486< 76.5 3675 1787 3 (0.027 0.038 0.006 0.51 0.031 0.22
0.0095 0.03 0.031 0.094)
##          20) 290< 42.5 2318 665 3 (0.015 0.057 0.0082 0.71 0.016 0.12
0.0082 0.013 0.023 0.028)
##          40) 179>=1.5 1626 234 3 (0.0018 0.025 0.008 0.86 0.0031
0.065 0.0012 0.0043 0.019 0.017)
##          80) 315< 84.5 1502 128 3 (0 0.027 0.0087 0.91 0 0.026 0
0.0047 0.015 0.0033)
##          160) 490>=139.5 64 31 1 (0 0.52 0.047 0.31 0 0.016 0
0.078 0.031 0)
##          320) 297< 26.5 39 6 1 (0 0.85 0.077 0 0 0.026 0
0.051 0 0) *
##          321) 297>=26.5 25 5 3 (0 0 0 0.8 0 0 0 0.12 0.08 0)
*
##          161) 490< 139.5 1438 84 3 (0 0.0056 0.007 0.94 0 0.026
0 0.0014 0.015 0.0035)
##          322) 264< 244.5 1393 56 3 (0 0.0014 0.0072 0.96 0
0.017 0 0 0.011 0.0036)
##          644) 317< 206 1370 38 3 (0 0.0015 0.0073 0.97 0
0.01 0 0 0.0088 0)
##          1288) 487< 148 1360 28 3 (0 0.0015 0.0059 0.98 0
0.0096 0 0 0.0037 0)
##          2576) 341< 70 1350 19 3 (0 0.0015 0.0059 0.99 0
0.0044 0 0 0.0022 0) *
##          2577) 341>=70 10 3 5 (0 0 0 0.1 0 0.7 0 0 0.2
0) *
##          1289) 487>=148 10 3 8 (0 0 0.2 0 0 0.1 0 0 0.7 0)
*
##          645) 317>=206 23 14 5 (0 0 0 0.22 0 0.39 0 0 0.17
0.22)
##          1290) 524>=20 16 7 5 (0 0 0 0.25 0 0.56 0 0 0.19
0) *
##          1291) 524< 20 7 2 9 (0 0 0 0.14 0 0 0 0 0.14
0.71) *
##          323) 264>=244.5 45 28 3 (0 0.13 0 0.38 0 0.33 0 0.044
0.11 0)
##          646) 296>=124.5 16 3 3 (0 0 0 0.81 0 0 0 0.062
0.12 0) *
##          647) 296< 124.5 29 14 5 (0 0.21 0 0.14 0 0.52 0
0.034 0.1 0)
##          1294) 185< 63.5 12 6 1 (0 0.5 0 0.33 0 0 0 0.083
0.083 0) *
##          1295) 185>=63.5 17 2 5 (0 0 0 0 0 0.88 0 0 0.12
0) *
##          81) 315>=84.5 124 58 5 (0.024 0 0 0.15 0.04 0.53 0.016 0
0.065 0.18)
##          162) 296< 54 78 17 5 (0.013 0 0 0.038 0.051 0.78 0 0

```

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0.051 0.064) *
##          163) 296>=54 46      29 9 (0.043 0 0 0.33 0.022 0.11 0.043 0
0.087 0.37)
##          326) 493< 1 25      13 3 (0.08 0 0 0.48 0 0.2 0.04 0 0.16
0.04)
##          652) 401< 112.5 13      1 3 (0.077 0 0 0.92 0 0 0 0 0
0) *
##          653) 401>=112.5 12      7 5 (0.083 0 0 0 0 0.42 0.083 0
0.33 0.083) *
##          327) 493>=1 21      5 9 (0 0 0 0.14 0.048 0 0.048 0 0
0.76) *
##          41) 179< 1.5 692      431 3 (0.045 0.13 0.0087 0.38 0.045 0.25
0.025 0.033 0.032 0.055)
##          82) 626>=19.5 417      182 3 (0.062 0.0096 0.012 0.56 0 0.29
0.019 0.0096 0.029 0.0096)
##          164) 265< 148 261      51 3 (0.027 0.015 0.019 0.8 0 0.088
0.011 0.011 0.019 0.0038)
##          328) 155>=3 202      14 3 (0.0099 0.005 0.02 0.93 0 0.0099
0 0 0.02 0.005) *
##          329) 155< 3 59      37 3 (0.085 0.051 0.017 0.37 0 0.36
0.051 0.051 0.017 0)
##          658) 348< 235 29      9 3 (0 0.1 0.034 0.69 0 0.069 0.1
0 0 0) *
##          659) 348>=235 30      11 5 (0.17 0 0 0.067 0 0.63 0 0.1
0.033 0)
##          1318) 412>=5.5 7      2 0 (0.71 0 0 0.14 0 0 0 0.14 0
0) *
##          1319) 412< 5.5 23      4 5 (0 0 0 0.043 0 0.83 0 0.087
0.043 0) *
##          165) 265>=148 156      60 5 (0.12 0 0 0.16 0 0.62 0.032
0.0064 0.045 0.019)
##          330) 456>=235.5 25      6 0 (0.76 0 0 0 0 0.04 0.08 0
0.12 0) *
##          331) 456< 235.5 131      36 5 (0 0 0 0.19 0 0.73 0.023
0.0076 0.031 0.023)
##          662) 299>=40 30      13 3 (0 0 0 0.57 0 0.17 0.067 0.033
0.067 0.1)
##          1324) 324>=153.5 22      5 3 (0 0 0 0.77 0 0 0.091 0
0.091 0.045) *
##          1325) 324< 153.5 8      3 5 (0 0 0 0 0 0.62 0 0.12 0
0.25) *
##          663) 299< 40 101      11 5 (0 0 0 0.079 0 0.89 0.0099 0
0.02 0)
##          1326) 124>=83 8      2 3 (0 0 0 0.75 0 0.12 0 0 0.12
0) *
##          1327) 124< 83 93      4 5 (0 0 0 0.022 0 0.96 0.011 0
0.011 0) *
##          83) 626< 19.5 275      188 1 (0.018 0.32 0.0036 0.095 0.11
0.19 0.033 0.069 0.036 0.12)
##          166) 376< 20 104      24 1 (0 0.77 0 0.038 0.0096 0.048

```

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0.0096 0.067 0.029 0.029)
##          332) 462>=85.5 85      6 1 (0 0.93 0 0 0.012 0 0.012
0.047 0 0) *
##          333) 462< 85.5 19      14 5 (0 0.053 0 0.21 0 0.26 0 0.16
0.16 0.16) *
##          167) 376>=20 171    123 5 (0.029 0.041 0.0058 0.13 0.18
0.28 0.047 0.07 0.041 0.18)
##          334) 539>=54.5 58      15 5 (0.086 0 0.017 0.1 0 0.74
0.017 0.017 0.017 0)
##          668) 413>=194 7        2 0 (0.71 0 0 0.29 0 0 0 0 0) *
##          669) 413< 194 51        8 5 (0 0 0.02 0.078 0 0.84 0.02
0.02 0.02 0) *
##          335) 539< 54.5 113      82 9 (0 0.062 0 0.14 0.27 0.044
0.062 0.097 0.053 0.27)
##          670) 237< 2 43      17 4 (0 0 0 0.14 0.6 0 0.023 0.23 0
0)
##          1340) 231>=13 23        1 4 (0 0 0 0 0.96 0 0 0.043 0 0)
*
##          1341) 231< 13 20        11 7 (0 0 0 0.3 0.2 0 0.05 0.45 0
0)
##          2682) 345< 12 11        5 3 (0 0 0 0.55 0.36 0 0.091 0
0 0) *
##          2683) 345>=12 9          0 7 (0 0 0 0 0 0 0 1 0 0) *
##          671) 237>=2 70      39 9 (0 0.1 0 0.14 0.057 0.071 0.086
0.014 0.086 0.44)
##          1342) 325< 5 27        20 1 (0 0.26 0 0.11 0.074 0.19
0.22 0 0.15 0)
##          2684) 154>=20 13        6 1 (0 0.54 0 0 0 0 0.15 0
0.31 0) *
##          2685) 154< 20 14        9 5 (0 0 0 0.21 0.14 0.36 0.29
0 0 0) *
##          1343) 325>=5 43        12 9 (0 0 0 0.16 0.047 0 0 0.023
0.047 0.72) *
##          21) 290>=42.5 1357      824 5 (0.049 0.0044 0.0022 0.17 0.057 0.39
0.012 0.058 0.044 0.21)
##          42) 626>=10.5 836      360 5 (0.071 0.0012 0.0012 0.24 0.0012
0.57 0.011 0.006 0.059 0.044)
##          84) 297>=29.5 324      179 3 (0.1 0.0031 0.0031 0.45 0 0.21
0.0093 0.015 0.12 0.09)
##          168) 359>=77 32        4 0 (0.88 0 0 0 0 0 0.031 0.062 0.031
0) *
##          169) 359< 77 292      147 3 (0.017 0.0034 0.0034 0.5 0 0.24
0.0068 0.01 0.13 0.099)
##          338) 318< 219.5 112      26 3 (0 0 0 0.77 0 0.036 0 0 0.14
0.054)
##          676) 484< 186 101      15 3 (0 0 0 0.85 0 0.03 0 0 0.059
0.059) *
##          677) 484>=186 11        1 8 (0 0 0 0 0 0.091 0 0 0.91 0)
*
##          339) 318>=219.5 180      115 5 (0.028 0.0056 0.0056 0.33 0

```

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0.36 0.011 0.017 0.12 0.13)
##          678) 176>=79.5 40      8 3 (0 0 0 0.8 0 0.15 0 0 0.05
0)
##          1356) 288< 216 32      1 3 (0 0 0 0.97 0 0.031 0 0 0
0) *
##          1357) 288>=216 8       3 5 (0 0 0 0.12 0 0.62 0 0 0.25
0) *
##          679) 176< 79.5 140     81 5 (0.036 0.0071 0.0071 0.19 0
0.42 0.014 0.021 0.14 0.16)
##          1358) 294>=3 102      49 5 (0.049 0.0098 0.0098 0.25 0
0.52 0.02 0.029 0.029 0.088)
##          2716) 125>=40.5 25     9 3 (0 0.04 0.04 0.64 0 0.24
0 0 0.04 0)
##          5432) 270>=13.5 16     1 3 (0 0 0.062 0.94 0 0 0
0 0 0) *
##          5433) 270< 13.5 9      3 5 (0 0.11 0 0.11 0 0.67 0
0 0.11 0) *
##          2717) 125< 40.5 77     30 5 (0.065 0 0 0.12 0 0.61
0.026 0.039 0.026 0.12)
##          5434) 455>=193.5 8     3 0 (0.62 0 0 0 0 0 0.25 0
0 0.12) *
##          5435) 455< 193.5 69    22 5 (0 0 0 0.13 0 0.68 0
0.043 0.029 0.12)
##          10870) 597>=38.5 54    10 5 (0 0 0 0.15 0 0.81 0
0 0.019 0.019) *
##          10871) 597< 38.5 15    8 9 (0 0 0 0.067 0 0.2 0
0.2 0.067 0.47) *
##          1359) 294< 3 38       22 8 (0 0 0 0.053 0 0.16 0 0 0.42
0.37)
##          2718) 545< 45.5 30     14 8 (0 0 0 0.067 0 0.2 0 0
0.53 0.2)
##          5436) 431< 10.5 14     8 9 (0 0 0 0.14 0 0.29 0 0
0.14 0.43) *
##          5437) 431>=10.5 16     2 8 (0 0 0 0 0 0.12 0 0
0.88 0) *
##          2719) 545>=45.5 8      0 9 (0 0 0 0 0 0 0 0 0 1) *
##          85) 297< 29.5 512      105 5 (0.051 0 0 0.1 0.002 0.79 0.012 0
0.021 0.016)
##          170) 301>=74 39        15 0 (0.62 0 0 0.077 0.026 0.026 0 0
0.13 0.13)
##          340) 293>=187 23        0 0 (1 0 0 0 0 0 0 0 0 0) *
##          341) 293< 187 16        11 8 (0.062 0 0 0.19 0.062 0.062 0 0
0.31 0.31) *
##          171) 301< 74 473        67 5 (0.0042 0 0 0.11 0 0.86 0.013 0
0.013 0.0063)
##          342) 295>=219 33        11 3 (0.061 0 0 0.67 0 0.15 0.03 0
0.061 0.03)
##          684) 214< 206 23        2 3 (0 0 0 0.91 0 0 0 0 0.043
0.043) *
##          685) 214>=206 10        5 5 (0.2 0 0 0.1 0 0.5 0.1 0 0.1

```

```

0) *
##          343) 295< 219 440      39 5 (0 0 0 0.064 0 0.91 0.011 0
0.0091 0.0045)
##          686) 121>=122.5 18      5 3 (0 0 0 0.72 0 0.22 0 0
0.056 0) *
##          687) 121< 122.5 422      25 5 (0 0 0 0.036 0 0.94 0.012
0 0.0071 0.0047) *
##          43) 626< 10.5 521      277 9 (0.015 0.0096 0.0038 0.071 0.15
0.11 0.013 0.14 0.021 0.47)
##          86) 210< 1 164      102 7 (0.024 0.018 0 0.055 0.35 0.067
0.024 0.38 0.018 0.061)
##          172) 321< 202 85      27 4 (0 0 0 0.047 0.68 0.082 0.047
0.035 0.012 0.094)
##          344) 266< 36 70      13 4 (0 0 0 0.014 0.81 0.043 0.057
0.029 0 0.043)
##          688) 124< 37 63      6 4 (0 0 0 0.016 0.9 0 0 0.032 0
0.048) *
##          689) 124>=37 7      3 6 (0 0 0 0 0.43 0.57 0 0 0) *
##          345) 266>=36 15      10 9 (0 0 0 0.2 0.067 0.27 0 0.067
0.067 0.33) *
##          173) 321>=202 79      20 7 (0.051 0.038 0 0.063 0 0.051 0
0.75 0.025 0.025)
##          346) 570>=2 12      8 0 (0.33 0 0 0.17 0 0.33 0 0 0.17 0)
*
##          347) 570< 2 67      8 7 (0 0.045 0 0.045 0 0 0 0.88 0
0.03) *
##          87) 210>=1 357      123 9 (0.011 0.0056 0.0056 0.078 0.05 0.13
0.0084 0.034 0.022 0.66)
##          174) 297< 5.5 100      56 5 (0 0.02 0 0.16 0.1 0.44 0.03
0.02 0.03 0.2)
##          348) 295< 99 63      20 5 (0 0 0 0.079 0.063 0.68 0.048
0.016 0.016 0.095) *
##          349) 295>=99 37      23 9 (0 0.054 0 0.3 0.16 0.027 0
0.027 0.054 0.38)
##          698) 468>=26 9      0 3 (0 0 0 1 0 0 0 0 0) *
##          699) 468< 26 28      14 9 (0 0.071 0 0.071 0.21 0.036 0
0.036 0.071 0.5) *
##          175) 297>=5.5 257      43 9 (0.016 0 0.0078 0.047 0.031
0.0078 0 0.039 0.019 0.83)
##          350) 680>=29 10      2 3 (0.1 0 0 0.8 0 0.1 0 0 0) *
##          351) 680< 29 247      33 9 (0.012 0 0.0081 0.016 0.032
0.004 0 0.04 0.02 0.87)
##          702) 515>=44 9      4 8 (0.22 0 0.22 0 0 0 0 0.56 0)
*
##          703) 515< 44 238      24 9 (0.0042 0 0 0.017 0.034
0.0042 0 0.042 0 0.9) *
##          11) 486>=76.5 993      580 8 (0.065 0.02 0.13 0.066 0.014 0.053 0.2
0.001 0.42 0.035)
##          22) 657< 5.5 423      238 6 (0.031 0.047 0.23 0.035 0.033 0.054
0.44 0 0.069 0.061)

```

```

##          44) 270>=51.5 173    104 2 (0.052 0.087 0.4 0.046 0.052 0.04
0.081 0 0.13 0.11)
##          88) 126>=10 73      16 2 (0 0.014 0.78 0.068 0 0 0.055 0
0.082 0)
##          176) 466< 39.5 60      5 2 (0 0.017 0.92 0.033 0 0 0.033 0
0 0) *
##          177) 466>=39.5 13      7 8 (0 0 0.15 0.23 0 0 0.15 0 0.46
0) *
##          89) 126< 10 100      81 9 (0.09 0.14 0.12 0.03 0.09 0.07 0.1
0 0.17 0.19)
##          178) 717< 5 83      67 8 (0.11 0.17 0.14 0.036 0.11 0.084
0.12 0 0.19 0.036)
##          356) 211< 22.5 39      25 1 (0 0.36 0 0 0.21 0.18 0.18 0
0.051 0.026)
##          712) 457< 14.5 14      1 1 (0 0.93 0 0 0 0 0.071 0 0 0)
*
##          713) 457>=14.5 25      17 4 (0 0.04 0 0 0.32 0.28 0.24 0
0.08 0.04)
##          1426) 293< 127.5 17      9 4 (0 0.059 0 0 0.47 0 0.35
0 0.059 0.059) *
##          1427) 293>=127.5 8      1 5 (0 0 0 0 0 0.88 0 0 0.12
0) *
##          357) 211>=22.5 44      30 8 (0.2 0 0.27 0.068 0.023 0
0.068 0 0.32 0.045)
##          714) 406< 98 9      1 0 (0.89 0 0 0 0 0 0.11 0 0 0) *
##          715) 406>=98 35      21 8 (0.029 0 0.34 0.086 0.029 0
0.057 0 0.4 0.057)
##          1430) 550>=139 16      5 2 (0 0 0.69 0.062 0.062 0
0.062 0 0.062 0.062) *
##          1431) 550< 139 19      6 8 (0.053 0 0.053 0.11 0 0
0.053 0 0.68 0.053) *
##          179) 717>=5 17      1 9 (0 0 0 0 0 0 0 0.059 0.94) *
##          45) 270< 51.5 250      79 6 (0.016 0.02 0.12 0.028 0.02 0.064
0.68 0 0.024 0.028)
##          90) 601< 36.5 41      32 2 (0.049 0.12 0.22 0.073 0.12 0.098
0.098 0 0.049 0.17)
##          180) 380< 19.5 18      9 2 (0.056 0.28 0.5 0 0 0.11 0.056 0
0 0) *
##          181) 380>=19.5 23      16 9 (0.043 0 0 0.13 0.22 0.087 0.13
0 0.087 0.3)
##          362) 428< 201 13      9 4 (0 0 0 0.23 0.31 0.077 0.23 0
0.15 0) *
##          363) 428>=201 10      3 9 (0.1 0 0 0 0.1 0.1 0 0 0 0.7) *
##          91) 601>=36.5 209      42 6 (0.0096 0 0.096 0.019 0 0.057 0.8
0 0.019 0)
##          182) 584>=8 16      3 2 (0 0 0.81 0 0 0 0.19 0 0 0) *
##          183) 584< 8 193      29 6 (0.01 0 0.036 0.021 0 0.062 0.85 0
0.021 0)
##          366) 431< 1 21      11 5 (0 0 0 0.14 0 0.48 0.38 0 0 0)
##          732) 321>=93.5 14      4 5 (0 0 0 0.21 0 0.71 0.071 0 0

```



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0) *
##          733) 321< 93.5 7      0 6 (0 0 0 0 0 0 1 0 0 0) *
##          367) 431>=1 172      16 6 (0.012 0 0.041 0.0058 0 0.012
0.91 0 0.023 0) *
##          23) 657>=5.5 570      186 8 (0.091 0 0.049 0.089 0 0.053 0.026
0.0018 0.67 0.016)
##          46) 407< 1.5 97      53 0 (0.45 0 0.082 0.062 0 0.15 0.031 0
0.22 0)
##          92) 329>=11 41      4 0 (0.9 0 0 0.024 0 0.049 0 0 0.024 0)
*
##          93) 329< 11 56      36 8 (0.12 0 0.14 0.089 0 0.23 0.054 0
0.36 0)
##          186) 347>=0.5 40      27 5 (0.17 0 0 0.12 0 0.33 0.075 0 0.3
0)
##          372) 351< 190 12      5 0 (0.58 0 0 0.083 0 0.25 0.083 0
0 0) *
##          373) 351>=190 28      16 8 (0 0 0 0.14 0 0.36 0.071 0 0.43
0)
##          746) 297< 178 16      6 5 (0 0 0 0.12 0 0.62 0.062 0
0.19 0) *
##          747) 297>=178 12      3 8 (0 0 0 0.17 0 0 0.083 0 0.75
0) *
##          187) 347< 0.5 16      8 2 (0 0 0.5 0 0 0 0 0 0.5 0) *
##          47) 407>=1.5 473      110 8 (0.017 0 0.042 0.095 0 0.032 0.025
0.0021 0.77 0.019)
##          94) 514< 1 43      21 3 (0 0 0.023 0.51 0 0.047 0 0 0.3 0.12)
##          188) 512< 70.5 27      6 3 (0 0 0 0.78 0 0.037 0 0 0 0.19)
##          376) 320< 71.5 20      0 3 (0 0 0 1 0 0 0 0 0 0) *
##          377) 320>=71.5 7      2 9 (0 0 0 0.14 0 0.14 0 0 0 0.71)
*
##          189) 512>=70.5 16      3 8 (0 0 0.062 0.062 0 0.062 0 0
0.81 0) *
##          95) 514>=1 430      80 8 (0.019 0 0.044 0.053 0 0.03 0.028
0.0023 0.81 0.0093)
##          190) 432< 1 28      20 3 (0.21 0 0.036 0.29 0 0.21 0.036 0
0.18 0.036)
##          380) 429>=101.5 13      7 0 (0.46 0 0.077 0 0 0 0.077 0
0.38 0) *
##          381) 429< 101.5 15      7 3 (0 0 0 0.53 0 0.4 0 0 0
0.067) *
##          191) 432>=1 402      57 8 (0.005 0 0.045 0.037 0 0.017 0.027
0.0025 0.86 0.0075)
##          382) 436< 7 57      25 8 (0.018 0 0.32 0.053 0 0.018 0.018
0.018 0.56 0)
##          764) 126>=44.5 24      7 2 (0 0 0.71 0.042 0 0 0.042 0
0.21 0)
##          1528) 602>=175 17      1 2 (0 0 0.94 0 0 0 0.059 0 0
0) *
##          1529) 602< 175 7      2 8 (0 0 0.14 0.14 0 0 0 0 0.71
0) *

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##          765) 126< 44.5 33      6 8 (0.03 0 0.03 0.061 0 0.03 0
0.03 0.82 0) *
##          383) 436>=7 345      32 8 (0.0029 0 0 0.035 0 0.017 0.029
0 0.91 0.0087)
##          766) 439>=250.5 36      18 8 (0 0 0 0.28 0 0.14 0.056 0
0.5 0.028)
##          1532) 289< 1.5 11      2 3 (0 0 0 0.82 0 0 0.091 0
0.091 0) *
##          1533) 289>=1.5 25      8 8 (0 0 0 0.04 0 0.2 0.04 0
0.68 0.04)
##          3066) 270< 126 8      3 5 (0 0 0 0 0 0.62 0.12 0
0.12 0.12) *
##          3067) 270>=126 17      1 8 (0 0 0 0.059 0 0 0 0 0.94
0) *
##          767) 439< 250.5 309      14 8 (0.0032 0 0 0.0065 0
0.0032 0.026 0 0.95 0.0065) *
##          3) 350< 120.5 16137 13725 7 (0.14 0.014 0.13 0.031 0.14 0.081 0.12
0.15 0.077 0.12)
##          6) 435< 0.5 4294 2072 0 (0.52 0.004 0.066 0.03 0.039 0.086 0.053
0.15 0.0086 0.042)
##          12) 597>=1.5 2737 684 0 (0.75 0.0022 0.084 0.031 0.0018 0.08
0.03 0.0058 0.011 0.0033)
##          24) 489< 0.5 2295 319 0 (0.86 0.00044 0.021 0.033 0.00087
0.053 0.02 0.0052 0.0026 0.0026)
##          48) 380< 1.5 2072 142 0 (0.93 0 0.015 0.015 0.00048 0.021
0.01 0.0048 0.00048 0.00097)
##          96) 324< 172 1973 88 0 (0.96 0 0.015 0.0035 0.00051
0.0096 0.0091 0.0051 0.00051 0.001)
##          192) 463< 80 1955 73 0 (0.96 0 0.013 0.0036 0.00051
0.0082 0.0087 0.002 0 0.001)
##          384) 400>=3.5 1623 17 0 (0.99 0 0.00062 0 0.00062
0.0012 0.0074 0 0 0.00062) *
##          385) 400< 3.5 332 56 0 (0.83 0 0.075 0.021 0 0.042
0.015 0.012 0 0.003)
##          770) 545< 198.5 299 35 0 (0.88 0 0.03 0.023 0 0.047
0.01 0.0033 0 0.0033)
##          1540) 296< 135 267 15 0 (0.94 0 0.026 0.0037 0
0.0075 0.011 0.0037 0 0.0037) *
##          1541) 296>=135 32 20 0 (0.38 0 0.062 0.19 0 0.38 0
0 0 0)
##          3082) 239>=145 18 7 0 (0.61 0 0.11 0.28 0 0 0 0
0 0) *
##          3083) 239< 145 14 2 5 (0.071 0 0 0.071 0 0.86 0
0 0 0) *
##          771) 545>=198.5 33 17 2 (0.36 0 0.48 0 0 0 0.061
0.091 0 0)
##          1542) 455>=4 11 1 0 (0.91 0 0.091 0 0 0 0 0 0)
*
##          1543) 455< 4 22 7 2 (0.091 0 0.68 0 0 0 0.091
0.14 0 0) *

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##          193) 463>=80 18      12 7 (0.17 0 0.22 0 0 0.17 0.056 0.33
0.056 0) *
##          97) 324>=172 99      54 0 (0.45 0 0.02 0.24 0 0.25 0.03 0 0
0)
##          194) 427>=40 42      2 0 (0.95 0 0 0.024 0 0.024 0 0 0 0) *
##          195) 427< 40 57      33 5 (0.088 0 0.035 0.4 0 0.42 0.053 0
0 0)
##          390) 240>=64.5 30      9 3 (0.13 0 0.033 0.7 0 0.13 0 0 0
0) *
##          391) 240< 64.5 27      7 5 (0.037 0 0.037 0.074 0 0.74
0.11 0 0 0) *
##          49) 380>=1.5 223      146 5 (0.21 0.0045 0.076 0.2 0.0045 0.35
0.12 0.009 0.022 0.018)
##          98) 484>=42 84      45 0 (0.46 0 0.071 0.024 0.012 0.13 0.26
0 0.024 0.012)
##          196) 270>=21.5 45      9 0 (0.8 0 0.067 0 0.022 0.044 0 0
0.044 0.022) *
##          197) 270< 21.5 39      17 6 (0.077 0 0.077 0.051 0 0.23 0.56
0 0 0)
##          394) 325>=145 13      7 5 (0.15 0 0.23 0.15 0 0.46 0 0 0
0) *
##          395) 325< 145 26      4 6 (0.038 0 0 0 0 0.12 0.85 0 0 0)
*
##          99) 484< 42 139      73 5 (0.05 0.0072 0.079 0.3 0 0.47 0.029
0.014 0.022 0.022)
##          198) 375< 95 65      34 3 (0.046 0.015 0.15 0.48 0 0.22
0.046 0.031 0.015 0)
##          396) 287< 38.5 55      24 3 (0.055 0.018 0.18 0.56 0 0.13
0.018 0.036 0 0)
##          792) 514>=4 11      5 2 (0.091 0.091 0.55 0 0 0.18
0.091 0 0 0) *
##          793) 514< 4 44      13 3 (0.045 0 0.091 0.7 0 0.11 0
0.045 0 0) *
##          397) 287>=38.5 10      3 5 (0 0 0 0 0 0.7 0.2 0 0.1 0) *
##          199) 375>=95 74      22 5 (0.054 0 0.014 0.15 0 0.7 0.014 0
0.027 0.041) *
##          25) 489>=0.5 442      261 2 (0.17 0.011 0.41 0.023 0.0068 0.22
0.081 0.009 0.054 0.0068)
##          50) 347< 2.5 218      48 2 (0.032 0.023 0.78 0.028 0.0092 0.046
0.032 0.014 0.028 0.0092)
##          100) 344< 154.5 192      23 2 (0 0.026 0.88 0.031 0.0052 0.01
0.0052 0.016 0.026 0) *
##          101) 344>=154.5 26      18 5 (0.27 0 0.038 0 0.038 0.31 0.23 0
0.038 0.077)
##          202) 512>=14.5 17      10 0 (0.41 0 0.059 0 0.059 0 0.29 0
0.059 0.12) *
##          203) 512< 14.5 9      1 5 (0 0 0 0 0 0.89 0.11 0 0 0) *
##          51) 347>=2.5 224      135 5 (0.31 0 0.049 0.018 0.0045 0.4 0.13
0.0045 0.08 0.0045)
##          102) 386>=3.5 73      9 0 (0.88 0 0.014 0 0 0 0.068 0.014

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0.014 0.014) *
##          103) 386< 3.5 151      62 5 (0.04 0 0.066 0.026 0.0066 0.59
0.16 0 0.11 0)
##          206) 513>=12.5 64      41 6 (0.078 0 0.14 0.062 0.016 0.16
0.36 0 0.19 0)
##          412) 131< 89 44      32 8 (0.091 0 0.18 0.068 0.023 0.23
0.14 0 0.27 0)
##          824) 407< 63 34      24 5 (0.12 0 0.24 0.088 0.029 0.29
0.15 0 0.088 0)
##          1648) 580>=144 10      3 2 (0 0 0.7 0.1 0 0 0.2 0 0 0)
*
##          1649) 580< 144 24      14 5 (0.17 0 0.042 0.083 0.042
0.42 0.12 0 0.12 0)
##          3298) 627>=242 10      6 0 (0.4 0 0.1 0.1 0 0 0.2 0
0.2 0) *
##          3299) 627< 242 14      4 5 (0 0 0 0.071 0.071 0.71
0.071 0 0.071 0) *
##          825) 407>=63 10      1 8 (0 0 0 0 0 0 0.1 0 0.9 0) *
##          413) 131>=89 20      3 6 (0.05 0 0.05 0.05 0 0 0.85 0 0
0) *
##          207) 513< 12.5 87      8 5 (0.011 0 0.011 0 0 0.91 0.011 0
0.057 0) *
##          13) 597< 1.5 1557      909 7 (0.11 0.0071 0.033 0.029 0.1 0.095
0.094 0.42 0.0045 0.11)
##          26) 486>=0.5 603      470 6 (0.18 0.0017 0.073 0.018 0.21 0.1 0.22
0.043 0.0083 0.15)
##          52) 572>=5.5 309      186 6 (0.32 0.0032 0.097 0.019 0.029 0.061
0.4 0.0097 0.0097 0.052)
##          104) 241>=12 151      61 0 (0.6 0 0.11 0.02 0.02 0.093 0.033
0.02 0.013 0.099)
##          208) 518< 102 93      13 0 (0.86 0 0.032 0.011 0 0.022 0.022
0.022 0.011 0.022) *
##          209) 518>=102 58      45 2 (0.17 0 0.22 0.034 0.052 0.21
0.052 0.017 0.017 0.22)
##          418) 438< 23.5 25      13 5 (0.32 0 0 0.04 0 0.48 0.12 0
0.04 0)
##          836) 370>=3 8      0 0 (1 0 0 0 0 0 0 0 0 0) *
##          837) 370< 3 17      5 5 (0 0 0 0.059 0 0.71 0.18 0
0.059 0) *
##          419) 438>=23.5 33      20 2 (0.061 0 0.39 0.03 0.091 0 0
0.03 0 0.39)
##          838) 343< 29 19      6 2 (0.11 0 0.68 0.053 0.11 0 0 0
0 0.053) *
##          839) 343>=29 14      2 9 (0 0 0 0 0.071 0 0 0.071 0
0.86) *
##          105) 241< 12 158      40 6 (0.057 0.0063 0.089 0.019 0.038
0.032 0.75 0 0.0063 0.0063)
##          210) 215>=15 15      8 0 (0.47 0 0.2 0 0.13 0 0.067 0 0.067
0.067) *
##          211) 215< 15 143      26 6 (0.014 0.007 0.077 0.021 0.028

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0.035 0.82 0 0 0) *
##          53) 572< 5.5 294    178 4 (0.031 0 0.048 0.017 0.39 0.14 0.034
0.078 0.0068 0.25)
##          106) 211< 8 119      27 4 (0.017 0 0.05 0 0.77 0.025 0.042
0.05 0 0.042)
##          212) 294< 30.5 103    11 4 (0.0097 0 0.029 0 0.89 0 0.049
0 0 0.019) *
##          213) 294>=30.5 16     10 7 (0.062 0 0.19 0 0 0.19 0 0.38 0
0.19) *
##          107) 211>=8 175     106 9 (0.04 0 0.046 0.029 0.14 0.22 0.029
0.097 0.011 0.39)
##          214) 465< 104 69     31 5 (0.087 0 0.072 0.072 0.014 0.55
0.058 0.058 0.014 0.072) *
##          215) 465>=104 106    42 9 (0.0094 0 0.028 0 0.22 0 0.0094
0.12 0.0094 0.6)
##          430) 208< 2.5 24      7 4 (0.042 0 0.042 0 0.71 0 0 0.083
0 0.12) *
##          431) 208>=2.5 82     21 9 (0 0 0.024 0 0.073 0 0.012 0.13
0.012 0.74) *
##          27) 486< 0.5 954     332 7 (0.064 0.01 0.0084 0.036 0.038 0.092
0.014 0.65 0.0021 0.084)
##          54) 404>=1 208      143 9 (0.019 0.034 0.014 0.12 0.11 0.3 0.043
0.043 0.0096 0.31)
##          108) 354< 26 106     47 5 (0.019 0.066 0 0.16 0.019 0.56
0.085 0.019 0.019 0.057)
##          216) 290< 0.5 53     36 3 (0.019 0.13 0 0.32 0.019 0.32
0.15 0 0 0.038)
##          432) 205>=9.5 16     3 3 (0 0 0 0.81 0.062 0.12 0 0 0 0)
*
##          433) 205< 9.5 37     22 5 (0.027 0.19 0 0.11 0 0.41 0.22
0 0 0.054)
##          866) 541< 12 28      20 6 (0.036 0.25 0 0.14 0 0.21 0.29
0 0 0.071)
##          1732) 515< 28.5 18   12 1 (0.056 0.33 0 0.22 0 0.28
0 0 0 0.11) *
##          1733) 515>=28.5 10   2 6 (0 0.1 0 0 0 0.1 0.8 0 0
0) *
##          867) 541>=12 9       0 5 (0 0 0 0 0 1 0 0 0 0) *
##          217) 290>=0.5 53     11 5 (0.019 0 0 0 0.019 0.79 0.019
0.038 0.038 0.075) *
##          109) 354>=26 102     43 9 (0.02 0 0.029 0.078 0.2 0.029 0
0.069 0 0.58)
##          218) 239< 1.5 31     12 4 (0 0 0.032 0.13 0.61 0.032 0
0.097 0 0.097)
##          436) 155>=78.5 7     3 3 (0 0 0.14 0.57 0 0 0 0 0.29)
*
##          437) 155< 78.5 24    5 4 (0 0 0 0 0.79 0.042 0 0.12 0
0.042) *
##          219) 239>=1.5 71     15 9 (0.028 0 0.028 0.056 0.014 0.028
0 0.056 0 0.79) *

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##          55) 404< 1 746    133 7 (0.076 0.004 0.0067 0.012 0.019 0.035
0.0054 0.82 0 0.02)
##          110) 538>=1 68     19 0 (0.72 0 0 0.015 0.029 0.13 0 0.059 0
0.044)
##          220) 323< 203 59    10 0 (0.83 0 0 0 0.034 0.051 0 0.034 0
0.051) *
##          221) 323>=203 9     3 5 (0 0 0 0.11 0 0.67 0 0.22 0 0) *
##          111) 538< 1 678     69 7 (0.012 0.0044 0.0074 0.012 0.018
0.025 0.0059 0.9 0 0.018)
##          222) 460>=13 30     20 5 (0 0.067 0.033 0.033 0.27 0.33
0.033 0.067 0 0.17)
##          444) 381< 10.5 14    4 5 (0 0.14 0 0.071 0 0.71 0.071 0
0 0) *
##          445) 381>=10.5 16    8 4 (0 0 0.062 0 0.5 0 0 0.12 0
0.31) *
##          223) 460< 13 648     41 7 (0.012 0.0015 0.0062 0.011 0.0062
0.011 0.0046 0.94 0 0.011)
##          446) 153>=27 19     14 3 (0.16 0.053 0.16 0.26 0 0.21 0
0.053 0 0.11) *
##          447) 153< 27 629     23 7 (0.0079 0 0.0016 0.0032 0.0064
0.0048 0.0048 0.96 0 0.0079) *
##          7) 435>=0.5 11843   9804 4 (0.0054 0.017 0.15 0.031 0.17 0.079 0.15
0.15 0.1 0.15)
##          14) 542>=1.5 5226   3621 6 (0.0094 0.025 0.28 0.0077 0.052 0.045
0.31 0.054 0.18 0.038)
##          28) 271>=0.5 2838   1751 2 (0.014 0.036 0.38 0.0099 0.076 0.046
0.027 0.088 0.26 0.057)
##          56) 347< 1.5 1644    635 2 (0.003 0.062 0.61 0.014 0.04 0.0073
0.03 0.12 0.057 0.055)
##          112) 155>=1 1021    119 2 (0.0029 0 0.88 0.016 0.002 0.002
0.002 0.012 0.065 0.016)
##          224) 344< 82 936     54 2 (0 0 0.94 0.016 0 0.0011 0 0.013
0.027 0.0011)
##          448) 349< 134.5 922   40 2 (0 0 0.96 0.016 0 0.0011 0
0.013 0.012 0.0011)
##          896) 345< 104.5 912   31 2 (0 0 0.97 0.016 0 0 0
0.013 0.0044 0) *
##          897) 345>=104.5 10    3 8 (0 0 0.1 0 0 0.1 0 0 0.7
0.1) *
##          449) 349>=134.5 14    0 8 (0 0 0 0 0 0 0 0 1 0) *
##          225) 344>=82 85      44 8 (0.035 0 0.24 0.012 0.024 0.012
0.024 0 0.48 0.18)
##          450) 402< 51.5 35     18 2 (0.086 0 0.49 0 0.057 0 0.057
0 0 0.31)
##          900) 570>=169.5 22    5 2 (0.14 0 0.77 0 0 0 0.091 0
0 0) *
##          901) 570< 169.5 13    2 9 (0 0 0 0 0.15 0 0 0 0 0.85)
*
##          451) 402>=51.5 50     9 8 (0 0 0.06 0.02 0 0.02 0 0 0.82
0.08) *

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##          113) 155< 1 623    442 7 (0.0032 0.16 0.17 0.011 0.1 0.016
0.077 0.29 0.045 0.12)
##          226) 709< 1.5 487    383 2 (0.0041 0.21 0.21 0.012 0.13
0.021 0.099 0.12 0.045 0.15)
##          452) 211< 1 246    146 1 (0 0.41 0.077 0.0041 0.24 0.02
0.2 0.033 0.012 0.0081)
##          904) 344< 1.5 135    35 1 (0 0.74 0.13 0.0074 0.015
0.022 0.044 0.044 0 0)
##          1808) 520< 3 107    8 1 (0 0.93 0.028 0 0.0093
0.0093 0 0.028 0 0) *
##          1809) 520>=3 28    14 2 (0 0.036 0.5 0.036 0.036
0.071 0.21 0.11 0 0)
##          3618) 431>=8.5 14    2 2 (0 0 0.86 0.071 0.071 0 0
0 0 0) *
##          3619) 431< 8.5 14    8 6 (0 0.071 0.14 0 0 0.14
0.43 0.21 0 0) *
##          905) 344>=1.5 111    53 4 (0 0 0.018 0 0.52 0.018 0.38
0.018 0.027 0.018)
##          1810) 573< 221 72    18 4 (0 0 0.028 0 0.75 0.028
0.097 0.028 0.042 0.028)
##          3620) 292< 124 63    9 4 (0 0 0.016 0 0.86 0 0.11
0 0 0.016)
##          7240) 94< 7.5 56    3 4 (0 0 0.018 0 0.95 0
0.018 0 0 0.018) *
##          7241) 94>=7.5 7    1 6 (0 0 0 0 0.14 0 0.86 0 0
0) *
##          3621) 292>=124 9    6 8 (0 0 0.11 0 0 0.22 0 0.22
0.33 0.11) *
##          1811) 573>=221 39    4 6 (0 0 0 0 0.1 0 0.9 0 0 0) *
##          453) 211>=1 241    156 2 (0.0083 0.0083 0.35 0.021 0.0083
0.021 0 0.2 0.079 0.3)
##          906) 371< 1.5 150    69 2 (0 0.013 0.54 0.033 0.0067 0
0 0.31 0.04 0.06)
##          1812) 678< 45.5 127    46 2 (0 0.016 0.64 0.039 0 0 0
0.19 0.047 0.071)
##          3624) 712< 40.5 109    29 2 (0 0.018 0.73 0.046 0 0
0 0.092 0.037 0.073) *
##          3625) 712>=40.5 18    4 7 (0 0 0.056 0 0 0 0 0.78
0.11 0.056) *
##          1813) 678>=45.5 23    1 7 (0 0 0 0 0.043 0 0 0.96 0
0) *
##          907) 371>=1.5 91    28 9 (0.022 0 0.044 0 0.011 0.055
0 0.033 0.14 0.69)
##          1814) 599>=6.5 28    15 8 (0.071 0 0.071 0 0.036 0.18
0 0.071 0.46 0.11)
##          3628) 467>=4 14    9 5 (0.14 0 0.071 0 0.071 0.36
0 0.14 0.071 0.14) *
##          3629) 467< 4 14    2 8 (0 0 0.071 0 0 0 0 0.86
0.071) *
##          1815) 599< 6.5 63    3 9 (0 0 0.032 0 0 0 0 0.016 0

```

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0.95) *
##          227) 709>=1.5 136      12 7 (0 0 0.022 0.0074 0.0074 0 0
0.91 0.044 0.0074)
##          454) 373< 182.5 128      4 7 (0 0 0.023 0.0078 0 0 0 0.97
0 0) *
##          455) 373>=182.5 8      2 8 (0 0 0 0 0.12 0 0 0 0.75 0.12)
*
##          57) 347>=1.5 1194      546 8 (0.03 0 0.065 0.0042 0.13 0.1 0.023
0.047 0.54 0.06)
##          114) 657< 15 485      357 4 (0.039 0 0.15 0 0.26 0.2 0.039
0.099 0.1 0.11)
##          228) 354< 1 121      27 5 (0.041 0 0.058 0 0.025 0.78 0.033
0 0.066 0)
##          456) 384>=14 20      14 8 (0.25 0 0.25 0 0.05 0 0.15 0 0.3
0)
##          912) 522>=13.5 13      8 0 (0.38 0 0.38 0 0 0 0.23 0 0
0) *
##          913) 522< 13.5 7      1 8 (0 0 0 0 0.14 0 0 0 0.86 0) *
##          457) 384< 14 101      7 5 (0 0 0.02 0 0.02 0.93 0.0099 0
0.02 0) *
##          229) 354>=1 364      239 4 (0.038 0 0.18 0 0.34 0.0055 0.041
0.13 0.11 0.15)
##          458) 212< 1.5 155      49 4 (0 0 0.084 0 0.68 0.0065 0.084
0.084 0.045 0.013)
##          916) 268< 136 132      26 4 (0 0 0.076 0 0.8 0.0076
0.098 0 0.015 0)
##          1832) 127>=2.5 18      9 2 (0 0 0.5 0 0 0 0.44 0 0.056
0) *
##          1833) 127< 2.5 114      8 4 (0 0 0.0088 0 0.93 0.0088
0.044 0 0.0088 0) *
##          917) 268>=136 23      10 7 (0 0 0.13 0 0 0 0 0.57 0.22
0.087)
##          1834) 486>=162.5 8      3 8 (0 0 0.38 0 0 0 0 0 0.62
0) *
##          1835) 486< 162.5 15      2 7 (0 0 0 0 0 0 0 0.87 0
0.13) *
##          459) 212>=1.5 209      156 2 (0.067 0 0.25 0 0.091 0.0048
0.0096 0.17 0.16 0.24)
##          918) 567>=25 85      41 2 (0.14 0 0.52 0 0.012 0.012
0.012 0.024 0.27 0.012)
##          1836) 654< 33 56      14 2 (0.11 0 0.75 0 0.018 0.018
0.018 0.018 0.054 0.018) *
##          1837) 654>=33 29      9 8 (0.21 0 0.069 0 0 0 0 0.034
0.69 0)
##          3674) 492>=236 9      3 0 (0.67 0 0.22 0 0 0 0 0.11
0 0) *
##          3675) 492< 236 20      0 8 (0 0 0 0 0 0 0 0 1 0) *
##          919) 567< 25 124      74 9 (0.016 0 0.073 0 0.15 0
0.0081 0.27 0.089 0.4)
##          1838) 458< 5 71      38 7 (0.014 0 0.085 0 0.07 0 0.014

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0.46 0.13 0.23)
##          3676) 404< 25 43      11 7 (0.023 0 0.093 0 0.023 0
0.023 0.74 0 0.093)
##          7352) 680< 83 10      6 2 (0.1 0 0.4 0 0.1 0 0.1 0
0 0.3) *
##          7353) 680>=83 33      1 7 (0 0 0 0 0 0 0 0.97 0
0.03) *
##          3677) 404>=25 28      16 9 (0 0 0.071 0 0.14 0 0
0.036 0.32 0.43)
##          7354) 655>=18.5 15      6 8 (0 0 0.067 0 0.2 0 0
0.067 0.6 0.067) *
##          7355) 655< 18.5 13      2 9 (0 0 0.077 0 0.077 0 0
0 0 0.85) *
##          1839) 458>=5 53      19 9 (0.019 0 0.057 0 0.25 0 0 0
0.038 0.64)
##          3678) 402>=234.5 24      11 4 (0.042 0 0.042 0 0.54 0
0 0 0.042 0.33)
##          7356) 456>=71 15      3 4 (0.067 0 0.067 0 0.8 0 0
0 0 0.067) *
##          7357) 456< 71 9      2 9 (0 0 0 0 0.11 0 0 0 0.11
0.78) *
##          3679) 402< 234.5 29      3 9 (0 0 0.069 0 0 0 0 0
0.034 0.9) *
##          115) 657>=15 709      110 8 (0.024 0 0.0071 0.0071 0.034 0.032
0.013 0.011 0.84 0.027)
##          230) 428>=111.5 74      53 4 (0.14 0 0.014 0 0.28 0.12 0.068
0 0.2 0.18)
##          460) 212< 40.5 21      2 4 (0 0 0 0 0.9 0 0 0 0.095 0) *
##          461) 212>=40.5 53      40 8 (0.19 0 0.019 0 0.038 0.17
0.094 0 0.25 0.25)
##          922) 597>=24.5 36      23 8 (0.28 0 0.028 0 0 0.22 0.11
0 0.36 0)
##          1844) 266>=251.5 14      4 0 (0.71 0 0 0 0 0.29 0 0 0
0) *
##          1845) 266< 251.5 22      9 8 (0 0 0.045 0 0 0.18 0.18
0 0.59 0) *
##          923) 597< 24.5 17      4 9 (0 0 0 0 0.12 0.059 0.059 0
0 0.76) *
##          231) 428< 111.5 635      51 8 (0.011 0 0.0063 0.0079 0.0047
0.022 0.0063 0.013 0.92 0.0094)
##          462) 488< 14.5 47      24 8 (0.085 0 0 0.043 0.021 0.26
0.021 0.043 0.49 0.043)
##          924) 600>=214 20      9 5 (0.2 0 0 0.1 0.05 0.55 0 0.05
0 0.05)
##          1848) 327>=46.5 8      4 0 (0.5 0 0 0.25 0 0 0 0.12 0
0.12) *
##          1849) 327< 46.5 12      1 5 (0 0 0 0 0.083 0.92 0 0 0
0) *
##          925) 600< 214 27      4 8 (0 0 0 0 0 0.037 0.037 0.037
0.85 0.037) *

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##          463) 488>=14.5 588    27 8 (0.0051 0 0.0068 0.0051
0.0034 0.0034 0.0051 0.01 0.95 0.0068) *
##          29) 271< 0.5 2388    861 6 (0.0034 0.012 0.16 0.005 0.023 0.044
0.64 0.015 0.086 0.014)
##          58) 297>=53.5 447    177 2 (0.011 0.058 0.6 0.0089 0.076
0.0022 0.049 0.069 0.083 0.038)
##          116) 346< 7.5 344    84 2 (0.0087 0.073 0.76 0.012 0.029 0
0.0087 0.078 0.017 0.017)
##          232) 686< 2.5 318    58 2 (0.0063 0.079 0.82 0.0063 0.025
0 0.0094 0.028 0.013 0.016)
##          464) 159>=0.5 32     10 1 (0.031 0.69 0.22 0 0.031 0 0 0
0.031 0)
##          928) 127< 5 24      2 1 (0 0.92 0 0 0.042 0 0 0 0.042
0) *
##          929) 127>=5 8       1 2 (0.12 0 0.88 0 0 0 0 0 0) *
##          465) 159< 0.5 286    33 2 (0.0035 0.01 0.88 0.007 0.024
0 0.01 0.031 0.01 0.017)
##          930) 398< 100.5 275   22 2 (0.0036 0.011 0.92 0.0073
0.011 0 0.0036 0.033 0.011 0)
##          1860) 681< 13 268    16 2 (0 0.011 0.94 0.0075 0.011
0 0.0037 0.015 0.011 0) *
##          1861) 681>=13 7      2 7 (0.14 0 0.14 0 0 0 0 0.71 0
0) *
##          931) 398>=100.5 11    6 9 (0 0 0 0 0.36 0 0.18 0 0
0.45) *
##          233) 686>=2.5 26     8 7 (0.038 0 0 0.077 0.077 0 0 0.69
0.077 0.038) *
##          117) 346>=7.5 103    72 8 (0.019 0.0097 0.097 0 0.23 0.0097
0.18 0.039 0.3 0.11)
##          234) 656< 105 73     49 4 (0 0.014 0.12 0 0.33 0.014 0.26
0.055 0.055 0.15)
##          468) 573< 214 48     24 4 (0 0.021 0.1 0 0.5 0.021 0
0.042 0.083 0.23) *
##          469) 573>=214 25     6 6 (0 0 0.16 0 0 0 0.76 0.08 0 0)
*
##          235) 656>=105 30     3 8 (0.067 0 0.033 0 0 0 0 0.9 0) *
##          59) 297< 53.5 1941   436 6 (0.0015 0.0015 0.057 0.0041 0.01
0.053 0.78 0.0021 0.087 0.0082)
##          118) 274>=2.5 241    122 8 (0.012 0.0041 0.32 0.012 0.062
0.0041 0.058 0.0083 0.49 0.021)
##          236) 655< 30.5 127   55 2 (0.024 0.0079 0.57 0.024 0.094
0.0079 0.11 0.0079 0.12 0.039)
##          472) 537>=23.5 83    13 2 (0.036 0 0.84 0.036 0 0 0.024
0 0.06 0) *
##          473) 537< 23.5 44    32 4 (0 0.023 0.045 0 0.27 0.023
0.27 0.023 0.23 0.11)
##          946) 220>=30 12      2 4 (0 0 0 0 0.83 0.083 0 0 0.083
0) *
##          947) 220< 30 32      20 6 (0 0.031 0.062 0 0.062 0 0.38
0.031 0.28 0.16)

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##          1894) 494>=33.5 15      4 6 (0 0 0.067 0 0.13 0 0.73 0
0 0.067) *
##          1895) 494< 33.5 17      8 8 (0 0.059 0.059 0 0 0 0.059
0.059 0.53 0.24) *
##          237) 655>=30.5 114      10 8 (0 0 0.053 0 0.026 0 0 0.0088
0.91 0) *
##          119) 274< 2.5 1700      209 6 (0 0.0012 0.019 0.0029 0.0029
0.06 0.88 0.0012 0.029 0.0065)
##          238) 658< 1.5 1537      83 6 (0 0.0013 0.02 0.00065 0.0026
0.018 0.95 0.00065 0.0072 0.0046)
##          476) 323>=161.5 34      8 2 (0 0.059 0.76 0 0.059 0 0.029
0.029 0.059 0) *
##          477) 323< 161.5 1503      50 6 (0 0 0.0027 0.00067 0.0013
0.018 0.97 0 0.006 0.0047)
##          954) 217>=164 18        5 5 (0 0 0 0 0 0.72 0.11 0 0.11
0.056) *
##          955) 217< 164 1485      34 6 (0 0 0.0027 0.00067 0.0013
0.0094 0.98 0 0.0047 0.004)
##          1910) 662< 2 1478      27 6 (0 0 0.0027 0.00068 0.00068
0.0081 0.98 0 0.0047 0.0014) *
##          1911) 662>=2 7          3 9 (0 0 0 0 0.14 0.29 0 0 0 0.57)
*
##          239) 658>=1.5 163      88 5 (0 0 0.012 0.025 0.0061 0.46
0.23 0.0061 0.24 0.025)
##          478) 515< 12.5 67      11 5 (0 0 0 0.03 0.015 0.84 0.09 0
0.03 0)
##          956) 456< 140 58        3 5 (0 0 0 0.034 0 0.95 0 0 0.017
0) *
##          957) 456>=140 9         3 6 (0 0 0 0 0.11 0.11 0.67 0 0.11
0) *
##          479) 515>=12.5 96      59 8 (0 0 0.021 0.021 0 0.2 0.32
0.01 0.39 0.042)
##          958) 457>=103 34        9 6 (0 0 0 0 0 0.088 0.74 0 0.12
0.059) *
##          959) 457< 103 62      29 8 (0 0 0.032 0.032 0 0.26 0.097
0.016 0.53 0.032)
##          1918) 354< 0.5 29      16 5 (0 0 0.034 0.069 0 0.45
0.21 0.034 0.21 0)
##          3836) 186< 160 13      7 6 (0 0 0.077 0.15 0 0.077
0.46 0.077 0.15 0) *
##          3837) 186>=160 16      4 5 (0 0 0 0 0 0.75 0 0 0.25
0) *
##          1919) 354>=0.5 33      6 8 (0 0 0.03 0 0 0.091 0 0
0.82 0.061) *
##          15) 542< 1.5 6617      4849 4 (0.0023 0.011 0.041 0.05 0.27 0.11
0.021 0.22 0.038 0.24)
##          30) 432>=0.5 4489      2890 4 (0.0016 0.0018 0.045 0.058 0.36 0.13
0.022 0.029 0.048 0.31)
##          60) 211< 31.5 1830      519 4 (0 0.0033 0.061 0.024 0.72 0.067
0.037 0.024 0.031 0.037)

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##          120) 596>=1.5 221    133 2 (0 0 0.4 0.11 0.018 0.37 0.009 0
0.1 0)
##          240) 346< 3 109      25 2 (0 0 0.77 0.16 0 0.018 0 0 0.055
0)
##          480) 379< 151.5 87      5 2 (0 0 0.94 0.023 0 0.023 0 0
0.011 0) *
##          481) 379>=151.5 22      7 3 (0 0 0.091 0.68 0 0 0 0 0.23
0)
##          962) 484< 42.5 15        0 3 (0 0 0 1 0 0 0 0 0) *
##          963) 484>=42.5 7         2 8 (0 0 0.29 0 0 0 0 0 0.71 0) *
##          241) 346>=3 112      33 5 (0 0 0.036 0.062 0.036 0.71 0.018
0 0.14 0)
##          482) 355< 10 87        9 5 (0 0 0.023 0.057 0 0.9 0.011 0
0.011 0) *
##          483) 355>=10 25      10 8 (0 0 0.08 0.08 0.16 0.04 0.04 0
0.6 0)
##          966) 400>=192 7        3 4 (0 0 0.29 0.14 0.57 0 0 0 0 0)
*
##          967) 400< 192 18       3 8 (0 0 0 0.056 0 0.056 0.056 0
0.83 0) *
##          121) 596< 1.5 1609    302 4 (0 0.0037 0.014 0.012 0.81 0.026
0.041 0.027 0.021 0.042)
##          242) 267< 139 1469    186 4 (0 0.0041 0.011 0.011 0.87
0.014 0.045 0.0068 0.021 0.014)
##          484) 98< 3 1415      133 4 (0 0.0042 0.0099 0.011 0.91
0.015 0.011 0.0071 0.022 0.014)
##          968) 155< 120.5 1344   70 4 (0 0.0045 0.006 0.0067
0.95 0.0015 0.01 0.0074 0.0037 0.012)
##          1936) 295< 222 1325    52 4 (0 0.0045 0.0038 0.0053
0.96 0 0.011 0 0.0038 0.011)
##          3872) 95< 32 1313     42 4 (0 0.0046 0.0038 0.0053
0.97 0 0.003 0 0.0038 0.011) *
##          3873) 95>=32 12       2 6 (0 0 0 0 0.17 0 0.83 0 0 0)
*
##          1937) 295>=222 19     9 7 (0 0 0.16 0.11 0.053 0.11 0
0.53 0 0.053) *
##          969) 155>=120.5 71     45 8 (0 0 0.085 0.099 0.11 0.27
0.014 0 0.37 0.056)
##          1938) 516< 47 48      30 5 (0 0 0.1 0.15 0.17 0.38 0 0
0.12 0.083)
##          3876) 354< 4 24       7 5 (0 0 0.042 0.083 0.083 0.71
0 0 0.042 0.042) *
##          3877) 354>=4 24      18 4 (0 0 0.17 0.21 0.25 0.042 0
0 0.21 0.12)
##          7754) 461>=201.5 7     1 4 (0 0 0.14 0 0.86 0 0 0
0 0) *
##          7755) 461< 201.5 17    12 3 (0 0 0.18 0.29 0
0.059 0 0 0.29 0.18) *
##          1939) 516>=47 23      3 8 (0 0 0.043 0 0 0.043 0.043 0
0.87 0) *

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##          485) 98>=3 54      3 6 (0 0 0.037 0 0.019 0 0.94 0 0 0) *
##          243) 267>=139 140    93 9 (0 0 0.05 0.029 0.17 0.15 0 0.24
0.021 0.34)
##          486) 401>=2.5 93     54 9 (0 0 0.022 0.022 0.26 0.22 0
0.054 0.011 0.42)
##          972) 247>=1.5 21     5 5 (0 0 0 0 0.095 0.76 0 0 0.048
0.095) *
##          973) 247< 1.5 72     35 9 (0 0 0.028 0.028 0.31 0.056 0
0.069 0 0.51)
##          1946) 237< 23.5 32    11 4 (0 0 0.031 0.031 0.66
0.062 0 0 0 0.22)
##          3892) 323>=1 24      4 4 (0 0 0.042 0.042 0.83 0.042
0 0 0 0.042) *
##          3893) 323< 1 8       2 9 (0 0 0 0 0.12 0.12 0 0 0
0.75) *
##          1947) 237>=23.5 40    10 9 (0 0 0.025 0.025 0.025
0.05 0 0.12 0 0.75) *
##          487) 401< 2.5 47     18 7 (0 0 0.11 0.043 0 0.021 0 0.62
0.043 0.17)
##          974) 455< 81.5 36     7 7 (0 0 0.056 0.056 0 0 0 0.81
0.056 0.028) *
##          975) 455>=81.5 11     4 9 (0 0 0.27 0 0 0.091 0 0 0
0.64) *
##          61) 211>=31.5 2659 1347 9 (0.0026 0.00075 0.034 0.081 0.11
0.17 0.012 0.033 0.061 0.49)
##          122) 354< 2.5 808    363 5 (0.0037 0.0025 0.024 0.068 0.12
0.55 0.035 0.041 0.046 0.11)
##          244) 352< 55 581     136 5 (0.0052 0 0.024 0.064 0.01 0.77
0.045 0.0017 0.015 0.069)
##          488) 384< 17.5 521    79 5 (0 0 0.0019 0.067 0.0019 0.85
0.046 0.0019 0 0.033)
##          976) 516< 166.5 494   54 5 (0 0 0.002 0.071 0.002
0.89 0 0.002 0 0.032)
##          1952) 322>=187.5 24    8 3 (0 0 0 0.67 0 0.33 0 0 0
0)
##          3904) 265< 169.5 15    0 3 (0 0 0 1 0 0 0 0 0 0) *
##          3905) 265>=169.5 9     1 5 (0 0 0 0.11 0 0.89 0 0 0
0) *
##          1953) 322< 187.5 470   38 5 (0 0 0.0021 0.04 0.0021
0.92 0 0.0021 0 0.034)
##          3906) 123>=180.5 9     2 3 (0 0 0 0.78 0 0.22 0 0 0
0) *
##          3907) 123< 180.5 461   31 5 (0 0 0.0022 0.026
0.0022 0.93 0 0.0022 0 0.035)
##          7814) 718< 37 450     23 5 (0 0 0.0022 0.027
0.0022 0.95 0 0 0 0.02) *
##          7815) 718>=37 11      4 9 (0 0 0 0 0 0.27 0 0.091
0 0.64) *
##          977) 516>=166.5 27     3 6 (0 0 0 0 0 0.074 0.89 0 0
0.037) *

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##          489) 384>=17.5 60      37 9 (0.05 0 0.22 0.033 0.083 0.05
0.033 0 0.15 0.38)
##          978) 596>=14 25      12 2 (0.12 0 0.52 0.04 0 0 0.08 0
0.24 0)
##          1956) 685< 1.5 18      5 2 (0.17 0 0.72 0 0 0 0.11 0 0
0) *
##          1957) 685>=1.5 7      1 8 (0 0 0 0.14 0 0 0 0 0.86 0)
*
##          979) 596< 14 35      12 9 (0 0 0 0.029 0.14 0.086 0 0
0.086 0.66)
##          1958) 242< 14.5 11      6 4 (0 0 0 0 0.45 0.18 0 0
0.27 0.091) *
##          1959) 242>=14.5 24      2 9 (0 0 0 0.042 0 0.042 0 0 0
0.92) *
##          245) 352>=55 227      139 4 (0 0.0088 0.022 0.079 0.39 0
0.0088 0.14 0.12 0.23)
##          490) 209< 16.5 79      11 4 (0 0.013 0.013 0.013 0.86 0 0
0.051 0.013 0.038) *
##          491) 209>=16.5 148      99 9 (0 0.0068 0.027 0.11 0.14 0
0.014 0.19 0.18 0.33)
##          982) 544< 172.5 127      78 9 (0 0.0079 0.024 0.13 0.16
0 0.0079 0.22 0.071 0.39)
##          1964) 373< 9.5 60      34 7 (0 0.017 0.05 0.23 0.017 0
0.017 0.43 0.067 0.17)
##          3928) 377>=4 23      12 3 (0 0.043 0 0.48 0.043 0
0.043 0 0.087 0.3)
##          7856) 180>=95 11      1 3 (0 0 0 0.91 0 0 0 0
0.091 0) *
##          7857) 180< 95 12      5 9 (0 0.083 0 0.083 0.083 0
0.083 0 0.083 0.58) *
##          3929) 377< 4 37      11 7 (0 0 0.081 0.081 0 0 0 0.7
0.054 0.081) *
##          1965) 373>=9.5 67      28 9 (0 0 0 0.03 0.28 0 0 0.03
0.075 0.58)
##          3930) 454>=2 13      0 4 (0 0 0 0 1 0 0 0 0) *
##          3931) 454< 2 54      15 9 (0 0 0 0.037 0.11 0 0 0.037
0.093 0.72) *
##          983) 544>=172.5 21      3 8 (0 0 0.048 0.048 0 0 0.048
0 0.86 0) *
##          123) 354>=2.5 1851      631 9 (0.0022 0 0.038 0.086 0.1 0.01
0.0022 0.03 0.067 0.66)
##          246) 156>=0.5 406      304 4 (0.0074 0 0.13 0.24 0.25 0.03
0.0099 0.0025 0.19 0.14)
##          492) 624>=1 178      96 3 (0.011 0 0.25 0.46 0.0056 0.045
0.017 0 0.15 0.062)
##          984) 484< 46 99      23 3 (0.01 0 0.02 0.77 0.01 0.071 0
0 0.02 0.1)
##          1968) 373< 63 77      4 3 (0 0 0.013 0.95 0 0 0 0
0.013 0.026) *
##          1969) 373>=63 22      14 9 (0.045 0 0.045 0.14 0.045

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0.32 0 0 0.045 0.36)
##          3938) 188>=3.5 14      7 5 (0.071 0 0.071 0.21 0.071
0.5 0 0 0.071 0) *
##          3939) 188< 3.5 8      0 9 (0 0 0 0 0 0 0 0 1) *
##          985) 484>=46 79      37 2 (0.013 0 0.53 0.076 0 0.013
0.038 0 0.32 0.013)
##          1970) 465>=96.5 46      7 2 (0 0 0.85 0.087 0 0.022 0
0 0.022 0.022) *
##          1971) 465< 96.5 33      9 8 (0.03 0 0.091 0.061 0 0
0.091 0 0.73 0) *
##          493) 624< 1 228      127 4 (0.0044 0 0.039 0.07 0.44 0.018
0.0044 0.0044 0.22 0.2)
##          986) 428>=25 138      46 4 (0 0 0.036 0.051 0.67 0.014
0.0072 0 0.036 0.19)
##          1972) 207< 10 90      9 4 (0 0 0.033 0 0.9 0 0.011 0 0
0.056) *
##          1973) 207>=10 48      27 9 (0 0 0.042 0.15 0.23 0.042 0
0 0.1 0.44)
##          3946) 183< 239 10      2 4 (0 0 0.1 0.1 0.8 0 0 0 0
0) *
##          3947) 183>=239 38      17 9 (0 0 0.026 0.16 0.079
0.053 0 0 0.13 0.55)
##          7894) 372< 11.5 8      2 3 (0 0 0.12 0.75 0 0 0 0
0.12 0) *
##          7895) 372>=11.5 30      9 9 (0 0 0 0 0.1 0.067 0 0
0.13 0.7) *
##          987) 428< 25 90      45 8 (0.011 0 0.044 0.1 0.1 0.022 0
0.011 0.5 0.21)
##          1974) 544< 147 50      32 9 (0 0 0.06 0.18 0.18 0.04 0
0.02 0.16 0.36)
##          3948) 374< 58 14      6 3 (0 0 0.14 0.57 0.071 0 0
0.071 0.14 0) *
##          3949) 374>=58 36      18 9 (0 0 0.028 0.028 0.22
0.056 0 0 0.17 0.5)
##          7898) 407< 122 9      2 4 (0 0 0 0 0.78 0.11 0 0
0.11 0) *
##          7899) 407>=122 27      9 9 (0 0 0.037 0.037 0.037
0.037 0 0 0.19 0.67)
##          15798) 551>=139 8      3 8 (0 0 0 0.12 0 0.12 0 0
0.62 0.12) *
##          15799) 551< 139 19      2 9 (0 0 0.053 0 0.053 0
0 0 0 0.89) *
##          1975) 544>=147 40      3 8 (0.025 0 0.025 0 0 0 0 0
0.93 0.025) *
##          247) 156< 0.5 1445      281 9 (0.00069 0 0.012 0.043 0.064
0.0048 0 0.037 0.033 0.81)
##          494) 317< 1 293      150 9 (0.0034 0 0.058 0.18 0.078
0.0034 0 0.15 0.044 0.49)
##          988) 319< 108.5 176      122 9 (0.0057 0 0.097 0.29 0.045
0 0 0.22 0.034 0.31)

```

```

##          1976) 342< 10 119      69 3 (0.0084 0 0.13 0.42 0.05 0
0 0.33 0.017 0.042)
##          3952) 518< 96.5 66      23 3 (0 0 0.21 0.65 0.015 0 0
0.045 0.015 0.061)
##          7904) 512>=30 12        1 2 (0 0 0.92 0 0 0 0 0
0.083 0) *
##          7905) 512< 30 54        11 3 (0 0 0.056 0.8 0.019 0 0
0.056 0 0.074) *
##          3953) 518>=96.5 53      17 7 (0.019 0 0.038 0.13
0.094 0 0 0.68 0.019 0.019)
##          7906) 209< 29 9         4 4 (0.11 0 0.11 0 0.56 0 0 0
0.11 0.11) *
##          7907) 209>=29 44        8 7 (0 0 0.023 0.16 0 0 0
0.82 0 0)
##          15814) 437< 4 9         3 3 (0 0 0.11 0.67 0 0 0
0.22 0 0) *
##          15815) 437>=4 35        1 7 (0 0 0 0.029 0 0 0 0.97
0 0) *
##          1977) 342>=10 57        8 9 (0 0 0.018 0.018 0.035 0 0 0
0.07 0.86) *
##          989) 319>=108.5 117      28 9 (0 0 0 0.0085 0.13 0.0085
0 0.034 0.06 0.76)
##          1978) 428>=71.5 20      7 4 (0 0 0 0.05 0.65 0.05 0 0
0 0.25) *
##          1979) 428< 71.5 97      13 9 (0 0 0 0 0.021 0 0 0.041
0.072 0.87) *
##          495) 317>=1 1152      131 9 (0 0 0.00087 0.0087 0.06 0.0052
0 0.0095 0.03 0.89)
##          990) 212< 14 66        32 4 (0 0 0 0 0.52 0 0 0.015 0.03
0.44)
##          1980) 319>=195 31        1 4 (0 0 0 0 0.97 0 0 0 0.032
0) *
##          1981) 319< 195 35        6 9 (0 0 0 0 0.11 0 0 0.029
0.029 0.83) *
##          991) 212>=14 1086      94 9 (0 0 0.00092 0.0092 0.032
0.0055 0 0.0092 0.029 0.91)
##          1982) 204>=10.5 72      31 9 (0 0 0 0.056 0.069 0.028 0
0.042 0.24 0.57)
##          3964) 438< 130.5 24      8 8 (0 0 0 0.083 0.12 0 0
0.042 0.67 0.083) *
##          3965) 438>=130.5 48      9 9 (0 0 0 0.042 0.042
0.042 0 0.042 0.021 0.81) *
##          1983) 204< 10.5 1014    63 9 (0 0 0.00099 0.0059 0.03
0.0039 0 0.0069 0.015 0.94) *
##          31) 432< 0.5 2128      796 7 (0.0038 0.031 0.034 0.032 0.079 0.056
0.017 0.63 0.017 0.1)
##          62) 487< 75.5 1766      457 7 (0.004 0.037 0.03 0.039 0.019
0.067 0.012 0.74 0.018 0.034)
##          124) 377>=6.5 313      197 5 (0.0032 0.038 0.026 0.18 0.096
0.37 0.0064 0.026 0.096 0.16)

```



```

##          248) 353< 1 175      60 5 (0.0057 0.04 0.023 0.23 0.017 0.66
0.011 0 0.0057 0.011)
##          496) 323>=1.5 40      16 3 (0.025 0.15 0 0.6 0.075 0.1
0.025 0 0 0.025)
##          992) 490< 1 26        2 3 (0 0 0 0.92 0.038 0.038 0 0 0
0) *
##          993) 490>=1 14        8 1 (0.071 0.43 0 0 0.14 0.21 0.071
0 0 0.071) *
##          497) 323< 1.5 135     24 5 (0 0.0074 0.03 0.12 0 0.82
0.0074 0 0.0074 0.0074)
##          994) 150>=65 25       13 3 (0 0.04 0.08 0.48 0 0.36 0 0
0.04 0)
##          1988) 233< 6 16       4 3 (0 0.062 0.12 0.75 0 0 0 0
0.062 0) *
##          1989) 233>=6 9        0 5 (0 0 0 0 0 1 0 0 0 0) *
##          995) 150< 65 110      8 5 (0 0 0.018 0.036 0 0.93
0.0091 0 0 0.0091) *
##          249) 353>=1 138      91 9 (0 0.036 0.029 0.12 0.2 0.0072 0
0.058 0.21 0.34)
##          498) 434>=208.5 46    20 8 (0 0.11 0.043 0.2 0 0 0 0.065
0.57 0.022)
##          996) 348< 11.5 18     9 3 (0 0.28 0 0.5 0 0 0 0.17 0
0.056) *
##          997) 348>=11.5 28     2 8 (0 0 0.071 0 0 0 0 0.93 0)
*
##          499) 434< 208.5 92    46 9 (0 0 0.022 0.087 0.29 0.011 0
0.054 0.033 0.5)
##          998) 210< 49 32       10 4 (0 0 0.031 0.062 0.69 0.031 0
0.094 0 0.094) *
##          999) 210>=49 60       17 9 (0 0 0.017 0.1 0.083 0 0 0.033
0.05 0.72)
##          1998) 623>=10 7       1 3 (0 0 0 0.86 0 0 0 0 0.14) *
##          1999) 623< 10 53     11 9 (0 0 0.019 0 0.094 0 0 0.038
0.057 0.79) *
##          125) 377< 6.5 1453    152 7 (0.0041 0.036 0.031 0.0076 0.0028
0.0014 0.013 0.9 0.00069 0.0076)
##          250) 156>=0.5 93      52 1 (0.043 0.44 0.26 0.054 0 0.022
0.13 0.054 0 0)
##          500) 179< 7 54        16 1 (0.037 0.7 0 0.019 0 0.037 0.2 0
0 0)
##          1000) 568< 14 39      1 1 (0 0.97 0 0 0 0.026 0 0 0 0) *
##          1001) 568>=14 15      4 6 (0.13 0 0 0.067 0 0.067 0.73 0
0 0) *
##          501) 179>=7 39        15 2 (0.051 0.077 0.62 0.1 0 0 0.026
0.13 0 0) *
##          251) 156< 0.5 1360    64 7 (0.0015 0.0088 0.015 0.0044
0.0029 0 0.0051 0.95 0.00074 0.0081)
##          502) 153>=57 23       13 2 (0 0.13 0.43 0.087 0.043 0 0.22
0.043 0.043 0)
##          1004) 176>=25.5 12     2 2 (0 0 0.83 0.17 0 0 0 0 0 0)

```

```

*
##          1005) 176< 25.5 11      6 6 (0 0.27 0 0 0.091 0 0.45
0.091 0.091 0) *
##          503) 153< 57 1337      42 7 (0.0015 0.0067 0.0082 0.003
0.0022 0 0.0015 0.97 0 0.0082)
##          1006) 158>=54 10      2 1 (0.2 0.8 0 0 0 0 0 0 0) *
##          1007) 158< 54 1327      32 7 (0 0.00075 0.0083 0.003
0.0023 0 0.0015 0.98 0 0.0083) *
##          63) 487>=75.5 362      202 9 (0.0028 0.0028 0.052 0.0028 0.37
0.0028 0.044 0.064 0.014 0.44)
##          126) 211< 5.5 144      38 4 (0.0069 0.0069 0.076 0 0.74 0.0069
0.1 0.0069 0.0069 0.049)
##          252) 95< 6.5 132      26 4 (0.0076 0.0076 0.061 0 0.8 0.0076
0.045 0.0076 0.0076 0.053) *
##          253) 95>=6.5 12      3 6 (0 0 0.25 0 0 0 0.75 0 0 0) *
##          127) 211>=5.5 218      65 9 (0 0 0.037 0.0046 0.13 0 0.0046
0.1 0.018 0.7)
##          254) 518>=241.5 50      34 7 (0 0 0.08 0 0.24 0 0 0.32 0.06
0.3)
##          508) 429< 48.5 24      8 7 (0 0 0.17 0 0.083 0 0 0.67 0
0.083) *
##          509) 429>=48.5 26      13 9 (0 0 0 0 0.38 0 0 0 0.12 0.5)
##          1018) 382< 178.5 12      3 4 (0 0 0 0 0.75 0 0 0 0.17
0.083) *
##          1019) 382>=178.5 14      2 9 (0 0 0 0 0.071 0 0 0 0.071
0.86) *
##          255) 518< 241.5 168      30 9 (0 0 0.024 0.006 0.1 0 0.006
0.036 0.006 0.82)
##          510) 235< 0.5 25      11 4 (0 0 0.04 0 0.56 0 0 0.04 0
0.36)
##          1020) 434< 94 17      3 4 (0 0 0.059 0 0.82 0 0 0.059 0
0.059) *
##          1021) 434>=94 8      0 9 (0 0 0 0 0 0 0 0 0 1) *
##          511) 235>=0.5 143      14 9 (0 0 0.021 0.007 0.021 0 0.007
0.035 0.007 0.9) *

```

#K-Fold Validation

```

N <- nrow(DigitTotalDF)
kfolds <- 3
holdout <- split(sample(1:N), 1:kfolds)

AllResults<-list()
AllLabels<-list()
for (k in 1:kfolds){
  kFold_Test <- DigitTotalDF[holdout[[k]], ]
  kFold_Train<-DigitTotalDF[-holdout[[k]], ]

  tree_model<-rpart(label ~., data = kFold_Train, method="class",
control=rpart.control(cp=0))
  pruned_tree<- prune(tree_model,

```

```

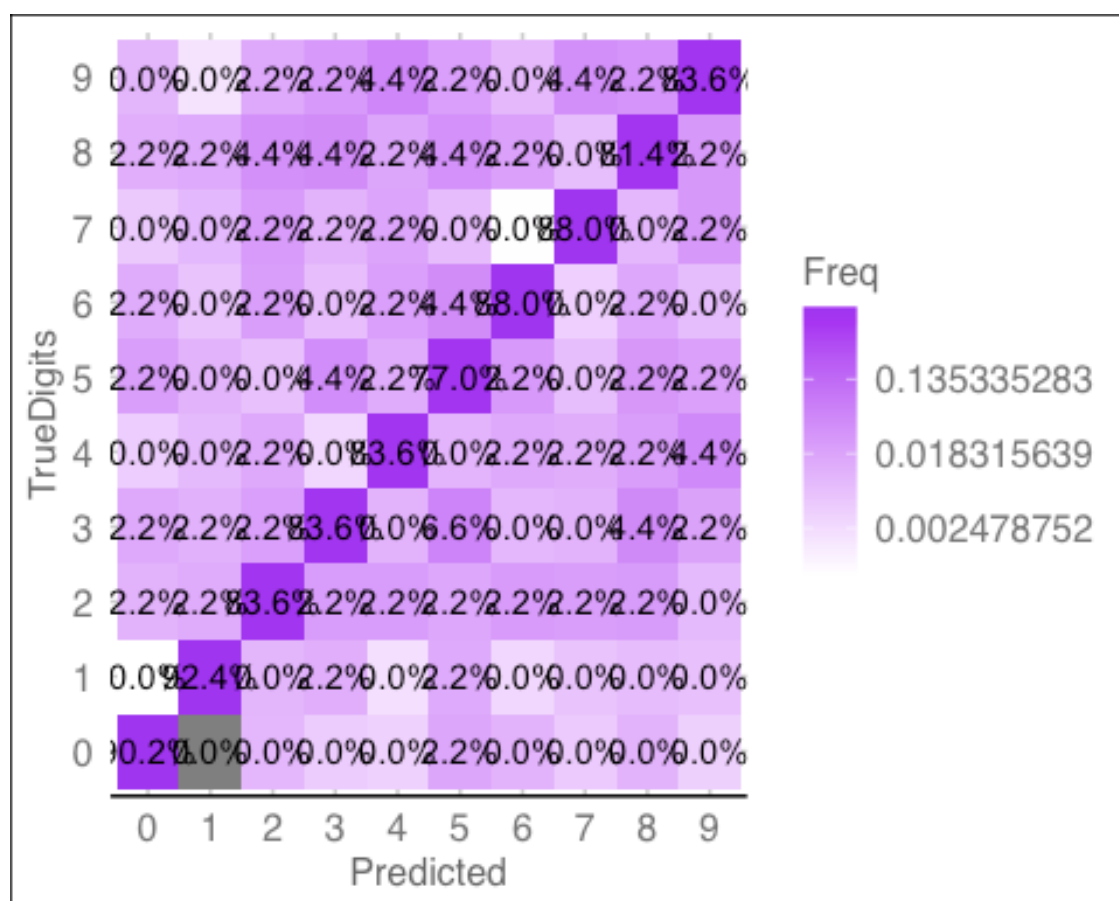
cp=tree_model$cptable[which.min(tree_model$cptable[, "xerror"]), "CP"]

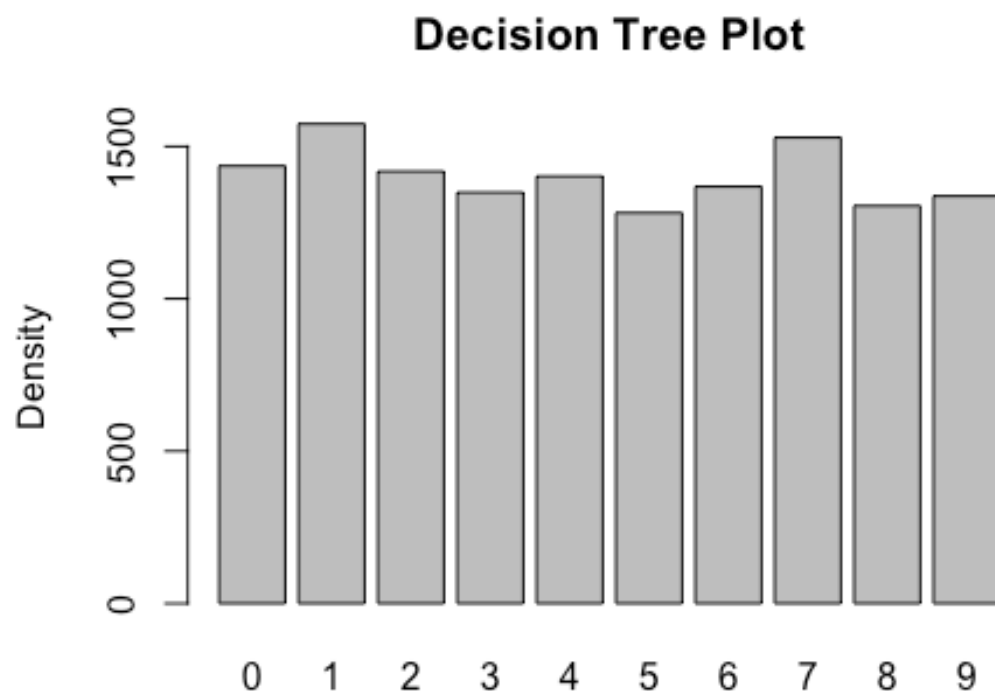
predicted <- predict(purned_tree, kFold_Test, type="class")
(plotConfusionMatrix(predicted, kFold_Test$label))
# Accumulate results from each fold, if you like
AllResults<- c(AllResults, predicted)
AllLabels<- c(AllLabels, kFold_Test$label)
##Visualize
plot(predicted, ylab = "Density", main = "Decision Tree Plot")
}

##           TrueDigits
## Predicted    0     1     2     3     4     5     6     7     8     9
##           0 1300     1    16    22     6    32    20     7    18    14
##           1   0 1455     2    18    13    17     9    14    23     3
##           2  13  14 1188     3    22     9    32    35    52    22
##           3   6  17  33 1117     4    55    10    15    57    35
##           4   5   3  33  15 1176    19    30    25    24    72
##           5  22  19  21  72  13  998    54    10    45    28
##           6  15   4  34  13  21  36 1203     1    29    12
##           7   7   9  34  16  20  11   6 1356    11    59
##           8  14  10  33  59  29  37  21  12 1048    42
##           9   5   9  11  26  63  28  10  36  36 1113
##           Accuracy           Kappa AccuracyLower AccuracyUpper AccuracyNull
##           0.8538571429    0.8375605280    0.8478964549    0.8596703546    0.1100714286
## AccuracyPValue McNemarPValue
##           0.0000000000    0.0005455309

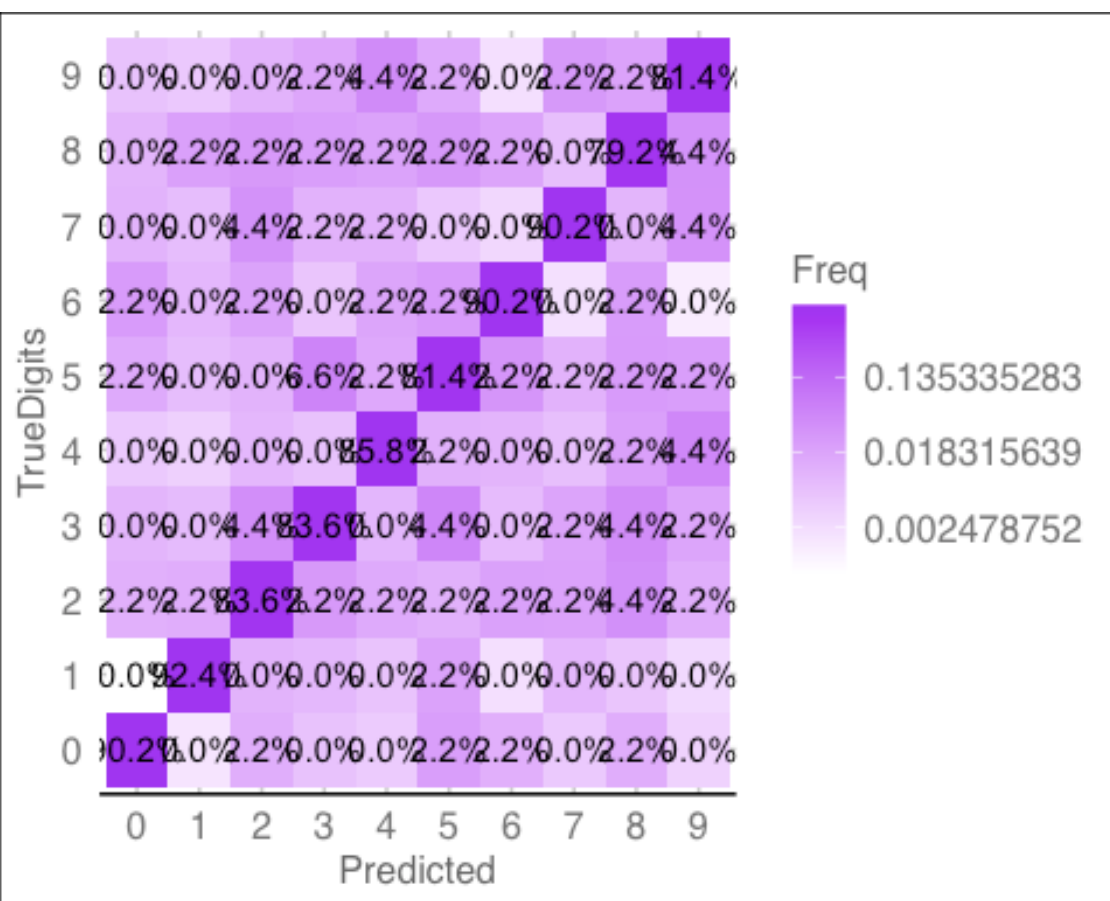
## Warning: Transformation introduced infinite values in discrete y-axis

```

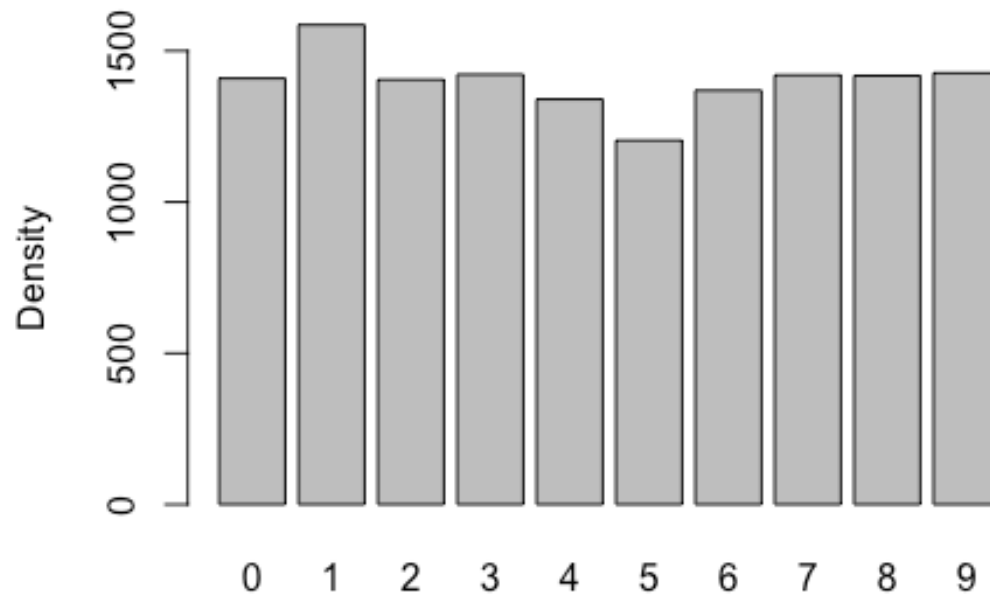




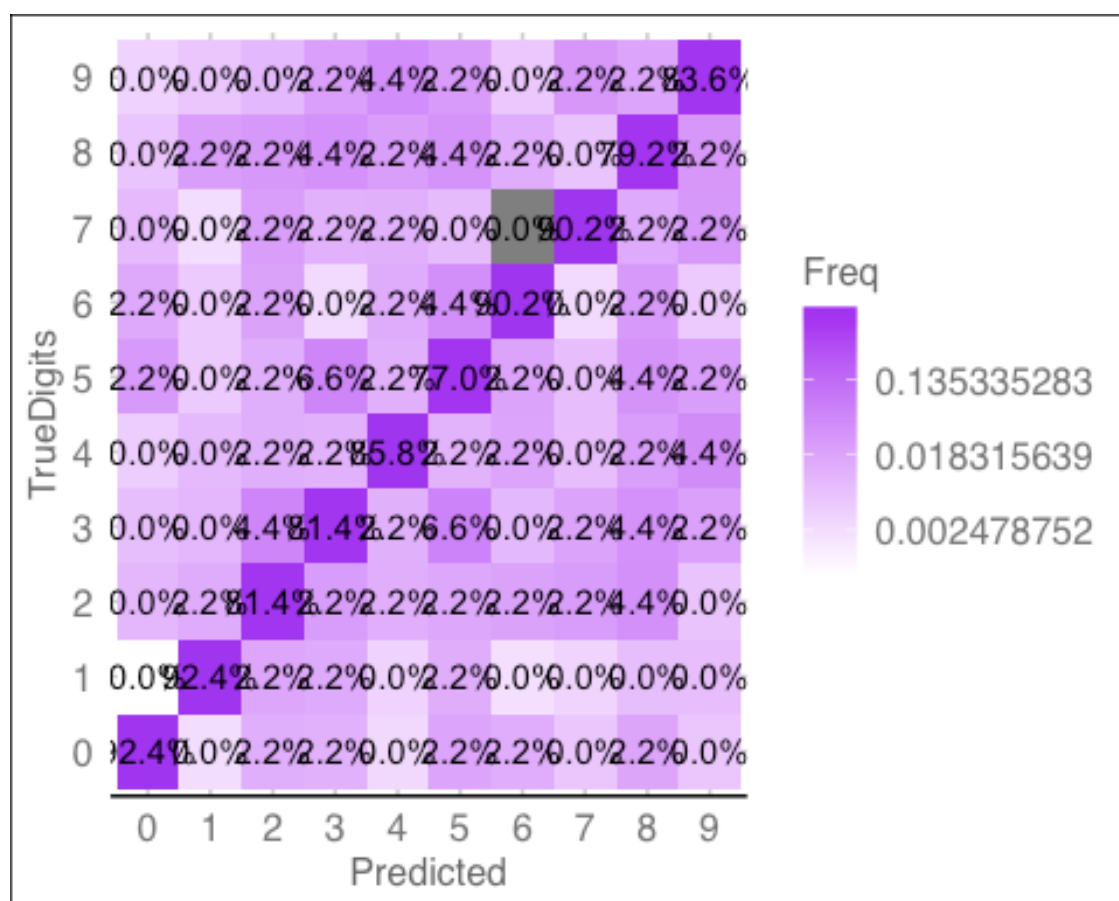
##	TrueDigits										
##	Predicted	0	1	2	3	4	5	6	7	8	9
##	0	1276	1	17	14	7	21	35	15	14	9
##	1	3	1462	21	13	6	12	15	12	34	8
##	2	18	15	1160	55	13	15	27	49	38	15
##	3	9	13	39	1191	9	81	8	16	32	24
##	4	6	8	20	13	1149	21	24	15	25	59
##	5	27	24	14	64	14	973	30	6	34	18
##	6	17	3	28	11	14	43	1221	4	25	3
##	7	7	13	28	26	10	16	3	1268	10	39
##	8	19	8	53	61	30	36	35	14	1134	28
##	9	5	4	18	25	71	32	2	49	50	1171
##	Accuracy		Kappa			AccuracyLower		AccuracyUpper		AccuracyNull	
##	8.575000e-01		8.416094e-01			8.515996e-01		8.632514e-01		1.107857e-01	
##	AccuracyPValue		McnemarPValue								
##	0.000000e+00		5.319509e-06								



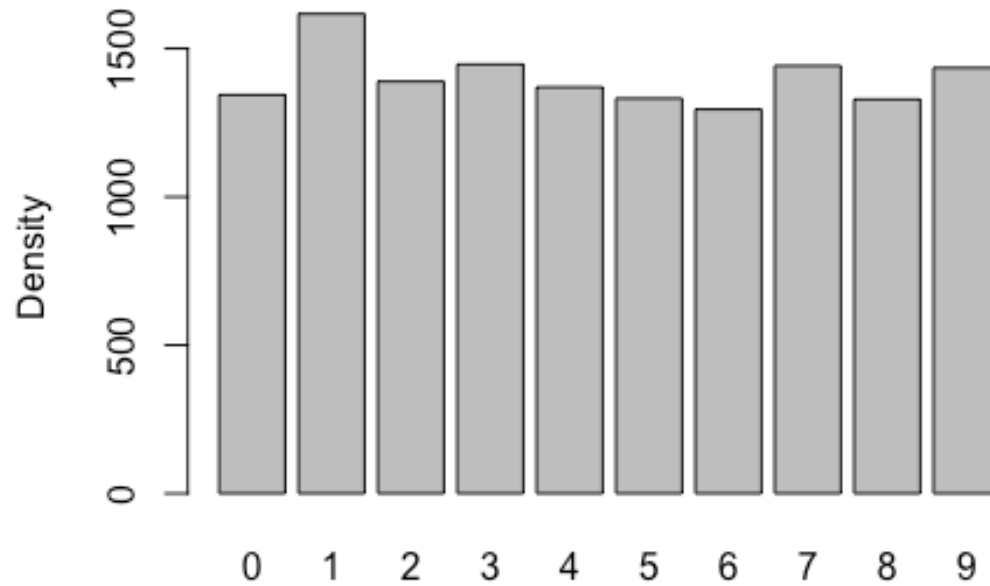
Decision Tree Plot



```
##           TrueDigits
## Predicted   0     1     2     3     4     5     6     7     8     9
##           0 1232     1    13    10     6    36    21    12     8     5
##           1   4 1493     23    16    14     8     8     4    38     9
##           2  18  24 1123     76    18    18    28    32    39    13
##           3  17  22  35 1169    17    81     4    17    52    33
##           4   4   5  18  17 1182    17    20    17    33    57
##           5  25  18  22  82  15 1028    52    11    45    34
##           6  18   3  26  12  24  25 1162     0    18     7
##           7   8   5  35  28  11  11   4 1288     9    43
##           8  24  10  50  48  32  45  36   20 1039    25
##           9   8  11   9  31  63  34   7   41  43 1188
##           Accuracy          Kappa AccuracyLower AccuracyUpper AccuracyNull
##      8.502857e-01  8.335852e-01  8.442671e-01  8.561583e-01  1.137143e-01
## AccuracyPValue McNemarPValue
##      0.000000e+00  4.926062e-06
## Warning: Transformation introduced infinite values in discrete y-axis
```



Decision Tree Plot



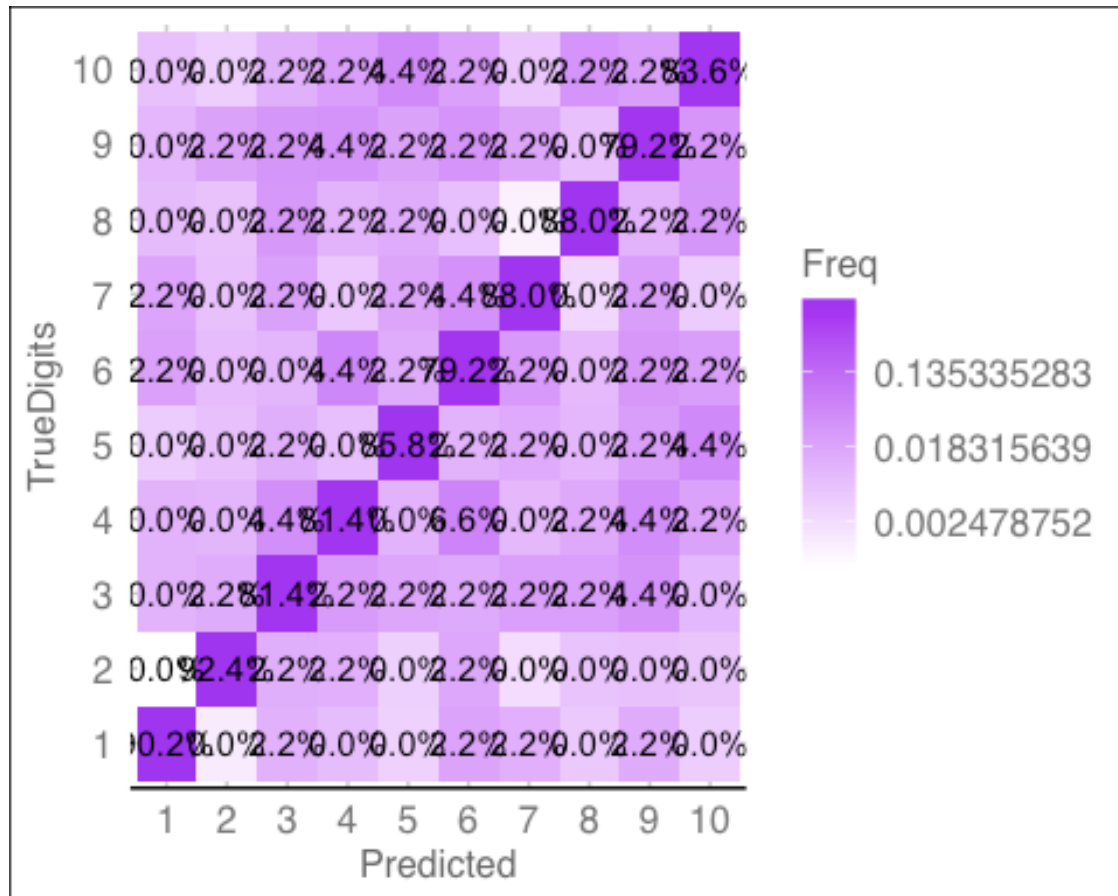
```
table<-(table(Predicted=unlist(AllResults),TrueDigit=unlist(AllLabels)))
print(table)
```

```
##           TrueDigit
## Predicted  1    2    3    4    5    6    7    8    9   10
##           1 3808    3   46   46   19   89   76   34   40   28
##           2    7 4410   66   47   33   37   32   30   95   20
##           3   49   53 3471  162   53   42   87  116  129   50
##           4   32   52 107 3477   30  217   22   48  141   92
##           5   15   16   71   45 3507   57   74   57   82  188
##           6   74   61   57  218   42 2999  136   27  124   80
##           7   50   10   88   36   59  104 3586    5   72   22
##           8   22   27   97   70   41   38   13 3912   30  141
##           9   57   28  136  168   91  118   92   46 3221   95
##          10   18   24   38   82  197   94   19  126  129 3472
```

```
plotConfusionMatrix(unlist(AllResults),unlist(AllLabels))
```

```
##           TrueDigits
## Predicted  1    2    3    4    5    6    7    8    9   10
##           1 3808    3   46   46   19   89   76   34   40   28
##           2    7 4410   66   47   33   37   32   30   95   20
##           3   49   53 3471  162   53   42   87  116  129   50
##           4   32   52 107 3477   30  217   22   48  141   92
```

```
##      5      15      16      71      45 3507      57      74      57      82     188
##      6      74      61      57     218     42 2999     136      27     124      80
##      7      50      10      88      36     59    104 3586         5      72      22
##      8      22      27      97      70     41     38     13 3912      30     141
##      9      57      28     136     168     91    118     92     46 3221      95
##     10      18      24      38      82    197     94     19    126    129 3472
##      Accuracy              Kappa  AccuracyLower  AccuracyUpper  AccuracyNull
## 8.538810e-01 8.375925e-01 8.504665e-01 8.572464e-01 1.115238e-01
## AccuracyPValue  McNemarPValue
## 0.000000e+00 2.330412e-12
```



```
## Confusion Matrix and Statistics
##
##      TrueDigits
## Predicted  1      2      3      4      5      6      7      8      9     10
##      1 3808      3     46     46     19     89     76     34     40     28
##      2      7 4410      66     47     33     37     32     30     95     20
##      3     49     53 3471     162     53     42     87    116    129     50
##      4     32     52    107 3477      30    217     22     48    141     92
##      5     15     16     71     45 3507      57     74     57     82    188
##      6     74     61     57     218     42 2999     136      27     124     80
##      7     50     10     88     36     59    104 3586         5      72     22
##      8     22     27     97     70     41     38     13 3912      30     141
```

```

##          9    57    28   136   168    91   118    92    46  3221    95
##          10   18    24    38    82   197    94    19   126   129  3472
##
## Overall Statistics
##
##                Accuracy : 0.8539
##                95% CI : (0.8505, 0.8572)
##      No Information Rate : 0.1115
##      P-Value [Acc > NIR] : < 2.2e-16
##
##                Kappa : 0.8376
##
##  McNemar's Test P-Value : 2.33e-12
##
## Statistics by Class:
##
##                Class: 1 Class: 2 Class: 3 Class: 4 Class: 5 Class: 6
## Sensitivity      0.92159   0.9415   0.83098   0.79913   0.86125   0.79025
## Specificity      0.98994   0.9902   0.98041   0.98032   0.98405   0.97856
## Pos Pred Value   0.90905   0.9232   0.82407   0.82432   0.85287   0.78549
## Neg Pred Value   0.99143   0.9926   0.98132   0.97687   0.98509   0.97915
## Prevalence       0.09838   0.1115   0.09945   0.10360   0.09695   0.09036
## Detection Rate   0.09067   0.1050   0.08264   0.08279   0.08350   0.07140
## Detection Prevalence 0.09974   0.1137   0.10029   0.10043   0.09790   0.09090
## Balanced Accuracy 0.95576   0.9658   0.90569   0.88972   0.92265   0.88441
##
##                Class: 7 Class: 8 Class: 9 Class: 10
## Sensitivity      0.86681   0.88889   0.79276   0.82904
## Specificity      0.98822   0.98726   0.97810   0.98077
## Pos Pred Value   0.88938   0.89091   0.79492   0.82686
## Neg Pred Value   0.98549   0.98700   0.97781   0.98106
## Prevalence       0.09850   0.10479   0.09674   0.09971
## Detection Rate   0.08538   0.09314   0.07669   0.08267
## Detection Prevalence 0.09600   0.10455   0.09648   0.09998
## Balanced Accuracy 0.92752   0.93807   0.88543   0.90490
##
##NB

getTopPCAFeatures<- function(df,ncp){
  pca_digits = PCA(t(select(df,-label)),ncp = ncp,graph=FALSE)
  summary(pca_digits)
  #plot(pca_digits, select="contrib 1",choix = "var")
  #res <- Factoshiny(pca_digits)

  #select the pca variables only
  pca_df<-data.frame(df$label,pca_digits$var$coord)
  names(pca_df)[1]<-"label"
  return(pca_df)
}

runNB<-function(pca_df){

```

```

trainIndex <- createDataPartition(pca_df$label, p = .6, list = FALSE,
                                  times = 1)
#head(trainIndex)
trainDF <- pca_df[ trainIndex,]
testDF  <- pca_df[-trainIndex,]
model_nb = naivebayes::naive_bayes(label ~., data = trainDF)
summary(model_nb)
predicted_nb= predict(model_nb, testDF, type="class")
plotConfusionMatrix(predicted_nb,testDF$label)
return(model_nb)
}

model_nb_full<-runNB(DigitTotalDF)

##
## ===== Naive Bayes
## =====
##
## - Call: naive_bayes.formula(formula = label ~ ., data = trainDF)
## - Laplace: 0
## - Classes: 10
## - Samples: 25205
## - Features: 784
## - Conditional distributions:
##   - Gaussian: 784
## - Prior probabilities:
##   - 0: 0.0984
##   - 1: 0.1115
##   - 2: 0.0995
##   - 3: 0.1036
##   - 4: 0.097
##   - 5: 0.0903
##   - 6: 0.0985
##   - 7: 0.1048
##   - 8: 0.0967
##   - 9: 0.0997
##
## -----
## -----

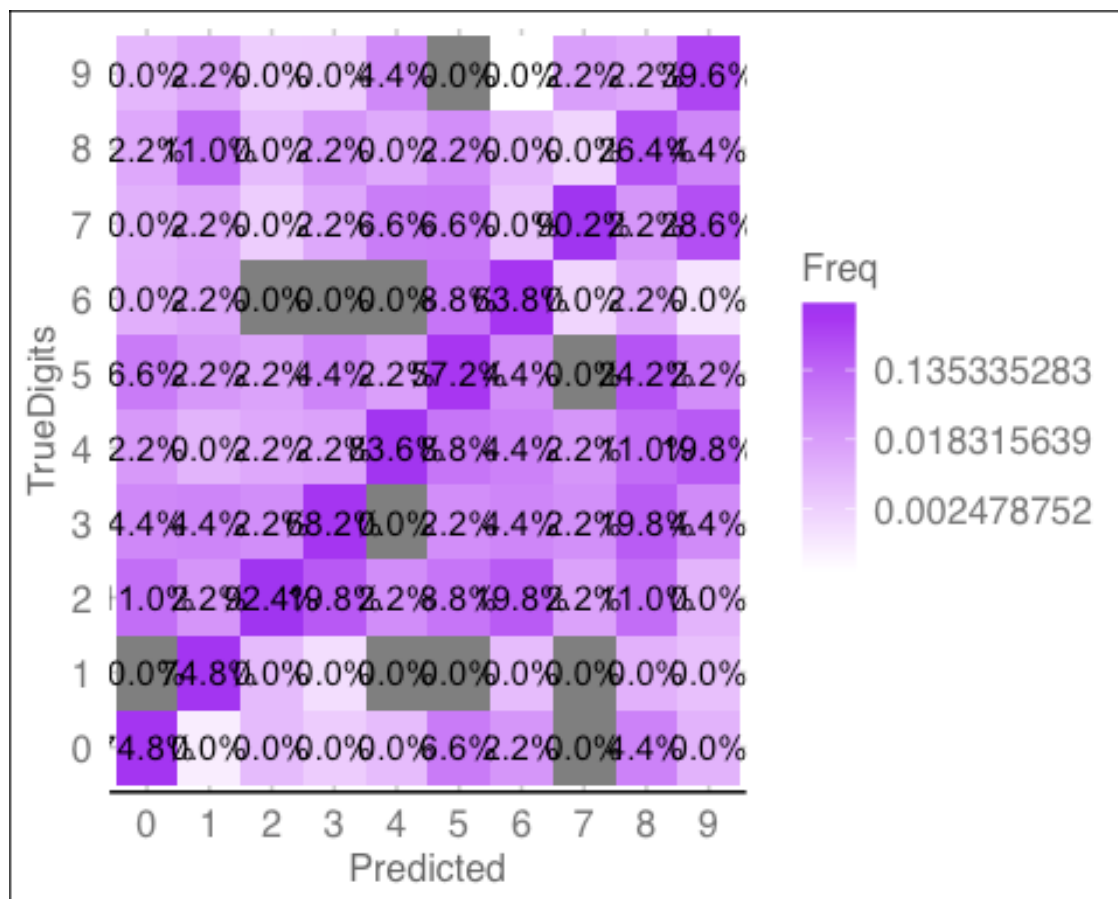
## Warning: predict.naive_bayes(): more features in the newdata are provided
as
## there are probability tables in the object. Calculation is performed based
on
## features to be found in the tables.

##
##      TrueDigits
## Predicted   0    1    2    3    4    5    6    7    8    9
##          0 1343    0  185   72   38  113   16   15   21   12
##          1    2 1802   58  106   18   51   31   30  258   32

```

```
##      2      2      2  319    11      4      5      0      1      2      1
##      3      2      1  140   468    10     31      0      8     16      2
##      4      1      0    6      0   155      3      0     11      2      7
##      5      4      0    5      2    5      37      5      4      2      0
##      6     56     13   464   101   120     82   1546     10     16      1
##      7      0      0    7     14    11      0      1   436      1      8
##      8    211     36   456   823   454   1070     50   102  1141     51
##      9     31     19    30    143   813    126      5  1143   166  1561
##      Accuracy      Kappa  AccuracyLower  AccuracyUpper  AccuracyNull
##      0.5244418      0.4712908      0.5168555      0.5320196      0.1115213
## AccuracyPValue  McNemarPValue
##      0.0000000      0.0000000
```

```
## Warning: Transformation introduced infinite values in discrete y-axis
```



```
pca_10<-getTopPCAFeatures(DigitTotalDF,10)
```

```
##
## Call:
## PCA(X = t(select(df, -label)), ncp = ncp, graph = FALSE)
##
##
## Eigenvalues
##      Dim.1      Dim.2      Dim.3      Dim.4      Dim.5
```

## Variance	12975.886	2635.187	2146.048	1747.535	1465.951
## % of var.	30.895	6.274	5.110	4.161	3.490
## Cumulative % of var.	30.895	37.169	42.279	46.440	49.930
##	Dim.6	Dim.7	Dim.8	Dim.9	Dim.10
## Variance	1358.547	1135.701	884.896	855.251	734.998
## % of var.	3.235	2.704	2.107	2.036	1.750
## Cumulative % of var.	53.165	55.869	57.976	60.012	61.762
##	Dim.11	Dim.12	Dim.13	Dim.14	Dim.15
## Variance	664.973	634.157	551.036	515.912	483.259
## % of var.	1.583	1.510	1.312	1.228	1.151
## Cumulative % of var.	63.345	64.855	66.167	67.395	68.546
##	Dim.16	Dim.17	Dim.18	Dim.19	Dim.20
## Variance	451.099	420.945	388.013	361.053	349.113
## % of var.	1.074	1.002	0.924	0.860	0.831
## Cumulative % of var.	69.620	70.622	71.546	72.406	73.237
##	Dim.21	Dim.22	Dim.23	Dim.24	Dim.25
## Variance	329.622	310.712	298.708	281.495	275.884
## % of var.	0.785	0.740	0.711	0.670	0.657
## Cumulative % of var.	74.022	74.762	75.473	76.143	76.800
##	Dim.26	Dim.27	Dim.28	Dim.29	Dim.30
## Variance	268.984	252.330	236.925	226.065	219.194
## % of var.	0.640	0.601	0.564	0.538	0.522
## Cumulative % of var.	77.440	78.041	78.605	79.144	79.665
##	Dim.31	Dim.32	Dim.33	Dim.34	Dim.35
## Variance	203.959	202.286	185.225	181.697	173.988
## % of var.	0.486	0.482	0.441	0.433	0.414
## Cumulative % of var.	80.151	80.633	81.074	81.506	81.921
##	Dim.36	Dim.37	Dim.38	Dim.39	Dim.40
## Variance	172.056	160.255	156.645	149.836	146.561
## % of var.	0.410	0.382	0.373	0.357	0.349
## Cumulative % of var.	82.330	82.712	83.085	83.441	83.790
##	Dim.41	Dim.42	Dim.43	Dim.44	Dim.45
## Variance	140.441	137.162	131.753	125.734	123.529
## % of var.	0.334	0.327	0.314	0.299	0.294
## Cumulative % of var.	84.125	84.451	84.765	85.064	85.359
##	Dim.46	Dim.47	Dim.48	Dim.49	Dim.50
## Variance	122.862	115.733	109.800	108.063	100.205
## % of var.	0.293	0.276	0.261	0.257	0.239
## Cumulative % of var.	85.651	85.927	86.188	86.445	86.684
##	Dim.51	Dim.52	Dim.53	Dim.54	Dim.55
## Variance	99.257	98.063	93.201	92.249	89.483
## % of var.	0.236	0.233	0.222	0.220	0.213
## Cumulative % of var.	86.920	87.154	87.376	87.595	87.808
##	Dim.56	Dim.57	Dim.58	Dim.59	Dim.60
## Variance	87.033	85.270	83.513	81.175	78.975
## % of var.	0.207	0.203	0.199	0.193	0.188
## Cumulative % of var.	88.016	88.219	88.417	88.611	88.799
##	Dim.61	Dim.62	Dim.63	Dim.64	Dim.65
## Variance	76.732	76.033	73.240	71.087	69.891
## % of var.	0.183	0.181	0.174	0.169	0.166

## Cumulative % of var.	88.981	89.163	89.337	89.506	89.673
##	Dim.66	Dim.67	Dim.68	Dim.69	Dim.70
## Variance	67.076	65.846	63.704	62.539	61.504
## % of var.	0.160	0.157	0.152	0.149	0.146
## Cumulative % of var.	89.832	89.989	90.141	90.290	90.436
##	Dim.71	Dim.72	Dim.73	Dim.74	Dim.75
## Variance	58.632	58.470	56.065	55.675	53.772
## % of var.	0.140	0.139	0.133	0.133	0.128
## Cumulative % of var.	90.576	90.715	90.848	90.981	91.109
##	Dim.76	Dim.77	Dim.78	Dim.79	Dim.80
## Variance	52.344	50.752	50.151	47.664	47.097
## % of var.	0.125	0.121	0.119	0.113	0.112
## Cumulative % of var.	91.234	91.354	91.474	91.587	91.699
##	Dim.81	Dim.82	Dim.83	Dim.84	Dim.85
## Variance	45.959	45.670	45.134	43.399	43.159
## % of var.	0.109	0.109	0.107	0.103	0.103
## Cumulative % of var.	91.809	91.918	92.025	92.128	92.231
##	Dim.86	Dim.87	Dim.88	Dim.89	Dim.90
## Variance	42.732	41.986	40.222	39.688	38.618
## % of var.	0.102	0.100	0.096	0.094	0.092
## Cumulative % of var.	92.333	92.433	92.529	92.623	92.715
##	Dim.91	Dim.92	Dim.93	Dim.94	Dim.95
## Variance	37.900	37.111	36.558	35.693	35.451
## % of var.	0.090	0.088	0.087	0.085	0.084
## Cumulative % of var.	92.805	92.894	92.981	93.066	93.150
##	Dim.96	Dim.97	Dim.98	Dim.99	Dim.100
## Variance	35.000	33.741	33.657	33.108	32.255
## % of var.	0.083	0.080	0.080	0.079	0.077
## Cumulative % of var.	93.233	93.314	93.394	93.473	93.550
##	Dim.101	Dim.102	Dim.103	Dim.104	Dim.105
## Variance	31.708	30.818	30.512	29.322	28.925
## % of var.	0.075	0.073	0.073	0.070	0.069
## Cumulative % of var.	93.625	93.698	93.771	93.841	93.910
##	Dim.106	Dim.107	Dim.108	Dim.109	Dim.110
## Variance	28.795	27.708	27.390	27.292	26.586
## % of var.	0.069	0.066	0.065	0.065	0.063
## Cumulative % of var.	93.978	94.044	94.109	94.174	94.238
##	Dim.111	Dim.112	Dim.113	Dim.114	Dim.115
## Variance	26.039	25.709	25.584	25.304	25.182
## % of var.	0.062	0.061	0.061	0.060	0.060
## Cumulative % of var.	94.300	94.361	94.422	94.482	94.542
##	Dim.116	Dim.117	Dim.118	Dim.119	Dim.120
## Variance	24.206	23.951	23.818	23.054	22.815
## % of var.	0.058	0.057	0.057	0.055	0.054
## Cumulative % of var.	94.600	94.657	94.713	94.768	94.823
##	Dim.121	Dim.122	Dim.123	Dim.124	Dim.125
## Variance	22.628	22.352	22.224	21.862	21.222
## % of var.	0.054	0.053	0.053	0.052	0.051
## Cumulative % of var.	94.877	94.930	94.983	95.035	95.085
##	Dim.126	Dim.127	Dim.128	Dim.129	Dim.130

## Variance	21.059	20.634	20.467	20.033	19.894
## % of var.	0.050	0.049	0.049	0.048	0.047
## Cumulative % of var.	95.135	95.185	95.233	95.281	95.328
##	Dim.131	Dim.132	Dim.133	Dim.134	Dim.135
## Variance	19.503	19.289	19.223	18.915	18.460
## % of var.	0.046	0.046	0.046	0.045	0.044
## Cumulative % of var.	95.375	95.421	95.466	95.511	95.555
##	Dim.136	Dim.137	Dim.138	Dim.139	Dim.140
## Variance	18.290	18.250	18.088	17.507	17.219
## % of var.	0.044	0.043	0.043	0.042	0.041
## Cumulative % of var.	95.599	95.642	95.686	95.727	95.768
##	Dim.141	Dim.142	Dim.143	Dim.144	Dim.145
## Variance	16.825	16.398	16.186	16.169	15.900
## % of var.	0.040	0.039	0.039	0.038	0.038
## Cumulative % of var.	95.808	95.847	95.886	95.924	95.962
##	Dim.146	Dim.147	Dim.148	Dim.149	Dim.150
## Variance	15.761	15.658	15.577	15.477	15.321
## % of var.	0.038	0.037	0.037	0.037	0.036
## Cumulative % of var.	96.000	96.037	96.074	96.111	96.147
##	Dim.151	Dim.152	Dim.153	Dim.154	Dim.155
## Variance	15.094	14.926	14.829	14.612	14.562
## % of var.	0.036	0.036	0.035	0.035	0.035
## Cumulative % of var.	96.183	96.219	96.254	96.289	96.324
##	Dim.156	Dim.157	Dim.158	Dim.159	Dim.160
## Variance	14.468	14.192	13.834	13.675	13.475
## % of var.	0.034	0.034	0.033	0.033	0.032
## Cumulative % of var.	96.358	96.392	96.425	96.457	96.489
##	Dim.161	Dim.162	Dim.163	Dim.164	Dim.165
## Variance	13.389	13.298	13.073	12.872	12.801
## % of var.	0.032	0.032	0.031	0.031	0.030
## Cumulative % of var.	96.521	96.553	96.584	96.615	96.645
##	Dim.166	Dim.167	Dim.168	Dim.169	Dim.170
## Variance	12.616	12.526	12.381	12.338	12.194
## % of var.	0.030	0.030	0.029	0.029	0.029
## Cumulative % of var.	96.675	96.705	96.735	96.764	96.793
##	Dim.171	Dim.172	Dim.173	Dim.174	Dim.175
## Variance	12.051	11.965	11.780	11.716	11.592
## % of var.	0.029	0.028	0.028	0.028	0.028
## Cumulative % of var.	96.822	96.850	96.878	96.906	96.934
##	Dim.176	Dim.177	Dim.178	Dim.179	Dim.180
## Variance	11.287	11.160	11.056	10.858	10.780
## % of var.	0.027	0.027	0.026	0.026	0.026
## Cumulative % of var.	96.961	96.987	97.014	97.039	97.065
##	Dim.181	Dim.182	Dim.183	Dim.184	Dim.185
## Variance	10.626	10.585	10.574	10.451	10.389
## % of var.	0.025	0.025	0.025	0.025	0.025
## Cumulative % of var.	97.090	97.116	97.141	97.166	97.190
##	Dim.186	Dim.187	Dim.188	Dim.189	Dim.190
## Variance	10.327	10.181	10.151	9.965	9.863
## % of var.	0.025	0.024	0.024	0.024	0.023

## Cumulative % of var.	97.215	97.239	97.263	97.287	97.311
##	Dim.191	Dim.192	Dim.193	Dim.194	Dim.195
## Variance	9.825	9.749	9.691	9.637	9.542
## % of var.	0.023	0.023	0.023	0.023	0.023
## Cumulative % of var.	97.334	97.357	97.380	97.403	97.426
##	Dim.196	Dim.197	Dim.198	Dim.199	Dim.200
## Variance	9.502	9.399	9.342	9.198	9.163
## % of var.	0.023	0.022	0.022	0.022	0.022
## Cumulative % of var.	97.448	97.471	97.493	97.515	97.537
##	Dim.201	Dim.202	Dim.203	Dim.204	Dim.205
## Variance	9.071	8.888	8.812	8.673	8.653
## % of var.	0.022	0.021	0.021	0.021	0.021
## Cumulative % of var.	97.558	97.580	97.601	97.621	97.642
##	Dim.206	Dim.207	Dim.208	Dim.209	Dim.210
## Variance	8.584	8.445	8.376	8.341	8.302
## % of var.	0.020	0.020	0.020	0.020	0.020
## Cumulative % of var.	97.662	97.682	97.702	97.722	97.742
##	Dim.211	Dim.212	Dim.213	Dim.214	Dim.215
## Variance	8.247	8.225	8.151	8.076	8.001
## % of var.	0.020	0.020	0.019	0.019	0.019
## Cumulative % of var.	97.762	97.781	97.801	97.820	97.839
##	Dim.216	Dim.217	Dim.218	Dim.219	Dim.220
## Variance	7.939	7.859	7.823	7.807	7.708
## % of var.	0.019	0.019	0.019	0.019	0.018
## Cumulative % of var.	97.858	97.876	97.895	97.914	97.932
##	Dim.221	Dim.222	Dim.223	Dim.224	Dim.225
## Variance	7.679	7.574	7.502	7.472	7.428
## % of var.	0.018	0.018	0.018	0.018	0.018
## Cumulative % of var.	97.950	97.968	97.986	98.004	98.022
##	Dim.226	Dim.227	Dim.228	Dim.229	Dim.230
## Variance	7.380	7.295	7.171	7.139	7.066
## % of var.	0.018	0.017	0.017	0.017	0.017
## Cumulative % of var.	98.039	98.057	98.074	98.091	98.108
##	Dim.231	Dim.232	Dim.233	Dim.234	Dim.235
## Variance	6.982	6.966	6.898	6.861	6.811
## % of var.	0.017	0.017	0.016	0.016	0.016
## Cumulative % of var.	98.124	98.141	98.157	98.173	98.190
##	Dim.236	Dim.237	Dim.238	Dim.239	Dim.240
## Variance	6.726	6.659	6.631	6.563	6.485
## % of var.	0.016	0.016	0.016	0.016	0.015
## Cumulative % of var.	98.206	98.222	98.237	98.253	98.268
##	Dim.241	Dim.242	Dim.243	Dim.244	Dim.245
## Variance	6.449	6.408	6.366	6.331	6.306
## % of var.	0.015	0.015	0.015	0.015	0.015
## Cumulative % of var.	98.284	98.299	98.314	98.329	98.344
##	Dim.246	Dim.247	Dim.248	Dim.249	Dim.250
## Variance	6.230	6.177	6.149	6.014	6.005
## % of var.	0.015	0.015	0.015	0.014	0.014
## Cumulative % of var.	98.359	98.374	98.388	98.403	98.417
##	Dim.251	Dim.252	Dim.253	Dim.254	Dim.255

## Variance	5.957	5.900	5.878	5.854	5.783
## % of var.	0.014	0.014	0.014	0.014	0.014
## Cumulative % of var.	98.431	98.445	98.459	98.473	98.487
##	Dim.256	Dim.257	Dim.258	Dim.259	Dim.260
## Variance	5.769	5.685	5.658	5.632	5.605
## % of var.	0.014	0.014	0.013	0.013	0.013
## Cumulative % of var.	98.501	98.514	98.528	98.541	98.555
##	Dim.261	Dim.262	Dim.263	Dim.264	Dim.265
## Variance	5.539	5.491	5.438	5.435	5.400
## % of var.	0.013	0.013	0.013	0.013	0.013
## Cumulative % of var.	98.568	98.581	98.594	98.607	98.620
##	Dim.266	Dim.267	Dim.268	Dim.269	Dim.270
## Variance	5.343	5.329	5.233	5.218	5.188
## % of var.	0.013	0.013	0.012	0.012	0.012
## Cumulative % of var.	98.632	98.645	98.657	98.670	98.682
##	Dim.271	Dim.272	Dim.273	Dim.274	Dim.275
## Variance	5.123	5.080	5.060	5.041	4.981
## % of var.	0.012	0.012	0.012	0.012	0.012
## Cumulative % of var.	98.694	98.706	98.719	98.731	98.742
##	Dim.276	Dim.277	Dim.278	Dim.279	Dim.280
## Variance	4.964	4.911	4.873	4.857	4.850
## % of var.	0.012	0.012	0.012	0.012	0.012
## Cumulative % of var.	98.754	98.766	98.777	98.789	98.801
##	Dim.281	Dim.282	Dim.283	Dim.284	Dim.285
## Variance	4.817	4.797	4.743	4.690	4.672
## % of var.	0.011	0.011	0.011	0.011	0.011
## Cumulative % of var.	98.812	98.823	98.835	98.846	98.857
##	Dim.286	Dim.287	Dim.288	Dim.289	Dim.290
## Variance	4.640	4.599	4.585	4.555	4.495
## % of var.	0.011	0.011	0.011	0.011	0.011
## Cumulative % of var.	98.868	98.879	98.890	98.901	98.912
##	Dim.291	Dim.292	Dim.293	Dim.294	Dim.295
## Variance	4.487	4.459	4.427	4.403	4.373
## % of var.	0.011	0.011	0.011	0.010	0.010
## Cumulative % of var.	98.922	98.933	98.943	98.954	98.964
##	Dim.296	Dim.297	Dim.298	Dim.299	Dim.300
## Variance	4.344	4.304	4.278	4.250	4.174
## % of var.	0.010	0.010	0.010	0.010	0.010
## Cumulative % of var.	98.975	98.985	98.995	99.005	99.015
##	Dim.301	Dim.302	Dim.303	Dim.304	Dim.305
## Variance	4.159	4.147	4.104	4.099	4.041
## % of var.	0.010	0.010	0.010	0.010	0.010
## Cumulative % of var.	99.025	99.035	99.045	99.054	99.064
##	Dim.306	Dim.307	Dim.308	Dim.309	Dim.310
## Variance	4.012	3.996	3.948	3.919	3.906
## % of var.	0.010	0.010	0.009	0.009	0.009
## Cumulative % of var.	99.074	99.083	99.092	99.102	99.111
##	Dim.311	Dim.312	Dim.313	Dim.314	Dim.315
## Variance	3.889	3.875	3.839	3.785	3.741
## % of var.	0.009	0.009	0.009	0.009	0.009

## Cumulative % of var.	99.120	99.130	99.139	99.148	99.157
##	Dim.316	Dim.317	Dim.318	Dim.319	Dim.320
## Variance	3.724	3.682	3.668	3.644	3.624
## % of var.	0.009	0.009	0.009	0.009	0.009
## Cumulative % of var.	99.166	99.174	99.183	99.192	99.200
##	Dim.321	Dim.322	Dim.323	Dim.324	Dim.325
## Variance	3.582	3.576	3.538	3.490	3.472
## % of var.	0.009	0.009	0.008	0.008	0.008
## Cumulative % of var.	99.209	99.217	99.226	99.234	99.242
##	Dim.326	Dim.327	Dim.328	Dim.329	Dim.330
## Variance	3.443	3.392	3.378	3.353	3.342
## % of var.	0.008	0.008	0.008	0.008	0.008
## Cumulative % of var.	99.251	99.259	99.267	99.275	99.283
##	Dim.331	Dim.332	Dim.333	Dim.334	Dim.335
## Variance	3.335	3.289	3.266	3.250	3.243
## % of var.	0.008	0.008	0.008	0.008	0.008
## Cumulative % of var.	99.291	99.298	99.306	99.314	99.322
##	Dim.336	Dim.337	Dim.338	Dim.339	Dim.340
## Variance	3.228	3.202	3.183	3.169	3.157
## % of var.	0.008	0.008	0.008	0.008	0.008
## Cumulative % of var.	99.329	99.337	99.345	99.352	99.360
##	Dim.341	Dim.342	Dim.343	Dim.344	Dim.345
## Variance	3.103	3.083	3.070	3.052	3.031
## % of var.	0.007	0.007	0.007	0.007	0.007
## Cumulative % of var.	99.367	99.374	99.382	99.389	99.396
##	Dim.346	Dim.347	Dim.348	Dim.349	Dim.350
## Variance	3.011	3.002	2.950	2.918	2.889
## % of var.	0.007	0.007	0.007	0.007	0.007
## Cumulative % of var.	99.403	99.410	99.417	99.424	99.431
##	Dim.351	Dim.352	Dim.353	Dim.354	Dim.355
## Variance	2.832	2.819	2.810	2.768	2.757
## % of var.	0.007	0.007	0.007	0.007	0.007
## Cumulative % of var.	99.438	99.445	99.451	99.458	99.465
##	Dim.356	Dim.357	Dim.358	Dim.359	Dim.360
## Variance	2.733	2.709	2.695	2.678	2.671
## % of var.	0.007	0.006	0.006	0.006	0.006
## Cumulative % of var.	99.471	99.478	99.484	99.490	99.497
##	Dim.361	Dim.362	Dim.363	Dim.364	Dim.365
## Variance	2.652	2.645	2.610	2.542	2.519
## % of var.	0.006	0.006	0.006	0.006	0.006
## Cumulative % of var.	99.503	99.509	99.516	99.522	99.528
##	Dim.366	Dim.367	Dim.368	Dim.369	Dim.370
## Variance	2.515	2.492	2.468	2.448	2.434
## % of var.	0.006	0.006	0.006	0.006	0.006
## Cumulative % of var.	99.534	99.539	99.545	99.551	99.557
##	Dim.371	Dim.372	Dim.373	Dim.374	Dim.375
## Variance	2.412	2.378	2.340	2.326	2.306
## % of var.	0.006	0.006	0.006	0.006	0.005
## Cumulative % of var.	99.563	99.568	99.574	99.580	99.585
##	Dim.376	Dim.377	Dim.378	Dim.379	Dim.380

## Variance	2.300	2.281	2.263	2.240	2.216
## % of var.	0.005	0.005	0.005	0.005	0.005
## Cumulative % of var.	99.590	99.596	99.601	99.607	99.612
##	Dim.381	Dim.382	Dim.383	Dim.384	Dim.385
## Variance	2.203	2.175	2.146	2.087	2.077
## % of var.	0.005	0.005	0.005	0.005	0.005
## Cumulative % of var.	99.617	99.622	99.627	99.632	99.637
##	Dim.386	Dim.387	Dim.388	Dim.389	Dim.390
## Variance	2.044	2.036	2.020	1.995	1.976
## % of var.	0.005	0.005	0.005	0.005	0.005
## Cumulative % of var.	99.642	99.647	99.652	99.657	99.661
##	Dim.391	Dim.392	Dim.393	Dim.394	Dim.395
## Variance	1.959	1.942	1.918	1.895	1.886
## % of var.	0.005	0.005	0.005	0.005	0.004
## Cumulative % of var.	99.666	99.671	99.675	99.680	99.684
##	Dim.396	Dim.397	Dim.398	Dim.399	Dim.400
## Variance	1.849	1.820	1.810	1.779	1.761
## % of var.	0.004	0.004	0.004	0.004	0.004
## Cumulative % of var.	99.689	99.693	99.697	99.701	99.706
##	Dim.401	Dim.402	Dim.403	Dim.404	Dim.405
## Variance	1.746	1.731	1.714	1.701	1.676
## % of var.	0.004	0.004	0.004	0.004	0.004
## Cumulative % of var.	99.710	99.714	99.718	99.722	99.726
##	Dim.406	Dim.407	Dim.408	Dim.409	Dim.410
## Variance	1.670	1.633	1.619	1.590	1.581
## % of var.	0.004	0.004	0.004	0.004	0.004
## Cumulative % of var.	99.730	99.734	99.738	99.742	99.745
##	Dim.411	Dim.412	Dim.413	Dim.414	Dim.415
## Variance	1.570	1.554	1.545	1.538	1.516
## % of var.	0.004	0.004	0.004	0.004	0.004
## Cumulative % of var.	99.749	99.753	99.756	99.760	99.764
##	Dim.416	Dim.417	Dim.418	Dim.419	Dim.420
## Variance	1.512	1.502	1.484	1.462	1.435
## % of var.	0.004	0.004	0.004	0.003	0.003
## Cumulative % of var.	99.767	99.771	99.774	99.778	99.781
##	Dim.421	Dim.422	Dim.423	Dim.424	Dim.425
## Variance	1.421	1.390	1.380	1.369	1.344
## % of var.	0.003	0.003	0.003	0.003	0.003
## Cumulative % of var.	99.785	99.788	99.791	99.795	99.798
##	Dim.426	Dim.427	Dim.428	Dim.429	Dim.430
## Variance	1.335	1.292	1.289	1.277	1.236
## % of var.	0.003	0.003	0.003	0.003	0.003
## Cumulative % of var.	99.801	99.804	99.807	99.810	99.813
##	Dim.431	Dim.432	Dim.433	Dim.434	Dim.435
## Variance	1.213	1.205	1.200	1.189	1.172
## % of var.	0.003	0.003	0.003	0.003	0.003
## Cumulative % of var.	99.816	99.819	99.822	99.825	99.827
##	Dim.436	Dim.437	Dim.438	Dim.439	Dim.440
## Variance	1.148	1.132	1.114	1.103	1.096
## % of var.	0.003	0.003	0.003	0.003	0.003

## Cumulative % of var.	99.830	99.833	99.835	99.838	99.841
##	Dim.441	Dim.442	Dim.443	Dim.444	Dim.445
## Variance	1.085	1.057	1.053	1.031	1.027
## % of var.	0.003	0.003	0.003	0.002	0.002
## Cumulative % of var.	99.843	99.846	99.848	99.851	99.853
##	Dim.446	Dim.447	Dim.448	Dim.449	Dim.450
## Variance	1.019	0.999	0.986	0.973	0.960
## % of var.	0.002	0.002	0.002	0.002	0.002
## Cumulative % of var.	99.856	99.858	99.860	99.863	99.865
##	Dim.451	Dim.452	Dim.453	Dim.454	Dim.455
## Variance	0.958	0.934	0.912	0.896	0.892
## % of var.	0.002	0.002	0.002	0.002	0.002
## Cumulative % of var.	99.867	99.869	99.872	99.874	99.876
##	Dim.456	Dim.457	Dim.458	Dim.459	Dim.460
## Variance	0.887	0.868	0.863	0.857	0.831
## % of var.	0.002	0.002	0.002	0.002	0.002
## Cumulative % of var.	99.878	99.880	99.882	99.884	99.886
##	Dim.461	Dim.462	Dim.463	Dim.464	Dim.465
## Variance	0.819	0.810	0.800	0.771	0.761
## % of var.	0.002	0.002	0.002	0.002	0.002
## Cumulative % of var.	99.888	99.890	99.892	99.894	99.895
##	Dim.466	Dim.467	Dim.468	Dim.469	Dim.470
## Variance	0.758	0.753	0.745	0.736	0.727
## % of var.	0.002	0.002	0.002	0.002	0.002
## Cumulative % of var.	99.897	99.899	99.901	99.903	99.904
##	Dim.471	Dim.472	Dim.473	Dim.474	Dim.475
## Variance	0.719	0.707	0.700	0.691	0.683
## % of var.	0.002	0.002	0.002	0.002	0.002
## Cumulative % of var.	99.906	99.908	99.909	99.911	99.913
##	Dim.476	Dim.477	Dim.478	Dim.479	Dim.480
## Variance	0.679	0.673	0.651	0.642	0.627
## % of var.	0.002	0.002	0.002	0.002	0.001
## Cumulative % of var.	99.914	99.916	99.917	99.919	99.920
##	Dim.481	Dim.482	Dim.483	Dim.484	Dim.485
## Variance	0.619	0.612	0.604	0.591	0.580
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.922	99.923	99.925	99.926	99.928
##	Dim.486	Dim.487	Dim.488	Dim.489	Dim.490
## Variance	0.572	0.568	0.559	0.553	0.546
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.929	99.930	99.932	99.933	99.934
##	Dim.491	Dim.492	Dim.493	Dim.494	Dim.495
## Variance	0.535	0.532	0.518	0.510	0.500
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.936	99.937	99.938	99.939	99.940
##	Dim.496	Dim.497	Dim.498	Dim.499	Dim.500
## Variance	0.483	0.480	0.472	0.467	0.458
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.942	99.943	99.944	99.945	99.946
##	Dim.501	Dim.502	Dim.503	Dim.504	Dim.505

## Variance	0.457	0.452	0.445	0.441	0.431
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.947	99.948	99.949	99.950	99.951
##	Dim.506	Dim.507	Dim.508	Dim.509	Dim.510
## Variance	0.412	0.403	0.397	0.392	0.386
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.952	99.953	99.954	99.955	99.956
##	Dim.511	Dim.512	Dim.513	Dim.514	Dim.515
## Variance	0.383	0.376	0.373	0.365	0.355
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.957	99.958	99.959	99.960	99.961
##	Dim.516	Dim.517	Dim.518	Dim.519	Dim.520
## Variance	0.350	0.348	0.346	0.343	0.337
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.961	99.962	99.963	99.964	99.965
##	Dim.521	Dim.522	Dim.523	Dim.524	Dim.525
## Variance	0.327	0.326	0.315	0.311	0.311
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.965	99.966	99.967	99.968	99.968
##	Dim.526	Dim.527	Dim.528	Dim.529	Dim.530
## Variance	0.307	0.302	0.299	0.297	0.279
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.969	99.970	99.971	99.971	99.972
##	Dim.531	Dim.532	Dim.533	Dim.534	Dim.535
## Variance	0.278	0.268	0.264	0.261	0.256
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.973	99.973	99.974	99.975	99.975
##	Dim.536	Dim.537	Dim.538	Dim.539	Dim.540
## Variance	0.253	0.247	0.241	0.234	0.232
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.976	99.976	99.977	99.977	99.978
##	Dim.541	Dim.542	Dim.543	Dim.544	Dim.545
## Variance	0.229	0.227	0.220	0.218	0.217
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.979	99.979	99.980	99.980	99.981
##	Dim.546	Dim.547	Dim.548	Dim.549	Dim.550
## Variance	0.214	0.205	0.195	0.194	0.186
## % of var.	0.001	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.981	99.982	99.982	99.983	99.983
##	Dim.551	Dim.552	Dim.553	Dim.554	Dim.555
## Variance	0.182	0.180	0.173	0.171	0.165
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.983	99.984	99.984	99.985	99.985
##	Dim.556	Dim.557	Dim.558	Dim.559	Dim.560
## Variance	0.163	0.161	0.159	0.152	0.150
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.985	99.986	99.986	99.987	99.987
##	Dim.561	Dim.562	Dim.563	Dim.564	Dim.565
## Variance	0.148	0.146	0.144	0.142	0.135
## % of var.	0.000	0.000	0.000	0.000	0.000

## Cumulative % of var.	99.987	99.988	99.988	99.988	99.989
##	Dim.566	Dim.567	Dim.568	Dim.569	Dim.570
## Variance	0.133	0.131	0.123	0.121	0.121
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.989	99.989	99.990	99.990	99.990
##	Dim.571	Dim.572	Dim.573	Dim.574	Dim.575
## Variance	0.119	0.118	0.118	0.114	0.113
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.990	99.991	99.991	99.991	99.992
##	Dim.576	Dim.577	Dim.578	Dim.579	Dim.580
## Variance	0.107	0.104	0.103	0.098	0.096
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.992	99.992	99.992	99.993	99.993
##	Dim.581	Dim.582	Dim.583	Dim.584	Dim.585
## Variance	0.090	0.089	0.088	0.085	0.085
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.993	99.993	99.993	99.994	99.994
##	Dim.586	Dim.587	Dim.588	Dim.589	Dim.590
## Variance	0.083	0.082	0.078	0.077	0.074
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.994	99.994	99.994	99.995	99.995
##	Dim.591	Dim.592	Dim.593	Dim.594	Dim.595
## Variance	0.074	0.074	0.070	0.068	0.066
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.995	99.995	99.995	99.995	99.996
##	Dim.596	Dim.597	Dim.598	Dim.599	Dim.600
## Variance	0.064	0.062	0.060	0.060	0.058
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.996	99.996	99.996	99.996	99.996
##	Dim.601	Dim.602	Dim.603	Dim.604	Dim.605
## Variance	0.055	0.052	0.051	0.050	0.049
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.996	99.997	99.997	99.997	99.997
##	Dim.606	Dim.607	Dim.608	Dim.609	Dim.610
## Variance	0.049	0.048	0.047	0.046	0.044
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.997	99.997	99.997	99.997	99.997
##	Dim.611	Dim.612	Dim.613	Dim.614	Dim.615
## Variance	0.041	0.040	0.036	0.035	0.034
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.998	99.998	99.998	99.998	99.998
##	Dim.616	Dim.617	Dim.618	Dim.619	Dim.620
## Variance	0.034	0.033	0.032	0.032	0.031
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.998	99.998	99.998	99.998	99.998
##	Dim.621	Dim.622	Dim.623	Dim.624	Dim.625
## Variance	0.030	0.030	0.028	0.028	0.027
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.998	99.998	99.998	99.999	99.999
##	Dim.626	Dim.627	Dim.628	Dim.629	Dim.630

## Variance	0.026	0.025	0.024	0.024	0.023
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.999	99.999	99.999	99.999	99.999
##	Dim.631	Dim.632	Dim.633	Dim.634	Dim.635
## Variance	0.022	0.021	0.021	0.020	0.020
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.999	99.999	99.999	99.999	99.999
##	Dim.636	Dim.637	Dim.638	Dim.639	Dim.640
## Variance	0.020	0.019	0.019	0.016	0.016
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.999	99.999	99.999	99.999	99.999
##	Dim.641	Dim.642	Dim.643	Dim.644	Dim.645
## Variance	0.015	0.015	0.014	0.013	0.013
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.999	99.999	99.999	100.000	100.000
##	Dim.646	Dim.647	Dim.648	Dim.649	Dim.650
## Variance	0.011	0.011	0.010	0.010	0.009
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000
##	Dim.651	Dim.652	Dim.653	Dim.654	Dim.655
## Variance	0.009	0.009	0.008	0.008	0.007
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000
##	Dim.656	Dim.657	Dim.658	Dim.659	Dim.660
## Variance	0.007	0.007	0.007	0.006	0.006
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000
##	Dim.661	Dim.662	Dim.663	Dim.664	Dim.665
## Variance	0.006	0.006	0.006	0.004	0.004
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000
##	Dim.666	Dim.667	Dim.668	Dim.669	Dim.670
## Variance	0.004	0.003	0.003	0.003	0.003
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000
##	Dim.671	Dim.672	Dim.673	Dim.674	Dim.675
## Variance	0.002	0.002	0.002	0.002	0.002
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000
##	Dim.676	Dim.677	Dim.678	Dim.679	Dim.680
## Variance	0.001	0.001	0.001	0.001	0.001
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000
##	Dim.681	Dim.682	Dim.683	Dim.684	Dim.685
## Variance	0.001	0.001	0.001	0.001	0.001
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000
##	Dim.686	Dim.687	Dim.688	Dim.689	Dim.690
## Variance	0.001	0.001	0.000	0.000	0.000
## % of var.	0.000	0.000	0.000	0.000	0.000

[illegible]

## Variance	0.000	0.000	0.000	0.000	0.000			
## % of var.	0.000	0.000	0.000	0.000	0.000			
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000			
##	Dim.756	Dim.757	Dim.758	Dim.759	Dim.760			
## Variance	0.000	0.000	0.000	0.000	0.000			
## % of var.	0.000	0.000	0.000	0.000	0.000			
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000			
##	Dim.761	Dim.762	Dim.763	Dim.764	Dim.765			
## Variance	0.000	0.000	0.000	0.000	0.000			
## % of var.	0.000	0.000	0.000	0.000	0.000			
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000			
##	Dim.766	Dim.767	Dim.768	Dim.769	Dim.770			
## Variance	0.000	0.000	0.000	0.000	0.000			
## % of var.	0.000	0.000	0.000	0.000	0.000			
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000			
##	Dim.771	Dim.772	Dim.773	Dim.774	Dim.775			
## Variance	0.000	0.000	0.000	0.000	0.000			
## % of var.	0.000	0.000	0.000	0.000	0.000			
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000			
##	Dim.776	Dim.777	Dim.778	Dim.779	Dim.780			
## Variance	0.000	0.000	0.000	0.000	0.000			
## % of var.	0.000	0.000	0.000	0.000	0.000			
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000			
##	Dim.781	Dim.782	Dim.783					
## Variance	0.000	0.000	0.000					
## % of var.	0.000	0.000	0.000					
## Cumulative % of var.	100.000	100.000	100.000					
##								
## Individuals (the 10 first)								
##	Dist	Dim.1	ctr	cos2	Dim.2	ctr	cos2	
Dim.3								
## 0	87.988	-85.829	0.072	0.952	-10.867	0.006	0.015	-
9.555								
## 1	87.988	-85.829	0.072	0.952	-10.867	0.006	0.015	-
9.555								
## 2	87.988	-85.829	0.072	0.952	-10.867	0.006	0.015	-
9.555								
## 3	87.988	-85.829	0.072	0.952	-10.867	0.006	0.015	-
9.555								
## 4	87.988	-85.829	0.072	0.952	-10.867	0.006	0.015	-
9.555								
## 5	87.988	-85.829	0.072	0.952	-10.867	0.006	0.015	-
9.555								
## 6	87.988	-85.829	0.072	0.952	-10.867	0.006	0.015	-
9.555								
## 7	87.988	-85.829	0.072	0.952	-10.867	0.006	0.015	-
9.555								
## 8	87.988	-85.829	0.072	0.952	-10.867	0.006	0.015	-
9.555								
## 9	87.988	-85.829	0.072	0.952	-10.867	0.006	0.015	-

```

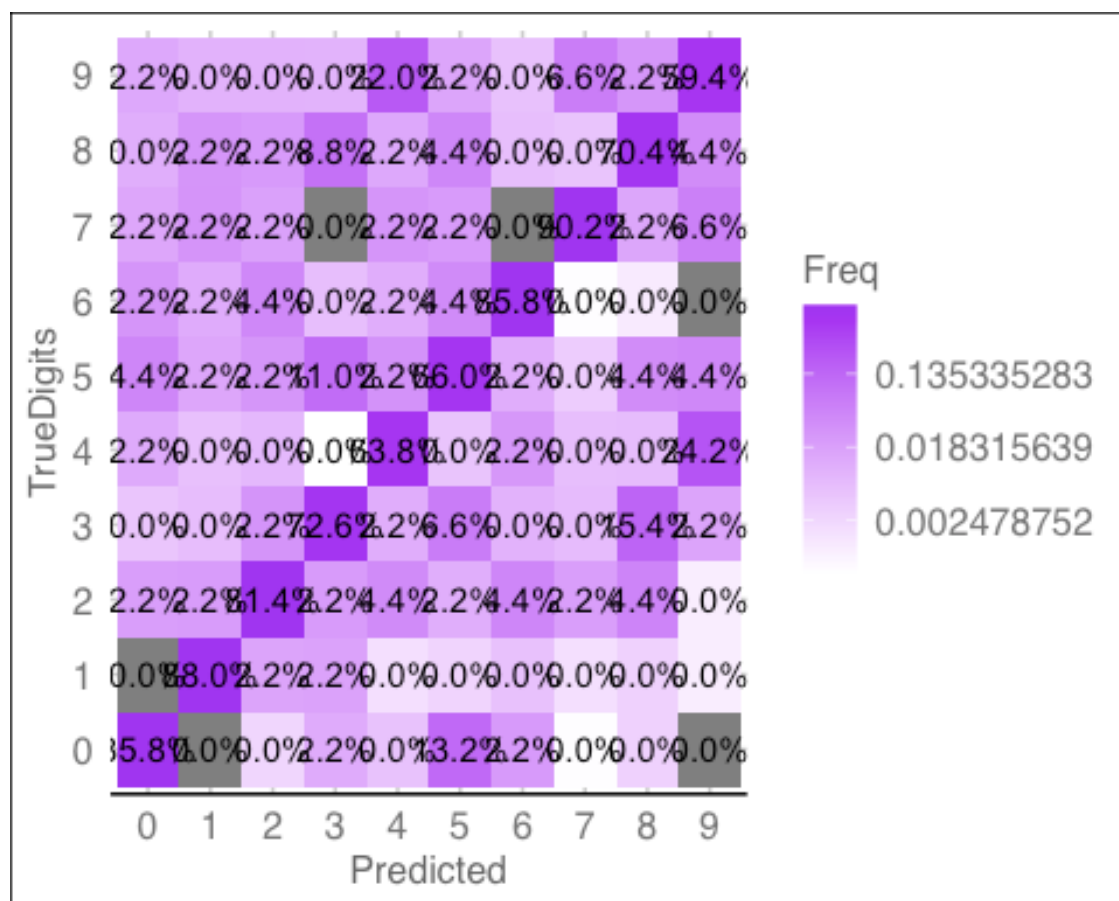
9.555
##          ctr    cos2
## 0      0.005  0.012 |
## 1      0.005  0.012 |
## 2      0.005  0.012 |
## 3      0.005  0.012 |
## 4      0.005  0.012 |
## 5      0.005  0.012 |
## 6      0.005  0.012 |
## 7      0.005  0.012 |
## 8      0.005  0.012 |
## 9      0.005  0.012 |
##
## Variables (the 10 first)
##          Dim.1    ctr    cos2    Dim.2    ctr    cos2    Dim.3    ctr
cos2
## V1      |  0.419  0.001  0.176 | -0.407  0.006  0.165 |  0.198  0.002
0.039 |
## V2      |  0.501  0.002  0.251 |  0.374  0.005  0.140 |  0.434  0.009
0.189 |
## V3      |  0.534  0.002  0.285 | -0.467  0.008  0.218 | -0.077  0.000
0.006 |
## V4      |  0.269  0.001  0.073 |  0.244  0.002  0.060 | -0.020  0.000
0.000 |
## V5      |  0.452  0.002  0.205 |  0.373  0.005  0.139 |  0.449  0.009
0.202 |
## V6      |  0.576  0.003  0.332 |  0.350  0.005  0.122 |  0.116  0.001
0.013 |
## V7      |  0.502  0.002  0.252 | -0.054  0.000  0.003 | -0.407  0.008
0.166 |
## V8      |  0.347  0.001  0.120 |  0.069  0.000  0.005 |  0.021  0.000
0.000 |
## V9      |  0.640  0.003  0.410 |  0.221  0.002  0.049 |  0.050  0.000
0.002 |
## V10     |  0.570  0.003  0.325 | -0.084  0.000  0.007 |  0.337  0.005
0.114 |

model_nb_10<-runNB(pca_10)

##
## ===== Naive Bayes
=====
##
## - Call: naive_bayes.formula(formula = label ~ ., data = trainDF)
## - Laplace: 0
## - Classes: 10
## - Samples: 25205
## - Features: 10
## - Conditional distributions:
##   - Gaussian: 10

```

```
## - Prior probabilities:
##   - 0: 0.0984
##   - 1: 0.1115
##   - 2: 0.0995
##   - 3: 0.1036
##   - 4: 0.097
##   - 5: 0.0903
##   - 6: 0.0985
##   - 7: 0.1048
##   - 8: 0.0967
##   - 9: 0.0997
##
## -----
##
## Warning: predict.naive_bayes(): more features in the newdata are provided
as
## there are probability tables in the object. Calculation is performed based
on
## features to be found in the tables.
##
##      TrueDigits
## Predicted  0    1    2    3    4    5    6    7    8    9
##      0 1391    0   33    8   21   78   46   24   18   23
##      1    0 1792   44   13   12   30   25   58   57   20
##      2    4   25 1277   44   12   41   69   28   36   15
##      3   22   30   39 1260    1  202   11    0  171   16
##      4    9    3   66   19 1063   51   19   46   23  356
##      5  182    4   16   95    7  948   57   32   65   22
##      6   38    9   78   16   42   19 1424    0   10    9
##      7    1    3   32   11   10    6    1 1442    8  104
##      8    5    5   83  245   11   63    2   25 1168   44
##      9    0    2    2   29  449   80    0  105   69 1066
##      Accuracy      Kappa  AccuracyLower  AccuracyUpper  AccuracyNull
##      0.7639774      0.7376314      0.7574801      0.7703831      0.1115213
## AccuracyPValue  McNemarPValue
##      0.0000000      NaN
##
## Warning: Transformation introduced infinite values in discrete y-axis
```



```
pca_50<-getTopPCAFeatures(DigitTotalDF,50)
```

```
##
## Call:
## PCA(X = t(select(df, -label)), ncp = ncp, graph = FALSE)
##
##
## Eigenvalues
##
```

	Dim.1	Dim.2	Dim.3	Dim.4	Dim.5
## Variance	12975.886	2635.187	2146.048	1747.535	1465.951
## % of var.	30.895	6.274	5.110	4.161	3.490
## Cumulative % of var.	30.895	37.169	42.279	46.440	49.930

```
##
```

	Dim.6	Dim.7	Dim.8	Dim.9	Dim.10
## Variance	1358.547	1135.701	884.896	855.251	734.998
## % of var.	3.235	2.704	2.107	2.036	1.750
## Cumulative % of var.	53.165	55.869	57.976	60.012	61.762

```
##
```

	Dim.11	Dim.12	Dim.13	Dim.14	Dim.15
## Variance	664.973	634.157	551.036	515.912	483.259
## % of var.	1.583	1.510	1.312	1.228	1.151
## Cumulative % of var.	63.345	64.855	66.167	67.395	68.546

```
##
```

	Dim.16	Dim.17	Dim.18	Dim.19	Dim.20
## Variance	451.099	420.945	388.013	361.053	349.113
## % of var.	1.074	1.002	0.924	0.860	0.831

## Cumulative % of var.	69.620	70.622	71.546	72.406	73.237
##	Dim.21	Dim.22	Dim.23	Dim.24	Dim.25
## Variance	329.622	310.712	298.708	281.495	275.884
## % of var.	0.785	0.740	0.711	0.670	0.657
## Cumulative % of var.	74.022	74.762	75.473	76.143	76.800
##	Dim.26	Dim.27	Dim.28	Dim.29	Dim.30
## Variance	268.984	252.330	236.925	226.065	219.194
## % of var.	0.640	0.601	0.564	0.538	0.522
## Cumulative % of var.	77.440	78.041	78.605	79.144	79.665
##	Dim.31	Dim.32	Dim.33	Dim.34	Dim.35
## Variance	203.959	202.286	185.225	181.697	173.988
## % of var.	0.486	0.482	0.441	0.433	0.414
## Cumulative % of var.	80.151	80.633	81.074	81.506	81.921
##	Dim.36	Dim.37	Dim.38	Dim.39	Dim.40
## Variance	172.056	160.255	156.645	149.836	146.561
## % of var.	0.410	0.382	0.373	0.357	0.349
## Cumulative % of var.	82.330	82.712	83.085	83.441	83.790
##	Dim.41	Dim.42	Dim.43	Dim.44	Dim.45
## Variance	140.441	137.162	131.753	125.734	123.529
## % of var.	0.334	0.327	0.314	0.299	0.294
## Cumulative % of var.	84.125	84.451	84.765	85.064	85.359
##	Dim.46	Dim.47	Dim.48	Dim.49	Dim.50
## Variance	122.862	115.733	109.800	108.063	100.205
## % of var.	0.293	0.276	0.261	0.257	0.239
## Cumulative % of var.	85.651	85.927	86.188	86.445	86.684
##	Dim.51	Dim.52	Dim.53	Dim.54	Dim.55
## Variance	99.257	98.063	93.201	92.249	89.483
## % of var.	0.236	0.233	0.222	0.220	0.213
## Cumulative % of var.	86.920	87.154	87.376	87.595	87.808
##	Dim.56	Dim.57	Dim.58	Dim.59	Dim.60
## Variance	87.033	85.270	83.513	81.175	78.975
## % of var.	0.207	0.203	0.199	0.193	0.188
## Cumulative % of var.	88.016	88.219	88.417	88.611	88.799
##	Dim.61	Dim.62	Dim.63	Dim.64	Dim.65
## Variance	76.732	76.033	73.240	71.087	69.891
## % of var.	0.183	0.181	0.174	0.169	0.166
## Cumulative % of var.	88.981	89.163	89.337	89.506	89.673
##	Dim.66	Dim.67	Dim.68	Dim.69	Dim.70
## Variance	67.076	65.846	63.704	62.539	61.504
## % of var.	0.160	0.157	0.152	0.149	0.146
## Cumulative % of var.	89.832	89.989	90.141	90.290	90.436
##	Dim.71	Dim.72	Dim.73	Dim.74	Dim.75
## Variance	58.632	58.470	56.065	55.675	53.772
## % of var.	0.140	0.139	0.133	0.133	0.128
## Cumulative % of var.	90.576	90.715	90.848	90.981	91.109
##	Dim.76	Dim.77	Dim.78	Dim.79	Dim.80
## Variance	52.344	50.752	50.151	47.664	47.097
## % of var.	0.125	0.121	0.119	0.113	0.112
## Cumulative % of var.	91.234	91.354	91.474	91.587	91.699
##	Dim.81	Dim.82	Dim.83	Dim.84	Dim.85

## Variance	45.959	45.670	45.134	43.399	43.159
## % of var.	0.109	0.109	0.107	0.103	0.103
## Cumulative % of var.	91.809	91.918	92.025	92.128	92.231
##	Dim.86	Dim.87	Dim.88	Dim.89	Dim.90
## Variance	42.732	41.986	40.222	39.688	38.618
## % of var.	0.102	0.100	0.096	0.094	0.092
## Cumulative % of var.	92.333	92.433	92.529	92.623	92.715
##	Dim.91	Dim.92	Dim.93	Dim.94	Dim.95
## Variance	37.900	37.111	36.558	35.693	35.451
## % of var.	0.090	0.088	0.087	0.085	0.084
## Cumulative % of var.	92.805	92.894	92.981	93.066	93.150
##	Dim.96	Dim.97	Dim.98	Dim.99	Dim.100
## Variance	35.000	33.741	33.657	33.108	32.255
## % of var.	0.083	0.080	0.080	0.079	0.077
## Cumulative % of var.	93.233	93.314	93.394	93.473	93.550
##	Dim.101	Dim.102	Dim.103	Dim.104	Dim.105
## Variance	31.708	30.818	30.512	29.322	28.925
## % of var.	0.075	0.073	0.073	0.070	0.069
## Cumulative % of var.	93.625	93.698	93.771	93.841	93.910
##	Dim.106	Dim.107	Dim.108	Dim.109	Dim.110
## Variance	28.795	27.708	27.390	27.292	26.586
## % of var.	0.069	0.066	0.065	0.065	0.063
## Cumulative % of var.	93.978	94.044	94.109	94.174	94.238
##	Dim.111	Dim.112	Dim.113	Dim.114	Dim.115
## Variance	26.039	25.709	25.584	25.304	25.182
## % of var.	0.062	0.061	0.061	0.060	0.060
## Cumulative % of var.	94.300	94.361	94.422	94.482	94.542
##	Dim.116	Dim.117	Dim.118	Dim.119	Dim.120
## Variance	24.206	23.951	23.818	23.054	22.815
## % of var.	0.058	0.057	0.057	0.055	0.054
## Cumulative % of var.	94.600	94.657	94.713	94.768	94.823
##	Dim.121	Dim.122	Dim.123	Dim.124	Dim.125
## Variance	22.628	22.352	22.224	21.862	21.222
## % of var.	0.054	0.053	0.053	0.052	0.051
## Cumulative % of var.	94.877	94.930	94.983	95.035	95.085
##	Dim.126	Dim.127	Dim.128	Dim.129	Dim.130
## Variance	21.059	20.634	20.467	20.033	19.894
## % of var.	0.050	0.049	0.049	0.048	0.047
## Cumulative % of var.	95.135	95.185	95.233	95.281	95.328
##	Dim.131	Dim.132	Dim.133	Dim.134	Dim.135
## Variance	19.503	19.289	19.223	18.915	18.460
## % of var.	0.046	0.046	0.046	0.045	0.044
## Cumulative % of var.	95.375	95.421	95.466	95.511	95.555
##	Dim.136	Dim.137	Dim.138	Dim.139	Dim.140
## Variance	18.290	18.250	18.088	17.507	17.219
## % of var.	0.044	0.043	0.043	0.042	0.041
## Cumulative % of var.	95.599	95.642	95.686	95.727	95.768
##	Dim.141	Dim.142	Dim.143	Dim.144	Dim.145
## Variance	16.825	16.398	16.186	16.169	15.900
## % of var.	0.040	0.039	0.039	0.038	0.038

## Cumulative % of var.	95.808	95.847	95.886	95.924	95.962
##	Dim.146	Dim.147	Dim.148	Dim.149	Dim.150
## Variance	15.761	15.658	15.577	15.477	15.321
## % of var.	0.038	0.037	0.037	0.037	0.036
## Cumulative % of var.	96.000	96.037	96.074	96.111	96.147
##	Dim.151	Dim.152	Dim.153	Dim.154	Dim.155
## Variance	15.094	14.926	14.829	14.612	14.562
## % of var.	0.036	0.036	0.035	0.035	0.035
## Cumulative % of var.	96.183	96.219	96.254	96.289	96.324
##	Dim.156	Dim.157	Dim.158	Dim.159	Dim.160
## Variance	14.468	14.192	13.834	13.675	13.475
## % of var.	0.034	0.034	0.033	0.033	0.032
## Cumulative % of var.	96.358	96.392	96.425	96.457	96.489
##	Dim.161	Dim.162	Dim.163	Dim.164	Dim.165
## Variance	13.389	13.298	13.073	12.872	12.801
## % of var.	0.032	0.032	0.031	0.031	0.030
## Cumulative % of var.	96.521	96.553	96.584	96.615	96.645
##	Dim.166	Dim.167	Dim.168	Dim.169	Dim.170
## Variance	12.616	12.526	12.381	12.338	12.194
## % of var.	0.030	0.030	0.029	0.029	0.029
## Cumulative % of var.	96.675	96.705	96.735	96.764	96.793
##	Dim.171	Dim.172	Dim.173	Dim.174	Dim.175
## Variance	12.051	11.965	11.780	11.716	11.592
## % of var.	0.029	0.028	0.028	0.028	0.028
## Cumulative % of var.	96.822	96.850	96.878	96.906	96.934
##	Dim.176	Dim.177	Dim.178	Dim.179	Dim.180
## Variance	11.287	11.160	11.056	10.858	10.780
## % of var.	0.027	0.027	0.026	0.026	0.026
## Cumulative % of var.	96.961	96.987	97.014	97.039	97.065
##	Dim.181	Dim.182	Dim.183	Dim.184	Dim.185
## Variance	10.626	10.585	10.574	10.451	10.389
## % of var.	0.025	0.025	0.025	0.025	0.025
## Cumulative % of var.	97.090	97.116	97.141	97.166	97.190
##	Dim.186	Dim.187	Dim.188	Dim.189	Dim.190
## Variance	10.327	10.181	10.151	9.965	9.863
## % of var.	0.025	0.024	0.024	0.024	0.023
## Cumulative % of var.	97.215	97.239	97.263	97.287	97.311
##	Dim.191	Dim.192	Dim.193	Dim.194	Dim.195
## Variance	9.825	9.749	9.691	9.637	9.542
## % of var.	0.023	0.023	0.023	0.023	0.023
## Cumulative % of var.	97.334	97.357	97.380	97.403	97.426
##	Dim.196	Dim.197	Dim.198	Dim.199	Dim.200
## Variance	9.502	9.399	9.342	9.198	9.163
## % of var.	0.023	0.022	0.022	0.022	0.022
## Cumulative % of var.	97.448	97.471	97.493	97.515	97.537
##	Dim.201	Dim.202	Dim.203	Dim.204	Dim.205
## Variance	9.071	8.888	8.812	8.673	8.653
## % of var.	0.022	0.021	0.021	0.021	0.021
## Cumulative % of var.	97.558	97.580	97.601	97.621	97.642
##	Dim.206	Dim.207	Dim.208	Dim.209	Dim.210

## Variance	8.584	8.445	8.376	8.341	8.302
## % of var.	0.020	0.020	0.020	0.020	0.020
## Cumulative % of var.	97.662	97.682	97.702	97.722	97.742
##	Dim.211	Dim.212	Dim.213	Dim.214	Dim.215
## Variance	8.247	8.225	8.151	8.076	8.001
## % of var.	0.020	0.020	0.019	0.019	0.019
## Cumulative % of var.	97.762	97.781	97.801	97.820	97.839
##	Dim.216	Dim.217	Dim.218	Dim.219	Dim.220
## Variance	7.939	7.859	7.823	7.807	7.708
## % of var.	0.019	0.019	0.019	0.019	0.018
## Cumulative % of var.	97.858	97.876	97.895	97.914	97.932
##	Dim.221	Dim.222	Dim.223	Dim.224	Dim.225
## Variance	7.679	7.574	7.502	7.472	7.428
## % of var.	0.018	0.018	0.018	0.018	0.018
## Cumulative % of var.	97.950	97.968	97.986	98.004	98.022
##	Dim.226	Dim.227	Dim.228	Dim.229	Dim.230
## Variance	7.380	7.295	7.171	7.139	7.066
## % of var.	0.018	0.017	0.017	0.017	0.017
## Cumulative % of var.	98.039	98.057	98.074	98.091	98.108
##	Dim.231	Dim.232	Dim.233	Dim.234	Dim.235
## Variance	6.982	6.966	6.898	6.861	6.811
## % of var.	0.017	0.017	0.016	0.016	0.016
## Cumulative % of var.	98.124	98.141	98.157	98.173	98.190
##	Dim.236	Dim.237	Dim.238	Dim.239	Dim.240
## Variance	6.726	6.659	6.631	6.563	6.485
## % of var.	0.016	0.016	0.016	0.016	0.015
## Cumulative % of var.	98.206	98.222	98.237	98.253	98.268
##	Dim.241	Dim.242	Dim.243	Dim.244	Dim.245
## Variance	6.449	6.408	6.366	6.331	6.306
## % of var.	0.015	0.015	0.015	0.015	0.015
## Cumulative % of var.	98.284	98.299	98.314	98.329	98.344
##	Dim.246	Dim.247	Dim.248	Dim.249	Dim.250
## Variance	6.230	6.177	6.149	6.014	6.005
## % of var.	0.015	0.015	0.015	0.014	0.014
## Cumulative % of var.	98.359	98.374	98.388	98.403	98.417
##	Dim.251	Dim.252	Dim.253	Dim.254	Dim.255
## Variance	5.957	5.900	5.878	5.854	5.783
## % of var.	0.014	0.014	0.014	0.014	0.014
## Cumulative % of var.	98.431	98.445	98.459	98.473	98.487
##	Dim.256	Dim.257	Dim.258	Dim.259	Dim.260
## Variance	5.769	5.685	5.658	5.632	5.605
## % of var.	0.014	0.014	0.013	0.013	0.013
## Cumulative % of var.	98.501	98.514	98.528	98.541	98.555
##	Dim.261	Dim.262	Dim.263	Dim.264	Dim.265
## Variance	5.539	5.491	5.438	5.435	5.400
## % of var.	0.013	0.013	0.013	0.013	0.013
## Cumulative % of var.	98.568	98.581	98.594	98.607	98.620
##	Dim.266	Dim.267	Dim.268	Dim.269	Dim.270
## Variance	5.343	5.329	5.233	5.218	5.188
## % of var.	0.013	0.013	0.012	0.012	0.012

## Cumulative % of var.	98.632	98.645	98.657	98.670	98.682
##	Dim.271	Dim.272	Dim.273	Dim.274	Dim.275
## Variance	5.123	5.080	5.060	5.041	4.981
## % of var.	0.012	0.012	0.012	0.012	0.012
## Cumulative % of var.	98.694	98.706	98.719	98.731	98.742
##	Dim.276	Dim.277	Dim.278	Dim.279	Dim.280
## Variance	4.964	4.911	4.873	4.857	4.850
## % of var.	0.012	0.012	0.012	0.012	0.012
## Cumulative % of var.	98.754	98.766	98.777	98.789	98.801
##	Dim.281	Dim.282	Dim.283	Dim.284	Dim.285
## Variance	4.817	4.797	4.743	4.690	4.672
## % of var.	0.011	0.011	0.011	0.011	0.011
## Cumulative % of var.	98.812	98.823	98.835	98.846	98.857
##	Dim.286	Dim.287	Dim.288	Dim.289	Dim.290
## Variance	4.640	4.599	4.585	4.555	4.495
## % of var.	0.011	0.011	0.011	0.011	0.011
## Cumulative % of var.	98.868	98.879	98.890	98.901	98.912
##	Dim.291	Dim.292	Dim.293	Dim.294	Dim.295
## Variance	4.487	4.459	4.427	4.403	4.373
## % of var.	0.011	0.011	0.011	0.010	0.010
## Cumulative % of var.	98.922	98.933	98.943	98.954	98.964
##	Dim.296	Dim.297	Dim.298	Dim.299	Dim.300
## Variance	4.344	4.304	4.278	4.250	4.174
## % of var.	0.010	0.010	0.010	0.010	0.010
## Cumulative % of var.	98.975	98.985	98.995	99.005	99.015
##	Dim.301	Dim.302	Dim.303	Dim.304	Dim.305
## Variance	4.159	4.147	4.104	4.099	4.041
## % of var.	0.010	0.010	0.010	0.010	0.010
## Cumulative % of var.	99.025	99.035	99.045	99.054	99.064
##	Dim.306	Dim.307	Dim.308	Dim.309	Dim.310
## Variance	4.012	3.996	3.948	3.919	3.906
## % of var.	0.010	0.010	0.009	0.009	0.009
## Cumulative % of var.	99.074	99.083	99.092	99.102	99.111
##	Dim.311	Dim.312	Dim.313	Dim.314	Dim.315
## Variance	3.889	3.875	3.839	3.785	3.741
## % of var.	0.009	0.009	0.009	0.009	0.009
## Cumulative % of var.	99.120	99.130	99.139	99.148	99.157
##	Dim.316	Dim.317	Dim.318	Dim.319	Dim.320
## Variance	3.724	3.682	3.668	3.644	3.624
## % of var.	0.009	0.009	0.009	0.009	0.009
## Cumulative % of var.	99.166	99.174	99.183	99.192	99.200
##	Dim.321	Dim.322	Dim.323	Dim.324	Dim.325
## Variance	3.582	3.576	3.538	3.490	3.472
## % of var.	0.009	0.009	0.008	0.008	0.008
## Cumulative % of var.	99.209	99.217	99.226	99.234	99.242
##	Dim.326	Dim.327	Dim.328	Dim.329	Dim.330
## Variance	3.443	3.392	3.378	3.353	3.342
## % of var.	0.008	0.008	0.008	0.008	0.008
## Cumulative % of var.	99.251	99.259	99.267	99.275	99.283
##	Dim.331	Dim.332	Dim.333	Dim.334	Dim.335

## Variance	3.335	3.289	3.266	3.250	3.243
## % of var.	0.008	0.008	0.008	0.008	0.008
## Cumulative % of var.	99.291	99.298	99.306	99.314	99.322
##	Dim.336	Dim.337	Dim.338	Dim.339	Dim.340
## Variance	3.228	3.202	3.183	3.169	3.157
## % of var.	0.008	0.008	0.008	0.008	0.008
## Cumulative % of var.	99.329	99.337	99.345	99.352	99.360
##	Dim.341	Dim.342	Dim.343	Dim.344	Dim.345
## Variance	3.103	3.083	3.070	3.052	3.031
## % of var.	0.007	0.007	0.007	0.007	0.007
## Cumulative % of var.	99.367	99.374	99.382	99.389	99.396
##	Dim.346	Dim.347	Dim.348	Dim.349	Dim.350
## Variance	3.011	3.002	2.950	2.918	2.889
## % of var.	0.007	0.007	0.007	0.007	0.007
## Cumulative % of var.	99.403	99.410	99.417	99.424	99.431
##	Dim.351	Dim.352	Dim.353	Dim.354	Dim.355
## Variance	2.832	2.819	2.810	2.768	2.757
## % of var.	0.007	0.007	0.007	0.007	0.007
## Cumulative % of var.	99.438	99.445	99.451	99.458	99.465
##	Dim.356	Dim.357	Dim.358	Dim.359	Dim.360
## Variance	2.733	2.709	2.695	2.678	2.671
## % of var.	0.007	0.006	0.006	0.006	0.006
## Cumulative % of var.	99.471	99.478	99.484	99.490	99.497
##	Dim.361	Dim.362	Dim.363	Dim.364	Dim.365
## Variance	2.652	2.645	2.610	2.542	2.519
## % of var.	0.006	0.006	0.006	0.006	0.006
## Cumulative % of var.	99.503	99.509	99.516	99.522	99.528
##	Dim.366	Dim.367	Dim.368	Dim.369	Dim.370
## Variance	2.515	2.492	2.468	2.448	2.434
## % of var.	0.006	0.006	0.006	0.006	0.006
## Cumulative % of var.	99.534	99.539	99.545	99.551	99.557
##	Dim.371	Dim.372	Dim.373	Dim.374	Dim.375
## Variance	2.412	2.378	2.340	2.326	2.306
## % of var.	0.006	0.006	0.006	0.006	0.005
## Cumulative % of var.	99.563	99.568	99.574	99.580	99.585
##	Dim.376	Dim.377	Dim.378	Dim.379	Dim.380
## Variance	2.300	2.281	2.263	2.240	2.216
## % of var.	0.005	0.005	0.005	0.005	0.005
## Cumulative % of var.	99.590	99.596	99.601	99.607	99.612
##	Dim.381	Dim.382	Dim.383	Dim.384	Dim.385
## Variance	2.203	2.175	2.146	2.087	2.077
## % of var.	0.005	0.005	0.005	0.005	0.005
## Cumulative % of var.	99.617	99.622	99.627	99.632	99.637
##	Dim.386	Dim.387	Dim.388	Dim.389	Dim.390
## Variance	2.044	2.036	2.020	1.995	1.976
## % of var.	0.005	0.005	0.005	0.005	0.005
## Cumulative % of var.	99.642	99.647	99.652	99.657	99.661
##	Dim.391	Dim.392	Dim.393	Dim.394	Dim.395
## Variance	1.959	1.942	1.918	1.895	1.886
## % of var.	0.005	0.005	0.005	0.005	0.004

## Cumulative % of var.	99.666	99.671	99.675	99.680	99.684
##	Dim.396	Dim.397	Dim.398	Dim.399	Dim.400
## Variance	1.849	1.820	1.810	1.779	1.761
## % of var.	0.004	0.004	0.004	0.004	0.004
## Cumulative % of var.	99.689	99.693	99.697	99.701	99.706
##	Dim.401	Dim.402	Dim.403	Dim.404	Dim.405
## Variance	1.746	1.731	1.714	1.701	1.676
## % of var.	0.004	0.004	0.004	0.004	0.004
## Cumulative % of var.	99.710	99.714	99.718	99.722	99.726
##	Dim.406	Dim.407	Dim.408	Dim.409	Dim.410
## Variance	1.670	1.633	1.619	1.590	1.581
## % of var.	0.004	0.004	0.004	0.004	0.004
## Cumulative % of var.	99.730	99.734	99.738	99.742	99.745
##	Dim.411	Dim.412	Dim.413	Dim.414	Dim.415
## Variance	1.570	1.554	1.545	1.538	1.516
## % of var.	0.004	0.004	0.004	0.004	0.004
## Cumulative % of var.	99.749	99.753	99.756	99.760	99.764
##	Dim.416	Dim.417	Dim.418	Dim.419	Dim.420
## Variance	1.512	1.502	1.484	1.462	1.435
## % of var.	0.004	0.004	0.004	0.003	0.003
## Cumulative % of var.	99.767	99.771	99.774	99.778	99.781
##	Dim.421	Dim.422	Dim.423	Dim.424	Dim.425
## Variance	1.421	1.390	1.380	1.369	1.344
## % of var.	0.003	0.003	0.003	0.003	0.003
## Cumulative % of var.	99.785	99.788	99.791	99.795	99.798
##	Dim.426	Dim.427	Dim.428	Dim.429	Dim.430
## Variance	1.335	1.292	1.289	1.277	1.236
## % of var.	0.003	0.003	0.003	0.003	0.003
## Cumulative % of var.	99.801	99.804	99.807	99.810	99.813
##	Dim.431	Dim.432	Dim.433	Dim.434	Dim.435
## Variance	1.213	1.205	1.200	1.189	1.172
## % of var.	0.003	0.003	0.003	0.003	0.003
## Cumulative % of var.	99.816	99.819	99.822	99.825	99.827
##	Dim.436	Dim.437	Dim.438	Dim.439	Dim.440
## Variance	1.148	1.132	1.114	1.103	1.096
## % of var.	0.003	0.003	0.003	0.003	0.003
## Cumulative % of var.	99.830	99.833	99.835	99.838	99.841
##	Dim.441	Dim.442	Dim.443	Dim.444	Dim.445
## Variance	1.085	1.057	1.053	1.031	1.027
## % of var.	0.003	0.003	0.003	0.002	0.002
## Cumulative % of var.	99.843	99.846	99.848	99.851	99.853
##	Dim.446	Dim.447	Dim.448	Dim.449	Dim.450
## Variance	1.019	0.999	0.986	0.973	0.960
## % of var.	0.002	0.002	0.002	0.002	0.002
## Cumulative % of var.	99.856	99.858	99.860	99.863	99.865
##	Dim.451	Dim.452	Dim.453	Dim.454	Dim.455
## Variance	0.958	0.934	0.912	0.896	0.892
## % of var.	0.002	0.002	0.002	0.002	0.002
## Cumulative % of var.	99.867	99.869	99.872	99.874	99.876
##	Dim.456	Dim.457	Dim.458	Dim.459	Dim.460

## Variance	0.887	0.868	0.863	0.857	0.831
## % of var.	0.002	0.002	0.002	0.002	0.002
## Cumulative % of var.	99.878	99.880	99.882	99.884	99.886
##	Dim.461	Dim.462	Dim.463	Dim.464	Dim.465
## Variance	0.819	0.810	0.800	0.771	0.761
## % of var.	0.002	0.002	0.002	0.002	0.002
## Cumulative % of var.	99.888	99.890	99.892	99.894	99.895
##	Dim.466	Dim.467	Dim.468	Dim.469	Dim.470
## Variance	0.758	0.753	0.745	0.736	0.727
## % of var.	0.002	0.002	0.002	0.002	0.002
## Cumulative % of var.	99.897	99.899	99.901	99.903	99.904
##	Dim.471	Dim.472	Dim.473	Dim.474	Dim.475
## Variance	0.719	0.707	0.700	0.691	0.683
## % of var.	0.002	0.002	0.002	0.002	0.002
## Cumulative % of var.	99.906	99.908	99.909	99.911	99.913
##	Dim.476	Dim.477	Dim.478	Dim.479	Dim.480
## Variance	0.679	0.673	0.651	0.642	0.627
## % of var.	0.002	0.002	0.002	0.002	0.001
## Cumulative % of var.	99.914	99.916	99.917	99.919	99.920
##	Dim.481	Dim.482	Dim.483	Dim.484	Dim.485
## Variance	0.619	0.612	0.604	0.591	0.580
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.922	99.923	99.925	99.926	99.928
##	Dim.486	Dim.487	Dim.488	Dim.489	Dim.490
## Variance	0.572	0.568	0.559	0.553	0.546
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.929	99.930	99.932	99.933	99.934
##	Dim.491	Dim.492	Dim.493	Dim.494	Dim.495
## Variance	0.535	0.532	0.518	0.510	0.500
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.936	99.937	99.938	99.939	99.940
##	Dim.496	Dim.497	Dim.498	Dim.499	Dim.500
## Variance	0.483	0.480	0.472	0.467	0.458
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.942	99.943	99.944	99.945	99.946
##	Dim.501	Dim.502	Dim.503	Dim.504	Dim.505
## Variance	0.457	0.452	0.445	0.441	0.431
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.947	99.948	99.949	99.950	99.951
##	Dim.506	Dim.507	Dim.508	Dim.509	Dim.510
## Variance	0.412	0.403	0.397	0.392	0.386
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.952	99.953	99.954	99.955	99.956
##	Dim.511	Dim.512	Dim.513	Dim.514	Dim.515
## Variance	0.383	0.376	0.373	0.365	0.355
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.957	99.958	99.959	99.960	99.961
##	Dim.516	Dim.517	Dim.518	Dim.519	Dim.520
## Variance	0.350	0.348	0.346	0.343	0.337
## % of var.	0.001	0.001	0.001	0.001	0.001

## Cumulative % of var.	99.961	99.962	99.963	99.964	99.965
##	Dim.521	Dim.522	Dim.523	Dim.524	Dim.525
## Variance	0.327	0.326	0.315	0.311	0.311
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.965	99.966	99.967	99.968	99.968
##	Dim.526	Dim.527	Dim.528	Dim.529	Dim.530
## Variance	0.307	0.302	0.299	0.297	0.279
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.969	99.970	99.971	99.971	99.972
##	Dim.531	Dim.532	Dim.533	Dim.534	Dim.535
## Variance	0.278	0.268	0.264	0.261	0.256
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.973	99.973	99.974	99.975	99.975
##	Dim.536	Dim.537	Dim.538	Dim.539	Dim.540
## Variance	0.253	0.247	0.241	0.234	0.232
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.976	99.976	99.977	99.977	99.978
##	Dim.541	Dim.542	Dim.543	Dim.544	Dim.545
## Variance	0.229	0.227	0.220	0.218	0.217
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.979	99.979	99.980	99.980	99.981
##	Dim.546	Dim.547	Dim.548	Dim.549	Dim.550
## Variance	0.214	0.205	0.195	0.194	0.186
## % of var.	0.001	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.981	99.982	99.982	99.983	99.983
##	Dim.551	Dim.552	Dim.553	Dim.554	Dim.555
## Variance	0.182	0.180	0.173	0.171	0.165
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.983	99.984	99.984	99.985	99.985
##	Dim.556	Dim.557	Dim.558	Dim.559	Dim.560
## Variance	0.163	0.161	0.159	0.152	0.150
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.985	99.986	99.986	99.987	99.987
##	Dim.561	Dim.562	Dim.563	Dim.564	Dim.565
## Variance	0.148	0.146	0.144	0.142	0.135
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.987	99.988	99.988	99.988	99.989
##	Dim.566	Dim.567	Dim.568	Dim.569	Dim.570
## Variance	0.133	0.131	0.123	0.121	0.121
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.989	99.989	99.990	99.990	99.990
##	Dim.571	Dim.572	Dim.573	Dim.574	Dim.575
## Variance	0.119	0.118	0.118	0.114	0.113
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.990	99.991	99.991	99.991	99.992
##	Dim.576	Dim.577	Dim.578	Dim.579	Dim.580
## Variance	0.107	0.104	0.103	0.098	0.096
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.992	99.992	99.992	99.993	99.993
##	Dim.581	Dim.582	Dim.583	Dim.584	Dim.585

## Variance	0.090	0.089	0.088	0.085	0.085
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.993	99.993	99.993	99.994	99.994
##	Dim.586	Dim.587	Dim.588	Dim.589	Dim.590
## Variance	0.083	0.082	0.078	0.077	0.074
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.994	99.994	99.994	99.995	99.995
##	Dim.591	Dim.592	Dim.593	Dim.594	Dim.595
## Variance	0.074	0.074	0.070	0.068	0.066
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.995	99.995	99.995	99.995	99.996
##	Dim.596	Dim.597	Dim.598	Dim.599	Dim.600
## Variance	0.064	0.062	0.060	0.060	0.058
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.996	99.996	99.996	99.996	99.996
##	Dim.601	Dim.602	Dim.603	Dim.604	Dim.605
## Variance	0.055	0.052	0.051	0.050	0.049
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.996	99.997	99.997	99.997	99.997
##	Dim.606	Dim.607	Dim.608	Dim.609	Dim.610
## Variance	0.049	0.048	0.047	0.046	0.044
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.997	99.997	99.997	99.997	99.997
##	Dim.611	Dim.612	Dim.613	Dim.614	Dim.615
## Variance	0.041	0.040	0.036	0.035	0.034
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.998	99.998	99.998	99.998	99.998
##	Dim.616	Dim.617	Dim.618	Dim.619	Dim.620
## Variance	0.034	0.033	0.032	0.032	0.031
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.998	99.998	99.998	99.998	99.998
##	Dim.621	Dim.622	Dim.623	Dim.624	Dim.625
## Variance	0.030	0.030	0.028	0.028	0.027
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.998	99.998	99.998	99.999	99.999
##	Dim.626	Dim.627	Dim.628	Dim.629	Dim.630
## Variance	0.026	0.025	0.024	0.024	0.023
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.999	99.999	99.999	99.999	99.999
##	Dim.631	Dim.632	Dim.633	Dim.634	Dim.635
## Variance	0.022	0.021	0.021	0.020	0.020
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.999	99.999	99.999	99.999	99.999
##	Dim.636	Dim.637	Dim.638	Dim.639	Dim.640
## Variance	0.020	0.019	0.019	0.016	0.016
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.999	99.999	99.999	99.999	99.999
##	Dim.641	Dim.642	Dim.643	Dim.644	Dim.645
## Variance	0.015	0.015	0.014	0.013	0.013
## % of var.	0.000	0.000	0.000	0.000	0.000

## Cumulative % of var.	99.999	99.999	99.999	100.000	100.000
##	Dim.646	Dim.647	Dim.648	Dim.649	Dim.650
## Variance	0.011	0.011	0.010	0.010	0.009
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000
##	Dim.651	Dim.652	Dim.653	Dim.654	Dim.655
## Variance	0.009	0.009	0.008	0.008	0.007
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000
##	Dim.656	Dim.657	Dim.658	Dim.659	Dim.660
## Variance	0.007	0.007	0.007	0.006	0.006
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000
##	Dim.661	Dim.662	Dim.663	Dim.664	Dim.665
## Variance	0.006	0.006	0.006	0.004	0.004
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000
##	Dim.666	Dim.667	Dim.668	Dim.669	Dim.670
## Variance	0.004	0.003	0.003	0.003	0.003
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000
##	Dim.671	Dim.672	Dim.673	Dim.674	Dim.675
## Variance	0.002	0.002	0.002	0.002	0.002
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000
##	Dim.676	Dim.677	Dim.678	Dim.679	Dim.680
## Variance	0.001	0.001	0.001	0.001	0.001
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000
##	Dim.681	Dim.682	Dim.683	Dim.684	Dim.685
## Variance	0.001	0.001	0.001	0.001	0.001
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000
##	Dim.686	Dim.687	Dim.688	Dim.689	Dim.690
## Variance	0.001	0.001	0.000	0.000	0.000
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000
##	Dim.691	Dim.692	Dim.693	Dim.694	Dim.695
## Variance	0.000	0.000	0.000	0.000	0.000
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000
##	Dim.696	Dim.697	Dim.698	Dim.699	Dim.700
## Variance	0.000	0.000	0.000	0.000	0.000
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000
##	Dim.701	Dim.702	Dim.703	Dim.704	Dim.705
## Variance	0.000	0.000	0.000	0.000	0.000
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000
##	Dim.706	Dim.707	Dim.708	Dim.709	Dim.710

[illegible]

```

## Cumulative % of var.  100.000  100.000  100.000  100.000  100.000
##                        Dim.771  Dim.772  Dim.773  Dim.774  Dim.775
## Variance              0.000    0.000    0.000    0.000    0.000
## % of var.             0.000    0.000    0.000    0.000    0.000
## Cumulative % of var.  100.000  100.000  100.000  100.000  100.000
##                        Dim.776  Dim.777  Dim.778  Dim.779  Dim.780
## Variance              0.000    0.000    0.000    0.000    0.000
## % of var.             0.000    0.000    0.000    0.000    0.000
## Cumulative % of var.  100.000  100.000  100.000  100.000  100.000
##                        Dim.781  Dim.782  Dim.783
## Variance              0.000    0.000    0.000
## % of var.             0.000    0.000    0.000
## Cumulative % of var.  100.000  100.000  100.000
##
## Individuals (the 10 first)
##           Dist    Dim.1    ctr    cos2    Dim.2    ctr    cos2
Dim.3
## 0      |  87.988 | -85.829  0.072  0.952 | -10.867  0.006  0.015 | -
9.555
## 1      |  87.988 | -85.829  0.072  0.952 | -10.867  0.006  0.015 | -
9.555
## 2      |  87.988 | -85.829  0.072  0.952 | -10.867  0.006  0.015 | -
9.555
## 3      |  87.988 | -85.829  0.072  0.952 | -10.867  0.006  0.015 | -
9.555
## 4      |  87.988 | -85.829  0.072  0.952 | -10.867  0.006  0.015 | -
9.555
## 5      |  87.988 | -85.829  0.072  0.952 | -10.867  0.006  0.015 | -
9.555
## 6      |  87.988 | -85.829  0.072  0.952 | -10.867  0.006  0.015 | -
9.555
## 7      |  87.988 | -85.829  0.072  0.952 | -10.867  0.006  0.015 | -
9.555
## 8      |  87.988 | -85.829  0.072  0.952 | -10.867  0.006  0.015 | -
9.555
## 9      |  87.988 | -85.829  0.072  0.952 | -10.867  0.006  0.015 | -
9.555
##           ctr    cos2
## 0      0.005  0.012 |
## 1      0.005  0.012 |
## 2      0.005  0.012 |
## 3      0.005  0.012 |
## 4      0.005  0.012 |
## 5      0.005  0.012 |
## 6      0.005  0.012 |
## 7      0.005  0.012 |
## 8      0.005  0.012 |
## 9      0.005  0.012 |
##
## Variables (the 10 first)

```

	Dim.1	ctr	cos2	Dim.2	ctr	cos2	Dim.3	ctr
## cos2								
## V1	0.419	0.001	0.176	-0.407	0.006	0.165	0.198	0.002
0.039								
## V2	0.501	0.002	0.251	0.374	0.005	0.140	0.434	0.009
0.189								
## V3	0.534	0.002	0.285	-0.467	0.008	0.218	-0.077	0.000
0.006								
## V4	0.269	0.001	0.073	0.244	0.002	0.060	-0.020	0.000
0.000								
## V5	0.452	0.002	0.205	0.373	0.005	0.139	0.449	0.009
0.202								
## V6	0.576	0.003	0.332	0.350	0.005	0.122	0.116	0.001
0.013								
## V7	0.502	0.002	0.252	-0.054	0.000	0.003	-0.407	0.008
0.166								
## V8	0.347	0.001	0.120	0.069	0.000	0.005	0.021	0.000
0.000								
## V9	0.640	0.003	0.410	0.221	0.002	0.049	0.050	0.000
0.002								
## V10	0.570	0.003	0.325	-0.084	0.000	0.007	0.337	0.005
0.114								

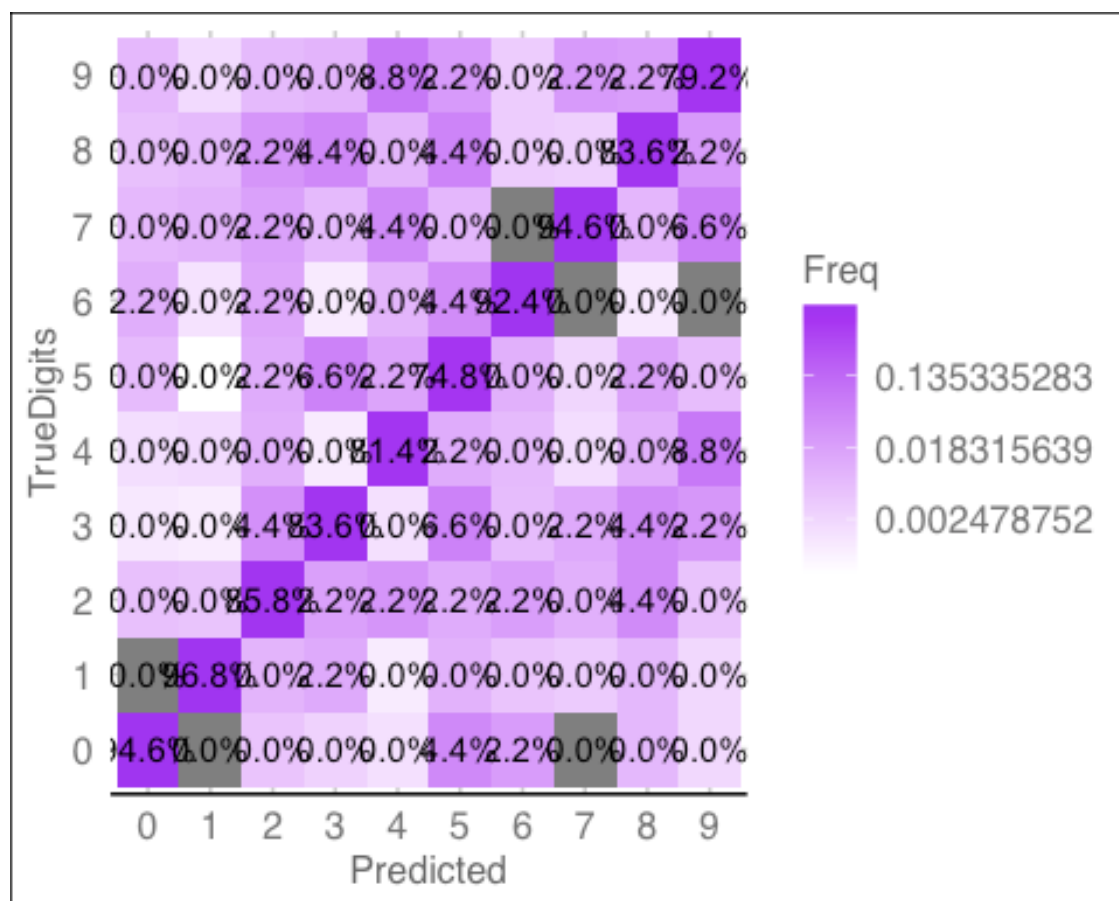
```
model_nb_50<-runNB(pca_50)
```

```
##
## ===== Naive Bayes
## =====
##
## - Call: naive_bayes.formula(formula = label ~ ., data = trainDF)
## - Laplace: 0
## - Classes: 10
## - Samples: 25205
## - Features: 50
## - Conditional distributions:
##   - Gaussian: 50
## - Prior probabilities:
##   - 0: 0.0984
##   - 1: 0.1115
##   - 2: 0.0995
##   - 3: 0.1036
##   - 4: 0.097
##   - 5: 0.0903
##   - 6: 0.0985
##   - 7: 0.1048
##   - 8: 0.0967
##   - 9: 0.0997
##
## -----
-----
```

```
## Warning: predict.naive_bayes(): more features in the newdata are provided
as
## there are probability tables in the object. Calculation is performed based
on
## features to be found in the tables.
```

```
##           TrueDigits
## Predicted  0    1    2    3    4    5    6    7    8    9
##           0 1507    0    9    2    3   11   18   12    9   12
##           1    0 1787    9    2    4    1    3   17   13    4
##           2    8   15 1427   56   17   20   25   30   46   12
##           3    5   22   32 1441    2   94    2   12   77   15
##           4    3    2   49    3 1409   28   15   74   15  134
##           5   77   17   21   97   21 1305   68   14   90   41
##           6   36    8   34   11   12   17 1521    0    6    6
##           7    0    6   16   21    3    4    0 1477    5   37
##           8   12   12   64   62   16   27    2   13 1323   32
##           9    4    4    9   45  141   11    0  111   41 1382
##           Accuracy           Kappa AccuracyLower AccuracyUpper AccuracyNull
##           0.8680560           0.8533846           0.8628441           0.8731400           0.1115213
## AccuracyPValue McnemarPValue
##           0.0000000           NaN
```

```
## Warning: Transformation introduced infinite values in discrete y-axis
```



```
pca_100<-getTopPCAFeatures(DigitTotalDF,100)
```

```
##
## Call:
## PCA(X = t(select(df, -label)), ncp = ncp, graph = FALSE)
##
##
## Eigenvalues
##
```

	Dim.1	Dim.2	Dim.3	Dim.4	Dim.5
## Variance	12975.886	2635.187	2146.048	1747.535	1465.951
## % of var.	30.895	6.274	5.110	4.161	3.490
## Cumulative % of var.	30.895	37.169	42.279	46.440	49.930
##	Dim.6	Dim.7	Dim.8	Dim.9	Dim.10
## Variance	1358.547	1135.701	884.896	855.251	734.998
## % of var.	3.235	2.704	2.107	2.036	1.750
## Cumulative % of var.	53.165	55.869	57.976	60.012	61.762
##	Dim.11	Dim.12	Dim.13	Dim.14	Dim.15
## Variance	664.973	634.157	551.036	515.912	483.259
## % of var.	1.583	1.510	1.312	1.228	1.151
## Cumulative % of var.	63.345	64.855	66.167	67.395	68.546
##	Dim.16	Dim.17	Dim.18	Dim.19	Dim.20
## Variance	451.099	420.945	388.013	361.053	349.113
## % of var.	1.074	1.002	0.924	0.860	0.831

## Cumulative % of var.	69.620	70.622	71.546	72.406	73.237
##	Dim.21	Dim.22	Dim.23	Dim.24	Dim.25
## Variance	329.622	310.712	298.708	281.495	275.884
## % of var.	0.785	0.740	0.711	0.670	0.657
## Cumulative % of var.	74.022	74.762	75.473	76.143	76.800
##	Dim.26	Dim.27	Dim.28	Dim.29	Dim.30
## Variance	268.984	252.330	236.925	226.065	219.194
## % of var.	0.640	0.601	0.564	0.538	0.522
## Cumulative % of var.	77.440	78.041	78.605	79.144	79.665
##	Dim.31	Dim.32	Dim.33	Dim.34	Dim.35
## Variance	203.959	202.286	185.225	181.697	173.988
## % of var.	0.486	0.482	0.441	0.433	0.414
## Cumulative % of var.	80.151	80.633	81.074	81.506	81.921
##	Dim.36	Dim.37	Dim.38	Dim.39	Dim.40
## Variance	172.056	160.255	156.645	149.836	146.561
## % of var.	0.410	0.382	0.373	0.357	0.349
## Cumulative % of var.	82.330	82.712	83.085	83.441	83.790
##	Dim.41	Dim.42	Dim.43	Dim.44	Dim.45
## Variance	140.441	137.162	131.753	125.734	123.529
## % of var.	0.334	0.327	0.314	0.299	0.294
## Cumulative % of var.	84.125	84.451	84.765	85.064	85.359
##	Dim.46	Dim.47	Dim.48	Dim.49	Dim.50
## Variance	122.862	115.733	109.800	108.063	100.205
## % of var.	0.293	0.276	0.261	0.257	0.239
## Cumulative % of var.	85.651	85.927	86.188	86.445	86.684
##	Dim.51	Dim.52	Dim.53	Dim.54	Dim.55
## Variance	99.257	98.063	93.201	92.249	89.483
## % of var.	0.236	0.233	0.222	0.220	0.213
## Cumulative % of var.	86.920	87.154	87.376	87.595	87.808
##	Dim.56	Dim.57	Dim.58	Dim.59	Dim.60
## Variance	87.033	85.270	83.513	81.175	78.975
## % of var.	0.207	0.203	0.199	0.193	0.188
## Cumulative % of var.	88.016	88.219	88.417	88.611	88.799
##	Dim.61	Dim.62	Dim.63	Dim.64	Dim.65
## Variance	76.732	76.033	73.240	71.087	69.891
## % of var.	0.183	0.181	0.174	0.169	0.166
## Cumulative % of var.	88.981	89.163	89.337	89.506	89.673
##	Dim.66	Dim.67	Dim.68	Dim.69	Dim.70
## Variance	67.076	65.846	63.704	62.539	61.504
## % of var.	0.160	0.157	0.152	0.149	0.146
## Cumulative % of var.	89.832	89.989	90.141	90.290	90.436
##	Dim.71	Dim.72	Dim.73	Dim.74	Dim.75
## Variance	58.632	58.470	56.065	55.675	53.772
## % of var.	0.140	0.139	0.133	0.133	0.128
## Cumulative % of var.	90.576	90.715	90.848	90.981	91.109
##	Dim.76	Dim.77	Dim.78	Dim.79	Dim.80
## Variance	52.344	50.752	50.151	47.664	47.097
## % of var.	0.125	0.121	0.119	0.113	0.112
## Cumulative % of var.	91.234	91.354	91.474	91.587	91.699
##	Dim.81	Dim.82	Dim.83	Dim.84	Dim.85

## Variance	45.959	45.670	45.134	43.399	43.159
## % of var.	0.109	0.109	0.107	0.103	0.103
## Cumulative % of var.	91.809	91.918	92.025	92.128	92.231
##	Dim.86	Dim.87	Dim.88	Dim.89	Dim.90
## Variance	42.732	41.986	40.222	39.688	38.618
## % of var.	0.102	0.100	0.096	0.094	0.092
## Cumulative % of var.	92.333	92.433	92.529	92.623	92.715
##	Dim.91	Dim.92	Dim.93	Dim.94	Dim.95
## Variance	37.900	37.111	36.558	35.693	35.451
## % of var.	0.090	0.088	0.087	0.085	0.084
## Cumulative % of var.	92.805	92.894	92.981	93.066	93.150
##	Dim.96	Dim.97	Dim.98	Dim.99	Dim.100
## Variance	35.000	33.741	33.657	33.108	32.255
## % of var.	0.083	0.080	0.080	0.079	0.077
## Cumulative % of var.	93.233	93.314	93.394	93.473	93.550
##	Dim.101	Dim.102	Dim.103	Dim.104	Dim.105
## Variance	31.708	30.818	30.512	29.322	28.925
## % of var.	0.075	0.073	0.073	0.070	0.069
## Cumulative % of var.	93.625	93.698	93.771	93.841	93.910
##	Dim.106	Dim.107	Dim.108	Dim.109	Dim.110
## Variance	28.795	27.708	27.390	27.292	26.586
## % of var.	0.069	0.066	0.065	0.065	0.063
## Cumulative % of var.	93.978	94.044	94.109	94.174	94.238
##	Dim.111	Dim.112	Dim.113	Dim.114	Dim.115
## Variance	26.039	25.709	25.584	25.304	25.182
## % of var.	0.062	0.061	0.061	0.060	0.060
## Cumulative % of var.	94.300	94.361	94.422	94.482	94.542
##	Dim.116	Dim.117	Dim.118	Dim.119	Dim.120
## Variance	24.206	23.951	23.818	23.054	22.815
## % of var.	0.058	0.057	0.057	0.055	0.054
## Cumulative % of var.	94.600	94.657	94.713	94.768	94.823
##	Dim.121	Dim.122	Dim.123	Dim.124	Dim.125
## Variance	22.628	22.352	22.224	21.862	21.222
## % of var.	0.054	0.053	0.053	0.052	0.051
## Cumulative % of var.	94.877	94.930	94.983	95.035	95.085
##	Dim.126	Dim.127	Dim.128	Dim.129	Dim.130
## Variance	21.059	20.634	20.467	20.033	19.894
## % of var.	0.050	0.049	0.049	0.048	0.047
## Cumulative % of var.	95.135	95.185	95.233	95.281	95.328
##	Dim.131	Dim.132	Dim.133	Dim.134	Dim.135
## Variance	19.503	19.289	19.223	18.915	18.460
## % of var.	0.046	0.046	0.046	0.045	0.044
## Cumulative % of var.	95.375	95.421	95.466	95.511	95.555
##	Dim.136	Dim.137	Dim.138	Dim.139	Dim.140
## Variance	18.290	18.250	18.088	17.507	17.219
## % of var.	0.044	0.043	0.043	0.042	0.041
## Cumulative % of var.	95.599	95.642	95.686	95.727	95.768
##	Dim.141	Dim.142	Dim.143	Dim.144	Dim.145
## Variance	16.825	16.398	16.186	16.169	15.900
## % of var.	0.040	0.039	0.039	0.038	0.038

## Cumulative % of var.	95.808	95.847	95.886	95.924	95.962
##	Dim.146	Dim.147	Dim.148	Dim.149	Dim.150
## Variance	15.761	15.658	15.577	15.477	15.321
## % of var.	0.038	0.037	0.037	0.037	0.036
## Cumulative % of var.	96.000	96.037	96.074	96.111	96.147
##	Dim.151	Dim.152	Dim.153	Dim.154	Dim.155
## Variance	15.094	14.926	14.829	14.612	14.562
## % of var.	0.036	0.036	0.035	0.035	0.035
## Cumulative % of var.	96.183	96.219	96.254	96.289	96.324
##	Dim.156	Dim.157	Dim.158	Dim.159	Dim.160
## Variance	14.468	14.192	13.834	13.675	13.475
## % of var.	0.034	0.034	0.033	0.033	0.032
## Cumulative % of var.	96.358	96.392	96.425	96.457	96.489
##	Dim.161	Dim.162	Dim.163	Dim.164	Dim.165
## Variance	13.389	13.298	13.073	12.872	12.801
## % of var.	0.032	0.032	0.031	0.031	0.030
## Cumulative % of var.	96.521	96.553	96.584	96.615	96.645
##	Dim.166	Dim.167	Dim.168	Dim.169	Dim.170
## Variance	12.616	12.526	12.381	12.338	12.194
## % of var.	0.030	0.030	0.029	0.029	0.029
## Cumulative % of var.	96.675	96.705	96.735	96.764	96.793
##	Dim.171	Dim.172	Dim.173	Dim.174	Dim.175
## Variance	12.051	11.965	11.780	11.716	11.592
## % of var.	0.029	0.028	0.028	0.028	0.028
## Cumulative % of var.	96.822	96.850	96.878	96.906	96.934
##	Dim.176	Dim.177	Dim.178	Dim.179	Dim.180
## Variance	11.287	11.160	11.056	10.858	10.780
## % of var.	0.027	0.027	0.026	0.026	0.026
## Cumulative % of var.	96.961	96.987	97.014	97.039	97.065
##	Dim.181	Dim.182	Dim.183	Dim.184	Dim.185
## Variance	10.626	10.585	10.574	10.451	10.389
## % of var.	0.025	0.025	0.025	0.025	0.025
## Cumulative % of var.	97.090	97.116	97.141	97.166	97.190
##	Dim.186	Dim.187	Dim.188	Dim.189	Dim.190
## Variance	10.327	10.181	10.151	9.965	9.863
## % of var.	0.025	0.024	0.024	0.024	0.023
## Cumulative % of var.	97.215	97.239	97.263	97.287	97.311
##	Dim.191	Dim.192	Dim.193	Dim.194	Dim.195
## Variance	9.825	9.749	9.691	9.637	9.542
## % of var.	0.023	0.023	0.023	0.023	0.023
## Cumulative % of var.	97.334	97.357	97.380	97.403	97.426
##	Dim.196	Dim.197	Dim.198	Dim.199	Dim.200
## Variance	9.502	9.399	9.342	9.198	9.163
## % of var.	0.023	0.022	0.022	0.022	0.022
## Cumulative % of var.	97.448	97.471	97.493	97.515	97.537
##	Dim.201	Dim.202	Dim.203	Dim.204	Dim.205
## Variance	9.071	8.888	8.812	8.673	8.653
## % of var.	0.022	0.021	0.021	0.021	0.021
## Cumulative % of var.	97.558	97.580	97.601	97.621	97.642
##	Dim.206	Dim.207	Dim.208	Dim.209	Dim.210

## Variance	8.584	8.445	8.376	8.341	8.302
## % of var.	0.020	0.020	0.020	0.020	0.020
## Cumulative % of var.	97.662	97.682	97.702	97.722	97.742
##	Dim.211	Dim.212	Dim.213	Dim.214	Dim.215
## Variance	8.247	8.225	8.151	8.076	8.001
## % of var.	0.020	0.020	0.019	0.019	0.019
## Cumulative % of var.	97.762	97.781	97.801	97.820	97.839
##	Dim.216	Dim.217	Dim.218	Dim.219	Dim.220
## Variance	7.939	7.859	7.823	7.807	7.708
## % of var.	0.019	0.019	0.019	0.019	0.018
## Cumulative % of var.	97.858	97.876	97.895	97.914	97.932
##	Dim.221	Dim.222	Dim.223	Dim.224	Dim.225
## Variance	7.679	7.574	7.502	7.472	7.428
## % of var.	0.018	0.018	0.018	0.018	0.018
## Cumulative % of var.	97.950	97.968	97.986	98.004	98.022
##	Dim.226	Dim.227	Dim.228	Dim.229	Dim.230
## Variance	7.380	7.295	7.171	7.139	7.066
## % of var.	0.018	0.017	0.017	0.017	0.017
## Cumulative % of var.	98.039	98.057	98.074	98.091	98.108
##	Dim.231	Dim.232	Dim.233	Dim.234	Dim.235
## Variance	6.982	6.966	6.898	6.861	6.811
## % of var.	0.017	0.017	0.016	0.016	0.016
## Cumulative % of var.	98.124	98.141	98.157	98.173	98.190
##	Dim.236	Dim.237	Dim.238	Dim.239	Dim.240
## Variance	6.726	6.659	6.631	6.563	6.485
## % of var.	0.016	0.016	0.016	0.016	0.015
## Cumulative % of var.	98.206	98.222	98.237	98.253	98.268
##	Dim.241	Dim.242	Dim.243	Dim.244	Dim.245
## Variance	6.449	6.408	6.366	6.331	6.306
## % of var.	0.015	0.015	0.015	0.015	0.015
## Cumulative % of var.	98.284	98.299	98.314	98.329	98.344
##	Dim.246	Dim.247	Dim.248	Dim.249	Dim.250
## Variance	6.230	6.177	6.149	6.014	6.005
## % of var.	0.015	0.015	0.015	0.014	0.014
## Cumulative % of var.	98.359	98.374	98.388	98.403	98.417
##	Dim.251	Dim.252	Dim.253	Dim.254	Dim.255
## Variance	5.957	5.900	5.878	5.854	5.783
## % of var.	0.014	0.014	0.014	0.014	0.014
## Cumulative % of var.	98.431	98.445	98.459	98.473	98.487
##	Dim.256	Dim.257	Dim.258	Dim.259	Dim.260
## Variance	5.769	5.685	5.658	5.632	5.605
## % of var.	0.014	0.014	0.013	0.013	0.013
## Cumulative % of var.	98.501	98.514	98.528	98.541	98.555
##	Dim.261	Dim.262	Dim.263	Dim.264	Dim.265
## Variance	5.539	5.491	5.438	5.435	5.400
## % of var.	0.013	0.013	0.013	0.013	0.013
## Cumulative % of var.	98.568	98.581	98.594	98.607	98.620
##	Dim.266	Dim.267	Dim.268	Dim.269	Dim.270
## Variance	5.343	5.329	5.233	5.218	5.188
## % of var.	0.013	0.013	0.012	0.012	0.012

## Cumulative % of var.	98.632	98.645	98.657	98.670	98.682
##	Dim.271	Dim.272	Dim.273	Dim.274	Dim.275
## Variance	5.123	5.080	5.060	5.041	4.981
## % of var.	0.012	0.012	0.012	0.012	0.012
## Cumulative % of var.	98.694	98.706	98.719	98.731	98.742
##	Dim.276	Dim.277	Dim.278	Dim.279	Dim.280
## Variance	4.964	4.911	4.873	4.857	4.850
## % of var.	0.012	0.012	0.012	0.012	0.012
## Cumulative % of var.	98.754	98.766	98.777	98.789	98.801
##	Dim.281	Dim.282	Dim.283	Dim.284	Dim.285
## Variance	4.817	4.797	4.743	4.690	4.672
## % of var.	0.011	0.011	0.011	0.011	0.011
## Cumulative % of var.	98.812	98.823	98.835	98.846	98.857
##	Dim.286	Dim.287	Dim.288	Dim.289	Dim.290
## Variance	4.640	4.599	4.585	4.555	4.495
## % of var.	0.011	0.011	0.011	0.011	0.011
## Cumulative % of var.	98.868	98.879	98.890	98.901	98.912
##	Dim.291	Dim.292	Dim.293	Dim.294	Dim.295
## Variance	4.487	4.459	4.427	4.403	4.373
## % of var.	0.011	0.011	0.011	0.010	0.010
## Cumulative % of var.	98.922	98.933	98.943	98.954	98.964
##	Dim.296	Dim.297	Dim.298	Dim.299	Dim.300
## Variance	4.344	4.304	4.278	4.250	4.174
## % of var.	0.010	0.010	0.010	0.010	0.010
## Cumulative % of var.	98.975	98.985	98.995	99.005	99.015
##	Dim.301	Dim.302	Dim.303	Dim.304	Dim.305
## Variance	4.159	4.147	4.104	4.099	4.041
## % of var.	0.010	0.010	0.010	0.010	0.010
## Cumulative % of var.	99.025	99.035	99.045	99.054	99.064
##	Dim.306	Dim.307	Dim.308	Dim.309	Dim.310
## Variance	4.012	3.996	3.948	3.919	3.906
## % of var.	0.010	0.010	0.009	0.009	0.009
## Cumulative % of var.	99.074	99.083	99.092	99.102	99.111
##	Dim.311	Dim.312	Dim.313	Dim.314	Dim.315
## Variance	3.889	3.875	3.839	3.785	3.741
## % of var.	0.009	0.009	0.009	0.009	0.009
## Cumulative % of var.	99.120	99.130	99.139	99.148	99.157
##	Dim.316	Dim.317	Dim.318	Dim.319	Dim.320
## Variance	3.724	3.682	3.668	3.644	3.624
## % of var.	0.009	0.009	0.009	0.009	0.009
## Cumulative % of var.	99.166	99.174	99.183	99.192	99.200
##	Dim.321	Dim.322	Dim.323	Dim.324	Dim.325
## Variance	3.582	3.576	3.538	3.490	3.472
## % of var.	0.009	0.009	0.008	0.008	0.008
## Cumulative % of var.	99.209	99.217	99.226	99.234	99.242
##	Dim.326	Dim.327	Dim.328	Dim.329	Dim.330
## Variance	3.443	3.392	3.378	3.353	3.342
## % of var.	0.008	0.008	0.008	0.008	0.008
## Cumulative % of var.	99.251	99.259	99.267	99.275	99.283
##	Dim.331	Dim.332	Dim.333	Dim.334	Dim.335

## Variance	3.335	3.289	3.266	3.250	3.243
## % of var.	0.008	0.008	0.008	0.008	0.008
## Cumulative % of var.	99.291	99.298	99.306	99.314	99.322
##	Dim.336	Dim.337	Dim.338	Dim.339	Dim.340
## Variance	3.228	3.202	3.183	3.169	3.157
## % of var.	0.008	0.008	0.008	0.008	0.008
## Cumulative % of var.	99.329	99.337	99.345	99.352	99.360
##	Dim.341	Dim.342	Dim.343	Dim.344	Dim.345
## Variance	3.103	3.083	3.070	3.052	3.031
## % of var.	0.007	0.007	0.007	0.007	0.007
## Cumulative % of var.	99.367	99.374	99.382	99.389	99.396
##	Dim.346	Dim.347	Dim.348	Dim.349	Dim.350
## Variance	3.011	3.002	2.950	2.918	2.889
## % of var.	0.007	0.007	0.007	0.007	0.007
## Cumulative % of var.	99.403	99.410	99.417	99.424	99.431
##	Dim.351	Dim.352	Dim.353	Dim.354	Dim.355
## Variance	2.832	2.819	2.810	2.768	2.757
## % of var.	0.007	0.007	0.007	0.007	0.007
## Cumulative % of var.	99.438	99.445	99.451	99.458	99.465
##	Dim.356	Dim.357	Dim.358	Dim.359	Dim.360
## Variance	2.733	2.709	2.695	2.678	2.671
## % of var.	0.007	0.006	0.006	0.006	0.006
## Cumulative % of var.	99.471	99.478	99.484	99.490	99.497
##	Dim.361	Dim.362	Dim.363	Dim.364	Dim.365
## Variance	2.652	2.645	2.610	2.542	2.519
## % of var.	0.006	0.006	0.006	0.006	0.006
## Cumulative % of var.	99.503	99.509	99.516	99.522	99.528
##	Dim.366	Dim.367	Dim.368	Dim.369	Dim.370
## Variance	2.515	2.492	2.468	2.448	2.434
## % of var.	0.006	0.006	0.006	0.006	0.006
## Cumulative % of var.	99.534	99.539	99.545	99.551	99.557
##	Dim.371	Dim.372	Dim.373	Dim.374	Dim.375
## Variance	2.412	2.378	2.340	2.326	2.306
## % of var.	0.006	0.006	0.006	0.006	0.005
## Cumulative % of var.	99.563	99.568	99.574	99.580	99.585
##	Dim.376	Dim.377	Dim.378	Dim.379	Dim.380
## Variance	2.300	2.281	2.263	2.240	2.216
## % of var.	0.005	0.005	0.005	0.005	0.005
## Cumulative % of var.	99.590	99.596	99.601	99.607	99.612
##	Dim.381	Dim.382	Dim.383	Dim.384	Dim.385
## Variance	2.203	2.175	2.146	2.087	2.077
## % of var.	0.005	0.005	0.005	0.005	0.005
## Cumulative % of var.	99.617	99.622	99.627	99.632	99.637
##	Dim.386	Dim.387	Dim.388	Dim.389	Dim.390
## Variance	2.044	2.036	2.020	1.995	1.976
## % of var.	0.005	0.005	0.005	0.005	0.005
## Cumulative % of var.	99.642	99.647	99.652	99.657	99.661
##	Dim.391	Dim.392	Dim.393	Dim.394	Dim.395
## Variance	1.959	1.942	1.918	1.895	1.886
## % of var.	0.005	0.005	0.005	0.005	0.004

## Cumulative % of var.	99.666	99.671	99.675	99.680	99.684
##	Dim.396	Dim.397	Dim.398	Dim.399	Dim.400
## Variance	1.849	1.820	1.810	1.779	1.761
## % of var.	0.004	0.004	0.004	0.004	0.004
## Cumulative % of var.	99.689	99.693	99.697	99.701	99.706
##	Dim.401	Dim.402	Dim.403	Dim.404	Dim.405
## Variance	1.746	1.731	1.714	1.701	1.676
## % of var.	0.004	0.004	0.004	0.004	0.004
## Cumulative % of var.	99.710	99.714	99.718	99.722	99.726
##	Dim.406	Dim.407	Dim.408	Dim.409	Dim.410
## Variance	1.670	1.633	1.619	1.590	1.581
## % of var.	0.004	0.004	0.004	0.004	0.004
## Cumulative % of var.	99.730	99.734	99.738	99.742	99.745
##	Dim.411	Dim.412	Dim.413	Dim.414	Dim.415
## Variance	1.570	1.554	1.545	1.538	1.516
## % of var.	0.004	0.004	0.004	0.004	0.004
## Cumulative % of var.	99.749	99.753	99.756	99.760	99.764
##	Dim.416	Dim.417	Dim.418	Dim.419	Dim.420
## Variance	1.512	1.502	1.484	1.462	1.435
## % of var.	0.004	0.004	0.004	0.003	0.003
## Cumulative % of var.	99.767	99.771	99.774	99.778	99.781
##	Dim.421	Dim.422	Dim.423	Dim.424	Dim.425
## Variance	1.421	1.390	1.380	1.369	1.344
## % of var.	0.003	0.003	0.003	0.003	0.003
## Cumulative % of var.	99.785	99.788	99.791	99.795	99.798
##	Dim.426	Dim.427	Dim.428	Dim.429	Dim.430
## Variance	1.335	1.292	1.289	1.277	1.236
## % of var.	0.003	0.003	0.003	0.003	0.003
## Cumulative % of var.	99.801	99.804	99.807	99.810	99.813
##	Dim.431	Dim.432	Dim.433	Dim.434	Dim.435
## Variance	1.213	1.205	1.200	1.189	1.172
## % of var.	0.003	0.003	0.003	0.003	0.003
## Cumulative % of var.	99.816	99.819	99.822	99.825	99.827
##	Dim.436	Dim.437	Dim.438	Dim.439	Dim.440
## Variance	1.148	1.132	1.114	1.103	1.096
## % of var.	0.003	0.003	0.003	0.003	0.003
## Cumulative % of var.	99.830	99.833	99.835	99.838	99.841
##	Dim.441	Dim.442	Dim.443	Dim.444	Dim.445
## Variance	1.085	1.057	1.053	1.031	1.027
## % of var.	0.003	0.003	0.003	0.002	0.002
## Cumulative % of var.	99.843	99.846	99.848	99.851	99.853
##	Dim.446	Dim.447	Dim.448	Dim.449	Dim.450
## Variance	1.019	0.999	0.986	0.973	0.960
## % of var.	0.002	0.002	0.002	0.002	0.002
## Cumulative % of var.	99.856	99.858	99.860	99.863	99.865
##	Dim.451	Dim.452	Dim.453	Dim.454	Dim.455
## Variance	0.958	0.934	0.912	0.896	0.892
## % of var.	0.002	0.002	0.002	0.002	0.002
## Cumulative % of var.	99.867	99.869	99.872	99.874	99.876
##	Dim.456	Dim.457	Dim.458	Dim.459	Dim.460

## Variance	0.887	0.868	0.863	0.857	0.831
## % of var.	0.002	0.002	0.002	0.002	0.002
## Cumulative % of var.	99.878	99.880	99.882	99.884	99.886
##	Dim.461	Dim.462	Dim.463	Dim.464	Dim.465
## Variance	0.819	0.810	0.800	0.771	0.761
## % of var.	0.002	0.002	0.002	0.002	0.002
## Cumulative % of var.	99.888	99.890	99.892	99.894	99.895
##	Dim.466	Dim.467	Dim.468	Dim.469	Dim.470
## Variance	0.758	0.753	0.745	0.736	0.727
## % of var.	0.002	0.002	0.002	0.002	0.002
## Cumulative % of var.	99.897	99.899	99.901	99.903	99.904
##	Dim.471	Dim.472	Dim.473	Dim.474	Dim.475
## Variance	0.719	0.707	0.700	0.691	0.683
## % of var.	0.002	0.002	0.002	0.002	0.002
## Cumulative % of var.	99.906	99.908	99.909	99.911	99.913
##	Dim.476	Dim.477	Dim.478	Dim.479	Dim.480
## Variance	0.679	0.673	0.651	0.642	0.627
## % of var.	0.002	0.002	0.002	0.002	0.001
## Cumulative % of var.	99.914	99.916	99.917	99.919	99.920
##	Dim.481	Dim.482	Dim.483	Dim.484	Dim.485
## Variance	0.619	0.612	0.604	0.591	0.580
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.922	99.923	99.925	99.926	99.928
##	Dim.486	Dim.487	Dim.488	Dim.489	Dim.490
## Variance	0.572	0.568	0.559	0.553	0.546
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.929	99.930	99.932	99.933	99.934
##	Dim.491	Dim.492	Dim.493	Dim.494	Dim.495
## Variance	0.535	0.532	0.518	0.510	0.500
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.936	99.937	99.938	99.939	99.940
##	Dim.496	Dim.497	Dim.498	Dim.499	Dim.500
## Variance	0.483	0.480	0.472	0.467	0.458
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.942	99.943	99.944	99.945	99.946
##	Dim.501	Dim.502	Dim.503	Dim.504	Dim.505
## Variance	0.457	0.452	0.445	0.441	0.431
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.947	99.948	99.949	99.950	99.951
##	Dim.506	Dim.507	Dim.508	Dim.509	Dim.510
## Variance	0.412	0.403	0.397	0.392	0.386
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.952	99.953	99.954	99.955	99.956
##	Dim.511	Dim.512	Dim.513	Dim.514	Dim.515
## Variance	0.383	0.376	0.373	0.365	0.355
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.957	99.958	99.959	99.960	99.961
##	Dim.516	Dim.517	Dim.518	Dim.519	Dim.520
## Variance	0.350	0.348	0.346	0.343	0.337
## % of var.	0.001	0.001	0.001	0.001	0.001

## Cumulative % of var.	99.961	99.962	99.963	99.964	99.965
##	Dim.521	Dim.522	Dim.523	Dim.524	Dim.525
## Variance	0.327	0.326	0.315	0.311	0.311
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.965	99.966	99.967	99.968	99.968
##	Dim.526	Dim.527	Dim.528	Dim.529	Dim.530
## Variance	0.307	0.302	0.299	0.297	0.279
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.969	99.970	99.971	99.971	99.972
##	Dim.531	Dim.532	Dim.533	Dim.534	Dim.535
## Variance	0.278	0.268	0.264	0.261	0.256
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.973	99.973	99.974	99.975	99.975
##	Dim.536	Dim.537	Dim.538	Dim.539	Dim.540
## Variance	0.253	0.247	0.241	0.234	0.232
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.976	99.976	99.977	99.977	99.978
##	Dim.541	Dim.542	Dim.543	Dim.544	Dim.545
## Variance	0.229	0.227	0.220	0.218	0.217
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.979	99.979	99.980	99.980	99.981
##	Dim.546	Dim.547	Dim.548	Dim.549	Dim.550
## Variance	0.214	0.205	0.195	0.194	0.186
## % of var.	0.001	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.981	99.982	99.982	99.983	99.983
##	Dim.551	Dim.552	Dim.553	Dim.554	Dim.555
## Variance	0.182	0.180	0.173	0.171	0.165
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.983	99.984	99.984	99.985	99.985
##	Dim.556	Dim.557	Dim.558	Dim.559	Dim.560
## Variance	0.163	0.161	0.159	0.152	0.150
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.985	99.986	99.986	99.987	99.987
##	Dim.561	Dim.562	Dim.563	Dim.564	Dim.565
## Variance	0.148	0.146	0.144	0.142	0.135
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.987	99.988	99.988	99.988	99.989
##	Dim.566	Dim.567	Dim.568	Dim.569	Dim.570
## Variance	0.133	0.131	0.123	0.121	0.121
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.989	99.989	99.990	99.990	99.990
##	Dim.571	Dim.572	Dim.573	Dim.574	Dim.575
## Variance	0.119	0.118	0.118	0.114	0.113
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.990	99.991	99.991	99.991	99.992
##	Dim.576	Dim.577	Dim.578	Dim.579	Dim.580
## Variance	0.107	0.104	0.103	0.098	0.096
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.992	99.992	99.992	99.993	99.993
##	Dim.581	Dim.582	Dim.583	Dim.584	Dim.585

## Variance	0.090	0.089	0.088	0.085	0.085
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.993	99.993	99.993	99.994	99.994
##	Dim.586	Dim.587	Dim.588	Dim.589	Dim.590
## Variance	0.083	0.082	0.078	0.077	0.074
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.994	99.994	99.994	99.995	99.995
##	Dim.591	Dim.592	Dim.593	Dim.594	Dim.595
## Variance	0.074	0.074	0.070	0.068	0.066
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.995	99.995	99.995	99.995	99.996
##	Dim.596	Dim.597	Dim.598	Dim.599	Dim.600
## Variance	0.064	0.062	0.060	0.060	0.058
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.996	99.996	99.996	99.996	99.996
##	Dim.601	Dim.602	Dim.603	Dim.604	Dim.605
## Variance	0.055	0.052	0.051	0.050	0.049
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.996	99.997	99.997	99.997	99.997
##	Dim.606	Dim.607	Dim.608	Dim.609	Dim.610
## Variance	0.049	0.048	0.047	0.046	0.044
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.997	99.997	99.997	99.997	99.997
##	Dim.611	Dim.612	Dim.613	Dim.614	Dim.615
## Variance	0.041	0.040	0.036	0.035	0.034
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.998	99.998	99.998	99.998	99.998
##	Dim.616	Dim.617	Dim.618	Dim.619	Dim.620
## Variance	0.034	0.033	0.032	0.032	0.031
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.998	99.998	99.998	99.998	99.998
##	Dim.621	Dim.622	Dim.623	Dim.624	Dim.625
## Variance	0.030	0.030	0.028	0.028	0.027
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.998	99.998	99.998	99.999	99.999
##	Dim.626	Dim.627	Dim.628	Dim.629	Dim.630
## Variance	0.026	0.025	0.024	0.024	0.023
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.999	99.999	99.999	99.999	99.999
##	Dim.631	Dim.632	Dim.633	Dim.634	Dim.635
## Variance	0.022	0.021	0.021	0.020	0.020
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.999	99.999	99.999	99.999	99.999
##	Dim.636	Dim.637	Dim.638	Dim.639	Dim.640
## Variance	0.020	0.019	0.019	0.016	0.016
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.999	99.999	99.999	99.999	99.999
##	Dim.641	Dim.642	Dim.643	Dim.644	Dim.645
## Variance	0.015	0.015	0.014	0.013	0.013
## % of var.	0.000	0.000	0.000	0.000	0.000

## Cumulative % of var.	99.999	99.999	99.999	100.000	100.000
##	Dim.646	Dim.647	Dim.648	Dim.649	Dim.650
## Variance	0.011	0.011	0.010	0.010	0.009
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000
##	Dim.651	Dim.652	Dim.653	Dim.654	Dim.655
## Variance	0.009	0.009	0.008	0.008	0.007
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000
##	Dim.656	Dim.657	Dim.658	Dim.659	Dim.660
## Variance	0.007	0.007	0.007	0.006	0.006
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000
##	Dim.661	Dim.662	Dim.663	Dim.664	Dim.665
## Variance	0.006	0.006	0.006	0.004	0.004
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000
##	Dim.666	Dim.667	Dim.668	Dim.669	Dim.670
## Variance	0.004	0.003	0.003	0.003	0.003
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000
##	Dim.671	Dim.672	Dim.673	Dim.674	Dim.675
## Variance	0.002	0.002	0.002	0.002	0.002
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000
##	Dim.676	Dim.677	Dim.678	Dim.679	Dim.680
## Variance	0.001	0.001	0.001	0.001	0.001
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000
##	Dim.681	Dim.682	Dim.683	Dim.684	Dim.685
## Variance	0.001	0.001	0.001	0.001	0.001
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000
##	Dim.686	Dim.687	Dim.688	Dim.689	Dim.690
## Variance	0.001	0.001	0.000	0.000	0.000
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000
##	Dim.691	Dim.692	Dim.693	Dim.694	Dim.695
## Variance	0.000	0.000	0.000	0.000	0.000
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000
##	Dim.696	Dim.697	Dim.698	Dim.699	Dim.700
## Variance	0.000	0.000	0.000	0.000	0.000
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000
##	Dim.701	Dim.702	Dim.703	Dim.704	Dim.705
## Variance	0.000	0.000	0.000	0.000	0.000
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000
##	Dim.706	Dim.707	Dim.708	Dim.709	Dim.710

[illegible]

```

## Cumulative % of var.  100.000  100.000  100.000  100.000  100.000
##                        Dim.771  Dim.772  Dim.773  Dim.774  Dim.775
## Variance              0.000    0.000    0.000    0.000    0.000
## % of var.             0.000    0.000    0.000    0.000    0.000
## Cumulative % of var.  100.000  100.000  100.000  100.000  100.000
##                        Dim.776  Dim.777  Dim.778  Dim.779  Dim.780
## Variance              0.000    0.000    0.000    0.000    0.000
## % of var.             0.000    0.000    0.000    0.000    0.000
## Cumulative % of var.  100.000  100.000  100.000  100.000  100.000
##                        Dim.781  Dim.782  Dim.783
## Variance              0.000    0.000    0.000
## % of var.             0.000    0.000    0.000
## Cumulative % of var.  100.000  100.000  100.000
##
## Individuals (the 10 first)
##           Dist    Dim.1    ctr    cos2    Dim.2    ctr    cos2
Dim.3
## 0      |  87.988 | -85.829  0.072  0.952 | -10.867  0.006  0.015 | -
9.555
## 1      |  87.988 | -85.829  0.072  0.952 | -10.867  0.006  0.015 | -
9.555
## 2      |  87.988 | -85.829  0.072  0.952 | -10.867  0.006  0.015 | -
9.555
## 3      |  87.988 | -85.829  0.072  0.952 | -10.867  0.006  0.015 | -
9.555
## 4      |  87.988 | -85.829  0.072  0.952 | -10.867  0.006  0.015 | -
9.555
## 5      |  87.988 | -85.829  0.072  0.952 | -10.867  0.006  0.015 | -
9.555
## 6      |  87.988 | -85.829  0.072  0.952 | -10.867  0.006  0.015 | -
9.555
## 7      |  87.988 | -85.829  0.072  0.952 | -10.867  0.006  0.015 | -
9.555
## 8      |  87.988 | -85.829  0.072  0.952 | -10.867  0.006  0.015 | -
9.555
## 9      |  87.988 | -85.829  0.072  0.952 | -10.867  0.006  0.015 | -
9.555
##           ctr    cos2
## 0      0.005  0.012 |
## 1      0.005  0.012 |
## 2      0.005  0.012 |
## 3      0.005  0.012 |
## 4      0.005  0.012 |
## 5      0.005  0.012 |
## 6      0.005  0.012 |
## 7      0.005  0.012 |
## 8      0.005  0.012 |
## 9      0.005  0.012 |
##
## Variables (the 10 first)

```

	Dim.1	ctr	cos2	Dim.2	ctr	cos2	Dim.3	ctr
## cos2								
## V1	0.419	0.001	0.176	-0.407	0.006	0.165	0.198	0.002
0.039								
## V2	0.501	0.002	0.251	0.374	0.005	0.140	0.434	0.009
0.189								
## V3	0.534	0.002	0.285	-0.467	0.008	0.218	-0.077	0.000
0.006								
## V4	0.269	0.001	0.073	0.244	0.002	0.060	-0.020	0.000
0.000								
## V5	0.452	0.002	0.205	0.373	0.005	0.139	0.449	0.009
0.202								
## V6	0.576	0.003	0.332	0.350	0.005	0.122	0.116	0.001
0.013								
## V7	0.502	0.002	0.252	-0.054	0.000	0.003	-0.407	0.008
0.166								
## V8	0.347	0.001	0.120	0.069	0.000	0.005	0.021	0.000
0.000								
## V9	0.640	0.003	0.410	0.221	0.002	0.049	0.050	0.000
0.002								
## V10	0.570	0.003	0.325	-0.084	0.000	0.007	0.337	0.005
0.114								

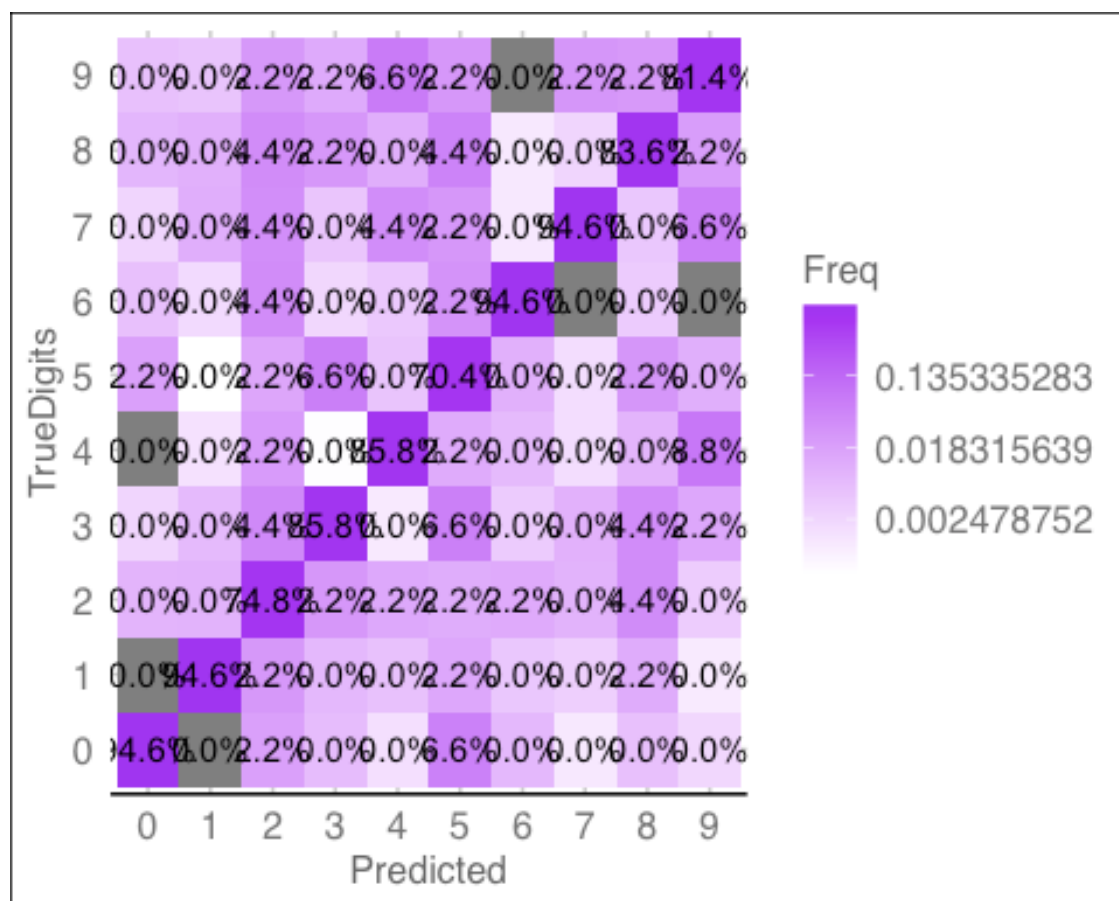
```
model_nb_100<-runNB(pca_100)
```

```
##
## ===== Naive Bayes
## =====
##
## - Call: naive_bayes.formula(formula = label ~ ., data = trainDF)
## - Laplace: 0
## - Classes: 10
## - Samples: 25205
## - Features: 100
## - Conditional distributions:
##   - Gaussian: 100
## - Prior probabilities:
##   - 0: 0.0984
##   - 1: 0.1115
##   - 2: 0.0995
##   - 3: 0.1036
##   - 4: 0.097
##   - 5: 0.0903
##   - 6: 0.0985
##   - 7: 0.1048
##   - 8: 0.0967
##   - 9: 0.0997
##
## -----
-----
```

```
## Warning: predict.naive_bayes(): more features in the newdata are provided
as
## there are probability tables in the object. Calculation is performed based
on
## features to be found in the tables.
```

```
##           TrueDigits
## Predicted  0    1    2    3    4    5    6    7    8    9
##           0 1470    0   14    4    0   29    9    4   13    9
##           1    0 1743   17   13    3    1    4   20   19    9
##           2   37   49 1450   84   44   29   77   71   76   49
##           3   11   13   43 1425    1  105    4    8   44   22
##           4    3    9   23    2 1393    8    7   61   18  116
##           5  104   26   21  107   22 1267   53   47   97   47
##           6   12    7   20    6   11   16 1494    2    2    0
##           7    2    5   14   15    3    3    0 1442    4   41
##           8    9   19   62   60   14   42    6    7 1317   38
##           9    4    2    6   24  137   18    0   98   35 1344
##           Accuracy           Kappa  AccuracyLower  AccuracyUpper  AccuracyNull
##           0.8541233           0.8379083           0.8486938           0.8594298           0.1115213
## AccuracyPValue  McNemarPValue
##           0.0000000           NaN
```

```
## Warning: Transformation introduced infinite values in discrete y-axis
```



```
pca_75<-getTopPCAFeatures(DigitTotalDF,75)
```

```
##
## Call:
## PCA(X = t(select(df, -label)), ncp = ncp, graph = FALSE)
##
##
## Eigenvalues
##
```

	Dim.1	Dim.2	Dim.3	Dim.4	Dim.5
## Variance	12975.886	2635.187	2146.048	1747.535	1465.951
## % of var.	30.895	6.274	5.110	4.161	3.490
## Cumulative % of var.	30.895	37.169	42.279	46.440	49.930

```
##
```

	Dim.6	Dim.7	Dim.8	Dim.9	Dim.10
## Variance	1358.547	1135.701	884.896	855.251	734.998
## % of var.	3.235	2.704	2.107	2.036	1.750
## Cumulative % of var.	53.165	55.869	57.976	60.012	61.762

```
##
```

	Dim.11	Dim.12	Dim.13	Dim.14	Dim.15
## Variance	664.973	634.157	551.036	515.912	483.259
## % of var.	1.583	1.510	1.312	1.228	1.151
## Cumulative % of var.	63.345	64.855	66.167	67.395	68.546

```
##
```

	Dim.16	Dim.17	Dim.18	Dim.19	Dim.20
## Variance	451.099	420.945	388.013	361.053	349.113
## % of var.	1.074	1.002	0.924	0.860	0.831

## Cumulative % of var.	69.620	70.622	71.546	72.406	73.237
##	Dim.21	Dim.22	Dim.23	Dim.24	Dim.25
## Variance	329.622	310.712	298.708	281.495	275.884
## % of var.	0.785	0.740	0.711	0.670	0.657
## Cumulative % of var.	74.022	74.762	75.473	76.143	76.800
##	Dim.26	Dim.27	Dim.28	Dim.29	Dim.30
## Variance	268.984	252.330	236.925	226.065	219.194
## % of var.	0.640	0.601	0.564	0.538	0.522
## Cumulative % of var.	77.440	78.041	78.605	79.144	79.665
##	Dim.31	Dim.32	Dim.33	Dim.34	Dim.35
## Variance	203.959	202.286	185.225	181.697	173.988
## % of var.	0.486	0.482	0.441	0.433	0.414
## Cumulative % of var.	80.151	80.633	81.074	81.506	81.921
##	Dim.36	Dim.37	Dim.38	Dim.39	Dim.40
## Variance	172.056	160.255	156.645	149.836	146.561
## % of var.	0.410	0.382	0.373	0.357	0.349
## Cumulative % of var.	82.330	82.712	83.085	83.441	83.790
##	Dim.41	Dim.42	Dim.43	Dim.44	Dim.45
## Variance	140.441	137.162	131.753	125.734	123.529
## % of var.	0.334	0.327	0.314	0.299	0.294
## Cumulative % of var.	84.125	84.451	84.765	85.064	85.359
##	Dim.46	Dim.47	Dim.48	Dim.49	Dim.50
## Variance	122.862	115.733	109.800	108.063	100.205
## % of var.	0.293	0.276	0.261	0.257	0.239
## Cumulative % of var.	85.651	85.927	86.188	86.445	86.684
##	Dim.51	Dim.52	Dim.53	Dim.54	Dim.55
## Variance	99.257	98.063	93.201	92.249	89.483
## % of var.	0.236	0.233	0.222	0.220	0.213
## Cumulative % of var.	86.920	87.154	87.376	87.595	87.808
##	Dim.56	Dim.57	Dim.58	Dim.59	Dim.60
## Variance	87.033	85.270	83.513	81.175	78.975
## % of var.	0.207	0.203	0.199	0.193	0.188
## Cumulative % of var.	88.016	88.219	88.417	88.611	88.799
##	Dim.61	Dim.62	Dim.63	Dim.64	Dim.65
## Variance	76.732	76.033	73.240	71.087	69.891
## % of var.	0.183	0.181	0.174	0.169	0.166
## Cumulative % of var.	88.981	89.163	89.337	89.506	89.673
##	Dim.66	Dim.67	Dim.68	Dim.69	Dim.70
## Variance	67.076	65.846	63.704	62.539	61.504
## % of var.	0.160	0.157	0.152	0.149	0.146
## Cumulative % of var.	89.832	89.989	90.141	90.290	90.436
##	Dim.71	Dim.72	Dim.73	Dim.74	Dim.75
## Variance	58.632	58.470	56.065	55.675	53.772
## % of var.	0.140	0.139	0.133	0.133	0.128
## Cumulative % of var.	90.576	90.715	90.848	90.981	91.109
##	Dim.76	Dim.77	Dim.78	Dim.79	Dim.80
## Variance	52.344	50.752	50.151	47.664	47.097
## % of var.	0.125	0.121	0.119	0.113	0.112
## Cumulative % of var.	91.234	91.354	91.474	91.587	91.699
##	Dim.81	Dim.82	Dim.83	Dim.84	Dim.85

## Variance	45.959	45.670	45.134	43.399	43.159
## % of var.	0.109	0.109	0.107	0.103	0.103
## Cumulative % of var.	91.809	91.918	92.025	92.128	92.231
##	Dim.86	Dim.87	Dim.88	Dim.89	Dim.90
## Variance	42.732	41.986	40.222	39.688	38.618
## % of var.	0.102	0.100	0.096	0.094	0.092
## Cumulative % of var.	92.333	92.433	92.529	92.623	92.715
##	Dim.91	Dim.92	Dim.93	Dim.94	Dim.95
## Variance	37.900	37.111	36.558	35.693	35.451
## % of var.	0.090	0.088	0.087	0.085	0.084
## Cumulative % of var.	92.805	92.894	92.981	93.066	93.150
##	Dim.96	Dim.97	Dim.98	Dim.99	Dim.100
## Variance	35.000	33.741	33.657	33.108	32.255
## % of var.	0.083	0.080	0.080	0.079	0.077
## Cumulative % of var.	93.233	93.314	93.394	93.473	93.550
##	Dim.101	Dim.102	Dim.103	Dim.104	Dim.105
## Variance	31.708	30.818	30.512	29.322	28.925
## % of var.	0.075	0.073	0.073	0.070	0.069
## Cumulative % of var.	93.625	93.698	93.771	93.841	93.910
##	Dim.106	Dim.107	Dim.108	Dim.109	Dim.110
## Variance	28.795	27.708	27.390	27.292	26.586
## % of var.	0.069	0.066	0.065	0.065	0.063
## Cumulative % of var.	93.978	94.044	94.109	94.174	94.238
##	Dim.111	Dim.112	Dim.113	Dim.114	Dim.115
## Variance	26.039	25.709	25.584	25.304	25.182
## % of var.	0.062	0.061	0.061	0.060	0.060
## Cumulative % of var.	94.300	94.361	94.422	94.482	94.542
##	Dim.116	Dim.117	Dim.118	Dim.119	Dim.120
## Variance	24.206	23.951	23.818	23.054	22.815
## % of var.	0.058	0.057	0.057	0.055	0.054
## Cumulative % of var.	94.600	94.657	94.713	94.768	94.823
##	Dim.121	Dim.122	Dim.123	Dim.124	Dim.125
## Variance	22.628	22.352	22.224	21.862	21.222
## % of var.	0.054	0.053	0.053	0.052	0.051
## Cumulative % of var.	94.877	94.930	94.983	95.035	95.085
##	Dim.126	Dim.127	Dim.128	Dim.129	Dim.130
## Variance	21.059	20.634	20.467	20.033	19.894
## % of var.	0.050	0.049	0.049	0.048	0.047
## Cumulative % of var.	95.135	95.185	95.233	95.281	95.328
##	Dim.131	Dim.132	Dim.133	Dim.134	Dim.135
## Variance	19.503	19.289	19.223	18.915	18.460
## % of var.	0.046	0.046	0.046	0.045	0.044
## Cumulative % of var.	95.375	95.421	95.466	95.511	95.555
##	Dim.136	Dim.137	Dim.138	Dim.139	Dim.140
## Variance	18.290	18.250	18.088	17.507	17.219
## % of var.	0.044	0.043	0.043	0.042	0.041
## Cumulative % of var.	95.599	95.642	95.686	95.727	95.768
##	Dim.141	Dim.142	Dim.143	Dim.144	Dim.145
## Variance	16.825	16.398	16.186	16.169	15.900
## % of var.	0.040	0.039	0.039	0.038	0.038

## Cumulative % of var.	95.808	95.847	95.886	95.924	95.962
##	Dim.146	Dim.147	Dim.148	Dim.149	Dim.150
## Variance	15.761	15.658	15.577	15.477	15.321
## % of var.	0.038	0.037	0.037	0.037	0.036
## Cumulative % of var.	96.000	96.037	96.074	96.111	96.147
##	Dim.151	Dim.152	Dim.153	Dim.154	Dim.155
## Variance	15.094	14.926	14.829	14.612	14.562
## % of var.	0.036	0.036	0.035	0.035	0.035
## Cumulative % of var.	96.183	96.219	96.254	96.289	96.324
##	Dim.156	Dim.157	Dim.158	Dim.159	Dim.160
## Variance	14.468	14.192	13.834	13.675	13.475
## % of var.	0.034	0.034	0.033	0.033	0.032
## Cumulative % of var.	96.358	96.392	96.425	96.457	96.489
##	Dim.161	Dim.162	Dim.163	Dim.164	Dim.165
## Variance	13.389	13.298	13.073	12.872	12.801
## % of var.	0.032	0.032	0.031	0.031	0.030
## Cumulative % of var.	96.521	96.553	96.584	96.615	96.645
##	Dim.166	Dim.167	Dim.168	Dim.169	Dim.170
## Variance	12.616	12.526	12.381	12.338	12.194
## % of var.	0.030	0.030	0.029	0.029	0.029
## Cumulative % of var.	96.675	96.705	96.735	96.764	96.793
##	Dim.171	Dim.172	Dim.173	Dim.174	Dim.175
## Variance	12.051	11.965	11.780	11.716	11.592
## % of var.	0.029	0.028	0.028	0.028	0.028
## Cumulative % of var.	96.822	96.850	96.878	96.906	96.934
##	Dim.176	Dim.177	Dim.178	Dim.179	Dim.180
## Variance	11.287	11.160	11.056	10.858	10.780
## % of var.	0.027	0.027	0.026	0.026	0.026
## Cumulative % of var.	96.961	96.987	97.014	97.039	97.065
##	Dim.181	Dim.182	Dim.183	Dim.184	Dim.185
## Variance	10.626	10.585	10.574	10.451	10.389
## % of var.	0.025	0.025	0.025	0.025	0.025
## Cumulative % of var.	97.090	97.116	97.141	97.166	97.190
##	Dim.186	Dim.187	Dim.188	Dim.189	Dim.190
## Variance	10.327	10.181	10.151	9.965	9.863
## % of var.	0.025	0.024	0.024	0.024	0.023
## Cumulative % of var.	97.215	97.239	97.263	97.287	97.311
##	Dim.191	Dim.192	Dim.193	Dim.194	Dim.195
## Variance	9.825	9.749	9.691	9.637	9.542
## % of var.	0.023	0.023	0.023	0.023	0.023
## Cumulative % of var.	97.334	97.357	97.380	97.403	97.426
##	Dim.196	Dim.197	Dim.198	Dim.199	Dim.200
## Variance	9.502	9.399	9.342	9.198	9.163
## % of var.	0.023	0.022	0.022	0.022	0.022
## Cumulative % of var.	97.448	97.471	97.493	97.515	97.537
##	Dim.201	Dim.202	Dim.203	Dim.204	Dim.205
## Variance	9.071	8.888	8.812	8.673	8.653
## % of var.	0.022	0.021	0.021	0.021	0.021
## Cumulative % of var.	97.558	97.580	97.601	97.621	97.642
##	Dim.206	Dim.207	Dim.208	Dim.209	Dim.210

## Variance	8.584	8.445	8.376	8.341	8.302
## % of var.	0.020	0.020	0.020	0.020	0.020
## Cumulative % of var.	97.662	97.682	97.702	97.722	97.742
##	Dim.211	Dim.212	Dim.213	Dim.214	Dim.215
## Variance	8.247	8.225	8.151	8.076	8.001
## % of var.	0.020	0.020	0.019	0.019	0.019
## Cumulative % of var.	97.762	97.781	97.801	97.820	97.839
##	Dim.216	Dim.217	Dim.218	Dim.219	Dim.220
## Variance	7.939	7.859	7.823	7.807	7.708
## % of var.	0.019	0.019	0.019	0.019	0.018
## Cumulative % of var.	97.858	97.876	97.895	97.914	97.932
##	Dim.221	Dim.222	Dim.223	Dim.224	Dim.225
## Variance	7.679	7.574	7.502	7.472	7.428
## % of var.	0.018	0.018	0.018	0.018	0.018
## Cumulative % of var.	97.950	97.968	97.986	98.004	98.022
##	Dim.226	Dim.227	Dim.228	Dim.229	Dim.230
## Variance	7.380	7.295	7.171	7.139	7.066
## % of var.	0.018	0.017	0.017	0.017	0.017
## Cumulative % of var.	98.039	98.057	98.074	98.091	98.108
##	Dim.231	Dim.232	Dim.233	Dim.234	Dim.235
## Variance	6.982	6.966	6.898	6.861	6.811
## % of var.	0.017	0.017	0.016	0.016	0.016
## Cumulative % of var.	98.124	98.141	98.157	98.173	98.190
##	Dim.236	Dim.237	Dim.238	Dim.239	Dim.240
## Variance	6.726	6.659	6.631	6.563	6.485
## % of var.	0.016	0.016	0.016	0.016	0.015
## Cumulative % of var.	98.206	98.222	98.237	98.253	98.268
##	Dim.241	Dim.242	Dim.243	Dim.244	Dim.245
## Variance	6.449	6.408	6.366	6.331	6.306
## % of var.	0.015	0.015	0.015	0.015	0.015
## Cumulative % of var.	98.284	98.299	98.314	98.329	98.344
##	Dim.246	Dim.247	Dim.248	Dim.249	Dim.250
## Variance	6.230	6.177	6.149	6.014	6.005
## % of var.	0.015	0.015	0.015	0.014	0.014
## Cumulative % of var.	98.359	98.374	98.388	98.403	98.417
##	Dim.251	Dim.252	Dim.253	Dim.254	Dim.255
## Variance	5.957	5.900	5.878	5.854	5.783
## % of var.	0.014	0.014	0.014	0.014	0.014
## Cumulative % of var.	98.431	98.445	98.459	98.473	98.487
##	Dim.256	Dim.257	Dim.258	Dim.259	Dim.260
## Variance	5.769	5.685	5.658	5.632	5.605
## % of var.	0.014	0.014	0.013	0.013	0.013
## Cumulative % of var.	98.501	98.514	98.528	98.541	98.555
##	Dim.261	Dim.262	Dim.263	Dim.264	Dim.265
## Variance	5.539	5.491	5.438	5.435	5.400
## % of var.	0.013	0.013	0.013	0.013	0.013
## Cumulative % of var.	98.568	98.581	98.594	98.607	98.620
##	Dim.266	Dim.267	Dim.268	Dim.269	Dim.270
## Variance	5.343	5.329	5.233	5.218	5.188
## % of var.	0.013	0.013	0.012	0.012	0.012

## Cumulative % of var.	98.632	98.645	98.657	98.670	98.682
##	Dim.271	Dim.272	Dim.273	Dim.274	Dim.275
## Variance	5.123	5.080	5.060	5.041	4.981
## % of var.	0.012	0.012	0.012	0.012	0.012
## Cumulative % of var.	98.694	98.706	98.719	98.731	98.742
##	Dim.276	Dim.277	Dim.278	Dim.279	Dim.280
## Variance	4.964	4.911	4.873	4.857	4.850
## % of var.	0.012	0.012	0.012	0.012	0.012
## Cumulative % of var.	98.754	98.766	98.777	98.789	98.801
##	Dim.281	Dim.282	Dim.283	Dim.284	Dim.285
## Variance	4.817	4.797	4.743	4.690	4.672
## % of var.	0.011	0.011	0.011	0.011	0.011
## Cumulative % of var.	98.812	98.823	98.835	98.846	98.857
##	Dim.286	Dim.287	Dim.288	Dim.289	Dim.290
## Variance	4.640	4.599	4.585	4.555	4.495
## % of var.	0.011	0.011	0.011	0.011	0.011
## Cumulative % of var.	98.868	98.879	98.890	98.901	98.912
##	Dim.291	Dim.292	Dim.293	Dim.294	Dim.295
## Variance	4.487	4.459	4.427	4.403	4.373
## % of var.	0.011	0.011	0.011	0.010	0.010
## Cumulative % of var.	98.922	98.933	98.943	98.954	98.964
##	Dim.296	Dim.297	Dim.298	Dim.299	Dim.300
## Variance	4.344	4.304	4.278	4.250	4.174
## % of var.	0.010	0.010	0.010	0.010	0.010
## Cumulative % of var.	98.975	98.985	98.995	99.005	99.015
##	Dim.301	Dim.302	Dim.303	Dim.304	Dim.305
## Variance	4.159	4.147	4.104	4.099	4.041
## % of var.	0.010	0.010	0.010	0.010	0.010
## Cumulative % of var.	99.025	99.035	99.045	99.054	99.064
##	Dim.306	Dim.307	Dim.308	Dim.309	Dim.310
## Variance	4.012	3.996	3.948	3.919	3.906
## % of var.	0.010	0.010	0.009	0.009	0.009
## Cumulative % of var.	99.074	99.083	99.092	99.102	99.111
##	Dim.311	Dim.312	Dim.313	Dim.314	Dim.315
## Variance	3.889	3.875	3.839	3.785	3.741
## % of var.	0.009	0.009	0.009	0.009	0.009
## Cumulative % of var.	99.120	99.130	99.139	99.148	99.157
##	Dim.316	Dim.317	Dim.318	Dim.319	Dim.320
## Variance	3.724	3.682	3.668	3.644	3.624
## % of var.	0.009	0.009	0.009	0.009	0.009
## Cumulative % of var.	99.166	99.174	99.183	99.192	99.200
##	Dim.321	Dim.322	Dim.323	Dim.324	Dim.325
## Variance	3.582	3.576	3.538	3.490	3.472
## % of var.	0.009	0.009	0.008	0.008	0.008
## Cumulative % of var.	99.209	99.217	99.226	99.234	99.242
##	Dim.326	Dim.327	Dim.328	Dim.329	Dim.330
## Variance	3.443	3.392	3.378	3.353	3.342
## % of var.	0.008	0.008	0.008	0.008	0.008
## Cumulative % of var.	99.251	99.259	99.267	99.275	99.283
##	Dim.331	Dim.332	Dim.333	Dim.334	Dim.335

## Variance	3.335	3.289	3.266	3.250	3.243
## % of var.	0.008	0.008	0.008	0.008	0.008
## Cumulative % of var.	99.291	99.298	99.306	99.314	99.322
##	Dim.336	Dim.337	Dim.338	Dim.339	Dim.340
## Variance	3.228	3.202	3.183	3.169	3.157
## % of var.	0.008	0.008	0.008	0.008	0.008
## Cumulative % of var.	99.329	99.337	99.345	99.352	99.360
##	Dim.341	Dim.342	Dim.343	Dim.344	Dim.345
## Variance	3.103	3.083	3.070	3.052	3.031
## % of var.	0.007	0.007	0.007	0.007	0.007
## Cumulative % of var.	99.367	99.374	99.382	99.389	99.396
##	Dim.346	Dim.347	Dim.348	Dim.349	Dim.350
## Variance	3.011	3.002	2.950	2.918	2.889
## % of var.	0.007	0.007	0.007	0.007	0.007
## Cumulative % of var.	99.403	99.410	99.417	99.424	99.431
##	Dim.351	Dim.352	Dim.353	Dim.354	Dim.355
## Variance	2.832	2.819	2.810	2.768	2.757
## % of var.	0.007	0.007	0.007	0.007	0.007
## Cumulative % of var.	99.438	99.445	99.451	99.458	99.465
##	Dim.356	Dim.357	Dim.358	Dim.359	Dim.360
## Variance	2.733	2.709	2.695	2.678	2.671
## % of var.	0.007	0.006	0.006	0.006	0.006
## Cumulative % of var.	99.471	99.478	99.484	99.490	99.497
##	Dim.361	Dim.362	Dim.363	Dim.364	Dim.365
## Variance	2.652	2.645	2.610	2.542	2.519
## % of var.	0.006	0.006	0.006	0.006	0.006
## Cumulative % of var.	99.503	99.509	99.516	99.522	99.528
##	Dim.366	Dim.367	Dim.368	Dim.369	Dim.370
## Variance	2.515	2.492	2.468	2.448	2.434
## % of var.	0.006	0.006	0.006	0.006	0.006
## Cumulative % of var.	99.534	99.539	99.545	99.551	99.557
##	Dim.371	Dim.372	Dim.373	Dim.374	Dim.375
## Variance	2.412	2.378	2.340	2.326	2.306
## % of var.	0.006	0.006	0.006	0.006	0.005
## Cumulative % of var.	99.563	99.568	99.574	99.580	99.585
##	Dim.376	Dim.377	Dim.378	Dim.379	Dim.380
## Variance	2.300	2.281	2.263	2.240	2.216
## % of var.	0.005	0.005	0.005	0.005	0.005
## Cumulative % of var.	99.590	99.596	99.601	99.607	99.612
##	Dim.381	Dim.382	Dim.383	Dim.384	Dim.385
## Variance	2.203	2.175	2.146	2.087	2.077
## % of var.	0.005	0.005	0.005	0.005	0.005
## Cumulative % of var.	99.617	99.622	99.627	99.632	99.637
##	Dim.386	Dim.387	Dim.388	Dim.389	Dim.390
## Variance	2.044	2.036	2.020	1.995	1.976
## % of var.	0.005	0.005	0.005	0.005	0.005
## Cumulative % of var.	99.642	99.647	99.652	99.657	99.661
##	Dim.391	Dim.392	Dim.393	Dim.394	Dim.395
## Variance	1.959	1.942	1.918	1.895	1.886
## % of var.	0.005	0.005	0.005	0.005	0.004

## Cumulative % of var.	99.666	99.671	99.675	99.680	99.684
##	Dim.396	Dim.397	Dim.398	Dim.399	Dim.400
## Variance	1.849	1.820	1.810	1.779	1.761
## % of var.	0.004	0.004	0.004	0.004	0.004
## Cumulative % of var.	99.689	99.693	99.697	99.701	99.706
##	Dim.401	Dim.402	Dim.403	Dim.404	Dim.405
## Variance	1.746	1.731	1.714	1.701	1.676
## % of var.	0.004	0.004	0.004	0.004	0.004
## Cumulative % of var.	99.710	99.714	99.718	99.722	99.726
##	Dim.406	Dim.407	Dim.408	Dim.409	Dim.410
## Variance	1.670	1.633	1.619	1.590	1.581
## % of var.	0.004	0.004	0.004	0.004	0.004
## Cumulative % of var.	99.730	99.734	99.738	99.742	99.745
##	Dim.411	Dim.412	Dim.413	Dim.414	Dim.415
## Variance	1.570	1.554	1.545	1.538	1.516
## % of var.	0.004	0.004	0.004	0.004	0.004
## Cumulative % of var.	99.749	99.753	99.756	99.760	99.764
##	Dim.416	Dim.417	Dim.418	Dim.419	Dim.420
## Variance	1.512	1.502	1.484	1.462	1.435
## % of var.	0.004	0.004	0.004	0.003	0.003
## Cumulative % of var.	99.767	99.771	99.774	99.778	99.781
##	Dim.421	Dim.422	Dim.423	Dim.424	Dim.425
## Variance	1.421	1.390	1.380	1.369	1.344
## % of var.	0.003	0.003	0.003	0.003	0.003
## Cumulative % of var.	99.785	99.788	99.791	99.795	99.798
##	Dim.426	Dim.427	Dim.428	Dim.429	Dim.430
## Variance	1.335	1.292	1.289	1.277	1.236
## % of var.	0.003	0.003	0.003	0.003	0.003
## Cumulative % of var.	99.801	99.804	99.807	99.810	99.813
##	Dim.431	Dim.432	Dim.433	Dim.434	Dim.435
## Variance	1.213	1.205	1.200	1.189	1.172
## % of var.	0.003	0.003	0.003	0.003	0.003
## Cumulative % of var.	99.816	99.819	99.822	99.825	99.827
##	Dim.436	Dim.437	Dim.438	Dim.439	Dim.440
## Variance	1.148	1.132	1.114	1.103	1.096
## % of var.	0.003	0.003	0.003	0.003	0.003
## Cumulative % of var.	99.830	99.833	99.835	99.838	99.841
##	Dim.441	Dim.442	Dim.443	Dim.444	Dim.445
## Variance	1.085	1.057	1.053	1.031	1.027
## % of var.	0.003	0.003	0.003	0.002	0.002
## Cumulative % of var.	99.843	99.846	99.848	99.851	99.853
##	Dim.446	Dim.447	Dim.448	Dim.449	Dim.450
## Variance	1.019	0.999	0.986	0.973	0.960
## % of var.	0.002	0.002	0.002	0.002	0.002
## Cumulative % of var.	99.856	99.858	99.860	99.863	99.865
##	Dim.451	Dim.452	Dim.453	Dim.454	Dim.455
## Variance	0.958	0.934	0.912	0.896	0.892
## % of var.	0.002	0.002	0.002	0.002	0.002
## Cumulative % of var.	99.867	99.869	99.872	99.874	99.876
##	Dim.456	Dim.457	Dim.458	Dim.459	Dim.460

## Variance	0.887	0.868	0.863	0.857	0.831
## % of var.	0.002	0.002	0.002	0.002	0.002
## Cumulative % of var.	99.878	99.880	99.882	99.884	99.886
##	Dim.461	Dim.462	Dim.463	Dim.464	Dim.465
## Variance	0.819	0.810	0.800	0.771	0.761
## % of var.	0.002	0.002	0.002	0.002	0.002
## Cumulative % of var.	99.888	99.890	99.892	99.894	99.895
##	Dim.466	Dim.467	Dim.468	Dim.469	Dim.470
## Variance	0.758	0.753	0.745	0.736	0.727
## % of var.	0.002	0.002	0.002	0.002	0.002
## Cumulative % of var.	99.897	99.899	99.901	99.903	99.904
##	Dim.471	Dim.472	Dim.473	Dim.474	Dim.475
## Variance	0.719	0.707	0.700	0.691	0.683
## % of var.	0.002	0.002	0.002	0.002	0.002
## Cumulative % of var.	99.906	99.908	99.909	99.911	99.913
##	Dim.476	Dim.477	Dim.478	Dim.479	Dim.480
## Variance	0.679	0.673	0.651	0.642	0.627
## % of var.	0.002	0.002	0.002	0.002	0.001
## Cumulative % of var.	99.914	99.916	99.917	99.919	99.920
##	Dim.481	Dim.482	Dim.483	Dim.484	Dim.485
## Variance	0.619	0.612	0.604	0.591	0.580
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.922	99.923	99.925	99.926	99.928
##	Dim.486	Dim.487	Dim.488	Dim.489	Dim.490
## Variance	0.572	0.568	0.559	0.553	0.546
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.929	99.930	99.932	99.933	99.934
##	Dim.491	Dim.492	Dim.493	Dim.494	Dim.495
## Variance	0.535	0.532	0.518	0.510	0.500
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.936	99.937	99.938	99.939	99.940
##	Dim.496	Dim.497	Dim.498	Dim.499	Dim.500
## Variance	0.483	0.480	0.472	0.467	0.458
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.942	99.943	99.944	99.945	99.946
##	Dim.501	Dim.502	Dim.503	Dim.504	Dim.505
## Variance	0.457	0.452	0.445	0.441	0.431
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.947	99.948	99.949	99.950	99.951
##	Dim.506	Dim.507	Dim.508	Dim.509	Dim.510
## Variance	0.412	0.403	0.397	0.392	0.386
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.952	99.953	99.954	99.955	99.956
##	Dim.511	Dim.512	Dim.513	Dim.514	Dim.515
## Variance	0.383	0.376	0.373	0.365	0.355
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.957	99.958	99.959	99.960	99.961
##	Dim.516	Dim.517	Dim.518	Dim.519	Dim.520
## Variance	0.350	0.348	0.346	0.343	0.337
## % of var.	0.001	0.001	0.001	0.001	0.001

## Cumulative % of var.	99.961	99.962	99.963	99.964	99.965
##	Dim.521	Dim.522	Dim.523	Dim.524	Dim.525
## Variance	0.327	0.326	0.315	0.311	0.311
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.965	99.966	99.967	99.968	99.968
##	Dim.526	Dim.527	Dim.528	Dim.529	Dim.530
## Variance	0.307	0.302	0.299	0.297	0.279
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.969	99.970	99.971	99.971	99.972
##	Dim.531	Dim.532	Dim.533	Dim.534	Dim.535
## Variance	0.278	0.268	0.264	0.261	0.256
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.973	99.973	99.974	99.975	99.975
##	Dim.536	Dim.537	Dim.538	Dim.539	Dim.540
## Variance	0.253	0.247	0.241	0.234	0.232
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.976	99.976	99.977	99.977	99.978
##	Dim.541	Dim.542	Dim.543	Dim.544	Dim.545
## Variance	0.229	0.227	0.220	0.218	0.217
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.979	99.979	99.980	99.980	99.981
##	Dim.546	Dim.547	Dim.548	Dim.549	Dim.550
## Variance	0.214	0.205	0.195	0.194	0.186
## % of var.	0.001	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.981	99.982	99.982	99.983	99.983
##	Dim.551	Dim.552	Dim.553	Dim.554	Dim.555
## Variance	0.182	0.180	0.173	0.171	0.165
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.983	99.984	99.984	99.985	99.985
##	Dim.556	Dim.557	Dim.558	Dim.559	Dim.560
## Variance	0.163	0.161	0.159	0.152	0.150
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.985	99.986	99.986	99.987	99.987
##	Dim.561	Dim.562	Dim.563	Dim.564	Dim.565
## Variance	0.148	0.146	0.144	0.142	0.135
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.987	99.988	99.988	99.988	99.989
##	Dim.566	Dim.567	Dim.568	Dim.569	Dim.570
## Variance	0.133	0.131	0.123	0.121	0.121
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.989	99.989	99.990	99.990	99.990
##	Dim.571	Dim.572	Dim.573	Dim.574	Dim.575
## Variance	0.119	0.118	0.118	0.114	0.113
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.990	99.991	99.991	99.991	99.992
##	Dim.576	Dim.577	Dim.578	Dim.579	Dim.580
## Variance	0.107	0.104	0.103	0.098	0.096
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.992	99.992	99.992	99.993	99.993
##	Dim.581	Dim.582	Dim.583	Dim.584	Dim.585

## Variance	0.090	0.089	0.088	0.085	0.085
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.993	99.993	99.993	99.994	99.994
##	Dim.586	Dim.587	Dim.588	Dim.589	Dim.590
## Variance	0.083	0.082	0.078	0.077	0.074
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.994	99.994	99.994	99.995	99.995
##	Dim.591	Dim.592	Dim.593	Dim.594	Dim.595
## Variance	0.074	0.074	0.070	0.068	0.066
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.995	99.995	99.995	99.995	99.996
##	Dim.596	Dim.597	Dim.598	Dim.599	Dim.600
## Variance	0.064	0.062	0.060	0.060	0.058
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.996	99.996	99.996	99.996	99.996
##	Dim.601	Dim.602	Dim.603	Dim.604	Dim.605
## Variance	0.055	0.052	0.051	0.050	0.049
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.996	99.997	99.997	99.997	99.997
##	Dim.606	Dim.607	Dim.608	Dim.609	Dim.610
## Variance	0.049	0.048	0.047	0.046	0.044
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.997	99.997	99.997	99.997	99.997
##	Dim.611	Dim.612	Dim.613	Dim.614	Dim.615
## Variance	0.041	0.040	0.036	0.035	0.034
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.998	99.998	99.998	99.998	99.998
##	Dim.616	Dim.617	Dim.618	Dim.619	Dim.620
## Variance	0.034	0.033	0.032	0.032	0.031
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.998	99.998	99.998	99.998	99.998
##	Dim.621	Dim.622	Dim.623	Dim.624	Dim.625
## Variance	0.030	0.030	0.028	0.028	0.027
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.998	99.998	99.998	99.999	99.999
##	Dim.626	Dim.627	Dim.628	Dim.629	Dim.630
## Variance	0.026	0.025	0.024	0.024	0.023
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.999	99.999	99.999	99.999	99.999
##	Dim.631	Dim.632	Dim.633	Dim.634	Dim.635
## Variance	0.022	0.021	0.021	0.020	0.020
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.999	99.999	99.999	99.999	99.999
##	Dim.636	Dim.637	Dim.638	Dim.639	Dim.640
## Variance	0.020	0.019	0.019	0.016	0.016
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.999	99.999	99.999	99.999	99.999
##	Dim.641	Dim.642	Dim.643	Dim.644	Dim.645
## Variance	0.015	0.015	0.014	0.013	0.013
## % of var.	0.000	0.000	0.000	0.000	0.000

## Cumulative % of var.	99.999	99.999	99.999	100.000	100.000
##	Dim.646	Dim.647	Dim.648	Dim.649	Dim.650
## Variance	0.011	0.011	0.010	0.010	0.009
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000
##	Dim.651	Dim.652	Dim.653	Dim.654	Dim.655
## Variance	0.009	0.009	0.008	0.008	0.007
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000
##	Dim.656	Dim.657	Dim.658	Dim.659	Dim.660
## Variance	0.007	0.007	0.007	0.006	0.006
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000
##	Dim.661	Dim.662	Dim.663	Dim.664	Dim.665
## Variance	0.006	0.006	0.006	0.004	0.004
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000
##	Dim.666	Dim.667	Dim.668	Dim.669	Dim.670
## Variance	0.004	0.003	0.003	0.003	0.003
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000
##	Dim.671	Dim.672	Dim.673	Dim.674	Dim.675
## Variance	0.002	0.002	0.002	0.002	0.002
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000
##	Dim.676	Dim.677	Dim.678	Dim.679	Dim.680
## Variance	0.001	0.001	0.001	0.001	0.001
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000
##	Dim.681	Dim.682	Dim.683	Dim.684	Dim.685
## Variance	0.001	0.001	0.001	0.001	0.001
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000
##	Dim.686	Dim.687	Dim.688	Dim.689	Dim.690
## Variance	0.001	0.001	0.000	0.000	0.000
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000
##	Dim.691	Dim.692	Dim.693	Dim.694	Dim.695
## Variance	0.000	0.000	0.000	0.000	0.000
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000
##	Dim.696	Dim.697	Dim.698	Dim.699	Dim.700
## Variance	0.000	0.000	0.000	0.000	0.000
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000
##	Dim.701	Dim.702	Dim.703	Dim.704	Dim.705
## Variance	0.000	0.000	0.000	0.000	0.000
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000
##	Dim.706	Dim.707	Dim.708	Dim.709	Dim.710

[illegible]

```

## Cumulative % of var.  100.000  100.000  100.000  100.000  100.000
##                        Dim.771  Dim.772  Dim.773  Dim.774  Dim.775
## Variance              0.000    0.000    0.000    0.000    0.000
## % of var.             0.000    0.000    0.000    0.000    0.000
## Cumulative % of var.  100.000  100.000  100.000  100.000  100.000
##                        Dim.776  Dim.777  Dim.778  Dim.779  Dim.780
## Variance              0.000    0.000    0.000    0.000    0.000
## % of var.             0.000    0.000    0.000    0.000    0.000
## Cumulative % of var.  100.000  100.000  100.000  100.000  100.000
##                        Dim.781  Dim.782  Dim.783
## Variance              0.000    0.000    0.000
## % of var.             0.000    0.000    0.000
## Cumulative % of var.  100.000  100.000  100.000
##
## Individuals (the 10 first)
##           Dist      Dim.1      ctr      cos2      Dim.2      ctr      cos2
Dim.3
## 0      |  87.988 | -85.829  0.072  0.952 | -10.867  0.006  0.015 | -
9.555
## 1      |  87.988 | -85.829  0.072  0.952 | -10.867  0.006  0.015 | -
9.555
## 2      |  87.988 | -85.829  0.072  0.952 | -10.867  0.006  0.015 | -
9.555
## 3      |  87.988 | -85.829  0.072  0.952 | -10.867  0.006  0.015 | -
9.555
## 4      |  87.988 | -85.829  0.072  0.952 | -10.867  0.006  0.015 | -
9.555
## 5      |  87.988 | -85.829  0.072  0.952 | -10.867  0.006  0.015 | -
9.555
## 6      |  87.988 | -85.829  0.072  0.952 | -10.867  0.006  0.015 | -
9.555
## 7      |  87.988 | -85.829  0.072  0.952 | -10.867  0.006  0.015 | -
9.555
## 8      |  87.988 | -85.829  0.072  0.952 | -10.867  0.006  0.015 | -
9.555
## 9      |  87.988 | -85.829  0.072  0.952 | -10.867  0.006  0.015 | -
9.555
##           ctr      cos2
## 0      0.005  0.012 |
## 1      0.005  0.012 |
## 2      0.005  0.012 |
## 3      0.005  0.012 |
## 4      0.005  0.012 |
## 5      0.005  0.012 |
## 6      0.005  0.012 |
## 7      0.005  0.012 |
## 8      0.005  0.012 |
## 9      0.005  0.012 |
##
## Variables (the 10 first)

```

	Dim.1	ctr	cos2	Dim.2	ctr	cos2	Dim.3	ctr
## cos2								
## V1	0.419	0.001	0.176	-0.407	0.006	0.165	0.198	0.002
0.039								
## V2	0.501	0.002	0.251	0.374	0.005	0.140	0.434	0.009
0.189								
## V3	0.534	0.002	0.285	-0.467	0.008	0.218	-0.077	0.000
0.006								
## V4	0.269	0.001	0.073	0.244	0.002	0.060	-0.020	0.000
0.000								
## V5	0.452	0.002	0.205	0.373	0.005	0.139	0.449	0.009
0.202								
## V6	0.576	0.003	0.332	0.350	0.005	0.122	0.116	0.001
0.013								
## V7	0.502	0.002	0.252	-0.054	0.000	0.003	-0.407	0.008
0.166								
## V8	0.347	0.001	0.120	0.069	0.000	0.005	0.021	0.000
0.000								
## V9	0.640	0.003	0.410	0.221	0.002	0.049	0.050	0.000
0.002								
## V10	0.570	0.003	0.325	-0.084	0.000	0.007	0.337	0.005
0.114								

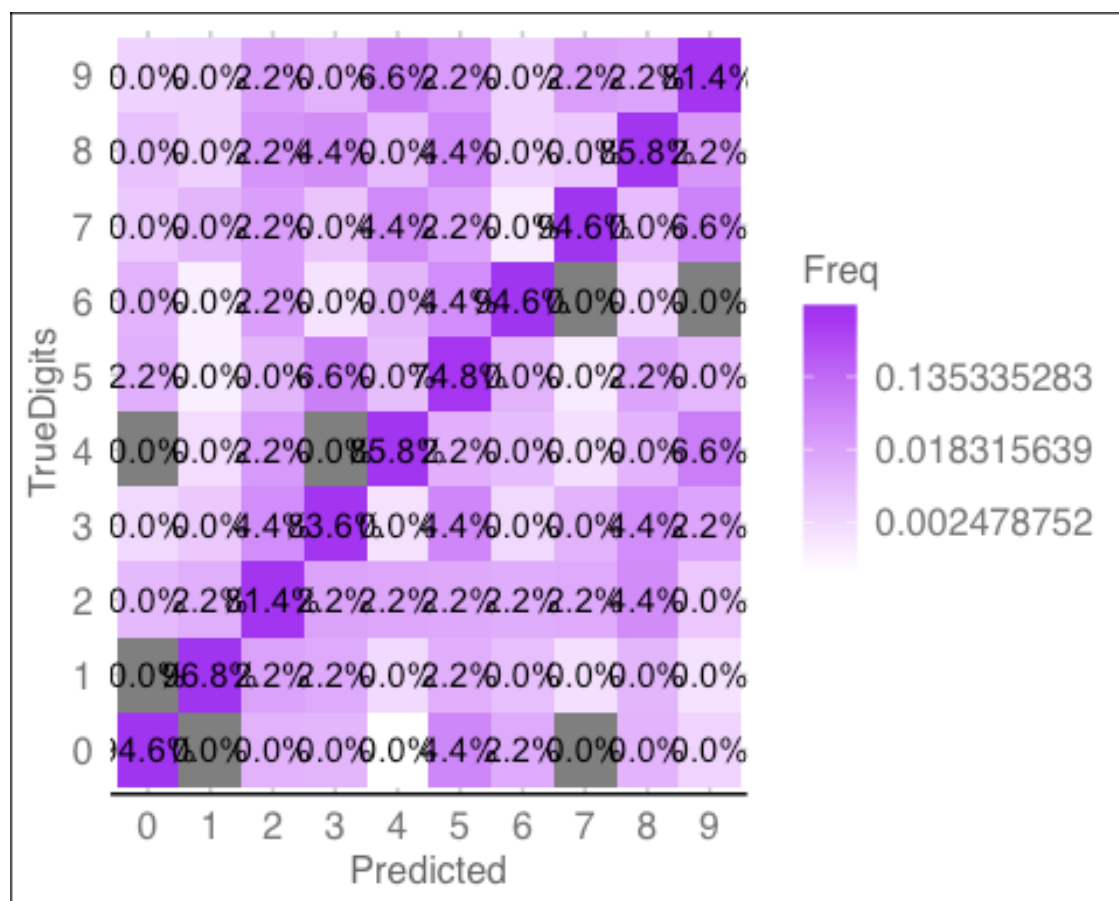
```
model_nb_75<-runNB(pca_75)
```

```
##
## ===== Naive Bayes
## =====
##
## - Call: naive_bayes.formula(formula = label ~ ., data = trainDF)
## - Laplace: 0
## - Classes: 10
## - Samples: 25205
## - Features: 75
## - Conditional distributions:
##   - Gaussian: 75
## - Prior probabilities:
##   - 0: 0.0984
##   - 1: 0.1115
##   - 2: 0.0995
##   - 3: 0.1036
##   - 4: 0.097
##   - 5: 0.0903
##   - 6: 0.0985
##   - 7: 0.1048
##   - 8: 0.0967
##   - 9: 0.0997
##
## -----
-----
```

```
## Warning: predict.naive_bayes(): more features in the newdata are provided
as
## there are probability tables in the object. Calculation is performed based
on
## features to be found in the tables.
```

```
##           TrueDigits
## Predicted  0    1    2    3    4    5    6    7    8    9
##           0 1491    0   12    4    0   18   16    7    9    5
##           1    0 1761   21    8    4    2    2   17    6    6
##           2   18   33 1442   70   44   16   37   37   55   36
##           3   16   24   32 1456    0  114    3    9   71   18
##           4    1    4   26    3 1411   11   15   73   12  108
##           5   84   21   25   89   20 1296   68   30   79   43
##           6   22   10   20    4   11   16 1508    2    5    5
##           7    0    3   21   16    3    2    0 1475    7   33
##           8   15   14   63   61   15   28    5   11 1334   27
##           9    5    3    8   29  120   15    0   99   47 1394
##           Accuracy           Kappa AccuracyLower AccuracyUpper AccuracyNull
##           0.8674010           0.8526555           0.8621785           0.8724959           0.1115213
## AccuracyPValue McnemarPValue
##           0.0000000           NaN
```

```
## Warning: Transformation introduced infinite values in discrete y-axis
```



```
pca_80<-getTopPCAFeatures(DigitTotalDF,80)
```

```
##
## Call:
## PCA(X = t(select(df, -label)), ncp = ncp, graph = FALSE)
##
##
## Eigenvalues
##
```

	Dim.1	Dim.2	Dim.3	Dim.4	Dim.5
## Variance	12975.886	2635.187	2146.048	1747.535	1465.951
## % of var.	30.895	6.274	5.110	4.161	3.490
## Cumulative % of var.	30.895	37.169	42.279	46.440	49.930

```
##
```

	Dim.6	Dim.7	Dim.8	Dim.9	Dim.10
## Variance	1358.547	1135.701	884.896	855.251	734.998
## % of var.	3.235	2.704	2.107	2.036	1.750
## Cumulative % of var.	53.165	55.869	57.976	60.012	61.762

```
##
```

	Dim.11	Dim.12	Dim.13	Dim.14	Dim.15
## Variance	664.973	634.157	551.036	515.912	483.259
## % of var.	1.583	1.510	1.312	1.228	1.151
## Cumulative % of var.	63.345	64.855	66.167	67.395	68.546

```
##
```

	Dim.16	Dim.17	Dim.18	Dim.19	Dim.20
## Variance	451.099	420.945	388.013	361.053	349.113
## % of var.	1.074	1.002	0.924	0.860	0.831

## Cumulative % of var.	69.620	70.622	71.546	72.406	73.237
##	Dim.21	Dim.22	Dim.23	Dim.24	Dim.25
## Variance	329.622	310.712	298.708	281.495	275.884
## % of var.	0.785	0.740	0.711	0.670	0.657
## Cumulative % of var.	74.022	74.762	75.473	76.143	76.800
##	Dim.26	Dim.27	Dim.28	Dim.29	Dim.30
## Variance	268.984	252.330	236.925	226.065	219.194
## % of var.	0.640	0.601	0.564	0.538	0.522
## Cumulative % of var.	77.440	78.041	78.605	79.144	79.665
##	Dim.31	Dim.32	Dim.33	Dim.34	Dim.35
## Variance	203.959	202.286	185.225	181.697	173.988
## % of var.	0.486	0.482	0.441	0.433	0.414
## Cumulative % of var.	80.151	80.633	81.074	81.506	81.921
##	Dim.36	Dim.37	Dim.38	Dim.39	Dim.40
## Variance	172.056	160.255	156.645	149.836	146.561
## % of var.	0.410	0.382	0.373	0.357	0.349
## Cumulative % of var.	82.330	82.712	83.085	83.441	83.790
##	Dim.41	Dim.42	Dim.43	Dim.44	Dim.45
## Variance	140.441	137.162	131.753	125.734	123.529
## % of var.	0.334	0.327	0.314	0.299	0.294
## Cumulative % of var.	84.125	84.451	84.765	85.064	85.359
##	Dim.46	Dim.47	Dim.48	Dim.49	Dim.50
## Variance	122.862	115.733	109.800	108.063	100.205
## % of var.	0.293	0.276	0.261	0.257	0.239
## Cumulative % of var.	85.651	85.927	86.188	86.445	86.684
##	Dim.51	Dim.52	Dim.53	Dim.54	Dim.55
## Variance	99.257	98.063	93.201	92.249	89.483
## % of var.	0.236	0.233	0.222	0.220	0.213
## Cumulative % of var.	86.920	87.154	87.376	87.595	87.808
##	Dim.56	Dim.57	Dim.58	Dim.59	Dim.60
## Variance	87.033	85.270	83.513	81.175	78.975
## % of var.	0.207	0.203	0.199	0.193	0.188
## Cumulative % of var.	88.016	88.219	88.417	88.611	88.799
##	Dim.61	Dim.62	Dim.63	Dim.64	Dim.65
## Variance	76.732	76.033	73.240	71.087	69.891
## % of var.	0.183	0.181	0.174	0.169	0.166
## Cumulative % of var.	88.981	89.163	89.337	89.506	89.673
##	Dim.66	Dim.67	Dim.68	Dim.69	Dim.70
## Variance	67.076	65.846	63.704	62.539	61.504
## % of var.	0.160	0.157	0.152	0.149	0.146
## Cumulative % of var.	89.832	89.989	90.141	90.290	90.436
##	Dim.71	Dim.72	Dim.73	Dim.74	Dim.75
## Variance	58.632	58.470	56.065	55.675	53.772
## % of var.	0.140	0.139	0.133	0.133	0.128
## Cumulative % of var.	90.576	90.715	90.848	90.981	91.109
##	Dim.76	Dim.77	Dim.78	Dim.79	Dim.80
## Variance	52.344	50.752	50.151	47.664	47.097
## % of var.	0.125	0.121	0.119	0.113	0.112
## Cumulative % of var.	91.234	91.354	91.474	91.587	91.699
##	Dim.81	Dim.82	Dim.83	Dim.84	Dim.85

## Variance	45.959	45.670	45.134	43.399	43.159
## % of var.	0.109	0.109	0.107	0.103	0.103
## Cumulative % of var.	91.809	91.918	92.025	92.128	92.231
##	Dim.86	Dim.87	Dim.88	Dim.89	Dim.90
## Variance	42.732	41.986	40.222	39.688	38.618
## % of var.	0.102	0.100	0.096	0.094	0.092
## Cumulative % of var.	92.333	92.433	92.529	92.623	92.715
##	Dim.91	Dim.92	Dim.93	Dim.94	Dim.95
## Variance	37.900	37.111	36.558	35.693	35.451
## % of var.	0.090	0.088	0.087	0.085	0.084
## Cumulative % of var.	92.805	92.894	92.981	93.066	93.150
##	Dim.96	Dim.97	Dim.98	Dim.99	Dim.100
## Variance	35.000	33.741	33.657	33.108	32.255
## % of var.	0.083	0.080	0.080	0.079	0.077
## Cumulative % of var.	93.233	93.314	93.394	93.473	93.550
##	Dim.101	Dim.102	Dim.103	Dim.104	Dim.105
## Variance	31.708	30.818	30.512	29.322	28.925
## % of var.	0.075	0.073	0.073	0.070	0.069
## Cumulative % of var.	93.625	93.698	93.771	93.841	93.910
##	Dim.106	Dim.107	Dim.108	Dim.109	Dim.110
## Variance	28.795	27.708	27.390	27.292	26.586
## % of var.	0.069	0.066	0.065	0.065	0.063
## Cumulative % of var.	93.978	94.044	94.109	94.174	94.238
##	Dim.111	Dim.112	Dim.113	Dim.114	Dim.115
## Variance	26.039	25.709	25.584	25.304	25.182
## % of var.	0.062	0.061	0.061	0.060	0.060
## Cumulative % of var.	94.300	94.361	94.422	94.482	94.542
##	Dim.116	Dim.117	Dim.118	Dim.119	Dim.120
## Variance	24.206	23.951	23.818	23.054	22.815
## % of var.	0.058	0.057	0.057	0.055	0.054
## Cumulative % of var.	94.600	94.657	94.713	94.768	94.823
##	Dim.121	Dim.122	Dim.123	Dim.124	Dim.125
## Variance	22.628	22.352	22.224	21.862	21.222
## % of var.	0.054	0.053	0.053	0.052	0.051
## Cumulative % of var.	94.877	94.930	94.983	95.035	95.085
##	Dim.126	Dim.127	Dim.128	Dim.129	Dim.130
## Variance	21.059	20.634	20.467	20.033	19.894
## % of var.	0.050	0.049	0.049	0.048	0.047
## Cumulative % of var.	95.135	95.185	95.233	95.281	95.328
##	Dim.131	Dim.132	Dim.133	Dim.134	Dim.135
## Variance	19.503	19.289	19.223	18.915	18.460
## % of var.	0.046	0.046	0.046	0.045	0.044
## Cumulative % of var.	95.375	95.421	95.466	95.511	95.555
##	Dim.136	Dim.137	Dim.138	Dim.139	Dim.140
## Variance	18.290	18.250	18.088	17.507	17.219
## % of var.	0.044	0.043	0.043	0.042	0.041
## Cumulative % of var.	95.599	95.642	95.686	95.727	95.768
##	Dim.141	Dim.142	Dim.143	Dim.144	Dim.145
## Variance	16.825	16.398	16.186	16.169	15.900
## % of var.	0.040	0.039	0.039	0.038	0.038

## Cumulative % of var.	95.808	95.847	95.886	95.924	95.962
##	Dim.146	Dim.147	Dim.148	Dim.149	Dim.150
## Variance	15.761	15.658	15.577	15.477	15.321
## % of var.	0.038	0.037	0.037	0.037	0.036
## Cumulative % of var.	96.000	96.037	96.074	96.111	96.147
##	Dim.151	Dim.152	Dim.153	Dim.154	Dim.155
## Variance	15.094	14.926	14.829	14.612	14.562
## % of var.	0.036	0.036	0.035	0.035	0.035
## Cumulative % of var.	96.183	96.219	96.254	96.289	96.324
##	Dim.156	Dim.157	Dim.158	Dim.159	Dim.160
## Variance	14.468	14.192	13.834	13.675	13.475
## % of var.	0.034	0.034	0.033	0.033	0.032
## Cumulative % of var.	96.358	96.392	96.425	96.457	96.489
##	Dim.161	Dim.162	Dim.163	Dim.164	Dim.165
## Variance	13.389	13.298	13.073	12.872	12.801
## % of var.	0.032	0.032	0.031	0.031	0.030
## Cumulative % of var.	96.521	96.553	96.584	96.615	96.645
##	Dim.166	Dim.167	Dim.168	Dim.169	Dim.170
## Variance	12.616	12.526	12.381	12.338	12.194
## % of var.	0.030	0.030	0.029	0.029	0.029
## Cumulative % of var.	96.675	96.705	96.735	96.764	96.793
##	Dim.171	Dim.172	Dim.173	Dim.174	Dim.175
## Variance	12.051	11.965	11.780	11.716	11.592
## % of var.	0.029	0.028	0.028	0.028	0.028
## Cumulative % of var.	96.822	96.850	96.878	96.906	96.934
##	Dim.176	Dim.177	Dim.178	Dim.179	Dim.180
## Variance	11.287	11.160	11.056	10.858	10.780
## % of var.	0.027	0.027	0.026	0.026	0.026
## Cumulative % of var.	96.961	96.987	97.014	97.039	97.065
##	Dim.181	Dim.182	Dim.183	Dim.184	Dim.185
## Variance	10.626	10.585	10.574	10.451	10.389
## % of var.	0.025	0.025	0.025	0.025	0.025
## Cumulative % of var.	97.090	97.116	97.141	97.166	97.190
##	Dim.186	Dim.187	Dim.188	Dim.189	Dim.190
## Variance	10.327	10.181	10.151	9.965	9.863
## % of var.	0.025	0.024	0.024	0.024	0.023
## Cumulative % of var.	97.215	97.239	97.263	97.287	97.311
##	Dim.191	Dim.192	Dim.193	Dim.194	Dim.195
## Variance	9.825	9.749	9.691	9.637	9.542
## % of var.	0.023	0.023	0.023	0.023	0.023
## Cumulative % of var.	97.334	97.357	97.380	97.403	97.426
##	Dim.196	Dim.197	Dim.198	Dim.199	Dim.200
## Variance	9.502	9.399	9.342	9.198	9.163
## % of var.	0.023	0.022	0.022	0.022	0.022
## Cumulative % of var.	97.448	97.471	97.493	97.515	97.537
##	Dim.201	Dim.202	Dim.203	Dim.204	Dim.205
## Variance	9.071	8.888	8.812	8.673	8.653
## % of var.	0.022	0.021	0.021	0.021	0.021
## Cumulative % of var.	97.558	97.580	97.601	97.621	97.642
##	Dim.206	Dim.207	Dim.208	Dim.209	Dim.210

## Variance	8.584	8.445	8.376	8.341	8.302
## % of var.	0.020	0.020	0.020	0.020	0.020
## Cumulative % of var.	97.662	97.682	97.702	97.722	97.742
##	Dim.211	Dim.212	Dim.213	Dim.214	Dim.215
## Variance	8.247	8.225	8.151	8.076	8.001
## % of var.	0.020	0.020	0.019	0.019	0.019
## Cumulative % of var.	97.762	97.781	97.801	97.820	97.839
##	Dim.216	Dim.217	Dim.218	Dim.219	Dim.220
## Variance	7.939	7.859	7.823	7.807	7.708
## % of var.	0.019	0.019	0.019	0.019	0.018
## Cumulative % of var.	97.858	97.876	97.895	97.914	97.932
##	Dim.221	Dim.222	Dim.223	Dim.224	Dim.225
## Variance	7.679	7.574	7.502	7.472	7.428
## % of var.	0.018	0.018	0.018	0.018	0.018
## Cumulative % of var.	97.950	97.968	97.986	98.004	98.022
##	Dim.226	Dim.227	Dim.228	Dim.229	Dim.230
## Variance	7.380	7.295	7.171	7.139	7.066
## % of var.	0.018	0.017	0.017	0.017	0.017
## Cumulative % of var.	98.039	98.057	98.074	98.091	98.108
##	Dim.231	Dim.232	Dim.233	Dim.234	Dim.235
## Variance	6.982	6.966	6.898	6.861	6.811
## % of var.	0.017	0.017	0.016	0.016	0.016
## Cumulative % of var.	98.124	98.141	98.157	98.173	98.190
##	Dim.236	Dim.237	Dim.238	Dim.239	Dim.240
## Variance	6.726	6.659	6.631	6.563	6.485
## % of var.	0.016	0.016	0.016	0.016	0.015
## Cumulative % of var.	98.206	98.222	98.237	98.253	98.268
##	Dim.241	Dim.242	Dim.243	Dim.244	Dim.245
## Variance	6.449	6.408	6.366	6.331	6.306
## % of var.	0.015	0.015	0.015	0.015	0.015
## Cumulative % of var.	98.284	98.299	98.314	98.329	98.344
##	Dim.246	Dim.247	Dim.248	Dim.249	Dim.250
## Variance	6.230	6.177	6.149	6.014	6.005
## % of var.	0.015	0.015	0.015	0.014	0.014
## Cumulative % of var.	98.359	98.374	98.388	98.403	98.417
##	Dim.251	Dim.252	Dim.253	Dim.254	Dim.255
## Variance	5.957	5.900	5.878	5.854	5.783
## % of var.	0.014	0.014	0.014	0.014	0.014
## Cumulative % of var.	98.431	98.445	98.459	98.473	98.487
##	Dim.256	Dim.257	Dim.258	Dim.259	Dim.260
## Variance	5.769	5.685	5.658	5.632	5.605
## % of var.	0.014	0.014	0.013	0.013	0.013
## Cumulative % of var.	98.501	98.514	98.528	98.541	98.555
##	Dim.261	Dim.262	Dim.263	Dim.264	Dim.265
## Variance	5.539	5.491	5.438	5.435	5.400
## % of var.	0.013	0.013	0.013	0.013	0.013
## Cumulative % of var.	98.568	98.581	98.594	98.607	98.620
##	Dim.266	Dim.267	Dim.268	Dim.269	Dim.270
## Variance	5.343	5.329	5.233	5.218	5.188
## % of var.	0.013	0.013	0.012	0.012	0.012

## Cumulative % of var.	98.632	98.645	98.657	98.670	98.682
##	Dim.271	Dim.272	Dim.273	Dim.274	Dim.275
## Variance	5.123	5.080	5.060	5.041	4.981
## % of var.	0.012	0.012	0.012	0.012	0.012
## Cumulative % of var.	98.694	98.706	98.719	98.731	98.742
##	Dim.276	Dim.277	Dim.278	Dim.279	Dim.280
## Variance	4.964	4.911	4.873	4.857	4.850
## % of var.	0.012	0.012	0.012	0.012	0.012
## Cumulative % of var.	98.754	98.766	98.777	98.789	98.801
##	Dim.281	Dim.282	Dim.283	Dim.284	Dim.285
## Variance	4.817	4.797	4.743	4.690	4.672
## % of var.	0.011	0.011	0.011	0.011	0.011
## Cumulative % of var.	98.812	98.823	98.835	98.846	98.857
##	Dim.286	Dim.287	Dim.288	Dim.289	Dim.290
## Variance	4.640	4.599	4.585	4.555	4.495
## % of var.	0.011	0.011	0.011	0.011	0.011
## Cumulative % of var.	98.868	98.879	98.890	98.901	98.912
##	Dim.291	Dim.292	Dim.293	Dim.294	Dim.295
## Variance	4.487	4.459	4.427	4.403	4.373
## % of var.	0.011	0.011	0.011	0.010	0.010
## Cumulative % of var.	98.922	98.933	98.943	98.954	98.964
##	Dim.296	Dim.297	Dim.298	Dim.299	Dim.300
## Variance	4.344	4.304	4.278	4.250	4.174
## % of var.	0.010	0.010	0.010	0.010	0.010
## Cumulative % of var.	98.975	98.985	98.995	99.005	99.015
##	Dim.301	Dim.302	Dim.303	Dim.304	Dim.305
## Variance	4.159	4.147	4.104	4.099	4.041
## % of var.	0.010	0.010	0.010	0.010	0.010
## Cumulative % of var.	99.025	99.035	99.045	99.054	99.064
##	Dim.306	Dim.307	Dim.308	Dim.309	Dim.310
## Variance	4.012	3.996	3.948	3.919	3.906
## % of var.	0.010	0.010	0.009	0.009	0.009
## Cumulative % of var.	99.074	99.083	99.092	99.102	99.111
##	Dim.311	Dim.312	Dim.313	Dim.314	Dim.315
## Variance	3.889	3.875	3.839	3.785	3.741
## % of var.	0.009	0.009	0.009	0.009	0.009
## Cumulative % of var.	99.120	99.130	99.139	99.148	99.157
##	Dim.316	Dim.317	Dim.318	Dim.319	Dim.320
## Variance	3.724	3.682	3.668	3.644	3.624
## % of var.	0.009	0.009	0.009	0.009	0.009
## Cumulative % of var.	99.166	99.174	99.183	99.192	99.200
##	Dim.321	Dim.322	Dim.323	Dim.324	Dim.325
## Variance	3.582	3.576	3.538	3.490	3.472
## % of var.	0.009	0.009	0.008	0.008	0.008
## Cumulative % of var.	99.209	99.217	99.226	99.234	99.242
##	Dim.326	Dim.327	Dim.328	Dim.329	Dim.330
## Variance	3.443	3.392	3.378	3.353	3.342
## % of var.	0.008	0.008	0.008	0.008	0.008
## Cumulative % of var.	99.251	99.259	99.267	99.275	99.283
##	Dim.331	Dim.332	Dim.333	Dim.334	Dim.335

## Variance	3.335	3.289	3.266	3.250	3.243
## % of var.	0.008	0.008	0.008	0.008	0.008
## Cumulative % of var.	99.291	99.298	99.306	99.314	99.322
##	Dim.336	Dim.337	Dim.338	Dim.339	Dim.340
## Variance	3.228	3.202	3.183	3.169	3.157
## % of var.	0.008	0.008	0.008	0.008	0.008
## Cumulative % of var.	99.329	99.337	99.345	99.352	99.360
##	Dim.341	Dim.342	Dim.343	Dim.344	Dim.345
## Variance	3.103	3.083	3.070	3.052	3.031
## % of var.	0.007	0.007	0.007	0.007	0.007
## Cumulative % of var.	99.367	99.374	99.382	99.389	99.396
##	Dim.346	Dim.347	Dim.348	Dim.349	Dim.350
## Variance	3.011	3.002	2.950	2.918	2.889
## % of var.	0.007	0.007	0.007	0.007	0.007
## Cumulative % of var.	99.403	99.410	99.417	99.424	99.431
##	Dim.351	Dim.352	Dim.353	Dim.354	Dim.355
## Variance	2.832	2.819	2.810	2.768	2.757
## % of var.	0.007	0.007	0.007	0.007	0.007
## Cumulative % of var.	99.438	99.445	99.451	99.458	99.465
##	Dim.356	Dim.357	Dim.358	Dim.359	Dim.360
## Variance	2.733	2.709	2.695	2.678	2.671
## % of var.	0.007	0.006	0.006	0.006	0.006
## Cumulative % of var.	99.471	99.478	99.484	99.490	99.497
##	Dim.361	Dim.362	Dim.363	Dim.364	Dim.365
## Variance	2.652	2.645	2.610	2.542	2.519
## % of var.	0.006	0.006	0.006	0.006	0.006
## Cumulative % of var.	99.503	99.509	99.516	99.522	99.528
##	Dim.366	Dim.367	Dim.368	Dim.369	Dim.370
## Variance	2.515	2.492	2.468	2.448	2.434
## % of var.	0.006	0.006	0.006	0.006	0.006
## Cumulative % of var.	99.534	99.539	99.545	99.551	99.557
##	Dim.371	Dim.372	Dim.373	Dim.374	Dim.375
## Variance	2.412	2.378	2.340	2.326	2.306
## % of var.	0.006	0.006	0.006	0.006	0.005
## Cumulative % of var.	99.563	99.568	99.574	99.580	99.585
##	Dim.376	Dim.377	Dim.378	Dim.379	Dim.380
## Variance	2.300	2.281	2.263	2.240	2.216
## % of var.	0.005	0.005	0.005	0.005	0.005
## Cumulative % of var.	99.590	99.596	99.601	99.607	99.612
##	Dim.381	Dim.382	Dim.383	Dim.384	Dim.385
## Variance	2.203	2.175	2.146	2.087	2.077
## % of var.	0.005	0.005	0.005	0.005	0.005
## Cumulative % of var.	99.617	99.622	99.627	99.632	99.637
##	Dim.386	Dim.387	Dim.388	Dim.389	Dim.390
## Variance	2.044	2.036	2.020	1.995	1.976
## % of var.	0.005	0.005	0.005	0.005	0.005
## Cumulative % of var.	99.642	99.647	99.652	99.657	99.661
##	Dim.391	Dim.392	Dim.393	Dim.394	Dim.395
## Variance	1.959	1.942	1.918	1.895	1.886
## % of var.	0.005	0.005	0.005	0.005	0.004

## Cumulative % of var.	99.666	99.671	99.675	99.680	99.684
##	Dim.396	Dim.397	Dim.398	Dim.399	Dim.400
## Variance	1.849	1.820	1.810	1.779	1.761
## % of var.	0.004	0.004	0.004	0.004	0.004
## Cumulative % of var.	99.689	99.693	99.697	99.701	99.706
##	Dim.401	Dim.402	Dim.403	Dim.404	Dim.405
## Variance	1.746	1.731	1.714	1.701	1.676
## % of var.	0.004	0.004	0.004	0.004	0.004
## Cumulative % of var.	99.710	99.714	99.718	99.722	99.726
##	Dim.406	Dim.407	Dim.408	Dim.409	Dim.410
## Variance	1.670	1.633	1.619	1.590	1.581
## % of var.	0.004	0.004	0.004	0.004	0.004
## Cumulative % of var.	99.730	99.734	99.738	99.742	99.745
##	Dim.411	Dim.412	Dim.413	Dim.414	Dim.415
## Variance	1.570	1.554	1.545	1.538	1.516
## % of var.	0.004	0.004	0.004	0.004	0.004
## Cumulative % of var.	99.749	99.753	99.756	99.760	99.764
##	Dim.416	Dim.417	Dim.418	Dim.419	Dim.420
## Variance	1.512	1.502	1.484	1.462	1.435
## % of var.	0.004	0.004	0.004	0.003	0.003
## Cumulative % of var.	99.767	99.771	99.774	99.778	99.781
##	Dim.421	Dim.422	Dim.423	Dim.424	Dim.425
## Variance	1.421	1.390	1.380	1.369	1.344
## % of var.	0.003	0.003	0.003	0.003	0.003
## Cumulative % of var.	99.785	99.788	99.791	99.795	99.798
##	Dim.426	Dim.427	Dim.428	Dim.429	Dim.430
## Variance	1.335	1.292	1.289	1.277	1.236
## % of var.	0.003	0.003	0.003	0.003	0.003
## Cumulative % of var.	99.801	99.804	99.807	99.810	99.813
##	Dim.431	Dim.432	Dim.433	Dim.434	Dim.435
## Variance	1.213	1.205	1.200	1.189	1.172
## % of var.	0.003	0.003	0.003	0.003	0.003
## Cumulative % of var.	99.816	99.819	99.822	99.825	99.827
##	Dim.436	Dim.437	Dim.438	Dim.439	Dim.440
## Variance	1.148	1.132	1.114	1.103	1.096
## % of var.	0.003	0.003	0.003	0.003	0.003
## Cumulative % of var.	99.830	99.833	99.835	99.838	99.841
##	Dim.441	Dim.442	Dim.443	Dim.444	Dim.445
## Variance	1.085	1.057	1.053	1.031	1.027
## % of var.	0.003	0.003	0.003	0.002	0.002
## Cumulative % of var.	99.843	99.846	99.848	99.851	99.853
##	Dim.446	Dim.447	Dim.448	Dim.449	Dim.450
## Variance	1.019	0.999	0.986	0.973	0.960
## % of var.	0.002	0.002	0.002	0.002	0.002
## Cumulative % of var.	99.856	99.858	99.860	99.863	99.865
##	Dim.451	Dim.452	Dim.453	Dim.454	Dim.455
## Variance	0.958	0.934	0.912	0.896	0.892
## % of var.	0.002	0.002	0.002	0.002	0.002
## Cumulative % of var.	99.867	99.869	99.872	99.874	99.876
##	Dim.456	Dim.457	Dim.458	Dim.459	Dim.460

## Variance	0.887	0.868	0.863	0.857	0.831
## % of var.	0.002	0.002	0.002	0.002	0.002
## Cumulative % of var.	99.878	99.880	99.882	99.884	99.886
##	Dim.461	Dim.462	Dim.463	Dim.464	Dim.465
## Variance	0.819	0.810	0.800	0.771	0.761
## % of var.	0.002	0.002	0.002	0.002	0.002
## Cumulative % of var.	99.888	99.890	99.892	99.894	99.895
##	Dim.466	Dim.467	Dim.468	Dim.469	Dim.470
## Variance	0.758	0.753	0.745	0.736	0.727
## % of var.	0.002	0.002	0.002	0.002	0.002
## Cumulative % of var.	99.897	99.899	99.901	99.903	99.904
##	Dim.471	Dim.472	Dim.473	Dim.474	Dim.475
## Variance	0.719	0.707	0.700	0.691	0.683
## % of var.	0.002	0.002	0.002	0.002	0.002
## Cumulative % of var.	99.906	99.908	99.909	99.911	99.913
##	Dim.476	Dim.477	Dim.478	Dim.479	Dim.480
## Variance	0.679	0.673	0.651	0.642	0.627
## % of var.	0.002	0.002	0.002	0.002	0.001
## Cumulative % of var.	99.914	99.916	99.917	99.919	99.920
##	Dim.481	Dim.482	Dim.483	Dim.484	Dim.485
## Variance	0.619	0.612	0.604	0.591	0.580
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.922	99.923	99.925	99.926	99.928
##	Dim.486	Dim.487	Dim.488	Dim.489	Dim.490
## Variance	0.572	0.568	0.559	0.553	0.546
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.929	99.930	99.932	99.933	99.934
##	Dim.491	Dim.492	Dim.493	Dim.494	Dim.495
## Variance	0.535	0.532	0.518	0.510	0.500
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.936	99.937	99.938	99.939	99.940
##	Dim.496	Dim.497	Dim.498	Dim.499	Dim.500
## Variance	0.483	0.480	0.472	0.467	0.458
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.942	99.943	99.944	99.945	99.946
##	Dim.501	Dim.502	Dim.503	Dim.504	Dim.505
## Variance	0.457	0.452	0.445	0.441	0.431
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.947	99.948	99.949	99.950	99.951
##	Dim.506	Dim.507	Dim.508	Dim.509	Dim.510
## Variance	0.412	0.403	0.397	0.392	0.386
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.952	99.953	99.954	99.955	99.956
##	Dim.511	Dim.512	Dim.513	Dim.514	Dim.515
## Variance	0.383	0.376	0.373	0.365	0.355
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.957	99.958	99.959	99.960	99.961
##	Dim.516	Dim.517	Dim.518	Dim.519	Dim.520
## Variance	0.350	0.348	0.346	0.343	0.337
## % of var.	0.001	0.001	0.001	0.001	0.001

## Cumulative % of var.	99.961	99.962	99.963	99.964	99.965
##	Dim.521	Dim.522	Dim.523	Dim.524	Dim.525
## Variance	0.327	0.326	0.315	0.311	0.311
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.965	99.966	99.967	99.968	99.968
##	Dim.526	Dim.527	Dim.528	Dim.529	Dim.530
## Variance	0.307	0.302	0.299	0.297	0.279
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.969	99.970	99.971	99.971	99.972
##	Dim.531	Dim.532	Dim.533	Dim.534	Dim.535
## Variance	0.278	0.268	0.264	0.261	0.256
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.973	99.973	99.974	99.975	99.975
##	Dim.536	Dim.537	Dim.538	Dim.539	Dim.540
## Variance	0.253	0.247	0.241	0.234	0.232
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.976	99.976	99.977	99.977	99.978
##	Dim.541	Dim.542	Dim.543	Dim.544	Dim.545
## Variance	0.229	0.227	0.220	0.218	0.217
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.979	99.979	99.980	99.980	99.981
##	Dim.546	Dim.547	Dim.548	Dim.549	Dim.550
## Variance	0.214	0.205	0.195	0.194	0.186
## % of var.	0.001	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.981	99.982	99.982	99.983	99.983
##	Dim.551	Dim.552	Dim.553	Dim.554	Dim.555
## Variance	0.182	0.180	0.173	0.171	0.165
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.983	99.984	99.984	99.985	99.985
##	Dim.556	Dim.557	Dim.558	Dim.559	Dim.560
## Variance	0.163	0.161	0.159	0.152	0.150
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.985	99.986	99.986	99.987	99.987
##	Dim.561	Dim.562	Dim.563	Dim.564	Dim.565
## Variance	0.148	0.146	0.144	0.142	0.135
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.987	99.988	99.988	99.988	99.989
##	Dim.566	Dim.567	Dim.568	Dim.569	Dim.570
## Variance	0.133	0.131	0.123	0.121	0.121
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.989	99.989	99.990	99.990	99.990
##	Dim.571	Dim.572	Dim.573	Dim.574	Dim.575
## Variance	0.119	0.118	0.118	0.114	0.113
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.990	99.991	99.991	99.991	99.992
##	Dim.576	Dim.577	Dim.578	Dim.579	Dim.580
## Variance	0.107	0.104	0.103	0.098	0.096
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.992	99.992	99.992	99.993	99.993
##	Dim.581	Dim.582	Dim.583	Dim.584	Dim.585

## Variance	0.090	0.089	0.088	0.085	0.085
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.993	99.993	99.993	99.994	99.994
##	Dim.586	Dim.587	Dim.588	Dim.589	Dim.590
## Variance	0.083	0.082	0.078	0.077	0.074
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.994	99.994	99.994	99.995	99.995
##	Dim.591	Dim.592	Dim.593	Dim.594	Dim.595
## Variance	0.074	0.074	0.070	0.068	0.066
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.995	99.995	99.995	99.995	99.996
##	Dim.596	Dim.597	Dim.598	Dim.599	Dim.600
## Variance	0.064	0.062	0.060	0.060	0.058
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.996	99.996	99.996	99.996	99.996
##	Dim.601	Dim.602	Dim.603	Dim.604	Dim.605
## Variance	0.055	0.052	0.051	0.050	0.049
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.996	99.997	99.997	99.997	99.997
##	Dim.606	Dim.607	Dim.608	Dim.609	Dim.610
## Variance	0.049	0.048	0.047	0.046	0.044
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.997	99.997	99.997	99.997	99.997
##	Dim.611	Dim.612	Dim.613	Dim.614	Dim.615
## Variance	0.041	0.040	0.036	0.035	0.034
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.998	99.998	99.998	99.998	99.998
##	Dim.616	Dim.617	Dim.618	Dim.619	Dim.620
## Variance	0.034	0.033	0.032	0.032	0.031
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.998	99.998	99.998	99.998	99.998
##	Dim.621	Dim.622	Dim.623	Dim.624	Dim.625
## Variance	0.030	0.030	0.028	0.028	0.027
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.998	99.998	99.998	99.999	99.999
##	Dim.626	Dim.627	Dim.628	Dim.629	Dim.630
## Variance	0.026	0.025	0.024	0.024	0.023
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.999	99.999	99.999	99.999	99.999
##	Dim.631	Dim.632	Dim.633	Dim.634	Dim.635
## Variance	0.022	0.021	0.021	0.020	0.020
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.999	99.999	99.999	99.999	99.999
##	Dim.636	Dim.637	Dim.638	Dim.639	Dim.640
## Variance	0.020	0.019	0.019	0.016	0.016
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.999	99.999	99.999	99.999	99.999
##	Dim.641	Dim.642	Dim.643	Dim.644	Dim.645
## Variance	0.015	0.015	0.014	0.013	0.013
## % of var.	0.000	0.000	0.000	0.000	0.000

## Cumulative % of var.	99.999	99.999	99.999	100.000	100.000
##	Dim.646	Dim.647	Dim.648	Dim.649	Dim.650
## Variance	0.011	0.011	0.010	0.010	0.009
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000
##	Dim.651	Dim.652	Dim.653	Dim.654	Dim.655
## Variance	0.009	0.009	0.008	0.008	0.007
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000
##	Dim.656	Dim.657	Dim.658	Dim.659	Dim.660
## Variance	0.007	0.007	0.007	0.006	0.006
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000
##	Dim.661	Dim.662	Dim.663	Dim.664	Dim.665
## Variance	0.006	0.006	0.006	0.004	0.004
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000
##	Dim.666	Dim.667	Dim.668	Dim.669	Dim.670
## Variance	0.004	0.003	0.003	0.003	0.003
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000
##	Dim.671	Dim.672	Dim.673	Dim.674	Dim.675
## Variance	0.002	0.002	0.002	0.002	0.002
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000
##	Dim.676	Dim.677	Dim.678	Dim.679	Dim.680
## Variance	0.001	0.001	0.001	0.001	0.001
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000
##	Dim.681	Dim.682	Dim.683	Dim.684	Dim.685
## Variance	0.001	0.001	0.001	0.001	0.001
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000
##	Dim.686	Dim.687	Dim.688	Dim.689	Dim.690
## Variance	0.001	0.001	0.000	0.000	0.000
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000
##	Dim.691	Dim.692	Dim.693	Dim.694	Dim.695
## Variance	0.000	0.000	0.000	0.000	0.000
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000
##	Dim.696	Dim.697	Dim.698	Dim.699	Dim.700
## Variance	0.000	0.000	0.000	0.000	0.000
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000
##	Dim.701	Dim.702	Dim.703	Dim.704	Dim.705
## Variance	0.000	0.000	0.000	0.000	0.000
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000
##	Dim.706	Dim.707	Dim.708	Dim.709	Dim.710

[illegible]

```

## Cumulative % of var.  100.000  100.000  100.000  100.000  100.000
##                        Dim.771  Dim.772  Dim.773  Dim.774  Dim.775
## Variance              0.000    0.000    0.000    0.000    0.000
## % of var.             0.000    0.000    0.000    0.000    0.000
## Cumulative % of var.  100.000  100.000  100.000  100.000  100.000
##                        Dim.776  Dim.777  Dim.778  Dim.779  Dim.780
## Variance              0.000    0.000    0.000    0.000    0.000
## % of var.             0.000    0.000    0.000    0.000    0.000
## Cumulative % of var.  100.000  100.000  100.000  100.000  100.000
##                        Dim.781  Dim.782  Dim.783
## Variance              0.000    0.000    0.000
## % of var.             0.000    0.000    0.000
## Cumulative % of var.  100.000  100.000  100.000
##
## Individuals (the 10 first)
##           Dist      Dim.1      ctr      cos2      Dim.2      ctr      cos2
Dim.3
## 0      |  87.988 | -85.829  0.072  0.952 | -10.867  0.006  0.015 | -
9.555
## 1      |  87.988 | -85.829  0.072  0.952 | -10.867  0.006  0.015 | -
9.555
## 2      |  87.988 | -85.829  0.072  0.952 | -10.867  0.006  0.015 | -
9.555
## 3      |  87.988 | -85.829  0.072  0.952 | -10.867  0.006  0.015 | -
9.555
## 4      |  87.988 | -85.829  0.072  0.952 | -10.867  0.006  0.015 | -
9.555
## 5      |  87.988 | -85.829  0.072  0.952 | -10.867  0.006  0.015 | -
9.555
## 6      |  87.988 | -85.829  0.072  0.952 | -10.867  0.006  0.015 | -
9.555
## 7      |  87.988 | -85.829  0.072  0.952 | -10.867  0.006  0.015 | -
9.555
## 8      |  87.988 | -85.829  0.072  0.952 | -10.867  0.006  0.015 | -
9.555
## 9      |  87.988 | -85.829  0.072  0.952 | -10.867  0.006  0.015 | -
9.555
##           ctr      cos2
## 0      0.005  0.012 |
## 1      0.005  0.012 |
## 2      0.005  0.012 |
## 3      0.005  0.012 |
## 4      0.005  0.012 |
## 5      0.005  0.012 |
## 6      0.005  0.012 |
## 7      0.005  0.012 |
## 8      0.005  0.012 |
## 9      0.005  0.012 |
##
## Variables (the 10 first)

```

	Dim.1	ctr	cos2	Dim.2	ctr	cos2	Dim.3	ctr
## cos2								
## V1	0.419	0.001	0.176	-0.407	0.006	0.165	0.198	0.002
0.039								
## V2	0.501	0.002	0.251	0.374	0.005	0.140	0.434	0.009
0.189								
## V3	0.534	0.002	0.285	-0.467	0.008	0.218	-0.077	0.000
0.006								
## V4	0.269	0.001	0.073	0.244	0.002	0.060	-0.020	0.000
0.000								
## V5	0.452	0.002	0.205	0.373	0.005	0.139	0.449	0.009
0.202								
## V6	0.576	0.003	0.332	0.350	0.005	0.122	0.116	0.001
0.013								
## V7	0.502	0.002	0.252	-0.054	0.000	0.003	-0.407	0.008
0.166								
## V8	0.347	0.001	0.120	0.069	0.000	0.005	0.021	0.000
0.000								
## V9	0.640	0.003	0.410	0.221	0.002	0.049	0.050	0.000
0.002								
## V10	0.570	0.003	0.325	-0.084	0.000	0.007	0.337	0.005
0.114								

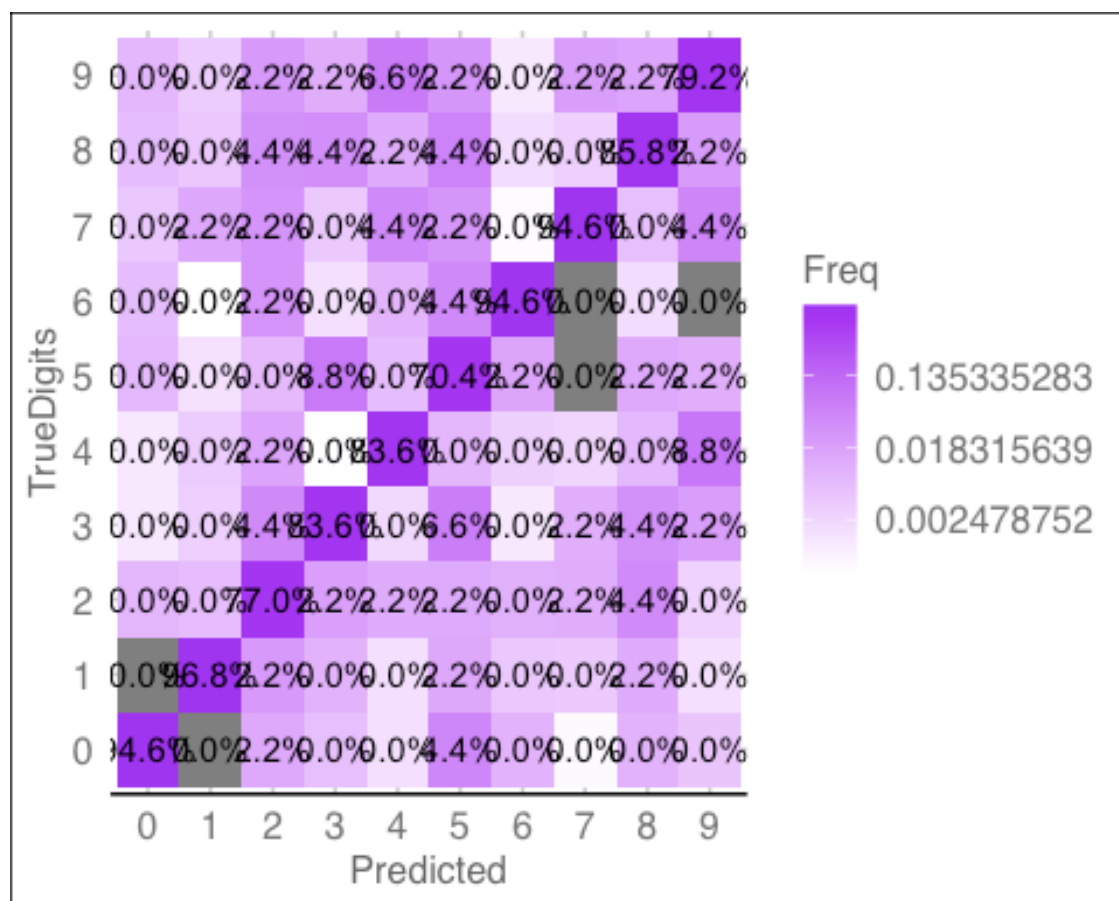
```
model_nb_80<-runNB(pca_80)
```

```
##
## ===== Naive Bayes
## =====
##
## - Call: naive_bayes.formula(formula = label ~ ., data = trainDF)
## - Laplace: 0
## - Classes: 10
## - Samples: 25205
## - Features: 80
## - Conditional distributions:
##   - Gaussian: 80
## - Prior probabilities:
##   - 0: 0.0984
##   - 1: 0.1115
##   - 2: 0.0995
##   - 3: 0.1036
##   - 4: 0.097
##   - 5: 0.0903
##   - 6: 0.0985
##   - 7: 0.1048
##   - 8: 0.0967
##   - 9: 0.0997
##
## -----
-----
```

```
## Warning: predict.naive_bayes(): more features in the newdata are provided
as
## there are probability tables in the object. Calculation is performed based
on
## features to be found in the tables.
```

```
##           TrueDigits
## Predicted  0    1    2    3    4    5    6    7    8    9
##           0 1489    0   13    2    2   12   10    7   10   13
##           1    0 1747   12    6    7    3    1   26    8    7
##           2   26   45 1466   80   31   14   55   55   64   44
##           3   10   16   33 1418    1  131    3    7   61   20
##           4    3    3   21    4 1407   11   15   74   20  127
##           5   85   27   24  124   15 1283   81   50  101   50
##           6   15    7   16    2    5   24 1486    1    3    2
##           7    1    6   18   17    4    0    0 1445    5   31
##           8   15   19   62   52   12   21    3    9 1314   25
##           9    8    3    5   35  144   19    0   86   39 1356
##           Accuracy           Kappa AccuracyLower AccuracyUpper AccuracyNull
##           0.8580530           0.8422800           0.8526831           0.8632985           0.1115213
## AccuracyPValue McnemarPValue
##           0.0000000           NaN
```

```
## Warning: Transformation introduced infinite values in discrete y-axis
```



```
pca_150<-getTopPCAFeatures(DigitTotalDF,150)
```

```
##
## Call:
## PCA(X = t(select(df, -label)), ncp = ncp, graph = FALSE)
##
##
## Eigenvalues
##
```

	Dim.1	Dim.2	Dim.3	Dim.4	Dim.5
## Variance	12975.886	2635.187	2146.048	1747.535	1465.951
## % of var.	30.895	6.274	5.110	4.161	3.490
## Cumulative % of var.	30.895	37.169	42.279	46.440	49.930
##	Dim.6	Dim.7	Dim.8	Dim.9	Dim.10
## Variance	1358.547	1135.701	884.896	855.251	734.998
## % of var.	3.235	2.704	2.107	2.036	1.750
## Cumulative % of var.	53.165	55.869	57.976	60.012	61.762
##	Dim.11	Dim.12	Dim.13	Dim.14	Dim.15
## Variance	664.973	634.157	551.036	515.912	483.259
## % of var.	1.583	1.510	1.312	1.228	1.151
## Cumulative % of var.	63.345	64.855	66.167	67.395	68.546
##	Dim.16	Dim.17	Dim.18	Dim.19	Dim.20
## Variance	451.099	420.945	388.013	361.053	349.113
## % of var.	1.074	1.002	0.924	0.860	0.831

## Cumulative % of var.	69.620	70.622	71.546	72.406	73.237
##	Dim.21	Dim.22	Dim.23	Dim.24	Dim.25
## Variance	329.622	310.712	298.708	281.495	275.884
## % of var.	0.785	0.740	0.711	0.670	0.657
## Cumulative % of var.	74.022	74.762	75.473	76.143	76.800
##	Dim.26	Dim.27	Dim.28	Dim.29	Dim.30
## Variance	268.984	252.330	236.925	226.065	219.194
## % of var.	0.640	0.601	0.564	0.538	0.522
## Cumulative % of var.	77.440	78.041	78.605	79.144	79.665
##	Dim.31	Dim.32	Dim.33	Dim.34	Dim.35
## Variance	203.959	202.286	185.225	181.697	173.988
## % of var.	0.486	0.482	0.441	0.433	0.414
## Cumulative % of var.	80.151	80.633	81.074	81.506	81.921
##	Dim.36	Dim.37	Dim.38	Dim.39	Dim.40
## Variance	172.056	160.255	156.645	149.836	146.561
## % of var.	0.410	0.382	0.373	0.357	0.349
## Cumulative % of var.	82.330	82.712	83.085	83.441	83.790
##	Dim.41	Dim.42	Dim.43	Dim.44	Dim.45
## Variance	140.441	137.162	131.753	125.734	123.529
## % of var.	0.334	0.327	0.314	0.299	0.294
## Cumulative % of var.	84.125	84.451	84.765	85.064	85.359
##	Dim.46	Dim.47	Dim.48	Dim.49	Dim.50
## Variance	122.862	115.733	109.800	108.063	100.205
## % of var.	0.293	0.276	0.261	0.257	0.239
## Cumulative % of var.	85.651	85.927	86.188	86.445	86.684
##	Dim.51	Dim.52	Dim.53	Dim.54	Dim.55
## Variance	99.257	98.063	93.201	92.249	89.483
## % of var.	0.236	0.233	0.222	0.220	0.213
## Cumulative % of var.	86.920	87.154	87.376	87.595	87.808
##	Dim.56	Dim.57	Dim.58	Dim.59	Dim.60
## Variance	87.033	85.270	83.513	81.175	78.975
## % of var.	0.207	0.203	0.199	0.193	0.188
## Cumulative % of var.	88.016	88.219	88.417	88.611	88.799
##	Dim.61	Dim.62	Dim.63	Dim.64	Dim.65
## Variance	76.732	76.033	73.240	71.087	69.891
## % of var.	0.183	0.181	0.174	0.169	0.166
## Cumulative % of var.	88.981	89.163	89.337	89.506	89.673
##	Dim.66	Dim.67	Dim.68	Dim.69	Dim.70
## Variance	67.076	65.846	63.704	62.539	61.504
## % of var.	0.160	0.157	0.152	0.149	0.146
## Cumulative % of var.	89.832	89.989	90.141	90.290	90.436
##	Dim.71	Dim.72	Dim.73	Dim.74	Dim.75
## Variance	58.632	58.470	56.065	55.675	53.772
## % of var.	0.140	0.139	0.133	0.133	0.128
## Cumulative % of var.	90.576	90.715	90.848	90.981	91.109
##	Dim.76	Dim.77	Dim.78	Dim.79	Dim.80
## Variance	52.344	50.752	50.151	47.664	47.097
## % of var.	0.125	0.121	0.119	0.113	0.112
## Cumulative % of var.	91.234	91.354	91.474	91.587	91.699
##	Dim.81	Dim.82	Dim.83	Dim.84	Dim.85

## Variance	45.959	45.670	45.134	43.399	43.159
## % of var.	0.109	0.109	0.107	0.103	0.103
## Cumulative % of var.	91.809	91.918	92.025	92.128	92.231
##	Dim.86	Dim.87	Dim.88	Dim.89	Dim.90
## Variance	42.732	41.986	40.222	39.688	38.618
## % of var.	0.102	0.100	0.096	0.094	0.092
## Cumulative % of var.	92.333	92.433	92.529	92.623	92.715
##	Dim.91	Dim.92	Dim.93	Dim.94	Dim.95
## Variance	37.900	37.111	36.558	35.693	35.451
## % of var.	0.090	0.088	0.087	0.085	0.084
## Cumulative % of var.	92.805	92.894	92.981	93.066	93.150
##	Dim.96	Dim.97	Dim.98	Dim.99	Dim.100
## Variance	35.000	33.741	33.657	33.108	32.255
## % of var.	0.083	0.080	0.080	0.079	0.077
## Cumulative % of var.	93.233	93.314	93.394	93.473	93.550
##	Dim.101	Dim.102	Dim.103	Dim.104	Dim.105
## Variance	31.708	30.818	30.512	29.322	28.925
## % of var.	0.075	0.073	0.073	0.070	0.069
## Cumulative % of var.	93.625	93.698	93.771	93.841	93.910
##	Dim.106	Dim.107	Dim.108	Dim.109	Dim.110
## Variance	28.795	27.708	27.390	27.292	26.586
## % of var.	0.069	0.066	0.065	0.065	0.063
## Cumulative % of var.	93.978	94.044	94.109	94.174	94.238
##	Dim.111	Dim.112	Dim.113	Dim.114	Dim.115
## Variance	26.039	25.709	25.584	25.304	25.182
## % of var.	0.062	0.061	0.061	0.060	0.060
## Cumulative % of var.	94.300	94.361	94.422	94.482	94.542
##	Dim.116	Dim.117	Dim.118	Dim.119	Dim.120
## Variance	24.206	23.951	23.818	23.054	22.815
## % of var.	0.058	0.057	0.057	0.055	0.054
## Cumulative % of var.	94.600	94.657	94.713	94.768	94.823
##	Dim.121	Dim.122	Dim.123	Dim.124	Dim.125
## Variance	22.628	22.352	22.224	21.862	21.222
## % of var.	0.054	0.053	0.053	0.052	0.051
## Cumulative % of var.	94.877	94.930	94.983	95.035	95.085
##	Dim.126	Dim.127	Dim.128	Dim.129	Dim.130
## Variance	21.059	20.634	20.467	20.033	19.894
## % of var.	0.050	0.049	0.049	0.048	0.047
## Cumulative % of var.	95.135	95.185	95.233	95.281	95.328
##	Dim.131	Dim.132	Dim.133	Dim.134	Dim.135
## Variance	19.503	19.289	19.223	18.915	18.460
## % of var.	0.046	0.046	0.046	0.045	0.044
## Cumulative % of var.	95.375	95.421	95.466	95.511	95.555
##	Dim.136	Dim.137	Dim.138	Dim.139	Dim.140
## Variance	18.290	18.250	18.088	17.507	17.219
## % of var.	0.044	0.043	0.043	0.042	0.041
## Cumulative % of var.	95.599	95.642	95.686	95.727	95.768
##	Dim.141	Dim.142	Dim.143	Dim.144	Dim.145
## Variance	16.825	16.398	16.186	16.169	15.900
## % of var.	0.040	0.039	0.039	0.038	0.038

## Cumulative % of var.	95.808	95.847	95.886	95.924	95.962
##	Dim.146	Dim.147	Dim.148	Dim.149	Dim.150
## Variance	15.761	15.658	15.577	15.477	15.321
## % of var.	0.038	0.037	0.037	0.037	0.036
## Cumulative % of var.	96.000	96.037	96.074	96.111	96.147
##	Dim.151	Dim.152	Dim.153	Dim.154	Dim.155
## Variance	15.094	14.926	14.829	14.612	14.562
## % of var.	0.036	0.036	0.035	0.035	0.035
## Cumulative % of var.	96.183	96.219	96.254	96.289	96.324
##	Dim.156	Dim.157	Dim.158	Dim.159	Dim.160
## Variance	14.468	14.192	13.834	13.675	13.475
## % of var.	0.034	0.034	0.033	0.033	0.032
## Cumulative % of var.	96.358	96.392	96.425	96.457	96.489
##	Dim.161	Dim.162	Dim.163	Dim.164	Dim.165
## Variance	13.389	13.298	13.073	12.872	12.801
## % of var.	0.032	0.032	0.031	0.031	0.030
## Cumulative % of var.	96.521	96.553	96.584	96.615	96.645
##	Dim.166	Dim.167	Dim.168	Dim.169	Dim.170
## Variance	12.616	12.526	12.381	12.338	12.194
## % of var.	0.030	0.030	0.029	0.029	0.029
## Cumulative % of var.	96.675	96.705	96.735	96.764	96.793
##	Dim.171	Dim.172	Dim.173	Dim.174	Dim.175
## Variance	12.051	11.965	11.780	11.716	11.592
## % of var.	0.029	0.028	0.028	0.028	0.028
## Cumulative % of var.	96.822	96.850	96.878	96.906	96.934
##	Dim.176	Dim.177	Dim.178	Dim.179	Dim.180
## Variance	11.287	11.160	11.056	10.858	10.780
## % of var.	0.027	0.027	0.026	0.026	0.026
## Cumulative % of var.	96.961	96.987	97.014	97.039	97.065
##	Dim.181	Dim.182	Dim.183	Dim.184	Dim.185
## Variance	10.626	10.585	10.574	10.451	10.389
## % of var.	0.025	0.025	0.025	0.025	0.025
## Cumulative % of var.	97.090	97.116	97.141	97.166	97.190
##	Dim.186	Dim.187	Dim.188	Dim.189	Dim.190
## Variance	10.327	10.181	10.151	9.965	9.863
## % of var.	0.025	0.024	0.024	0.024	0.023
## Cumulative % of var.	97.215	97.239	97.263	97.287	97.311
##	Dim.191	Dim.192	Dim.193	Dim.194	Dim.195
## Variance	9.825	9.749	9.691	9.637	9.542
## % of var.	0.023	0.023	0.023	0.023	0.023
## Cumulative % of var.	97.334	97.357	97.380	97.403	97.426
##	Dim.196	Dim.197	Dim.198	Dim.199	Dim.200
## Variance	9.502	9.399	9.342	9.198	9.163
## % of var.	0.023	0.022	0.022	0.022	0.022
## Cumulative % of var.	97.448	97.471	97.493	97.515	97.537
##	Dim.201	Dim.202	Dim.203	Dim.204	Dim.205
## Variance	9.071	8.888	8.812	8.673	8.653
## % of var.	0.022	0.021	0.021	0.021	0.021
## Cumulative % of var.	97.558	97.580	97.601	97.621	97.642
##	Dim.206	Dim.207	Dim.208	Dim.209	Dim.210

## Variance	8.584	8.445	8.376	8.341	8.302
## % of var.	0.020	0.020	0.020	0.020	0.020
## Cumulative % of var.	97.662	97.682	97.702	97.722	97.742
##	Dim.211	Dim.212	Dim.213	Dim.214	Dim.215
## Variance	8.247	8.225	8.151	8.076	8.001
## % of var.	0.020	0.020	0.019	0.019	0.019
## Cumulative % of var.	97.762	97.781	97.801	97.820	97.839
##	Dim.216	Dim.217	Dim.218	Dim.219	Dim.220
## Variance	7.939	7.859	7.823	7.807	7.708
## % of var.	0.019	0.019	0.019	0.019	0.018
## Cumulative % of var.	97.858	97.876	97.895	97.914	97.932
##	Dim.221	Dim.222	Dim.223	Dim.224	Dim.225
## Variance	7.679	7.574	7.502	7.472	7.428
## % of var.	0.018	0.018	0.018	0.018	0.018
## Cumulative % of var.	97.950	97.968	97.986	98.004	98.022
##	Dim.226	Dim.227	Dim.228	Dim.229	Dim.230
## Variance	7.380	7.295	7.171	7.139	7.066
## % of var.	0.018	0.017	0.017	0.017	0.017
## Cumulative % of var.	98.039	98.057	98.074	98.091	98.108
##	Dim.231	Dim.232	Dim.233	Dim.234	Dim.235
## Variance	6.982	6.966	6.898	6.861	6.811
## % of var.	0.017	0.017	0.016	0.016	0.016
## Cumulative % of var.	98.124	98.141	98.157	98.173	98.190
##	Dim.236	Dim.237	Dim.238	Dim.239	Dim.240
## Variance	6.726	6.659	6.631	6.563	6.485
## % of var.	0.016	0.016	0.016	0.016	0.015
## Cumulative % of var.	98.206	98.222	98.237	98.253	98.268
##	Dim.241	Dim.242	Dim.243	Dim.244	Dim.245
## Variance	6.449	6.408	6.366	6.331	6.306
## % of var.	0.015	0.015	0.015	0.015	0.015
## Cumulative % of var.	98.284	98.299	98.314	98.329	98.344
##	Dim.246	Dim.247	Dim.248	Dim.249	Dim.250
## Variance	6.230	6.177	6.149	6.014	6.005
## % of var.	0.015	0.015	0.015	0.014	0.014
## Cumulative % of var.	98.359	98.374	98.388	98.403	98.417
##	Dim.251	Dim.252	Dim.253	Dim.254	Dim.255
## Variance	5.957	5.900	5.878	5.854	5.783
## % of var.	0.014	0.014	0.014	0.014	0.014
## Cumulative % of var.	98.431	98.445	98.459	98.473	98.487
##	Dim.256	Dim.257	Dim.258	Dim.259	Dim.260
## Variance	5.769	5.685	5.658	5.632	5.605
## % of var.	0.014	0.014	0.013	0.013	0.013
## Cumulative % of var.	98.501	98.514	98.528	98.541	98.555
##	Dim.261	Dim.262	Dim.263	Dim.264	Dim.265
## Variance	5.539	5.491	5.438	5.435	5.400
## % of var.	0.013	0.013	0.013	0.013	0.013
## Cumulative % of var.	98.568	98.581	98.594	98.607	98.620
##	Dim.266	Dim.267	Dim.268	Dim.269	Dim.270
## Variance	5.343	5.329	5.233	5.218	5.188
## % of var.	0.013	0.013	0.012	0.012	0.012

## Cumulative % of var.	98.632	98.645	98.657	98.670	98.682
##	Dim.271	Dim.272	Dim.273	Dim.274	Dim.275
## Variance	5.123	5.080	5.060	5.041	4.981
## % of var.	0.012	0.012	0.012	0.012	0.012
## Cumulative % of var.	98.694	98.706	98.719	98.731	98.742
##	Dim.276	Dim.277	Dim.278	Dim.279	Dim.280
## Variance	4.964	4.911	4.873	4.857	4.850
## % of var.	0.012	0.012	0.012	0.012	0.012
## Cumulative % of var.	98.754	98.766	98.777	98.789	98.801
##	Dim.281	Dim.282	Dim.283	Dim.284	Dim.285
## Variance	4.817	4.797	4.743	4.690	4.672
## % of var.	0.011	0.011	0.011	0.011	0.011
## Cumulative % of var.	98.812	98.823	98.835	98.846	98.857
##	Dim.286	Dim.287	Dim.288	Dim.289	Dim.290
## Variance	4.640	4.599	4.585	4.555	4.495
## % of var.	0.011	0.011	0.011	0.011	0.011
## Cumulative % of var.	98.868	98.879	98.890	98.901	98.912
##	Dim.291	Dim.292	Dim.293	Dim.294	Dim.295
## Variance	4.487	4.459	4.427	4.403	4.373
## % of var.	0.011	0.011	0.011	0.010	0.010
## Cumulative % of var.	98.922	98.933	98.943	98.954	98.964
##	Dim.296	Dim.297	Dim.298	Dim.299	Dim.300
## Variance	4.344	4.304	4.278	4.250	4.174
## % of var.	0.010	0.010	0.010	0.010	0.010
## Cumulative % of var.	98.975	98.985	98.995	99.005	99.015
##	Dim.301	Dim.302	Dim.303	Dim.304	Dim.305
## Variance	4.159	4.147	4.104	4.099	4.041
## % of var.	0.010	0.010	0.010	0.010	0.010
## Cumulative % of var.	99.025	99.035	99.045	99.054	99.064
##	Dim.306	Dim.307	Dim.308	Dim.309	Dim.310
## Variance	4.012	3.996	3.948	3.919	3.906
## % of var.	0.010	0.010	0.009	0.009	0.009
## Cumulative % of var.	99.074	99.083	99.092	99.102	99.111
##	Dim.311	Dim.312	Dim.313	Dim.314	Dim.315
## Variance	3.889	3.875	3.839	3.785	3.741
## % of var.	0.009	0.009	0.009	0.009	0.009
## Cumulative % of var.	99.120	99.130	99.139	99.148	99.157
##	Dim.316	Dim.317	Dim.318	Dim.319	Dim.320
## Variance	3.724	3.682	3.668	3.644	3.624
## % of var.	0.009	0.009	0.009	0.009	0.009
## Cumulative % of var.	99.166	99.174	99.183	99.192	99.200
##	Dim.321	Dim.322	Dim.323	Dim.324	Dim.325
## Variance	3.582	3.576	3.538	3.490	3.472
## % of var.	0.009	0.009	0.008	0.008	0.008
## Cumulative % of var.	99.209	99.217	99.226	99.234	99.242
##	Dim.326	Dim.327	Dim.328	Dim.329	Dim.330
## Variance	3.443	3.392	3.378	3.353	3.342
## % of var.	0.008	0.008	0.008	0.008	0.008
## Cumulative % of var.	99.251	99.259	99.267	99.275	99.283
##	Dim.331	Dim.332	Dim.333	Dim.334	Dim.335

## Variance	3.335	3.289	3.266	3.250	3.243
## % of var.	0.008	0.008	0.008	0.008	0.008
## Cumulative % of var.	99.291	99.298	99.306	99.314	99.322
##	Dim.336	Dim.337	Dim.338	Dim.339	Dim.340
## Variance	3.228	3.202	3.183	3.169	3.157
## % of var.	0.008	0.008	0.008	0.008	0.008
## Cumulative % of var.	99.329	99.337	99.345	99.352	99.360
##	Dim.341	Dim.342	Dim.343	Dim.344	Dim.345
## Variance	3.103	3.083	3.070	3.052	3.031
## % of var.	0.007	0.007	0.007	0.007	0.007
## Cumulative % of var.	99.367	99.374	99.382	99.389	99.396
##	Dim.346	Dim.347	Dim.348	Dim.349	Dim.350
## Variance	3.011	3.002	2.950	2.918	2.889
## % of var.	0.007	0.007	0.007	0.007	0.007
## Cumulative % of var.	99.403	99.410	99.417	99.424	99.431
##	Dim.351	Dim.352	Dim.353	Dim.354	Dim.355
## Variance	2.832	2.819	2.810	2.768	2.757
## % of var.	0.007	0.007	0.007	0.007	0.007
## Cumulative % of var.	99.438	99.445	99.451	99.458	99.465
##	Dim.356	Dim.357	Dim.358	Dim.359	Dim.360
## Variance	2.733	2.709	2.695	2.678	2.671
## % of var.	0.007	0.006	0.006	0.006	0.006
## Cumulative % of var.	99.471	99.478	99.484	99.490	99.497
##	Dim.361	Dim.362	Dim.363	Dim.364	Dim.365
## Variance	2.652	2.645	2.610	2.542	2.519
## % of var.	0.006	0.006	0.006	0.006	0.006
## Cumulative % of var.	99.503	99.509	99.516	99.522	99.528
##	Dim.366	Dim.367	Dim.368	Dim.369	Dim.370
## Variance	2.515	2.492	2.468	2.448	2.434
## % of var.	0.006	0.006	0.006	0.006	0.006
## Cumulative % of var.	99.534	99.539	99.545	99.551	99.557
##	Dim.371	Dim.372	Dim.373	Dim.374	Dim.375
## Variance	2.412	2.378	2.340	2.326	2.306
## % of var.	0.006	0.006	0.006	0.006	0.005
## Cumulative % of var.	99.563	99.568	99.574	99.580	99.585
##	Dim.376	Dim.377	Dim.378	Dim.379	Dim.380
## Variance	2.300	2.281	2.263	2.240	2.216
## % of var.	0.005	0.005	0.005	0.005	0.005
## Cumulative % of var.	99.590	99.596	99.601	99.607	99.612
##	Dim.381	Dim.382	Dim.383	Dim.384	Dim.385
## Variance	2.203	2.175	2.146	2.087	2.077
## % of var.	0.005	0.005	0.005	0.005	0.005
## Cumulative % of var.	99.617	99.622	99.627	99.632	99.637
##	Dim.386	Dim.387	Dim.388	Dim.389	Dim.390
## Variance	2.044	2.036	2.020	1.995	1.976
## % of var.	0.005	0.005	0.005	0.005	0.005
## Cumulative % of var.	99.642	99.647	99.652	99.657	99.661
##	Dim.391	Dim.392	Dim.393	Dim.394	Dim.395
## Variance	1.959	1.942	1.918	1.895	1.886
## % of var.	0.005	0.005	0.005	0.005	0.004

## Cumulative % of var.	99.666	99.671	99.675	99.680	99.684
##	Dim.396	Dim.397	Dim.398	Dim.399	Dim.400
## Variance	1.849	1.820	1.810	1.779	1.761
## % of var.	0.004	0.004	0.004	0.004	0.004
## Cumulative % of var.	99.689	99.693	99.697	99.701	99.706
##	Dim.401	Dim.402	Dim.403	Dim.404	Dim.405
## Variance	1.746	1.731	1.714	1.701	1.676
## % of var.	0.004	0.004	0.004	0.004	0.004
## Cumulative % of var.	99.710	99.714	99.718	99.722	99.726
##	Dim.406	Dim.407	Dim.408	Dim.409	Dim.410
## Variance	1.670	1.633	1.619	1.590	1.581
## % of var.	0.004	0.004	0.004	0.004	0.004
## Cumulative % of var.	99.730	99.734	99.738	99.742	99.745
##	Dim.411	Dim.412	Dim.413	Dim.414	Dim.415
## Variance	1.570	1.554	1.545	1.538	1.516
## % of var.	0.004	0.004	0.004	0.004	0.004
## Cumulative % of var.	99.749	99.753	99.756	99.760	99.764
##	Dim.416	Dim.417	Dim.418	Dim.419	Dim.420
## Variance	1.512	1.502	1.484	1.462	1.435
## % of var.	0.004	0.004	0.004	0.003	0.003
## Cumulative % of var.	99.767	99.771	99.774	99.778	99.781
##	Dim.421	Dim.422	Dim.423	Dim.424	Dim.425
## Variance	1.421	1.390	1.380	1.369	1.344
## % of var.	0.003	0.003	0.003	0.003	0.003
## Cumulative % of var.	99.785	99.788	99.791	99.795	99.798
##	Dim.426	Dim.427	Dim.428	Dim.429	Dim.430
## Variance	1.335	1.292	1.289	1.277	1.236
## % of var.	0.003	0.003	0.003	0.003	0.003
## Cumulative % of var.	99.801	99.804	99.807	99.810	99.813
##	Dim.431	Dim.432	Dim.433	Dim.434	Dim.435
## Variance	1.213	1.205	1.200	1.189	1.172
## % of var.	0.003	0.003	0.003	0.003	0.003
## Cumulative % of var.	99.816	99.819	99.822	99.825	99.827
##	Dim.436	Dim.437	Dim.438	Dim.439	Dim.440
## Variance	1.148	1.132	1.114	1.103	1.096
## % of var.	0.003	0.003	0.003	0.003	0.003
## Cumulative % of var.	99.830	99.833	99.835	99.838	99.841
##	Dim.441	Dim.442	Dim.443	Dim.444	Dim.445
## Variance	1.085	1.057	1.053	1.031	1.027
## % of var.	0.003	0.003	0.003	0.002	0.002
## Cumulative % of var.	99.843	99.846	99.848	99.851	99.853
##	Dim.446	Dim.447	Dim.448	Dim.449	Dim.450
## Variance	1.019	0.999	0.986	0.973	0.960
## % of var.	0.002	0.002	0.002	0.002	0.002
## Cumulative % of var.	99.856	99.858	99.860	99.863	99.865
##	Dim.451	Dim.452	Dim.453	Dim.454	Dim.455
## Variance	0.958	0.934	0.912	0.896	0.892
## % of var.	0.002	0.002	0.002	0.002	0.002
## Cumulative % of var.	99.867	99.869	99.872	99.874	99.876
##	Dim.456	Dim.457	Dim.458	Dim.459	Dim.460

## Variance	0.887	0.868	0.863	0.857	0.831
## % of var.	0.002	0.002	0.002	0.002	0.002
## Cumulative % of var.	99.878	99.880	99.882	99.884	99.886
##	Dim.461	Dim.462	Dim.463	Dim.464	Dim.465
## Variance	0.819	0.810	0.800	0.771	0.761
## % of var.	0.002	0.002	0.002	0.002	0.002
## Cumulative % of var.	99.888	99.890	99.892	99.894	99.895
##	Dim.466	Dim.467	Dim.468	Dim.469	Dim.470
## Variance	0.758	0.753	0.745	0.736	0.727
## % of var.	0.002	0.002	0.002	0.002	0.002
## Cumulative % of var.	99.897	99.899	99.901	99.903	99.904
##	Dim.471	Dim.472	Dim.473	Dim.474	Dim.475
## Variance	0.719	0.707	0.700	0.691	0.683
## % of var.	0.002	0.002	0.002	0.002	0.002
## Cumulative % of var.	99.906	99.908	99.909	99.911	99.913
##	Dim.476	Dim.477	Dim.478	Dim.479	Dim.480
## Variance	0.679	0.673	0.651	0.642	0.627
## % of var.	0.002	0.002	0.002	0.002	0.001
## Cumulative % of var.	99.914	99.916	99.917	99.919	99.920
##	Dim.481	Dim.482	Dim.483	Dim.484	Dim.485
## Variance	0.619	0.612	0.604	0.591	0.580
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.922	99.923	99.925	99.926	99.928
##	Dim.486	Dim.487	Dim.488	Dim.489	Dim.490
## Variance	0.572	0.568	0.559	0.553	0.546
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.929	99.930	99.932	99.933	99.934
##	Dim.491	Dim.492	Dim.493	Dim.494	Dim.495
## Variance	0.535	0.532	0.518	0.510	0.500
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.936	99.937	99.938	99.939	99.940
##	Dim.496	Dim.497	Dim.498	Dim.499	Dim.500
## Variance	0.483	0.480	0.472	0.467	0.458
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.942	99.943	99.944	99.945	99.946
##	Dim.501	Dim.502	Dim.503	Dim.504	Dim.505
## Variance	0.457	0.452	0.445	0.441	0.431
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.947	99.948	99.949	99.950	99.951
##	Dim.506	Dim.507	Dim.508	Dim.509	Dim.510
## Variance	0.412	0.403	0.397	0.392	0.386
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.952	99.953	99.954	99.955	99.956
##	Dim.511	Dim.512	Dim.513	Dim.514	Dim.515
## Variance	0.383	0.376	0.373	0.365	0.355
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.957	99.958	99.959	99.960	99.961
##	Dim.516	Dim.517	Dim.518	Dim.519	Dim.520
## Variance	0.350	0.348	0.346	0.343	0.337
## % of var.	0.001	0.001	0.001	0.001	0.001

## Cumulative % of var.	99.961	99.962	99.963	99.964	99.965
##	Dim.521	Dim.522	Dim.523	Dim.524	Dim.525
## Variance	0.327	0.326	0.315	0.311	0.311
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.965	99.966	99.967	99.968	99.968
##	Dim.526	Dim.527	Dim.528	Dim.529	Dim.530
## Variance	0.307	0.302	0.299	0.297	0.279
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.969	99.970	99.971	99.971	99.972
##	Dim.531	Dim.532	Dim.533	Dim.534	Dim.535
## Variance	0.278	0.268	0.264	0.261	0.256
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.973	99.973	99.974	99.975	99.975
##	Dim.536	Dim.537	Dim.538	Dim.539	Dim.540
## Variance	0.253	0.247	0.241	0.234	0.232
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.976	99.976	99.977	99.977	99.978
##	Dim.541	Dim.542	Dim.543	Dim.544	Dim.545
## Variance	0.229	0.227	0.220	0.218	0.217
## % of var.	0.001	0.001	0.001	0.001	0.001
## Cumulative % of var.	99.979	99.979	99.980	99.980	99.981
##	Dim.546	Dim.547	Dim.548	Dim.549	Dim.550
## Variance	0.214	0.205	0.195	0.194	0.186
## % of var.	0.001	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.981	99.982	99.982	99.983	99.983
##	Dim.551	Dim.552	Dim.553	Dim.554	Dim.555
## Variance	0.182	0.180	0.173	0.171	0.165
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.983	99.984	99.984	99.985	99.985
##	Dim.556	Dim.557	Dim.558	Dim.559	Dim.560
## Variance	0.163	0.161	0.159	0.152	0.150
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.985	99.986	99.986	99.987	99.987
##	Dim.561	Dim.562	Dim.563	Dim.564	Dim.565
## Variance	0.148	0.146	0.144	0.142	0.135
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.987	99.988	99.988	99.988	99.989
##	Dim.566	Dim.567	Dim.568	Dim.569	Dim.570
## Variance	0.133	0.131	0.123	0.121	0.121
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.989	99.989	99.990	99.990	99.990
##	Dim.571	Dim.572	Dim.573	Dim.574	Dim.575
## Variance	0.119	0.118	0.118	0.114	0.113
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.990	99.991	99.991	99.991	99.992
##	Dim.576	Dim.577	Dim.578	Dim.579	Dim.580
## Variance	0.107	0.104	0.103	0.098	0.096
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.992	99.992	99.992	99.993	99.993
##	Dim.581	Dim.582	Dim.583	Dim.584	Dim.585

## Variance	0.090	0.089	0.088	0.085	0.085
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.993	99.993	99.993	99.994	99.994
##	Dim.586	Dim.587	Dim.588	Dim.589	Dim.590
## Variance	0.083	0.082	0.078	0.077	0.074
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.994	99.994	99.994	99.995	99.995
##	Dim.591	Dim.592	Dim.593	Dim.594	Dim.595
## Variance	0.074	0.074	0.070	0.068	0.066
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.995	99.995	99.995	99.995	99.996
##	Dim.596	Dim.597	Dim.598	Dim.599	Dim.600
## Variance	0.064	0.062	0.060	0.060	0.058
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.996	99.996	99.996	99.996	99.996
##	Dim.601	Dim.602	Dim.603	Dim.604	Dim.605
## Variance	0.055	0.052	0.051	0.050	0.049
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.996	99.997	99.997	99.997	99.997
##	Dim.606	Dim.607	Dim.608	Dim.609	Dim.610
## Variance	0.049	0.048	0.047	0.046	0.044
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.997	99.997	99.997	99.997	99.997
##	Dim.611	Dim.612	Dim.613	Dim.614	Dim.615
## Variance	0.041	0.040	0.036	0.035	0.034
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.998	99.998	99.998	99.998	99.998
##	Dim.616	Dim.617	Dim.618	Dim.619	Dim.620
## Variance	0.034	0.033	0.032	0.032	0.031
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.998	99.998	99.998	99.998	99.998
##	Dim.621	Dim.622	Dim.623	Dim.624	Dim.625
## Variance	0.030	0.030	0.028	0.028	0.027
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.998	99.998	99.998	99.999	99.999
##	Dim.626	Dim.627	Dim.628	Dim.629	Dim.630
## Variance	0.026	0.025	0.024	0.024	0.023
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.999	99.999	99.999	99.999	99.999
##	Dim.631	Dim.632	Dim.633	Dim.634	Dim.635
## Variance	0.022	0.021	0.021	0.020	0.020
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.999	99.999	99.999	99.999	99.999
##	Dim.636	Dim.637	Dim.638	Dim.639	Dim.640
## Variance	0.020	0.019	0.019	0.016	0.016
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	99.999	99.999	99.999	99.999	99.999
##	Dim.641	Dim.642	Dim.643	Dim.644	Dim.645
## Variance	0.015	0.015	0.014	0.013	0.013
## % of var.	0.000	0.000	0.000	0.000	0.000

## Cumulative % of var.	99.999	99.999	99.999	100.000	100.000
##	Dim.646	Dim.647	Dim.648	Dim.649	Dim.650
## Variance	0.011	0.011	0.010	0.010	0.009
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000
##	Dim.651	Dim.652	Dim.653	Dim.654	Dim.655
## Variance	0.009	0.009	0.008	0.008	0.007
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000
##	Dim.656	Dim.657	Dim.658	Dim.659	Dim.660
## Variance	0.007	0.007	0.007	0.006	0.006
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000
##	Dim.661	Dim.662	Dim.663	Dim.664	Dim.665
## Variance	0.006	0.006	0.006	0.004	0.004
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000
##	Dim.666	Dim.667	Dim.668	Dim.669	Dim.670
## Variance	0.004	0.003	0.003	0.003	0.003
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000
##	Dim.671	Dim.672	Dim.673	Dim.674	Dim.675
## Variance	0.002	0.002	0.002	0.002	0.002
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000
##	Dim.676	Dim.677	Dim.678	Dim.679	Dim.680
## Variance	0.001	0.001	0.001	0.001	0.001
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000
##	Dim.681	Dim.682	Dim.683	Dim.684	Dim.685
## Variance	0.001	0.001	0.001	0.001	0.001
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000
##	Dim.686	Dim.687	Dim.688	Dim.689	Dim.690
## Variance	0.001	0.001	0.000	0.000	0.000
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000
##	Dim.691	Dim.692	Dim.693	Dim.694	Dim.695
## Variance	0.000	0.000	0.000	0.000	0.000
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000
##	Dim.696	Dim.697	Dim.698	Dim.699	Dim.700
## Variance	0.000	0.000	0.000	0.000	0.000
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000
##	Dim.701	Dim.702	Dim.703	Dim.704	Dim.705
## Variance	0.000	0.000	0.000	0.000	0.000
## % of var.	0.000	0.000	0.000	0.000	0.000
## Cumulative % of var.	100.000	100.000	100.000	100.000	100.000
##	Dim.706	Dim.707	Dim.708	Dim.709	Dim.710

[illegible]

```

## Cumulative % of var.  100.000  100.000  100.000  100.000  100.000
##                        Dim.771  Dim.772  Dim.773  Dim.774  Dim.775
## Variance              0.000    0.000    0.000    0.000    0.000
## % of var.             0.000    0.000    0.000    0.000    0.000
## Cumulative % of var.  100.000  100.000  100.000  100.000  100.000
##                        Dim.776  Dim.777  Dim.778  Dim.779  Dim.780
## Variance              0.000    0.000    0.000    0.000    0.000
## % of var.             0.000    0.000    0.000    0.000    0.000
## Cumulative % of var.  100.000  100.000  100.000  100.000  100.000
##                        Dim.781  Dim.782  Dim.783
## Variance              0.000    0.000    0.000
## % of var.             0.000    0.000    0.000
## Cumulative % of var.  100.000  100.000  100.000
##
## Individuals (the 10 first)
##           Dist      Dim.1      ctr      cos2      Dim.2      ctr      cos2
Dim.3
## 0      |  87.988 | -85.829  0.072  0.952 | -10.867  0.006  0.015 | -
9.555
## 1      |  87.988 | -85.829  0.072  0.952 | -10.867  0.006  0.015 | -
9.555
## 2      |  87.988 | -85.829  0.072  0.952 | -10.867  0.006  0.015 | -
9.555
## 3      |  87.988 | -85.829  0.072  0.952 | -10.867  0.006  0.015 | -
9.555
## 4      |  87.988 | -85.829  0.072  0.952 | -10.867  0.006  0.015 | -
9.555
## 5      |  87.988 | -85.829  0.072  0.952 | -10.867  0.006  0.015 | -
9.555
## 6      |  87.988 | -85.829  0.072  0.952 | -10.867  0.006  0.015 | -
9.555
## 7      |  87.988 | -85.829  0.072  0.952 | -10.867  0.006  0.015 | -
9.555
## 8      |  87.988 | -85.829  0.072  0.952 | -10.867  0.006  0.015 | -
9.555
## 9      |  87.988 | -85.829  0.072  0.952 | -10.867  0.006  0.015 | -
9.555
##           ctr      cos2
## 0      0.005  0.012 |
## 1      0.005  0.012 |
## 2      0.005  0.012 |
## 3      0.005  0.012 |
## 4      0.005  0.012 |
## 5      0.005  0.012 |
## 6      0.005  0.012 |
## 7      0.005  0.012 |
## 8      0.005  0.012 |
## 9      0.005  0.012 |
##
## Variables (the 10 first)

```

	Dim.1	ctr	cos2	Dim.2	ctr	cos2	Dim.3	ctr
## cos2								
## V1	0.419	0.001	0.176	-0.407	0.006	0.165	0.198	0.002
0.039								
## V2	0.501	0.002	0.251	0.374	0.005	0.140	0.434	0.009
0.189								
## V3	0.534	0.002	0.285	-0.467	0.008	0.218	-0.077	0.000
0.006								
## V4	0.269	0.001	0.073	0.244	0.002	0.060	-0.020	0.000
0.000								
## V5	0.452	0.002	0.205	0.373	0.005	0.139	0.449	0.009
0.202								
## V6	0.576	0.003	0.332	0.350	0.005	0.122	0.116	0.001
0.013								
## V7	0.502	0.002	0.252	-0.054	0.000	0.003	-0.407	0.008
0.166								
## V8	0.347	0.001	0.120	0.069	0.000	0.005	0.021	0.000
0.000								
## V9	0.640	0.003	0.410	0.221	0.002	0.049	0.050	0.000
0.002								
## V10	0.570	0.003	0.325	-0.084	0.000	0.007	0.337	0.005
0.114								

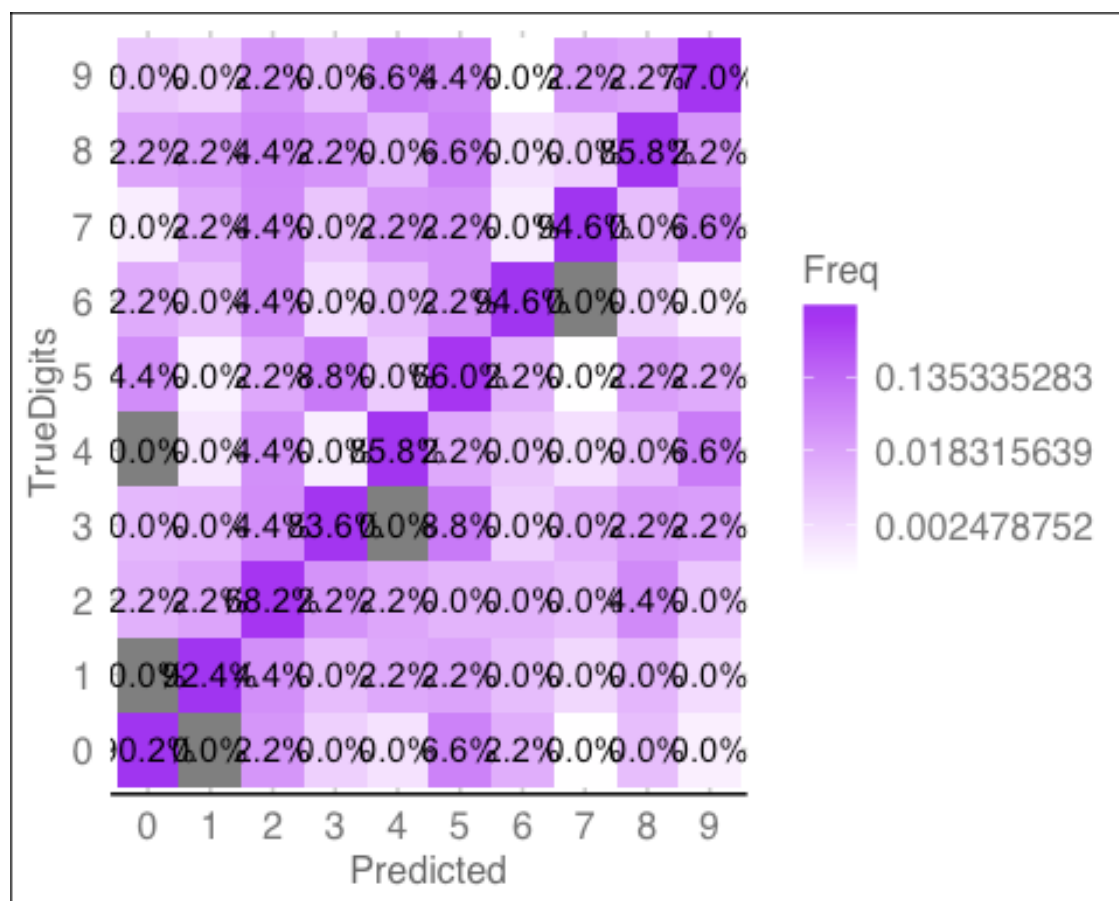
```
model_nb_150<-runNB(pca_150)
```

```
##
## ===== Naive Bayes
## =====
##
## - Call: naive_bayes.formula(formula = label ~ ., data = trainDF)
## - Laplace: 0
## - Classes: 10
## - Samples: 25205
## - Features: 150
## - Conditional distributions:
##   - Gaussian: 150
## - Prior probabilities:
##   - 0: 0.0984
##   - 1: 0.1115
##   - 2: 0.0995
##   - 3: 0.1036
##   - 4: 0.097
##   - 5: 0.0903
##   - 6: 0.0985
##   - 7: 0.1048
##   - 8: 0.0967
##   - 9: 0.0997
##
## -----
-----
```

```
## Warning: predict.naive_bayes(): more features in the newdata are provided
as
## there are probability tables in the object. Calculation is performed based
on
## features to be found in the tables.
```

```
##           TrueDigits
## Predicted  0    1    2    3    4    5    6    7    8    9
##           0 1441    0   18   14    0   64   22    2   28    9
##           1    0 1690   33   17    3    2   12   25   43    7
##           2   63   81 1421   82   78   32   95   94  102   69
##           3    6   12   55 1386    2  136    4    9   54   14
##           4    3   24   26    0 1366    7   12   45   15   99
##           5  107   34   18  143   27 1205   59   60  103   78
##           6   19   11   16    6    8   17 1443    2    3    1
##           7    1    4   10   16    3    1    0 1383    5   34
##           8   10   13   64   38   11   30    5   10 1220   25
##           9    2    4    9   38  130   24    2  130   52 1339
##           Accuracy           Kappa AccuracyLower AccuracyUpper AccuracyNull
##           0.8272700           0.8080730           0.8214668           0.8329597           0.1115213
## AccuracyPValue McnemarPValue
##           0.0000000           NaN
```

```
## Warning: Transformation introduced infinite values in discrete y-axis
```



```
# k -fold
train.control <- trainControl(method = "cv", number=3)
# Train the model
nb_model <- train(label ~., data = pca_75, method = "naive_bayes", trControl =
train.control)
# Summarize the results
print(nb_model)

## Naive Bayes
##
## 42000 samples
## 75 predictor
## 10 classes: '0', '1', '2', '3', '4', '5', '6', '7', '8', '9'
##
## No pre-processing
## Resampling: Cross-Validated (3 fold)
## Summary of sample sizes: 28002, 27998, 28000
## Resampling results across tuning parameters:
##
## usekernel Accuracy Kappa
## FALSE 0.8645713 0.8495182
## TRUE 0.8716188 0.8573425
##
```

```

## Tuning parameter 'laplace' was held constant at a value of 0
## Tuning
## parameter 'adjust' was held constant at a value of 1
## Accuracy was used to select the optimal model using the largest value.
## The final values used for the model were laplace = 0, usekernel = TRUE
## and adjust = 1.

summary(nb_model)

##
## ===== Naive Bayes
## =====
##
## - Call: naive_bayes.default(x = x, y = y, laplace = param$laplace,
## usekernel = TRUE,      adjust = param$adjust)
## - Laplace: 0
## - Classes: 10
## - Samples: 42000
## - Features: 75
## - Conditional distributions:
##   - KDE: 75
## - Prior probabilities:
##   - 0: 0.0984
##   - 1: 0.1115
##   - 2: 0.0995
##   - 3: 0.1036
##   - 4: 0.097
##   - 5: 0.0904
##   - 6: 0.0985
##   - 7: 0.1048
##   - 8: 0.0967
##   - 9: 0.0997
##
## -----
-----

cf_nb<-confusionMatrix(nb_model)

str(cf_nb$table)

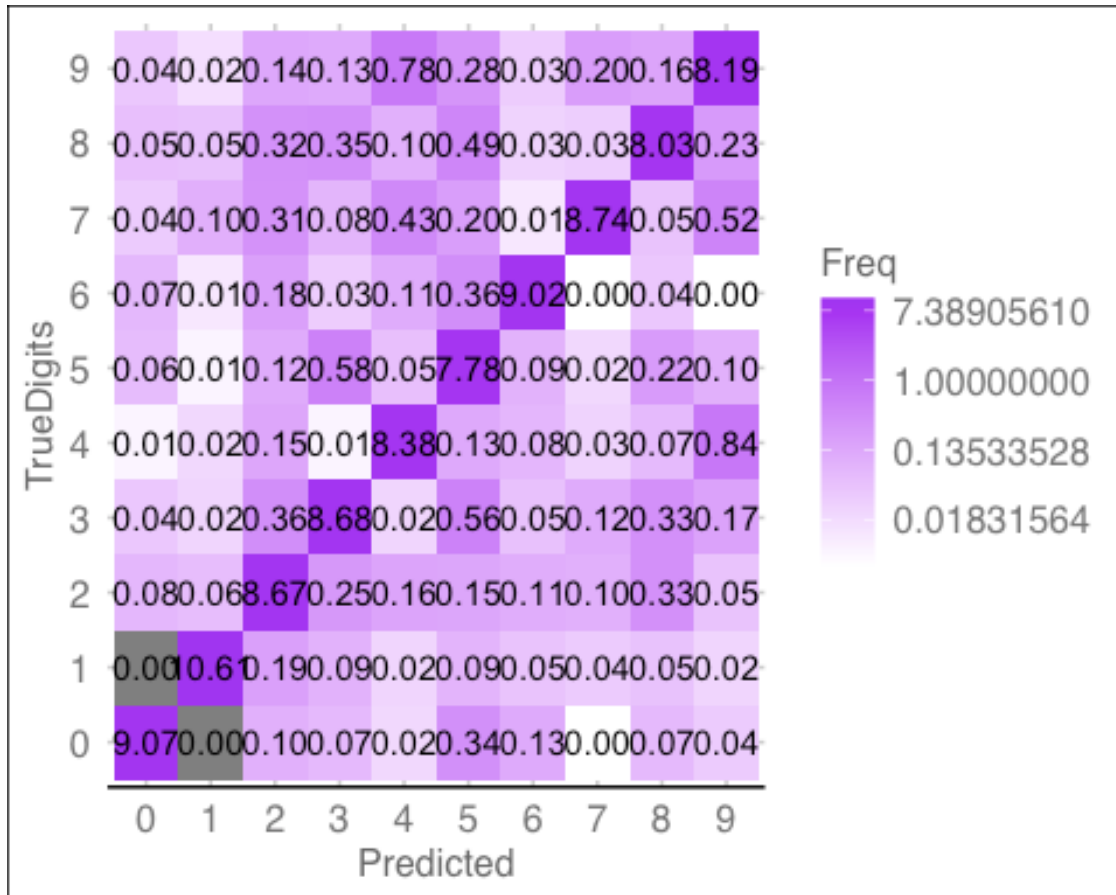
## 'table' num [1:10, 1:10] 9.069 0 0.1 0.0714 0.0214 ...
## - attr(*, "dimnames")=List of 2
## ..$ Prediction: chr [1:10] "0" "1" "2" "3" ...
## ..$ Reference : chr [1:10] "0" "1" "2" "3" ...

confusion_matrix_nb <- as.data.frame(cf_nb$table)
names(confusion_matrix_nb)<-c("Predicted", "TrueDigits", "Freq")
ggplot(data = confusion_matrix_nb,
       aes(x = Predicted, y = TrueDigits)) +
  geom_tile(aes(fill = Freq)) +
  #geom_text(aes(label = sprintf("%.2f", (Freq/sum(Freq)*100))), vjust = 1) +

```

```
geom_text(aes(label = sprintf("%.2f", Freq))) +
scale_fill_gradient(low = "white",
                    high = "purple",
                    trans = "log") + theme_gdocs()
```

```
## Warning: Transformation introduced infinite values in discrete y-axis
```



```
#kaggle submission
```

```
kaggleTest <- read.csv("test.csv", header = TRUE, stringsAsFactors = TRUE)
colnames<- names(kaggleTest)
names(kaggleTest)<- sub("pixel","",colnames)
```

```
kaggle_dtree<- predict(ptree,kaggleTest,type="class")
kaggle_dtree<-data.frame(kaggle_dtree)
names(kaggle_dtree)<-c("Label")
kaggle_dtree$ImageId<- row.names(kaggle_dtree)
write.csv(kaggle_dtree,"kaggle_dtree.csv",row.names=FALSE)
```

```
kaggle_nb<- predict(model_nb_75,kaggleTest,type="class")
```

```
## Warning: predict.naive_bayes(): only 0 feature(s) out of 75 defined in the
naive_bayes object "model_nb_75" are used for prediction.
```

```
## Warning: predict.naive_bayes(): more features in the newdata are provided
as
## there are probability tables in the object. Calculation is performed based
on
## features to be found in the tables.

## Warning: predict.naive_bayes(): no feature in the newdata corresponds to
## probability tables in the object. Classification is done based on the
prior
## probabilities

kaggle_nb<-data.frame(kaggle_nb)
names(kaggle_nb)<-c("Label")
kaggle_nb$ImageId<- row.names(kaggle_nb)
write.csv(kaggle_nb,"kaggle_nb.csv",row.names=FALSE)

stopCluster(cl)
```