

p8106_Hun_Models

Hun

2022-05-05

Introduction

```
# Read in all data
# source: https://raw.githubusercontent.com/TarekDib03/Analytics/master/Week3%20-%20Logistic%20Regression
all_df = read_csv("FHS.csv")

# Factor labels for categorical variables and other recoding
cleaned_df = all_df %>%
  mutate(male = factor(male),
         current_smoker = factor(current_smoker),
         bp_meds = factor(bp_meds),
         prevalent_stroke = factor(prevalent_stroke),
         prevalent_hyp = factor(prevalent_hyp),
         diabetes = factor(diabetes),
         ten_year_chd = factor(ten_year_chd)) %>%
  mutate(ten_year_chd = ifelse(ten_year_chd == "1", "CHD_present", "CHD_absent") %>%
         fct_relevel("CHD_present", "CHD_absent")) %>%
  dplyr::rename(sex = male) %>%
  mutate(sex = ifelse(sex == "1", "male", "female") %>%
         fct_relevel("male", "female")) %>%
  mutate(
    education = case_when(
      education == "1" ~ "some_HS",
      education == "2" ~ "HS_grad",
      education == "3" ~ "some_college",
      education == "4" ~ "college_grad"
    ),
    current_smoker = recode(
      current_smoker,
      "1" = "yes",
      "0" = "no"
    ),
    bp_meds = recode(
      bp_meds,
      "1" = "yes",
      "0" = "no"
    ),
    prevalent_stroke = recode(
      prevalent_stroke,
      "1" = "yes",
      "0" = "no"
    )
  )
```

```

),
prevalent_hyp = recode(
  prevalent_hyp,
  "1" = "yes",
  "0" = "no"
),
diabetes = recode(
  diabetes,
  "1" = "yes",
  "0" = "no"
),
education = factor(education, levels = c("some_HS", "HS_grad", "some_college", "college_grad"))
)

```

```

## NA omitted data set
cleaned_df_na_omit <- cleaned_df %>% na.omit()

# Training/testing partition
set.seed(2022)
index_train = createDataPartition(cleaned_df$ten_year_chd,
                                   p = 0.8,
                                   list = FALSE)

set.seed(2022)
index_train_na_omit = createDataPartition(cleaned_df_na_omit$ten_year_chd,
                                           p = 0.8,
                                           list = FALSE)

training_df = cleaned_df[index_train, ]
testing_df = cleaned_df[-index_train, ]

training_df_na_omit <- training_df %>% na.omit()
testing_df_na_omit <- testing_df %>% na.omit()

# Train control with 5-fold cross-validation
ctrl = trainControl(method = "cv",
                    number = 5,
                    summaryFunction = twoClassSummary,
                    classProbs = TRUE,
                    verboseIter = TRUE)

```

```

# Preprocessing and feature engineering with recipe (including imputation)
# Note: assuming data is MAR

# recipe of preprocessing steps
preprocess_recipe = recipe(ten_year_chd ~ ., data = training_df) %>%
  step_impute_knn(all_predictors(), neighbors = 5) %>% # KNN imputation based on 5 nearest neighbors
  step_BoxCox(all_numeric_predictors()) %>% # transform predictors
  step_center(all_numeric_predictors()) %>% # center and scale numeric predictors
  step_scale(all_numeric_predictors())

```

Models

Neural Network Model

```
set.seed(2022)
nnet_fit <- train(ten_year_chd~.,
                  data = training_df_na_omit,
                  method = "nnet",
                  tuneGrid = expand.grid(decay = exp(seq(-1, 2.5, len = 15)),
                                         size = c(1:5)),
                  metric = "ROC",
                  preProcess = c("center", "scale", "BoxCox"),
                  trControl = ctrl)
```

```
## + Fold1: decay= 0.3679, size=1
## # weights:  20
## initial  value 1059.216077
## iter  10 value 891.695341
## iter  20 value 885.964731
## iter  30 value 884.876156
## iter  40 value 884.830077
## final   value 884.829662
## converged
## - Fold1: decay= 0.3679, size=1
## + Fold1: decay= 0.4724, size=1
## # weights:  20
## initial  value 1777.863284
## iter  10 value 917.765100
## iter  20 value 893.125086
## iter  30 value 890.472376
## iter  40 value 890.425285
## iter  40 value 890.425278
## iter  40 value 890.425278
## final   value 890.425278
## converged
## - Fold1: decay= 0.4724, size=1
## + Fold1: decay= 0.6065, size=1
## # weights:  20
## initial  value 1686.070393
## iter  10 value 911.310658
## iter  20 value 893.165364
## iter  30 value 888.055317
## iter  40 value 887.667321
## iter  50 value 887.663974
## iter  60 value 887.663510
## iter  60 value 887.663507
## iter  60 value 887.663506
## final   value 887.663506
## converged
## - Fold1: decay= 0.6065, size=1
## + Fold1: decay= 0.7788, size=1
## # weights:  20
## initial  value 1459.148251
```

```

## iter 10 value 915.100414
## iter 20 value 902.364678
## iter 30 value 896.841670
## iter 40 value 896.424613
## final value 896.424488
## converged
## - Fold1: decay= 0.7788, size=1
## + Fold1: decay= 1.0000, size=1
## # weights: 20
## initial value 1374.905951
## iter 10 value 916.347755
## iter 20 value 900.399851
## iter 30 value 892.334993
## iter 40 value 892.021196
## iter 50 value 892.015446
## final value 892.015399
## converged
## - Fold1: decay= 1.0000, size=1
## + Fold1: decay= 1.2840, size=1
## # weights: 20
## initial value 1681.748001
## iter 10 value 910.760531
## iter 20 value 906.481101
## iter 30 value 905.678342
## final value 905.675806
## converged
## - Fold1: decay= 1.2840, size=1
## + Fold1: decay= 1.6487, size=1
## # weights: 20
## initial value 1092.221347
## iter 10 value 905.774913
## iter 20 value 898.942697
## iter 30 value 898.688176
## final value 898.685953
## converged
## - Fold1: decay= 1.6487, size=1
## + Fold1: decay= 2.1170, size=1
## # weights: 20
## initial value 1749.751510
## iter 10 value 920.389535
## iter 20 value 904.590360
## iter 30 value 903.254267
## final value 903.205994
## converged
## - Fold1: decay= 2.1170, size=1
## + Fold1: decay= 2.7183, size=1
## # weights: 20
## initial value 2244.547444
## iter 10 value 919.423944
## iter 20 value 909.371466
## iter 30 value 908.706537
## final value 908.706141
## converged
## - Fold1: decay= 2.7183, size=1

```

```

## + Fold1: decay= 3.4903, size=1
## # weights: 20
## initial value 1585.844336
## iter 10 value 939.111221
## iter 20 value 920.013188
## iter 30 value 915.346217
## final value 915.333419
## converged
## - Fold1: decay= 3.4903, size=1
## + Fold1: decay= 4.4817, size=1
## # weights: 20
## initial value 1822.480903
## iter 10 value 924.598595
## iter 20 value 923.243980
## iter 30 value 923.227709
## final value 923.227516
## converged
## - Fold1: decay= 4.4817, size=1
## + Fold1: decay= 5.7546, size=1
## # weights: 20
## initial value 1461.643438
## iter 10 value 940.414540
## iter 20 value 932.845853
## iter 30 value 932.510258
## final value 932.509247
## converged
## - Fold1: decay= 5.7546, size=1
## + Fold1: decay= 7.3891, size=1
## # weights: 20
## initial value 1919.556892
## iter 10 value 953.365651
## iter 20 value 944.338405
## iter 30 value 943.269379
## final value 943.268889
## converged
## - Fold1: decay= 7.3891, size=1
## + Fold1: decay= 9.4877, size=1
## # weights: 20
## initial value 1951.823970
## iter 10 value 959.925113
## iter 20 value 955.770497
## final value 955.557998
## converged
## - Fold1: decay= 9.4877, size=1
## + Fold1: decay=12.1825, size=1
## # weights: 20
## initial value 1311.067565
## iter 10 value 979.075175
## iter 20 value 969.589754
## iter 30 value 969.389900
## final value 969.389872
## converged
## - Fold1: decay=12.1825, size=1
## + Fold1: decay= 0.3679, size=2

```

```

## # weights: 39
## initial value 1472.514634
## iter 10 value 902.164888
## iter 20 value 885.767015
## iter 30 value 878.167206
## iter 40 value 873.266832
## iter 50 value 870.423627
## iter 60 value 868.745376
## iter 70 value 867.462798
## iter 80 value 867.225271
## iter 90 value 867.203903
## iter 100 value 867.196301
## final value 867.196301
## stopped after 100 iterations
## - Fold1: decay= 0.3679, size=2
## + Fold1: decay= 0.4724, size=2
## # weights: 39
## initial value 1060.150099
## iter 10 value 888.198853
## iter 20 value 883.514748
## iter 30 value 881.316917
## iter 40 value 878.084279
## iter 50 value 873.220978
## iter 60 value 871.226535
## iter 70 value 871.000841
## iter 80 value 870.982803
## final value 870.982745
## converged
## - Fold1: decay= 0.4724, size=2
## + Fold1: decay= 0.6065, size=2
## # weights: 39
## initial value 1503.639753
## iter 10 value 899.932959
## iter 20 value 886.668619
## iter 30 value 880.586671
## iter 40 value 876.559482
## iter 50 value 873.929242
## iter 60 value 873.700401
## iter 70 value 873.625810
## iter 70 value 873.625805
## iter 70 value 873.625805
## final value 873.625805
## converged
## - Fold1: decay= 0.6065, size=2
## + Fold1: decay= 0.7788, size=2
## # weights: 39
## initial value 1381.385048
## iter 10 value 890.380098
## iter 20 value 884.981549
## iter 30 value 879.995591
## iter 40 value 878.368522
## iter 50 value 877.522844
## iter 60 value 877.353387
## final value 877.351977

```

```

## converged
## - Fold1: decay= 0.7788, size=2
## + Fold1: decay= 1.0000, size=2
## # weights: 39
## initial value 1492.980550
## iter 10 value 920.793203
## iter 20 value 892.860304
## iter 30 value 890.229891
## iter 40 value 888.447378
## iter 50 value 885.870431
## iter 60 value 884.043919
## iter 70 value 883.862589
## final value 883.859046
## converged
## - Fold1: decay= 1.0000, size=2
## + Fold1: decay= 1.2840, size=2
## # weights: 39
## initial value 1203.151208
## iter 10 value 918.846817
## iter 20 value 895.933099
## iter 30 value 890.843163
## iter 40 value 886.524334
## iter 50 value 885.867454
## iter 60 value 885.860907
## final value 885.860533
## converged
## - Fold1: decay= 1.2840, size=2
## + Fold1: decay= 1.6487, size=2
## # weights: 39
## initial value 1548.766485
## iter 10 value 934.553408
## iter 20 value 906.849644
## iter 30 value 897.755811
## iter 40 value 896.273010
## iter 50 value 894.164253
## iter 60 value 894.001691
## iter 70 value 893.992874
## final value 893.992836
## converged
## - Fold1: decay= 1.6487, size=2
## + Fold1: decay= 2.1170, size=2
## # weights: 39
## initial value 2083.336579
## iter 10 value 916.183318
## iter 20 value 899.367611
## iter 30 value 896.192840
## iter 40 value 895.827094
## iter 50 value 895.815507
## final value 895.815495
## converged
## - Fold1: decay= 2.1170, size=2
## + Fold1: decay= 2.7183, size=2
## # weights: 39
## initial value 1078.528514

```

```

## iter 10 value 925.055346
## iter 20 value 907.267847
## iter 30 value 903.317238
## iter 40 value 902.382690
## iter 50 value 902.041659
## iter 60 value 901.572146
## final value 901.571376
## converged
## - Fold1: decay= 2.7183, size=2
## + Fold1: decay= 3.4903, size=2
## # weights: 39
## initial value 1887.686640
## iter 10 value 946.015186
## iter 20 value 913.661826
## iter 30 value 909.529882
## iter 40 value 908.209227
## iter 50 value 907.980147
## final value 907.977179
## converged
## - Fold1: decay= 3.4903, size=2
## + Fold1: decay= 4.4817, size=2
## # weights: 39
## initial value 1683.797225
## iter 10 value 961.269755
## iter 20 value 927.873235
## iter 30 value 917.871783
## iter 40 value 915.636985
## iter 50 value 915.218500
## iter 60 value 915.137638
## final value 915.137440
## converged
## - Fold1: decay= 4.4817, size=2
## + Fold1: decay= 5.7546, size=2
## # weights: 39
## initial value 1204.824098
## iter 10 value 932.730466
## iter 20 value 924.905223
## iter 30 value 923.384746
## iter 40 value 923.321730
## final value 923.320596
## converged
## - Fold1: decay= 5.7546, size=2
## + Fold1: decay= 7.3891, size=2
## # weights: 39
## initial value 1477.407846
## iter 10 value 997.159110
## iter 20 value 949.071779
## iter 30 value 944.469122
## iter 40 value 943.561214
## iter 50 value 943.174707
## final value 943.156719
## converged
## - Fold1: decay= 7.3891, size=2
## + Fold1: decay= 9.4877, size=2

```



```

## # weights: 39
## initial value 2549.895605
## iter 10 value 968.523866
## iter 20 value 949.356113
## iter 30 value 944.515540
## iter 40 value 943.869235
## iter 50 value 943.861333
## iter 50 value 943.861325
## iter 50 value 943.861318
## final value 943.861318
## converged
## - Fold1: decay= 9.4877, size=2
## + Fold1: decay=12.1825, size=2
## # weights: 39
## initial value 1193.938327
## iter 10 value 989.387186
## iter 20 value 957.318454
## iter 30 value 956.587215
## iter 40 value 956.532509
## final value 956.532445
## converged
## - Fold1: decay=12.1825, size=2
## + Fold1: decay= 0.3679, size=3
## # weights: 58
## initial value 1325.225603
## iter 10 value 886.152104
## iter 20 value 871.173205
## iter 30 value 867.251793
## iter 40 value 864.966958
## iter 50 value 863.576470
## iter 60 value 862.757363
## iter 70 value 862.670622
## iter 80 value 862.553971
## iter 90 value 861.614980
## iter 100 value 859.997138
## final value 859.997138
## stopped after 100 iterations
## - Fold1: decay= 0.3679, size=3
## + Fold1: decay= 0.4724, size=3
## # weights: 58
## initial value 1505.470102
## iter 10 value 902.640499
## iter 20 value 886.127047
## iter 30 value 875.453052
## iter 40 value 869.851186
## iter 50 value 866.583680
## iter 60 value 862.785987
## iter 70 value 861.294441
## iter 80 value 860.809420
## iter 90 value 860.720870
## iter 100 value 860.711117
## final value 860.711117
## stopped after 100 iterations
## - Fold1: decay= 0.4724, size=3

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```

## + Fold1: decay= 0.6065, size=3
## # weights: 58
## initial value 2263.364723
## iter 10 value 940.439407
## iter 20 value 900.869274
## iter 30 value 884.061435
## iter 40 value 877.170705
## iter 50 value 873.560313
## iter 60 value 872.772884
## iter 70 value 870.702389
## iter 80 value 868.053795
## iter 90 value 867.727158
## iter 100 value 867.653309
## final value 867.653309
## stopped after 100 iterations
## - Fold1: decay= 0.6065, size=3
## + Fold1: decay= 0.7788, size=3
## # weights: 58
## initial value 1174.108236
## iter 10 value 901.359638
## iter 20 value 882.812153
## iter 30 value 876.697887
## iter 40 value 874.083766
## iter 50 value 873.258864
## iter 60 value 872.676805
## iter 70 value 872.467574
## iter 80 value 872.438204
## iter 90 value 872.433367
## final value 872.433326
## converged
## - Fold1: decay= 0.7788, size=3
## + Fold1: decay= 1.0000, size=3
## # weights: 58
## initial value 1212.531079
## iter 10 value 906.564855
## iter 20 value 891.988127
## iter 30 value 883.201905
## iter 40 value 880.475108
## iter 50 value 879.569114
## iter 60 value 878.853893
## iter 70 value 878.797889
## iter 80 value 878.795536
## final value 878.795388
## converged
## - Fold1: decay= 1.0000, size=3
## + Fold1: decay= 1.2840, size=3
## # weights: 58
## initial value 1556.845854
## iter 10 value 908.291640
## iter 20 value 893.198895
## iter 30 value 887.676997
## iter 40 value 885.837083
## iter 50 value 884.515482
## iter 60 value 884.117876

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## iter 70 value 884.050582
## iter 80 value 884.046250
## iter 80 value 884.046246
## iter 80 value 884.046246
## final value 884.046246
## converged
## - Fold1: decay= 1.2840, size=3
## + Fold1: decay= 1.6487, size=3
## # weights: 58
## initial value 1487.300879
## iter 10 value 912.743761
## iter 20 value 895.206020
## iter 30 value 892.427693
## iter 40 value 891.404782
## iter 50 value 890.908574
## iter 60 value 890.048152
## iter 70 value 889.193835
## iter 80 value 889.105087
## final value 889.104283
## converged
## - Fold1: decay= 1.6487, size=3
## + Fold1: decay= 2.1170, size=3
## # weights: 58
## initial value 2003.052278
## iter 10 value 922.731034
## iter 20 value 903.001193
## iter 30 value 899.042159
## iter 40 value 895.746202
## iter 50 value 894.487401
## iter 60 value 894.372784
## final value 894.364895
## converged
## - Fold1: decay= 2.1170, size=3
## + Fold1: decay= 2.7183, size=3
## # weights: 58
## initial value 2013.360406
## iter 10 value 966.399572
## iter 20 value 908.752747
## iter 30 value 902.034809
## iter 40 value 900.427692
## iter 50 value 899.972628
## iter 60 value 899.729461
## iter 70 value 899.712780
## iter 80 value 899.709973
## final value 899.709808
## converged
## - Fold1: decay= 2.7183, size=3
## + Fold1: decay= 3.4903, size=3
## # weights: 58
## initial value 1612.128368
## iter 10 value 939.674227
## iter 20 value 910.288913
## iter 30 value 906.844239
## iter 40 value 905.928468

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## iter 50 value 905.533279
## iter 60 value 905.446851
## iter 70 value 905.443033
## iter 70 value 905.443029
## iter 70 value 905.443028
## final value 905.443028
## converged
## - Fold1: decay= 3.4903, size=3
## + Fold1: decay= 4.4817, size=3
## # weights: 58
## initial value 1440.517585
## iter 10 value 952.085426
## iter 20 value 925.347760
## iter 30 value 919.265107
## iter 40 value 916.324318
## iter 50 value 915.205805
## iter 60 value 914.726507
## iter 70 value 914.657867
## iter 80 value 914.651953
## final value 914.651915
## converged
## - Fold1: decay= 4.4817, size=3
## + Fold1: decay= 5.7546, size=3
## # weights: 58
## initial value 1277.567520
## iter 10 value 933.035732
## iter 20 value 924.452784
## iter 30 value 923.448866
## iter 40 value 923.192471
## iter 50 value 923.165290
## iter 60 value 923.163156
## iter 60 value 923.163148
## iter 60 value 923.163142
## final value 923.163142
## converged
## - Fold1: decay= 5.7546, size=3
## + Fold1: decay= 7.3891, size=3
## # weights: 58
## initial value 1831.979294
## iter 10 value 984.655622
## iter 20 value 931.675847
## iter 30 value 929.029392
## iter 40 value 928.422301
## iter 50 value 928.375993
## iter 60 value 928.371825
## final value 928.371696
## converged
## - Fold1: decay= 7.3891, size=3
## + Fold1: decay= 9.4877, size=3
## # weights: 58
## initial value 1415.058130
## iter 10 value 947.614574
## iter 20 value 939.397119
## iter 30 value 938.720253

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```

## iter 40 value 938.702612
## final value 938.700343
## converged
## - Fold1: decay= 9.4877, size=3
## + Fold1: decay=12.1825, size=3
## # weights: 58
## initial value 1388.812418
## iter 10 value 961.135742
## iter 20 value 951.181549
## iter 30 value 950.624386
## iter 40 value 950.601620
## final value 950.601250
## converged
## - Fold1: decay=12.1825, size=3
## + Fold1: decay= 0.3679, size=4
## # weights: 77
## initial value 2222.912062
## iter 10 value 904.932877
## iter 20 value 878.233338
## iter 30 value 869.620062
## iter 40 value 859.618766
## iter 50 value 856.444790
## iter 60 value 853.272591
## iter 70 value 850.913464
## iter 80 value 849.190887
## iter 90 value 847.096165
## iter 100 value 846.551766
## final value 846.551766
## stopped after 100 iterations
## - Fold1: decay= 0.3679, size=4
## + Fold1: decay= 0.4724, size=4
## # weights: 77
## initial value 1912.659104
## iter 10 value 909.050019
## iter 20 value 887.368474
## iter 30 value 874.716956
## iter 40 value 865.659278
## iter 50 value 856.918027
## iter 60 value 853.717741
## iter 70 value 851.788893
## iter 80 value 851.175650
## iter 90 value 850.832320
## iter 100 value 850.251932
## final value 850.251932
## stopped after 100 iterations
## - Fold1: decay= 0.4724, size=4
## + Fold1: decay= 0.6065, size=4
## # weights: 77
## initial value 1054.282972
## iter 10 value 884.223250
## iter 20 value 875.741962
## iter 30 value 870.698284
## iter 40 value 867.490915
## iter 50 value 863.847616

```

```

## iter 60 value 862.445331
## iter 70 value 862.352365
## iter 80 value 862.348787
## final value 862.348562
## converged
## - Fold1: decay= 0.6065, size=4
## + Fold1: decay= 0.7788, size=4
## # weights: 77
## initial value 1407.570939
## iter 10 value 908.670124
## iter 20 value 883.191207
## iter 30 value 879.932622
## iter 40 value 876.613205
## iter 50 value 874.407675
## iter 60 value 872.412452
## iter 70 value 868.205983
## iter 80 value 866.145932
## iter 90 value 865.404447
## iter 100 value 865.121089
## final value 865.121089
## stopped after 100 iterations
## - Fold1: decay= 0.7788, size=4
## + Fold1: decay= 1.0000, size=4
## # weights: 77
## initial value 1569.354098
## iter 10 value 923.072457
## iter 20 value 898.827784
## iter 30 value 888.050935
## iter 40 value 884.974292
## iter 50 value 881.519951
## iter 60 value 878.893116
## iter 70 value 877.941815
## iter 80 value 877.564357
## iter 90 value 877.085122
## iter 100 value 876.916957
## final value 876.916957
## stopped after 100 iterations
## - Fold1: decay= 1.0000, size=4
## + Fold1: decay= 1.2840, size=4
## # weights: 77
## initial value 1304.430579
## iter 10 value 919.281584
## iter 20 value 892.948060
## iter 30 value 886.751579
## iter 40 value 885.587787
## iter 50 value 884.990677
## iter 60 value 884.672340
## iter 70 value 884.622235
## iter 80 value 884.568079
## iter 90 value 884.562501
## iter 100 value 884.545472
## final value 884.545472
## stopped after 100 iterations
## - Fold1: decay= 1.2840, size=4

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## + Fold1: decay= 1.6487, size=4
## # weights: 77
## initial value 1299.314923
## iter 10 value 915.354098
## iter 20 value 896.544582
## iter 30 value 892.843001
## iter 40 value 890.955778
## iter 50 value 889.768206
## iter 60 value 889.417043
## iter 70 value 889.261115
## iter 80 value 888.718595
## iter 90 value 888.579118
## iter 100 value 888.506448
## final value 888.506448
## stopped after 100 iterations
## - Fold1: decay= 1.6487, size=4
## + Fold1: decay= 2.1170, size=4
## # weights: 77
## initial value 1399.192829
## iter 10 value 943.709651
## iter 20 value 917.530968
## iter 30 value 900.869280
## iter 40 value 895.975003
## iter 50 value 894.888365
## iter 60 value 894.294586
## iter 70 value 893.995765
## iter 80 value 893.863720
## iter 90 value 893.788596
## iter 100 value 893.768744
## final value 893.768744
## stopped after 100 iterations
## - Fold1: decay= 2.1170, size=4
## + Fold1: decay= 2.7183, size=4
## # weights: 77
## initial value 1106.999418
## iter 10 value 938.229921
## iter 20 value 906.631332
## iter 30 value 900.497474
## iter 40 value 899.522859
## iter 50 value 899.276568
## iter 60 value 899.178492
## iter 70 value 899.136602
## iter 80 value 899.123743
## iter 90 value 899.121496
## iter 100 value 899.121146
## final value 899.121146
## stopped after 100 iterations
## - Fold1: decay= 2.7183, size=4
## + Fold1: decay= 3.4903, size=4
## # weights: 77
## initial value 2190.283549
## iter 10 value 1010.242064
## iter 20 value 933.087164
## iter 30 value 912.280138

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## iter 40 value 908.108722
## iter 50 value 905.876669
## iter 60 value 905.141310
## iter 70 value 904.921513
## iter 80 value 904.901433
## iter 90 value 904.900649
## iter 90 value 904.900645
## iter 90 value 904.900645
## final value 904.900645
## converged
## - Fold1: decay= 3.4903, size=4
## + Fold1: decay= 4.4817, size=4
## # weights: 77
## initial value 1485.143739
## iter 10 value 967.953475
## iter 20 value 918.289462
## iter 30 value 912.629670
## iter 40 value 911.799665
## iter 50 value 911.627430
## iter 60 value 911.552737
## iter 70 value 911.521479
## iter 80 value 911.517915
## final value 911.517727
## converged
## - Fold1: decay= 4.4817, size=4
## + Fold1: decay= 5.7546, size=4
## # weights: 77
## initial value 1627.348353
## iter 10 value 978.362584
## iter 20 value 926.755893
## iter 30 value 924.088815
## iter 40 value 923.560523
## iter 50 value 923.448611
## iter 60 value 923.415910
## iter 70 value 922.612484
## iter 80 value 920.149771
## iter 90 value 919.443735
## iter 100 value 919.307473
## final value 919.307473
## stopped after 100 iterations
## - Fold1: decay= 5.7546, size=4
## + Fold1: decay= 7.3891, size=4
## # weights: 77
## initial value 1727.523403
## iter 10 value 1065.623588
## iter 20 value 946.066128
## iter 30 value 933.951729
## iter 40 value 929.982589
## iter 50 value 927.655311
## iter 60 value 926.328375
## iter 70 value 926.029247
## iter 80 value 926.014009
## iter 90 value 926.009405
## final value 926.009190

```



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## converged
## - Fold1: decay= 7.3891, size=4
## + Fold1: decay= 9.4877, size=4
## # weights: 77
## initial value 2580.861559
## iter 10 value 1038.326410
## iter 20 value 974.783325
## iter 30 value 941.692185
## iter 40 value 936.141221
## iter 50 value 935.903420
## iter 60 value 935.889166
## final value 935.888755
## converged
## - Fold1: decay= 9.4877, size=4
## + Fold1: decay=12.1825, size=4
## # weights: 77
## initial value 1456.804210
## iter 10 value 997.190680
## iter 20 value 953.862927
## iter 30 value 951.101286
## iter 40 value 949.826722
## iter 50 value 947.758113
## iter 60 value 947.298015
## iter 70 value 947.274851
## final value 947.274711
## converged
## - Fold1: decay=12.1825, size=4
## + Fold1: decay= 0.3679, size=5
## # weights: 96
## initial value 1339.088613
## iter 10 value 908.303498
## iter 20 value 882.002258
## iter 30 value 869.220754
## iter 40 value 856.729841
## iter 50 value 846.087177
## iter 60 value 842.544200
## iter 70 value 840.908089
## iter 80 value 835.897297
## iter 90 value 833.850719
## iter 100 value 833.443113
## final value 833.443113
## stopped after 100 iterations
## - Fold1: decay= 0.3679, size=5
## + Fold1: decay= 0.4724, size=5
## # weights: 96
## initial value 1222.390214
## iter 10 value 894.012452
## iter 20 value 873.222143
## iter 30 value 861.564410
## iter 40 value 856.201422
## iter 50 value 853.684385
## iter 60 value 851.635110
## iter 70 value 848.289405
## iter 80 value 846.375353

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## iter 90 value 845.919587
## iter 100 value 845.242999
## final value 845.242999
## stopped after 100 iterations
## - Fold1: decay= 0.4724, size=5
## + Fold1: decay= 0.6065, size=5
## # weights: 96
## initial value 2164.427882
## iter 10 value 933.012772
## iter 20 value 886.801651
## iter 30 value 875.074794
## iter 40 value 866.326394
## iter 50 value 861.313371
## iter 60 value 858.313389
## iter 70 value 856.442662
## iter 80 value 854.890253
## iter 90 value 854.542785
## iter 100 value 854.385254
## final value 854.385254
## stopped after 100 iterations
## - Fold1: decay= 0.6065, size=5
## + Fold1: decay= 0.7788, size=5
## # weights: 96
## initial value 1087.367651
## iter 10 value 902.899475
## iter 20 value 880.994691
## iter 30 value 873.201392
## iter 40 value 867.228500
## iter 50 value 865.324720
## iter 60 value 864.765309
## iter 70 value 864.575185
## iter 80 value 864.473231
## iter 90 value 864.461310
## iter 100 value 864.458135
## final value 864.458135
## stopped after 100 iterations
## - Fold1: decay= 0.7788, size=5
## + Fold1: decay= 1.0000, size=5
## # weights: 96
## initial value 1827.313796
## iter 10 value 954.200819
## iter 20 value 910.577071
## iter 30 value 891.320037
## iter 40 value 883.949466
## iter 50 value 882.180157
## iter 60 value 880.820584
## iter 70 value 876.303270
## iter 80 value 874.200575
## iter 90 value 873.456302
## iter 100 value 872.542844
## final value 872.542844
## stopped after 100 iterations
## - Fold1: decay= 1.0000, size=5
## + Fold1: decay= 1.2840, size=5

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## # weights: 96
## initial value 1383.577406
## iter 10 value 925.373930
## iter 20 value 896.899177
## iter 30 value 888.286218
## iter 40 value 885.593835
## iter 50 value 884.582105
## iter 60 value 883.107162
## iter 70 value 881.943235
## iter 80 value 881.197610
## iter 90 value 880.909481
## iter 100 value 880.857213
## final value 880.857213
## stopped after 100 iterations
## - Fold1: decay= 1.2840, size=5
## + Fold1: decay= 1.6487, size=5
## # weights: 96
## initial value 1556.475155
## iter 10 value 917.097290
## iter 20 value 898.502880
## iter 30 value 893.391225
## iter 40 value 892.188584
## iter 50 value 890.892098
## iter 60 value 889.461357
## iter 70 value 888.831878
## iter 80 value 888.491652
## iter 90 value 888.291402
## iter 100 value 888.153617
## final value 888.153617
## stopped after 100 iterations
## - Fold1: decay= 1.6487, size=5
## + Fold1: decay= 2.1170, size=5
## # weights: 96
## initial value 1580.141451
## iter 10 value 975.370470
## iter 20 value 908.074984
## iter 30 value 899.342450
## iter 40 value 896.830515
## iter 50 value 894.407520
## iter 60 value 893.348388
## iter 70 value 893.220697
## iter 80 value 893.214216
## iter 90 value 893.211481
## iter 100 value 893.210726
## final value 893.210726
## stopped after 100 iterations
## - Fold1: decay= 2.1170, size=5
## + Fold1: decay= 2.7183, size=5
## # weights: 96
## initial value 1106.043313
## iter 10 value 911.001783
## iter 20 value 902.025472
## iter 30 value 900.311236
## iter 40 value 899.731067

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## iter 50 value 899.237587
## iter 60 value 899.144135
## iter 70 value 899.109362
## iter 80 value 899.101651
## iter 90 value 899.100591
## iter 100 value 899.100284
## final value 899.100284
## stopped after 100 iterations
## - Fold1: decay= 2.7183, size=5
## + Fold1: decay= 3.4903, size=5
## # weights: 96
## initial value 1529.077128
## iter 10 value 1026.364128
## iter 20 value 920.966110
## iter 30 value 907.396499
## iter 40 value 905.502842
## iter 50 value 905.161831
## iter 60 value 905.031482
## iter 70 value 904.981953
## iter 80 value 904.951961
## iter 90 value 904.945290
## iter 100 value 904.938942
## final value 904.938942
## stopped after 100 iterations
## - Fold1: decay= 3.4903, size=5
## + Fold1: decay= 4.4817, size=5
## # weights: 96
## initial value 1910.569078
## iter 10 value 1035.753416
## iter 20 value 939.525385
## iter 30 value 922.748947
## iter 40 value 916.564466
## iter 50 value 913.059073
## iter 60 value 911.888159
## iter 70 value 911.671855
## iter 80 value 911.622004
## iter 90 value 911.611807
## iter 100 value 911.609937
## final value 911.609937
## stopped after 100 iterations
## - Fold1: decay= 4.4817, size=5
## + Fold1: decay= 5.7546, size=5
## # weights: 96
## initial value 1840.127978
## iter 10 value 1063.657992
## iter 20 value 947.440240
## iter 30 value 929.905399
## iter 40 value 920.047404
## iter 50 value 918.391149
## iter 60 value 917.749258
## iter 70 value 917.300831
## iter 80 value 917.193556
## iter 90 value 917.173552
## iter 100 value 917.167430

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```

## final value 917.167430
## stopped after 100 iterations
## - Fold1: decay= 5.7546, size=5
## + Fold1: decay= 7.3891, size=5
## # weights: 96
## initial value 2280.169311
## iter 10 value 1044.814588
## iter 20 value 974.335174
## iter 30 value 944.726472
## iter 40 value 930.460785
## iter 50 value 927.321651
## iter 60 value 926.261235
## iter 70 value 926.048366
## iter 80 value 926.006256
## iter 90 value 925.835824
## iter 100 value 925.809673
## final value 925.809673
## stopped after 100 iterations
## - Fold1: decay= 7.3891, size=5
## + Fold1: decay= 9.4877, size=5
## # weights: 96
## initial value 1371.886444
## iter 10 value 950.520592
## iter 20 value 935.721174
## iter 30 value 934.434822
## iter 40 value 934.263799
## iter 50 value 934.250225
## final value 934.250003
## converged
## - Fold1: decay= 9.4877, size=5
## + Fold1: decay=12.1825, size=5
## # weights: 96
## initial value 1235.679306
## iter 10 value 984.715960
## iter 20 value 951.648191
## iter 30 value 948.016792
## iter 40 value 947.583369
## iter 50 value 946.864314
## iter 60 value 945.621608
## iter 70 value 945.292895
## iter 80 value 945.278816
## final value 945.278363
## converged
## - Fold1: decay=12.1825, size=5
## + Fold2: decay= 0.3679, size=1
## # weights: 20
## initial value 2314.388385
## iter 10 value 930.161262
## iter 20 value 900.803092
## iter 30 value 897.238455
## iter 40 value 896.400976
## iter 40 value 896.400972
## iter 40 value 896.400972
## final value 896.400972

```

```

## converged
## - Fold2: decay= 0.3679, size=1
## + Fold2: decay= 0.4724, size=1
## # weights: 20
## initial value 1614.002330
## iter 10 value 912.834740
## iter 20 value 898.520412
## iter 30 value 894.200055
## final value 894.172923
## converged
## - Fold2: decay= 0.4724, size=1
## + Fold2: decay= 0.6065, size=1
## # weights: 20
## initial value 1712.263375
## iter 10 value 913.190208
## iter 20 value 899.584791
## iter 30 value 896.246452
## iter 40 value 895.676857
## iter 50 value 895.659105
## final value 895.658667
## converged
## - Fold2: decay= 0.6065, size=1
## + Fold2: decay= 0.7788, size=1
## # weights: 20
## initial value 1799.405442
## iter 10 value 905.095029
## iter 20 value 898.859897
## iter 30 value 897.579762
## iter 40 value 897.523575
## iter 40 value 897.523574
## iter 40 value 897.523574
## final value 897.523574
## converged
## - Fold2: decay= 0.7788, size=1
## + Fold2: decay= 1.0000, size=1
## # weights: 20
## initial value 1503.225861
## iter 10 value 921.338244
## iter 20 value 904.867214
## iter 30 value 900.216510
## iter 40 value 899.859745
## iter 50 value 899.855795
## final value 899.855753
## converged
## - Fold2: decay= 1.0000, size=1
## + Fold2: decay= 1.2840, size=1
## # weights: 20
## initial value 1625.429407
## iter 10 value 927.971059
## iter 20 value 907.747117
## iter 30 value 903.015232
## iter 40 value 902.758401
## final value 902.757808
## converged

```

```

## - Fold2: decay= 1.2840, size=1
## + Fold2: decay= 1.6487, size=1
## # weights: 20
## initial value 2003.086731
## iter 10 value 929.092390
## iter 20 value 915.613018
## iter 30 value 906.534701
## iter 40 value 906.347590
## final value 906.346557
## converged
## - Fold2: decay= 1.6487, size=1
## + Fold2: decay= 2.1170, size=1
## # weights: 20
## initial value 1212.680037
## iter 10 value 934.860728
## iter 20 value 914.695372
## iter 30 value 910.861139
## iter 40 value 910.751428
## iter 40 value 910.751423
## iter 40 value 910.751423
## final value 910.751423
## converged
## - Fold2: decay= 2.1170, size=1
## + Fold2: decay= 2.7183, size=1
## # weights: 20
## initial value 1401.715595
## iter 10 value 922.142377
## iter 20 value 916.556050
## iter 30 value 916.110556
## final value 916.110423
## converged
## - Fold2: decay= 2.7183, size=1
## + Fold2: decay= 3.4903, size=1
## # weights: 20
## initial value 2147.750209
## iter 10 value 940.808087
## iter 20 value 925.518787
## iter 30 value 922.583652
## final value 922.563586
## converged
## - Fold2: decay= 3.4903, size=1
## + Fold2: decay= 4.4817, size=1
## # weights: 20
## initial value 1289.098699
## iter 10 value 939.420311
## iter 20 value 931.041523
## iter 30 value 930.244721
## final value 930.243375
## converged
## - Fold2: decay= 4.4817, size=1
## + Fold2: decay= 5.7546, size=1
## # weights: 20
## initial value 2244.478135
## iter 10 value 965.379985

```

```

## iter 20 value 941.217178
## iter 30 value 939.271408
## final value 939.262707
## converged
## - Fold2: decay= 5.7546, size=1
## + Fold2: decay= 7.3891, size=1
## # weights: 20
## initial value 1487.245003
## iter 10 value 958.596053
## iter 20 value 950.332184
## iter 30 value 949.702392
## final value 949.702350
## converged
## - Fold2: decay= 7.3891, size=1
## + Fold2: decay= 9.4877, size=1
## # weights: 20
## initial value 1900.236511
## iter 10 value 963.810496
## iter 20 value 961.700232
## final value 961.601754
## converged
## - Fold2: decay= 9.4877, size=1
## + Fold2: decay=12.1825, size=1
## # weights: 20
## initial value 1688.718875
## iter 10 value 989.940854
## iter 20 value 975.538412
## iter 30 value 974.959116
## final value 974.959061
## converged
## - Fold2: decay=12.1825, size=1
## + Fold2: decay= 0.3679, size=2
## # weights: 39
## initial value 2620.365770
## iter 10 value 905.558945
## iter 20 value 895.829829
## iter 30 value 891.379880
## iter 40 value 885.396683
## iter 50 value 883.240471
## iter 60 value 883.161640
## final value 883.161183
## converged
## - Fold2: decay= 0.3679, size=2
## + Fold2: decay= 0.4724, size=2
## # weights: 39
## initial value 1298.202585
## iter 10 value 903.803922
## iter 20 value 896.657788
## iter 30 value 888.657440
## iter 40 value 884.736558
## iter 50 value 883.912024
## iter 60 value 883.506391
## iter 70 value 883.472678
## final value 883.471885

```



```

## converged
## - Fold2: decay= 0.4724, size=2
## + Fold2: decay= 0.6065, size=2
## # weights: 39
## initial value 1468.884721
## iter 10 value 906.438495
## iter 20 value 896.018130
## iter 30 value 889.043505
## iter 40 value 885.815423
## iter 50 value 885.206704
## iter 60 value 885.072916
## final value 885.065379
## converged
## - Fold2: decay= 0.6065, size=2
## + Fold2: decay= 0.7788, size=2
## # weights: 39
## initial value 1469.184733
## iter 10 value 906.909096
## iter 20 value 895.880555
## iter 30 value 890.310145
## iter 40 value 888.793181
## iter 50 value 888.557329
## iter 60 value 888.510716
## final value 888.510081
## converged
## - Fold2: decay= 0.7788, size=2
## + Fold2: decay= 1.0000, size=2
## # weights: 39
## initial value 1342.582221
## iter 10 value 908.810702
## iter 20 value 896.670191
## iter 30 value 894.397265
## iter 40 value 893.629066
## iter 50 value 893.475309
## final value 893.474024
## converged
## - Fold2: decay= 1.0000, size=2
## + Fold2: decay= 1.2840, size=2
## # weights: 39
## initial value 2297.956580
## iter 10 value 914.041322
## iter 20 value 901.833067
## iter 30 value 898.787822
## iter 40 value 896.790585
## iter 50 value 896.029561
## iter 60 value 895.893142
## iter 70 value 895.879735
## final value 895.879698
## converged
## - Fold2: decay= 1.2840, size=2
## + Fold2: decay= 1.6487, size=2
## # weights: 39
## initial value 1454.067566
## iter 10 value 933.800211

```

```

## iter 20 value 912.637964
## iter 30 value 905.409871
## iter 40 value 903.981390
## iter 50 value 903.885817
## iter 60 value 903.874808
## final value 903.874711
## converged
## - Fold2: decay= 1.6487, size=2
## + Fold2: decay= 2.1170, size=2
## # weights: 39
## initial value 1897.908330
## iter 10 value 917.805866
## iter 20 value 907.421335
## iter 30 value 905.667810
## iter 40 value 904.899420
## iter 50 value 904.762052
## final value 904.756422
## converged
## - Fold2: decay= 2.1170, size=2
## + Fold2: decay= 2.7183, size=2
## # weights: 39
## initial value 2106.624930
## iter 10 value 943.503453
## iter 20 value 920.514944
## iter 30 value 916.839163
## iter 40 value 915.025335
## iter 50 value 914.564398
## final value 914.506812
## converged
## - Fold2: decay= 2.7183, size=2
## + Fold2: decay= 3.4903, size=2
## # weights: 39
## initial value 1400.443135
## iter 10 value 964.347988
## iter 20 value 948.851130
## iter 30 value 946.411066
## iter 40 value 946.197549
## iter 50 value 946.191273
## final value 946.190872
## converged
## - Fold2: decay= 3.4903, size=2
## + Fold2: decay= 4.4817, size=2
## # weights: 39
## initial value 1216.359931
## iter 10 value 929.072940
## iter 20 value 923.199954
## iter 30 value 922.826761
## iter 40 value 922.787622
## iter 50 value 922.784206
## iter 50 value 922.784205
## iter 50 value 922.784205
## final value 922.784205
## converged
## - Fold2: decay= 4.4817, size=2

```

```

## + Fold2: decay= 5.7546, size=2
## # weights: 39
## initial value 1457.366398
## iter 10 value 952.659778
## iter 20 value 933.002022
## iter 30 value 930.932208
## iter 40 value 930.692991
## iter 50 value 930.662823
## final value 930.662769
## converged
## - Fold2: decay= 5.7546, size=2
## + Fold2: decay= 7.3891, size=2
## # weights: 39
## initial value 1447.051094
## iter 10 value 945.285371
## iter 20 value 940.215714
## iter 30 value 939.976425
## iter 40 value 939.946044
## final value 939.943020
## converged
## - Fold2: decay= 7.3891, size=2
## + Fold2: decay= 9.4877, size=2
## # weights: 39
## initial value 1718.700349
## iter 10 value 969.007799
## iter 20 value 963.277425
## iter 30 value 957.312339
## iter 40 value 951.205983
## iter 50 value 950.724549
## final value 950.710736
## converged
## - Fold2: decay= 9.4877, size=2
## + Fold2: decay=12.1825, size=2
## # weights: 39
## initial value 2509.925001
## iter 10 value 991.418538
## iter 20 value 965.724867
## iter 30 value 963.102314
## iter 40 value 963.005102
## final value 963.004913
## converged
## - Fold2: decay=12.1825, size=2
## + Fold2: decay= 0.3679, size=3
## # weights: 58
## initial value 1974.096845
## iter 10 value 905.892340
## iter 20 value 891.802507
## iter 30 value 881.662079
## iter 40 value 876.942670
## iter 50 value 873.567271
## iter 60 value 872.146933
## iter 70 value 870.933651
## iter 80 value 869.744799
## iter 90 value 869.352580

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## iter 100 value 869.239573
## final value 869.239573
## stopped after 100 iterations
## - Fold2: decay= 0.3679, size=3
## + Fold2: decay= 0.4724, size=3
## # weights: 58
## initial value 1359.000507
## iter 10 value 918.954411
## iter 20 value 887.910161
## iter 30 value 882.431602
## iter 40 value 881.131217
## iter 50 value 879.379934
## iter 60 value 878.258081
## iter 70 value 877.384403
## iter 80 value 877.229258
## iter 90 value 877.183269
## final value 877.179215
## converged
## - Fold2: decay= 0.4724, size=3
## + Fold2: decay= 0.6065, size=3
## # weights: 58
## initial value 1451.128480
## iter 10 value 903.476684
## iter 20 value 888.364983
## iter 30 value 882.781260
## iter 40 value 880.388281
## iter 50 value 879.759021
## iter 60 value 879.574490
## iter 70 value 879.536526
## iter 80 value 879.512629
## final value 879.512505
## converged
## - Fold2: decay= 0.6065, size=3
## + Fold2: decay= 0.7788, size=3
## # weights: 58
## initial value 3251.244754
## iter 10 value 909.528388
## iter 20 value 895.375073
## iter 30 value 888.581443
## iter 40 value 885.684384
## iter 50 value 882.846981
## iter 60 value 882.024540
## iter 70 value 881.700950
## iter 80 value 881.644666
## final value 881.644580
## converged
## - Fold2: decay= 0.7788, size=3
## + Fold2: decay= 1.0000, size=3
## # weights: 58
## initial value 2317.484931
## iter 10 value 917.310794
## iter 20 value 902.520530
## iter 30 value 894.834304
## iter 40 value 891.949344

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## iter 50 value 888.589438
## iter 60 value 887.637245
## iter 70 value 887.140175
## iter 80 value 886.959165
## iter 90 value 886.956371
## final value 886.956344
## converged
## - Fold2: decay= 1.0000, size=3
## + Fold2: decay= 1.2840, size=3
## # weights: 58
## initial value 1287.226599
## iter 10 value 912.892088
## iter 20 value 899.201132
## iter 30 value 895.904014
## iter 40 value 894.237553
## iter 50 value 893.605319
## iter 60 value 892.699198
## iter 70 value 892.541452
## final value 892.538235
## converged
## - Fold2: decay= 1.2840, size=3
## + Fold2: decay= 1.6487, size=3
## # weights: 58
## initial value 1340.146415
## iter 10 value 942.359222
## iter 20 value 912.104598
## iter 30 value 905.709065
## iter 40 value 904.170891
## iter 50 value 903.537059
## iter 60 value 903.015006
## iter 70 value 902.946504
## iter 80 value 900.511192
## iter 90 value 899.176338
## iter 100 value 898.904895
## final value 898.904895
## stopped after 100 iterations
## - Fold2: decay= 1.6487, size=3
## + Fold2: decay= 2.1170, size=3
## # weights: 58
## initial value 1675.287679
## iter 10 value 915.679627
## iter 20 value 907.052559
## iter 30 value 905.407183
## iter 40 value 904.217433
## iter 50 value 903.109659
## iter 60 value 902.838055
## iter 70 value 902.822680
## final value 902.820593
## converged
## - Fold2: decay= 2.1170, size=3
## + Fold2: decay= 2.7183, size=3
## # weights: 58
## initial value 2205.089394
## iter 10 value 967.588509

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## iter 20 value 918.006326
## iter 30 value 912.152757
## iter 40 value 909.656023
## iter 50 value 908.431722
## iter 60 value 908.020788
## iter 70 value 908.003157
## iter 80 value 908.001984
## final value 908.001921
## converged
## - Fold2: decay= 2.7183, size=3
## + Fold2: decay= 3.4903, size=3
## # weights: 58
## initial value 1529.553216
## iter 10 value 938.553933
## iter 20 value 920.676371
## iter 30 value 917.447732
## iter 40 value 916.334157
## iter 50 value 916.098584
## iter 60 value 915.553291
## iter 70 value 913.852556
## iter 80 value 913.585268
## iter 90 value 913.551673
## final value 913.550685
## converged
## - Fold2: decay= 3.4903, size=3
## + Fold2: decay= 4.4817, size=3
## # weights: 58
## initial value 2672.972541
## iter 10 value 989.325572
## iter 20 value 930.037897
## iter 30 value 924.032846
## iter 40 value 921.027909
## iter 50 value 919.901797
## iter 60 value 919.809220
## iter 70 value 919.804062
## final value 919.804034
## converged
## - Fold2: decay= 4.4817, size=3
## + Fold2: decay= 5.7546, size=3
## # weights: 58
## initial value 1871.277406
## iter 10 value 963.221715
## iter 20 value 931.365446
## iter 30 value 927.675855
## iter 40 value 927.246799
## iter 50 value 927.144156
## iter 60 value 927.124129
## final value 927.123894
## converged
## - Fold2: decay= 5.7546, size=3
## + Fold2: decay= 7.3891, size=3
## # weights: 58
## initial value 2305.812664
## iter 10 value 1081.108507

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## iter 20 value 944.362899
## iter 30 value 938.556473
## iter 40 value 936.344409
## iter 50 value 935.842409
## iter 60 value 935.786723
## iter 70 value 935.783547
## iter 70 value 935.783546
## iter 70 value 935.783542
## final value 935.783542
## converged
## - Fold2: decay= 7.3891, size=3
## + Fold2: decay= 9.4877, size=3
## # weights: 58
## initial value 2365.918707
## iter 10 value 977.896586
## iter 20 value 956.731831
## iter 30 value 946.572868
## iter 40 value 945.893665
## iter 50 value 945.873778
## final value 945.872913
## converged
## - Fold2: decay= 9.4877, size=3
## + Fold2: decay=12.1825, size=3
## # weights: 58
## initial value 2700.602158
## iter 10 value 1010.690739
## iter 20 value 975.063871
## iter 30 value 962.856840
## iter 40 value 958.018303
## iter 50 value 957.438859
## iter 60 value 957.433463
## final value 957.433433
## converged
## - Fold2: decay=12.1825, size=3
## + Fold2: decay= 0.3679, size=4
## # weights: 77
## initial value 1534.232103
## iter 10 value 899.020137
## iter 20 value 877.381716
## iter 30 value 872.829616
## iter 40 value 868.717740
## iter 50 value 864.919316
## iter 60 value 862.533192
## iter 70 value 858.659514
## iter 80 value 857.123550
## iter 90 value 856.593260
## iter 100 value 856.131188
## final value 856.131188
## stopped after 100 iterations
## - Fold2: decay= 0.3679, size=4
## + Fold2: decay= 0.4724, size=4
## # weights: 77
## initial value 1236.599208
## iter 10 value 931.932385

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## iter 20 value 899.442662
## iter 30 value 886.421835
## iter 40 value 880.634152
## iter 50 value 875.371197
## iter 60 value 870.603051
## iter 70 value 866.984300
## iter 80 value 865.134143
## iter 90 value 862.202803
## iter 100 value 861.088566
## final value 861.088566
## stopped after 100 iterations
## - Fold2: decay= 0.4724, size=4
## + Fold2: decay= 0.6065, size=4
## # weights: 77
## initial value 1407.626574
## iter 10 value 901.711331
## iter 20 value 889.521343
## iter 30 value 879.224908
## iter 40 value 870.750916
## iter 50 value 868.182605
## iter 60 value 867.737554
## iter 70 value 867.578073
## iter 80 value 867.348783
## iter 90 value 866.596390
## iter 100 value 866.247997
## final value 866.247997
## stopped after 100 iterations
## - Fold2: decay= 0.6065, size=4
## + Fold2: decay= 0.7788, size=4
## # weights: 77
## initial value 1589.326686
## iter 10 value 906.029880
## iter 20 value 890.442962
## iter 30 value 886.589267
## iter 40 value 883.644086
## iter 50 value 880.030614
## iter 60 value 879.242494
## iter 70 value 879.000016
## iter 80 value 878.801011
## iter 90 value 878.767865
## iter 100 value 878.762962
## final value 878.762962
## stopped after 100 iterations
## - Fold2: decay= 0.7788, size=4
## + Fold2: decay= 1.0000, size=4
## # weights: 77
## initial value 3078.382093
## iter 10 value 924.798434
## iter 20 value 904.322508
## iter 30 value 895.985188
## iter 40 value 892.039636
## iter 50 value 889.593212
## iter 60 value 887.050984
## iter 70 value 884.730638

```



```

## iter 80 value 883.158031
## iter 90 value 882.806396
## iter 100 value 882.714159
## final value 882.714159
## stopped after 100 iterations
## - Fold2: decay= 1.0000, size=4
## + Fold2: decay= 1.2840, size=4
## # weights: 77
## initial value 1402.177779
## iter 10 value 924.290936
## iter 20 value 904.524675
## iter 30 value 898.263793
## iter 40 value 895.388982
## iter 50 value 893.916902
## iter 60 value 892.944120
## iter 70 value 892.263725
## iter 80 value 892.197929
## iter 90 value 892.176053
## final value 892.174510
## converged
## - Fold2: decay= 1.2840, size=4
## + Fold2: decay= 1.6487, size=4
## # weights: 77
## initial value 2529.871014
## iter 10 value 967.580832
## iter 20 value 925.463509
## iter 30 value 907.509936
## iter 40 value 904.382179
## iter 50 value 901.798382
## iter 60 value 898.503494
## iter 70 value 897.105158
## iter 80 value 896.671022
## iter 90 value 896.617682
## iter 100 value 896.611648
## final value 896.611648
## stopped after 100 iterations
## - Fold2: decay= 1.6487, size=4
## + Fold2: decay= 2.1170, size=4
## # weights: 77
## initial value 1375.563377
## iter 10 value 934.934125
## iter 20 value 908.136161
## iter 30 value 903.197707
## iter 40 value 902.552207
## iter 50 value 902.358772
## iter 60 value 902.313308
## iter 70 value 902.298782
## iter 80 value 902.298466
## final value 902.298432
## converged
## - Fold2: decay= 2.1170, size=4
## + Fold2: decay= 2.7183, size=4
## # weights: 77
## initial value 1735.220586

```

```

## iter 10 value 950.702113
## iter 20 value 913.878049
## iter 30 value 909.637754
## iter 40 value 908.095995
## iter 50 value 907.394955
## iter 60 value 907.177570
## iter 70 value 907.157232
## final value 907.156622
## converged
## - Fold2: decay= 2.7183, size=4
## + Fold2: decay= 3.4903, size=4
## # weights: 77
## initial value 2263.348235
## iter 10 value 996.946357
## iter 20 value 927.201339
## iter 30 value 918.152419
## iter 40 value 915.280591
## iter 50 value 913.726785
## iter 60 value 913.216938
## iter 70 value 913.180702
## iter 80 value 913.180133
## final value 913.180039
## converged
## - Fold2: decay= 3.4903, size=4
## + Fold2: decay= 4.4817, size=4
## # weights: 77
## initial value 1373.685138
## iter 10 value 939.664335
## iter 20 value 919.787339
## iter 30 value 918.755985
## iter 40 value 918.425188
## iter 50 value 918.328859
## iter 60 value 918.299889
## iter 70 value 918.297587
## final value 918.297517
## converged
## - Fold2: decay= 4.4817, size=4
## + Fold2: decay= 5.7546, size=4
## # weights: 77
## initial value 2040.539057
## iter 10 value 1016.280879
## iter 20 value 943.168855
## iter 30 value 930.234761
## iter 40 value 927.844739
## iter 50 value 927.234736
## iter 60 value 927.123744
## iter 70 value 927.111467
## final value 927.111249
## converged
## - Fold2: decay= 5.7546, size=4
## + Fold2: decay= 7.3891, size=4
## # weights: 77
## initial value 1851.964459
## iter 10 value 1021.830178

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```

## iter 20 value 951.469089
## iter 30 value 939.181139
## iter 40 value 936.447472
## iter 50 value 935.936698
## iter 60 value 935.768543
## iter 70 value 933.824186
## iter 80 value 933.599602
## iter 90 value 933.589504
## final value 933.589103
## converged
## - Fold2: decay= 7.3891, size=4
## + Fold2: decay= 9.4877, size=4
## # weights: 77
## initial value 2416.251580
## iter 10 value 1036.136553
## iter 20 value 968.377398
## iter 30 value 946.319473
## iter 40 value 943.633462
## iter 50 value 943.252127
## iter 60 value 943.246329
## final value 943.246308
## converged
## - Fold2: decay= 9.4877, size=4
## + Fold2: decay=12.1825, size=4
## # weights: 77
## initial value 1612.913893
## iter 10 value 977.549456
## iter 20 value 959.530299
## iter 30 value 954.680653
## iter 40 value 954.315243
## iter 50 value 954.303360
## iter 50 value 954.303355
## iter 50 value 954.303349
## final value 954.303349
## converged
## - Fold2: decay=12.1825, size=4
## + Fold2: decay= 0.3679, size=5
## # weights: 96
## initial value 1538.188958
## iter 10 value 903.520991
## iter 20 value 882.576685
## iter 30 value 867.840885
## iter 40 value 858.895443
## iter 50 value 854.921162
## iter 60 value 853.724229
## iter 70 value 852.930866
## iter 80 value 852.676141
## iter 90 value 852.385250
## iter 100 value 852.159807
## final value 852.159807
## stopped after 100 iterations
## - Fold2: decay= 0.3679, size=5
## + Fold2: decay= 0.4724, size=5
## # weights: 96

```

```

## initial value 1845.122859
## iter 10 value 932.723067
## iter 20 value 893.140772
## iter 30 value 876.712700
## iter 40 value 871.008010
## iter 50 value 866.517244
## iter 60 value 863.339332
## iter 70 value 861.279252
## iter 80 value 858.863684
## iter 90 value 855.692124
## iter 100 value 853.337928
## final value 853.337928
## stopped after 100 iterations
## - Fold2: decay= 0.4724, size=5
## + Fold2: decay= 0.6065, size=5
## # weights: 96
## initial value 1848.690252
## iter 10 value 926.970877
## iter 20 value 899.756692
## iter 30 value 888.686455
## iter 40 value 880.499522
## iter 50 value 877.462959
## iter 60 value 875.842373
## iter 70 value 874.967914
## iter 80 value 874.591700
## iter 90 value 872.421088
## iter 100 value 866.392494
## final value 866.392494
## stopped after 100 iterations
## - Fold2: decay= 0.6065, size=5
## + Fold2: decay= 0.7788, size=5
## # weights: 96
## initial value 1925.284008
## iter 10 value 918.628757
## iter 20 value 893.288624
## iter 30 value 885.143511
## iter 40 value 881.261204
## iter 50 value 875.882684
## iter 60 value 872.130369
## iter 70 value 871.452130
## iter 80 value 871.257865
## iter 90 value 871.167603
## iter 100 value 871.083194
## final value 871.083194
## stopped after 100 iterations
## - Fold2: decay= 0.7788, size=5
## + Fold2: decay= 1.0000, size=5
## # weights: 96
## initial value 2051.074421
## iter 10 value 948.759627
## iter 20 value 918.046989
## iter 30 value 897.424347
## iter 40 value 890.827423
## iter 50 value 887.800083

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```

## iter 60 value 886.188323
## iter 70 value 884.592791
## iter 80 value 882.696850
## iter 90 value 878.539950
## iter 100 value 877.373188
## final value 877.373188
## stopped after 100 iterations
## - Fold2: decay= 1.0000, size=5
## + Fold2: decay= 1.2840, size=5
## # weights: 96
## initial value 1074.602526
## iter 10 value 935.063639
## iter 20 value 909.532642
## iter 30 value 898.001274
## iter 40 value 895.399373
## iter 50 value 893.017211
## iter 60 value 891.489452
## iter 70 value 890.854336
## iter 80 value 890.183754
## iter 90 value 889.010696
## iter 100 value 888.718346
## final value 888.718346
## stopped after 100 iterations
## - Fold2: decay= 1.2840, size=5
## + Fold2: decay= 1.6487, size=5
## # weights: 96
## initial value 2600.789280
## iter 10 value 999.165398
## iter 20 value 936.228404
## iter 30 value 913.621116
## iter 40 value 908.146250
## iter 50 value 904.679178
## iter 60 value 900.171092
## iter 70 value 897.535999
## iter 80 value 896.820629
## iter 90 value 896.673178
## iter 100 value 896.615980
## final value 896.615980
## stopped after 100 iterations
## - Fold2: decay= 1.6487, size=5
## + Fold2: decay= 2.1170, size=5
## # weights: 96
## initial value 1325.401915
## iter 10 value 945.674653
## iter 20 value 910.112230
## iter 30 value 904.331284
## iter 40 value 903.021949
## iter 50 value 902.408473
## iter 60 value 902.234416
## iter 70 value 902.147600
## iter 80 value 902.107434
## iter 90 value 902.099992
## iter 100 value 902.098561
## final value 902.098561

```

```

## stopped after 100 iterations
## - Fold2: decay= 2.1170, size=5
## + Fold2: decay= 2.7183, size=5
## # weights: 96
## initial value 1923.785762
## iter 10 value 986.026971
## iter 20 value 928.820099
## iter 30 value 914.392402
## iter 40 value 910.779409
## iter 50 value 908.037293
## iter 60 value 906.981564
## iter 70 value 906.696034
## iter 80 value 906.649952
## iter 90 value 906.640032
## iter 100 value 906.637920
## final value 906.637920
## stopped after 100 iterations
## - Fold2: decay= 2.7183, size=5
## + Fold2: decay= 3.4903, size=5
## # weights: 96
## initial value 1312.093526
## iter 10 value 975.440383
## iter 20 value 918.754964
## iter 30 value 916.440599
## iter 40 value 915.071483
## iter 50 value 913.844489
## iter 60 value 913.309314
## iter 70 value 912.399170
## iter 80 value 912.147506
## iter 90 value 912.028370
## iter 100 value 911.932929
## final value 911.932929
## stopped after 100 iterations
## - Fold2: decay= 3.4903, size=5
## + Fold2: decay= 4.4817, size=5
## # weights: 96
## initial value 2229.268700
## iter 10 value 1053.749844
## iter 20 value 940.915801
## iter 30 value 928.247119
## iter 40 value 922.014530
## iter 50 value 920.056319
## iter 60 value 919.782963
## iter 70 value 919.732577
## iter 80 value 919.284211
## iter 90 value 918.216429
## iter 100 value 917.999006
## final value 917.999006
## stopped after 100 iterations
## - Fold2: decay= 4.4817, size=5
## + Fold2: decay= 5.7546, size=5
## # weights: 96
## initial value 1315.764649
## iter 10 value 979.007236

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```

## iter 20 value 927.745347
## iter 30 value 925.843518
## iter 40 value 925.012251
## iter 50 value 924.446569
## iter 60 value 924.324658
## iter 70 value 924.305523
## iter 80 value 924.304814
## final value 924.304732
## converged
## - Fold2: decay= 5.7546, size=5
## + Fold2: decay= 7.3891, size=5
## # weights: 96
## initial value 1897.372624
## iter 10 value 1049.477629
## iter 20 value 952.861096
## iter 30 value 938.223204
## iter 40 value 934.127351
## iter 50 value 933.599942
## iter 60 value 933.575409
## iter 70 value 933.571438
## final value 933.571251
## converged
## - Fold2: decay= 7.3891, size=5
## + Fold2: decay= 9.4877, size=5
## # weights: 96
## initial value 1788.910502
## iter 10 value 1017.155879
## iter 20 value 958.362799
## iter 30 value 948.208362
## iter 40 value 944.853175
## iter 50 value 943.865956
## iter 60 value 943.411306
## iter 70 value 943.021977
## iter 80 value 941.896226
## iter 90 value 941.743374
## iter 100 value 941.729255
## final value 941.729255
## stopped after 100 iterations
## - Fold2: decay= 9.4877, size=5
## + Fold2: decay=12.1825, size=5
## # weights: 96
## initial value 1235.765981
## iter 10 value 977.889748
## iter 20 value 953.116689
## iter 30 value 952.474041
## iter 40 value 952.432009
## iter 50 value 952.427431
## final value 952.427337
## converged
## - Fold2: decay=12.1825, size=5
## + Fold3: decay= 0.3679, size=1
## # weights: 20
## initial value 2184.843063
## iter 10 value 922.253585

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```

## iter 20 value 902.170695
## iter 30 value 899.841595
## final value 899.691058
## converged
## - Fold3: decay= 0.3679, size=1
## + Fold3: decay= 0.4724, size=1
## # weights: 20
## initial value 1479.716230
## iter 10 value 921.667963
## iter 20 value 901.805383
## iter 30 value 897.949591
## iter 40 value 897.545428
## iter 50 value 897.527238
## iter 60 value 897.525780
## final value 897.525732
## converged
## - Fold3: decay= 0.4724, size=1
## + Fold3: decay= 0.6065, size=1
## # weights: 20
## initial value 1529.055348
## iter 10 value 903.718696
## iter 20 value 900.212031
## iter 30 value 899.068847
## final value 899.006651
## converged
## - Fold3: decay= 0.6065, size=1
## + Fold3: decay= 0.7788, size=1
## # weights: 20
## initial value 1434.663105
## iter 10 value 919.541625
## iter 20 value 907.555234
## iter 30 value 901.270897
## iter 40 value 900.894247
## iter 50 value 900.869605
## iter 60 value 900.867413
## final value 900.867346
## converged
## - Fold3: decay= 0.7788, size=1
## + Fold3: decay= 1.0000, size=1
## # weights: 20
## initial value 1423.894685
## iter 10 value 914.209440
## iter 20 value 911.901835
## iter 30 value 911.584631
## final value 911.584556
## converged
## - Fold3: decay= 1.0000, size=1
## + Fold3: decay= 1.2840, size=1
## # weights: 20
## initial value 2419.711561
## iter 10 value 928.919520
## iter 20 value 912.434381
## iter 30 value 906.436513
## iter 40 value 906.097491

```



```

## iter 50 value 906.093516
## final value 906.092965
## converged
## - Fold3: decay= 1.2840, size=1
## + Fold3: decay= 1.6487, size=1
## # weights: 20
## initial value 1409.590029
## iter 10 value 928.064295
## iter 20 value 915.624235
## iter 30 value 909.886838
## iter 40 value 909.676527
## final value 909.675635
## converged
## - Fold3: decay= 1.6487, size=1
## + Fold3: decay= 2.1170, size=1
## # weights: 20
## initial value 1541.922444
## iter 10 value 920.140528
## iter 20 value 914.510711
## iter 30 value 914.076890
## final value 914.071011
## converged
## - Fold3: decay= 2.1170, size=1
## + Fold3: decay= 2.7183, size=1
## # weights: 20
## initial value 1974.720742
## iter 10 value 937.534254
## iter 20 value 920.379677
## iter 30 value 919.430403
## final value 919.413996
## converged
## - Fold3: decay= 2.7183, size=1
## + Fold3: decay= 3.4903, size=1
## # weights: 20
## initial value 2371.140773
## iter 10 value 951.688338
## iter 20 value 926.378106
## iter 30 value 925.860105
## final value 925.840390
## converged
## - Fold3: decay= 3.4903, size=1
## + Fold3: decay= 4.4817, size=1
## # weights: 20
## initial value 1495.304171
## iter 10 value 940.615388
## iter 20 value 934.030611
## iter 30 value 933.479934
## final value 933.477920
## converged
## - Fold3: decay= 4.4817, size=1
## + Fold3: decay= 5.7546, size=1
## # weights: 20
## initial value 2267.874747
## iter 10 value 961.179590

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```

## iter 20 value 943.801577
## iter 30 value 942.436947
## final value 942.435437
## converged
## - Fold3: decay= 5.7546, size=1
## + Fold3: decay= 7.3891, size=1
## # weights: 20
## initial value 1877.058288
## iter 10 value 957.600673
## iter 20 value 953.545040
## iter 30 value 952.792284
## final value 952.791899
## converged
## - Fold3: decay= 7.3891, size=1
## + Fold3: decay= 9.4877, size=1
## # weights: 20
## initial value 1468.240867
## iter 10 value 980.777264
## iter 20 value 965.093423
## iter 30 value 964.588519
## final value 964.588428
## converged
## - Fold3: decay= 9.4877, size=1
## + Fold3: decay=12.1825, size=1
## # weights: 20
## initial value 2101.103922
## iter 10 value 987.420578
## iter 20 value 978.125293
## iter 30 value 977.828762
## final value 977.828659
## converged
## - Fold3: decay=12.1825, size=1
## + Fold3: decay= 0.3679, size=2
## # weights: 39
## initial value 1222.350518
## iter 10 value 911.501596
## iter 20 value 903.872242
## iter 30 value 897.841210
## iter 40 value 894.880365
## iter 50 value 891.381424
## iter 60 value 888.647243
## iter 70 value 888.288282
## iter 80 value 888.225700
## iter 90 value 888.211049
## iter 100 value 887.703440
## final value 887.703440
## stopped after 100 iterations
## - Fold3: decay= 0.3679, size=2
## + Fold3: decay= 0.4724, size=2
## # weights: 39
## initial value 1373.149053
## iter 10 value 902.181709
## iter 20 value 897.010871
## iter 30 value 888.252017

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```

## iter 40 value 885.101345
## iter 50 value 883.665792
## iter 60 value 883.629103
## final value 883.628043
## converged
## - Fold3: decay= 0.4724, size=2
## + Fold3: decay= 0.6065, size=2
## # weights: 39
## initial value 1286.062535
## iter 10 value 907.913366
## iter 20 value 901.713836
## iter 30 value 898.080391
## iter 40 value 891.085707
## iter 50 value 887.947939
## iter 60 value 886.904242
## iter 70 value 886.620322
## final value 886.617645
## converged
## - Fold3: decay= 0.6065, size=2
## + Fold3: decay= 0.7788, size=2
## # weights: 39
## initial value 2453.553426
## iter 10 value 918.623047
## iter 20 value 899.248991
## iter 30 value 893.569046
## iter 40 value 890.466014
## iter 50 value 890.064268
## iter 60 value 890.040842
## final value 890.040737
## converged
## - Fold3: decay= 0.7788, size=2
## + Fold3: decay= 1.0000, size=2
## # weights: 39
## initial value 1215.180737
## iter 10 value 910.505183
## iter 20 value 898.761132
## iter 30 value 895.457427
## iter 40 value 894.196653
## iter 50 value 893.920021
## final value 893.903425
## converged
## - Fold3: decay= 1.0000, size=2
## + Fold3: decay= 1.2840, size=2
## # weights: 39
## initial value 1570.523640
## iter 10 value 916.672840
## iter 20 value 904.516522
## iter 30 value 901.907332
## iter 40 value 901.114742
## iter 50 value 901.078975
## final value 901.078379
## converged
## - Fold3: decay= 1.2840, size=2
## + Fold3: decay= 1.6487, size=2

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## # weights: 39
## initial value 2034.387808
## iter 10 value 933.092559
## iter 20 value 918.287701
## iter 30 value 907.612979
## iter 40 value 905.071672
## iter 50 value 903.399257
## iter 60 value 902.902214
## final value 902.899376
## converged
## - Fold3: decay= 1.6487, size=2
## + Fold3: decay= 2.1170, size=2
## # weights: 39
## initial value 2335.249218
## iter 10 value 956.463871
## iter 20 value 924.800822
## iter 30 value 912.595932
## iter 40 value 909.642968
## iter 50 value 908.392238
## iter 60 value 908.155545
## iter 70 value 908.085164
## final value 908.084671
## converged
## - Fold3: decay= 2.1170, size=2
## + Fold3: decay= 2.7183, size=2
## # weights: 39
## initial value 1528.944593
## iter 10 value 922.356486
## iter 20 value 915.680246
## iter 30 value 913.999014
## iter 40 value 913.712952
## iter 50 value 913.707685
## final value 913.707620
## converged
## - Fold3: decay= 2.7183, size=2
## + Fold3: decay= 3.4903, size=2
## # weights: 39
## initial value 1159.056625
## iter 10 value 949.197207
## iter 20 value 925.491544
## iter 30 value 920.415593
## iter 40 value 919.828654
## iter 50 value 919.696911
## final value 919.677981
## converged
## - Fold3: decay= 3.4903, size=2
## + Fold3: decay= 4.4817, size=2
## # weights: 39
## initial value 1427.804038
## iter 10 value 937.542111
## iter 20 value 927.246777
## iter 30 value 926.457821
## iter 40 value 926.401699
## iter 50 value 926.391451

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## final value 926.391252
## converged
## - Fold3: decay= 4.4817, size=2
## + Fold3: decay= 5.7546, size=2
## # weights: 39
## initial value 1825.173438
## iter 10 value 950.181959
## iter 20 value 936.388308
## iter 30 value 934.379078
## iter 40 value 934.245783
## iter 50 value 934.229205
## final value 934.229014
## converged
## - Fold3: decay= 5.7546, size=2
## + Fold3: decay= 7.3891, size=2
## # weights: 39
## initial value 1639.383698
## iter 10 value 980.113829
## iter 20 value 946.206451
## iter 30 value 943.805208
## iter 40 value 943.459024
## final value 943.445846
## converged
## - Fold3: decay= 7.3891, size=2
## + Fold3: decay= 9.4877, size=2
## # weights: 39
## initial value 1254.667462
## iter 10 value 971.147489
## iter 20 value 955.155562
## iter 30 value 954.159930
## iter 40 value 954.126981
## final value 954.126175
## converged
## - Fold3: decay= 9.4877, size=2
## + Fold3: decay=12.1825, size=2
## # weights: 39
## initial value 2315.729059
## iter 10 value 1000.341114
## iter 20 value 971.232227
## iter 30 value 966.476740
## iter 40 value 966.312062
## final value 966.310815
## converged
## - Fold3: decay=12.1825, size=2
## + Fold3: decay= 0.3679, size=3
## # weights: 58
## initial value 2668.264400
## iter 10 value 926.800152
## iter 20 value 893.006225
## iter 30 value 886.010573
## iter 40 value 881.553008
## iter 50 value 879.022381
## iter 60 value 874.255251
## iter 70 value 872.829468

```

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## iter 80 value 872.314103
## iter 90 value 872.127884
## iter 100 value 872.087157
## final value 872.087157
## stopped after 100 iterations
## - Fold3: decay= 0.3679, size=3
## + Fold3: decay= 0.4724, size=3
## # weights: 58
## initial value 1742.911495
## iter 10 value 903.389485
## iter 20 value 893.200829
## iter 30 value 887.549354
## iter 40 value 882.414353
## iter 50 value 877.752777
## iter 60 value 876.434730
## iter 70 value 876.096651
## iter 80 value 875.588056
## final value 875.577717
## converged
## - Fold3: decay= 0.4724, size=3
## + Fold3: decay= 0.6065, size=3
## # weights: 58
## initial value 1747.397535
## iter 10 value 921.920199
## iter 20 value 901.746213
## iter 30 value 890.840296
## iter 40 value 886.050140
## iter 50 value 883.436152
## iter 60 value 882.463595
## iter 70 value 882.276687
## iter 80 value 881.421681
## iter 90 value 879.908274
## iter 100 value 879.809494
## final value 879.809494
## stopped after 100 iterations
## - Fold3: decay= 0.6065, size=3
## + Fold3: decay= 0.7788, size=3
## # weights: 58
## initial value 2393.019214
## iter 10 value 931.872864
## iter 20 value 908.461174
## iter 30 value 897.649235
## iter 40 value 894.179950
## iter 50 value 891.924932
## iter 60 value 889.621799
## iter 70 value 888.315675
## iter 80 value 887.999310
## iter 90 value 887.976445
## iter 100 value 887.960659
## final value 887.960659
## stopped after 100 iterations
## - Fold3: decay= 0.7788, size=3
## + Fold3: decay= 1.0000, size=3
## # weights: 58

```

```

## initial value 1337.636852
## iter 10 value 926.093383
## iter 20 value 904.360198
## iter 30 value 898.896982
## iter 40 value 896.336694
## iter 50 value 895.612998
## iter 60 value 895.106624
## iter 70 value 895.054108
## iter 80 value 894.992807
## final value 894.988923
## converged
## - Fold3: decay= 1.0000, size=3
## + Fold3: decay= 1.2840, size=3
## # weights: 58
## initial value 1121.866404
## iter 10 value 909.612263
## iter 20 value 899.348907
## iter 30 value 896.999911
## iter 40 value 896.286697
## iter 50 value 896.173602
## iter 60 value 896.171380
## iter 60 value 896.171372
## iter 60 value 896.171372
## final value 896.171372
## converged
## - Fold3: decay= 1.2840, size=3
## + Fold3: decay= 1.6487, size=3
## # weights: 58
## initial value 1538.929749
## iter 10 value 939.581363
## iter 20 value 909.891318
## iter 30 value 907.196229
## iter 40 value 906.329114
## iter 50 value 906.099794
## iter 60 value 906.061732
## iter 70 value 905.811110
## iter 80 value 903.790571
## iter 90 value 903.013221
## iter 100 value 902.827732
## final value 902.827732
## stopped after 100 iterations
## - Fold3: decay= 1.6487, size=3
## + Fold3: decay= 2.1170, size=3
## # weights: 58
## initial value 1805.185379
## iter 10 value 933.068308
## iter 20 value 912.850901
## iter 30 value 908.952886
## iter 40 value 908.048621
## iter 50 value 907.144372
## iter 60 value 906.565258
## iter 70 value 906.513696
## final value 906.511120
## converged

```

```

## - Fold3: decay= 2.1170, size=3
## + Fold3: decay= 2.7183, size=3
## # weights: 58
## initial value 1400.683150
## iter 10 value 947.713486
## iter 20 value 916.695800
## iter 30 value 914.249178
## iter 40 value 913.673591
## iter 50 value 913.461077
## iter 60 value 913.425077
## iter 70 value 913.413400
## final value 913.413009
## converged
## - Fold3: decay= 2.7183, size=3
## + Fold3: decay= 3.4903, size=3
## # weights: 58
## initial value 1798.775392
## iter 10 value 976.358468
## iter 20 value 930.432915
## iter 30 value 920.151649
## iter 40 value 918.133121
## iter 50 value 917.627939
## iter 60 value 917.463386
## iter 70 value 917.449177
## iter 80 value 917.447255
## iter 80 value 917.447249
## iter 80 value 917.447249
## final value 917.447249
## converged
## - Fold3: decay= 3.4903, size=3
## + Fold3: decay= 4.4817, size=3
## # weights: 58
## initial value 1262.203921
## iter 10 value 1005.592313
## iter 20 value 946.435757
## iter 30 value 939.012029
## iter 40 value 937.366707
## iter 50 value 934.785594
## iter 60 value 930.291686
## iter 70 value 926.608801
## iter 80 value 926.391766
## iter 90 value 926.372728
## iter 100 value 926.368971
## final value 926.368971
## stopped after 100 iterations
## - Fold3: decay= 4.4817, size=3
## + Fold3: decay= 5.7546, size=3
## # weights: 58
## initial value 2568.148689
## iter 10 value 966.052196
## iter 20 value 941.713644
## iter 30 value 933.361509
## iter 40 value 931.273702
## iter 50 value 930.947735

```



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## iter 60 value 930.935292
## final value 930.935096
## converged
## - Fold3: decay= 5.7546, size=3
## + Fold3: decay= 7.3891, size=3
## # weights: 58
## initial value 1777.804065
## iter 10 value 972.579150
## iter 20 value 947.081499
## iter 30 value 943.413610
## iter 40 value 941.984073
## iter 50 value 940.286737
## iter 60 value 939.577188
## iter 70 value 939.533106
## final value 939.532465
## converged
## - Fold3: decay= 7.3891, size=3
## + Fold3: decay= 9.4877, size=3
## # weights: 58
## initial value 1479.207165
## iter 10 value 981.318831
## iter 20 value 954.271437
## iter 30 value 951.209319
## iter 40 value 949.929000
## iter 50 value 949.574115
## iter 60 value 949.533664
## final value 949.533625
## converged
## - Fold3: decay= 9.4877, size=3
## + Fold3: decay=12.1825, size=3
## # weights: 58
## initial value 1805.131354
## iter 10 value 983.227515
## iter 20 value 965.965815
## iter 30 value 961.175650
## iter 40 value 960.988265
## iter 50 value 960.980484
## iter 50 value 960.980480
## iter 50 value 960.980471
## final value 960.980471
## converged
## - Fold3: decay=12.1825, size=3
## + Fold3: decay= 0.3679, size=4
## # weights: 77
## initial value 1557.150962
## iter 10 value 927.012823
## iter 20 value 898.193637
## iter 30 value 884.792852
## iter 40 value 875.928472
## iter 50 value 871.193795
## iter 60 value 867.984322
## iter 70 value 866.486428
## iter 80 value 865.925783
## iter 90 value 865.744656

```

```

## iter 100 value 865.700211
## final value 865.700211
## stopped after 100 iterations
## - Fold3: decay= 0.3679, size=4
## + Fold3: decay= 0.4724, size=4
## # weights: 77
## initial value 1296.182570
## iter 10 value 919.136181
## iter 20 value 894.207490
## iter 30 value 887.552628
## iter 40 value 880.601996
## iter 50 value 875.320922
## iter 60 value 872.289371
## iter 70 value 870.849625
## iter 80 value 870.283893
## iter 90 value 870.167354
## iter 100 value 870.148314
## final value 870.148314
## stopped after 100 iterations
## - Fold3: decay= 0.4724, size=4
## + Fold3: decay= 0.6065, size=4
## # weights: 77
## initial value 1425.156112
## iter 10 value 918.096062
## iter 20 value 896.540364
## iter 30 value 887.069848
## iter 40 value 879.737200
## iter 50 value 877.394242
## iter 60 value 876.143470
## iter 70 value 875.086691
## iter 80 value 874.747508
## iter 90 value 874.680039
## iter 100 value 874.666032
## final value 874.666032
## stopped after 100 iterations
## - Fold3: decay= 0.6065, size=4
## + Fold3: decay= 0.7788, size=4
## # weights: 77
## initial value 1641.105573
## iter 10 value 913.977465
## iter 20 value 900.954535
## iter 30 value 893.366361
## iter 40 value 889.016335
## iter 50 value 886.992335
## iter 60 value 884.246966
## iter 70 value 882.245880
## iter 80 value 882.101189
## iter 90 value 882.091882
## iter 100 value 882.089110
## final value 882.089110
## stopped after 100 iterations
## - Fold3: decay= 0.7788, size=4
## + Fold3: decay= 1.0000, size=4
## # weights: 77

```

```

## initial value 2483.760015
## iter 10 value 931.161509
## iter 20 value 914.090927
## iter 30 value 904.527440
## iter 40 value 899.795973
## iter 50 value 897.404193
## iter 60 value 896.313958
## iter 70 value 895.541304
## iter 80 value 894.485511
## iter 90 value 894.214386
## iter 100 value 893.542436
## final value 893.542436
## stopped after 100 iterations
## - Fold3: decay= 1.0000, size=4
## + Fold3: decay= 1.2840, size=4
## # weights: 77
## initial value 2553.061921
## iter 10 value 978.201112
## iter 20 value 932.327296
## iter 30 value 910.090970
## iter 40 value 901.562818
## iter 50 value 898.869502
## iter 60 value 896.582789
## iter 70 value 895.876086
## iter 80 value 895.642116
## iter 90 value 895.580646
## iter 100 value 895.573441
## final value 895.573441
## stopped after 100 iterations
## - Fold3: decay= 1.2840, size=4
## + Fold3: decay= 1.6487, size=4
## # weights: 77
## initial value 2896.740003
## iter 10 value 994.388078
## iter 20 value 936.212629
## iter 30 value 914.285134
## iter 40 value 909.354875
## iter 50 value 904.626459
## iter 60 value 902.344434
## iter 70 value 901.265013
## iter 80 value 901.065212
## iter 90 value 900.987192
## iter 100 value 900.981528
## final value 900.981528
## stopped after 100 iterations
## - Fold3: decay= 1.6487, size=4
## + Fold3: decay= 2.1170, size=4
## # weights: 77
## initial value 2092.198389
## iter 10 value 940.893162
## iter 20 value 919.259617
## iter 30 value 913.486522
## iter 40 value 909.677849
## iter 50 value 907.504082

```

```

## iter 60 value 906.475527
## iter 70 value 906.196689
## iter 80 value 906.053436
## iter 90 value 906.036563
## final value 906.035744
## converged
## - Fold3: decay= 2.1170, size=4
## + Fold3: decay= 2.7183, size=4
## # weights: 77
## initial value 1521.636002
## iter 10 value 951.878494
## iter 20 value 926.344544
## iter 30 value 918.458553
## iter 40 value 916.050808
## iter 50 value 914.396178
## iter 60 value 913.691677
## iter 70 value 913.382363
## iter 80 value 913.337343
## iter 90 value 913.273186
## iter 100 value 913.028988
## final value 913.028988
## stopped after 100 iterations
## - Fold3: decay= 2.7183, size=4
## + Fold3: decay= 3.4903, size=4
## # weights: 77
## initial value 1440.673076
## iter 10 value 973.528341
## iter 20 value 922.166123
## iter 30 value 918.007489
## iter 40 value 917.012989
## iter 50 value 916.578776
## iter 60 value 916.462764
## iter 70 value 916.432138
## iter 80 value 916.429332
## final value 916.429249
## converged
## - Fold3: decay= 3.4903, size=4
## + Fold3: decay= 4.4817, size=4
## # weights: 77
## initial value 1492.445233
## iter 10 value 977.854454
## iter 20 value 926.358115
## iter 30 value 924.480615
## iter 40 value 923.863566
## iter 50 value 923.674463
## iter 60 value 923.589083
## iter 70 value 923.563642
## iter 80 value 923.559221
## final value 923.559041
## converged
## - Fold3: decay= 4.4817, size=4
## + Fold3: decay= 5.7546, size=4
## # weights: 77
## initial value 1645.979748

```

```

## iter 10 value 999.132139
## iter 20 value 943.343359
## iter 30 value 933.192425
## iter 40 value 931.320099
## iter 50 value 930.999061
## iter 60 value 930.975785
## iter 70 value 930.971708
## iter 80 value 930.971355
## final value 930.971325
## converged
## - Fold3: decay= 5.7546, size=4
## + Fold3: decay= 7.3891, size=4
## # weights: 77
## initial value 1190.387327
## iter 10 value 969.840628
## iter 20 value 940.322800
## iter 30 value 938.937108
## iter 40 value 937.910159
## iter 50 value 937.544938
## iter 60 value 937.499133
## final value 937.496117
## converged
## - Fold3: decay= 7.3891, size=4
## + Fold3: decay= 9.4877, size=4
## # weights: 77
## initial value 2315.912676
## iter 10 value 1054.184282
## iter 20 value 976.122261
## iter 30 value 953.967906
## iter 40 value 950.261495
## iter 50 value 949.589023
## iter 60 value 948.663463
## iter 70 value 947.335091
## iter 80 value 947.076223
## iter 90 value 947.060560
## final value 947.060473
## converged
## - Fold3: decay= 9.4877, size=4
## + Fold3: decay=12.1825, size=4
## # weights: 77
## initial value 1978.186007
## iter 10 value 1042.169392
## iter 20 value 981.845012
## iter 30 value 961.110199
## iter 40 value 958.472582
## iter 50 value 958.052100
## iter 60 value 958.002576
## iter 70 value 957.997630
## final value 957.997496
## converged
## - Fold3: decay=12.1825, size=4
## + Fold3: decay= 0.3679, size=5
## # weights: 96
## initial value 3591.504535

```

```

## iter 10 value 1393.958682
## iter 20 value 1007.504716
## iter 30 value 911.415348
## iter 40 value 894.363093
## iter 50 value 881.208900
## iter 60 value 870.838020
## iter 70 value 864.434098
## iter 80 value 861.972564
## iter 90 value 860.655163
## iter 100 value 859.006852
## final value 859.006852
## stopped after 100 iterations
## - Fold3: decay= 0.3679, size=5
## + Fold3: decay= 0.4724, size=5
## # weights: 96
## initial value 2794.945735
## iter 10 value 929.656646
## iter 20 value 907.971277
## iter 30 value 893.167348
## iter 40 value 886.153931
## iter 50 value 878.990805
## iter 60 value 872.971260
## iter 70 value 866.140193
## iter 80 value 864.220268
## iter 90 value 861.038979
## iter 100 value 858.764035
## final value 858.764035
## stopped after 100 iterations
## - Fold3: decay= 0.4724, size=5
## + Fold3: decay= 0.6065, size=5
## # weights: 96
## initial value 2648.274037
## iter 10 value 935.891621
## iter 20 value 913.691750
## iter 30 value 898.664714
## iter 40 value 889.221642
## iter 50 value 882.292095
## iter 60 value 873.879723
## iter 70 value 870.503492
## iter 80 value 868.172433
## iter 90 value 865.894710
## iter 100 value 864.019194
## final value 864.019194
## stopped after 100 iterations
## - Fold3: decay= 0.6065, size=5
## + Fold3: decay= 0.7788, size=5
## # weights: 96
## initial value 1160.885452
## iter 10 value 908.383839
## iter 20 value 894.664848
## iter 30 value 886.661649
## iter 40 value 881.083242
## iter 50 value 878.404295
## iter 60 value 876.588661

```

```

## iter 70 value 875.797932
## iter 80 value 875.284253
## iter 90 value 875.134178
## iter 100 value 874.894617
## final value 874.894617
## stopped after 100 iterations
## - Fold3: decay= 0.7788, size=5
## + Fold3: decay= 1.0000, size=5
## # weights: 96
## initial value 1885.369334
## iter 10 value 990.443596
## iter 20 value 916.982526
## iter 30 value 906.317225
## iter 40 value 897.701243
## iter 50 value 892.719041
## iter 60 value 890.378824
## iter 70 value 887.348561
## iter 80 value 885.207336
## iter 90 value 884.078328
## iter 100 value 883.957808
## final value 883.957808
## stopped after 100 iterations
## - Fold3: decay= 1.0000, size=5
## + Fold3: decay= 1.2840, size=5
## # weights: 96
## initial value 2007.723733
## iter 10 value 955.044109
## iter 20 value 916.302630
## iter 30 value 905.974692
## iter 40 value 901.296114
## iter 50 value 897.011299
## iter 60 value 894.598516
## iter 70 value 893.538118
## iter 80 value 893.175054
## iter 90 value 893.047200
## iter 100 value 893.010404
## final value 893.010404
## stopped after 100 iterations
## - Fold3: decay= 1.2840, size=5
## + Fold3: decay= 1.6487, size=5
## # weights: 96
## initial value 2235.036256
## iter 10 value 983.299207
## iter 20 value 933.032059
## iter 30 value 908.971071
## iter 40 value 903.823879
## iter 50 value 902.330411
## iter 60 value 901.614706
## iter 70 value 900.764518
## iter 80 value 900.570888
## iter 90 value 900.436392
## iter 100 value 900.383660
## final value 900.383660
## stopped after 100 iterations

```

```

## - Fold3: decay= 1.6487, size=5
## + Fold3: decay= 2.1170, size=5
## # weights: 96
## initial value 1398.979679
## iter 10 value 949.616797
## iter 20 value 913.431534
## iter 30 value 908.475825
## iter 40 value 906.622621
## iter 50 value 906.031890
## iter 60 value 905.879927
## iter 70 value 905.836698
## iter 80 value 905.813510
## iter 90 value 905.810656
## iter 100 value 905.810298
## final value 905.810298
## stopped after 100 iterations
## - Fold3: decay= 2.1170, size=5
## + Fold3: decay= 2.7183, size=5
## # weights: 96
## initial value 1885.820613
## iter 10 value 1016.537127
## iter 20 value 935.922568
## iter 30 value 918.507116
## iter 40 value 915.160953
## iter 50 value 912.440719
## iter 60 value 911.288483
## iter 70 value 911.074347
## iter 80 value 910.967840
## iter 90 value 910.872947
## iter 100 value 910.863288
## final value 910.863288
## stopped after 100 iterations
## - Fold3: decay= 2.7183, size=5
## + Fold3: decay= 3.4903, size=5
## # weights: 96
## initial value 1426.860620
## iter 10 value 966.291170
## iter 20 value 925.589923
## iter 30 value 919.743983
## iter 40 value 918.093595
## iter 50 value 916.533998
## iter 60 value 916.140138
## iter 70 value 916.094565
## iter 80 value 916.088705
## iter 90 value 916.086893
## iter 100 value 916.086434
## final value 916.086434
## stopped after 100 iterations
## - Fold3: decay= 3.4903, size=5
## + Fold3: decay= 4.4817, size=5
## # weights: 96
## initial value 1895.426839
## iter 10 value 999.398739
## iter 20 value 941.408569

```



```

## iter 30 value 931.417132
## iter 40 value 924.041784
## iter 50 value 922.523062
## iter 60 value 922.159625
## iter 70 value 922.086420
## iter 80 value 922.076860
## iter 90 value 922.075858
## final value 922.075690
## converged
## - Fold3: decay= 4.4817, size=5
## + Fold3: decay= 5.7546, size=5
## # weights: 96
## initial value 2098.721853
## iter 10 value 1062.494725
## iter 20 value 973.068217
## iter 30 value 949.237884
## iter 40 value 932.678643
## iter 50 value 929.699012
## iter 60 value 929.210625
## iter 70 value 929.154907
## iter 80 value 929.150318
## final value 929.149335
## converged
## - Fold3: decay= 5.7546, size=5
## + Fold3: decay= 7.3891, size=5
## # weights: 96
## initial value 2108.721861
## iter 10 value 1095.304549
## iter 20 value 968.088772
## iter 30 value 947.090821
## iter 40 value 938.289942
## iter 50 value 937.629838
## iter 60 value 937.540258
## iter 70 value 937.519356
## iter 80 value 937.516523
## final value 937.516267
## converged
## - Fold3: decay= 7.3891, size=5
## + Fold3: decay= 9.4877, size=5
## # weights: 96
## initial value 1762.105037
## iter 10 value 1011.214728
## iter 20 value 954.006719
## iter 30 value 948.078574
## iter 40 value 947.362065
## iter 50 value 947.227632
## iter 60 value 946.923508
## iter 70 value 946.135711
## iter 80 value 945.653855
## iter 90 value 945.644879
## final value 945.644690
## converged
## - Fold3: decay= 9.4877, size=5
## + Fold3: decay=12.1825, size=5

```

```

## # weights: 96
## initial value 1645.893957
## iter 10 value 1002.993312
## iter 20 value 965.007782
## iter 30 value 958.445645
## iter 40 value 957.230072
## iter 50 value 956.256126
## iter 60 value 956.217142
## final value 956.216595
## converged
## - Fold3: decay=12.1825, size=5
## + Fold4: decay= 0.3679, size=1
## # weights: 20
## initial value 2105.566634
## iter 10 value 917.505471
## iter 20 value 894.450874
## iter 30 value 890.510093
## iter 40 value 890.182427
## iter 50 value 890.181610
## iter 50 value 890.181603
## iter 50 value 890.181598
## final value 890.181598
## converged
## - Fold4: decay= 0.3679, size=1
## + Fold4: decay= 0.4724, size=1
## # weights: 20
## initial value 2296.239749
## iter 10 value 913.635755
## iter 20 value 897.055026
## iter 30 value 892.213104
## iter 40 value 891.405534
## iter 50 value 891.346595
## final value 891.344384
## converged
## - Fold4: decay= 0.4724, size=1
## + Fold4: decay= 0.6065, size=1
## # weights: 20
## initial value 1704.598875
## iter 10 value 938.677339
## iter 20 value 908.569690
## iter 30 value 894.405653
## iter 40 value 892.902421
## iter 50 value 892.815827
## final value 892.812234
## converged
## - Fold4: decay= 0.6065, size=1
## + Fold4: decay= 0.7788, size=1
## # weights: 20
## initial value 1463.121943
## iter 10 value 920.447567
## iter 20 value 901.428981
## iter 30 value 895.080021
## iter 40 value 894.674913
## iter 50 value 894.661715

```

```

## final value 894.660362
## converged
## - Fold4: decay= 0.7788, size=1
## + Fold4: decay= 1.0000, size=1
## # weights: 20
## initial value 1631.312494
## iter 10 value 913.029145
## iter 20 value 901.860058
## iter 30 value 897.422152
## iter 40 value 896.977942
## final value 896.977340
## converged
## - Fold4: decay= 1.0000, size=1
## + Fold4: decay= 1.2840, size=1
## # weights: 20
## initial value 1321.384820
## iter 10 value 915.805869
## iter 20 value 902.934594
## iter 30 value 899.915525
## iter 40 value 899.867643
## final value 899.867612
## converged
## - Fold4: decay= 1.2840, size=1
## + Fold4: decay= 1.6487, size=1
## # weights: 20
## initial value 1463.188341
## iter 10 value 978.324899
## iter 20 value 959.207407
## iter 30 value 925.094471
## iter 40 value 918.031155
## iter 50 value 916.795462
## final value 916.720667
## converged
## - Fold4: decay= 1.6487, size=1
## + Fold4: decay= 2.1170, size=1
## # weights: 20
## initial value 2143.756157
## iter 10 value 927.051659
## iter 20 value 912.077217
## iter 30 value 907.869530
## final value 907.854743
## converged
## - Fold4: decay= 2.1170, size=1
## + Fold4: decay= 2.7183, size=1
## # weights: 20
## initial value 1770.141170
## iter 10 value 929.873303
## iter 20 value 917.302513
## iter 30 value 913.258143
## final value 913.221846
## converged
## - Fold4: decay= 2.7183, size=1
## + Fold4: decay= 3.4903, size=1
## # weights: 20

```

```

## initial value 2124.361702
## iter 10 value 950.936660
## iter 20 value 925.778935
## iter 30 value 919.911393
## final value 919.691547
## converged
## - Fold4: decay= 3.4903, size=1
## + Fold4: decay= 4.4817, size=1
## # weights: 20
## initial value 1481.520783
## iter 10 value 958.084606
## iter 20 value 930.526934
## iter 30 value 927.402187
## final value 927.396329
## converged
## - Fold4: decay= 4.4817, size=1
## + Fold4: decay= 5.7546, size=1
## # weights: 20
## initial value 1205.008735
## iter 10 value 954.047808
## iter 20 value 937.791089
## iter 30 value 936.450486
## final value 936.449709
## converged
## - Fold4: decay= 5.7546, size=1
## + Fold4: decay= 7.3891, size=1
## # weights: 20
## initial value 1330.207883
## iter 10 value 989.919136
## iter 20 value 986.652789
## final value 986.592108
## converged
## - Fold4: decay= 7.3891, size=1
## + Fold4: decay= 9.4877, size=1
## # weights: 20
## initial value 1764.385315
## iter 10 value 988.021039
## iter 20 value 959.655581
## iter 30 value 958.901282
## final value 958.900365
## converged
## - Fold4: decay= 9.4877, size=1
## + Fold4: decay=12.1825, size=1
## # weights: 20
## initial value 1543.327457
## iter 10 value 973.413483
## iter 20 value 972.373219
## final value 972.355668
## converged
## - Fold4: decay=12.1825, size=1
## + Fold4: decay= 0.3679, size=2
## # weights: 39
## initial value 1250.882155
## iter 10 value 895.794011

```

```

## iter 20 value 887.406934
## iter 30 value 880.807382
## iter 40 value 877.558103
## iter 50 value 876.819086
## iter 60 value 876.786103
## final value 876.785860
## converged
## - Fold4: decay= 0.3679, size=2
## + Fold4: decay= 0.4724, size=2
## # weights: 39
## initial value 1513.994621
## iter 10 value 889.104985
## iter 20 value 879.003968
## iter 30 value 874.571406
## iter 40 value 873.345879
## iter 50 value 873.268883
## final value 873.264388
## converged
## - Fold4: decay= 0.4724, size=2
## + Fold4: decay= 0.6065, size=2
## # weights: 39
## initial value 1306.008946
## iter 10 value 897.122015
## iter 20 value 891.181033
## iter 30 value 883.040537
## iter 40 value 877.328775
## iter 50 value 875.725189
## iter 60 value 875.658049
## final value 875.646142
## converged
## - Fold4: decay= 0.6065, size=2
## + Fold4: decay= 0.7788, size=2
## # weights: 39
## initial value 2176.874363
## iter 10 value 921.505560
## iter 20 value 892.054267
## iter 30 value 885.923135
## iter 40 value 882.675133
## iter 50 value 881.042931
## iter 60 value 880.978526
## final value 880.972653
## converged
## - Fold4: decay= 0.7788, size=2
## + Fold4: decay= 1.0000, size=2
## # weights: 39
## initial value 1548.312486
## iter 10 value 915.535414
## iter 20 value 895.975516
## iter 30 value 887.135218
## iter 40 value 884.181381
## iter 50 value 883.538487
## iter 60 value 883.525263
## final value 883.525155
## converged

```

```

## - Fold4: decay= 1.0000, size=2
## + Fold4: decay= 1.2840, size=2
## # weights: 39
## initial value 1389.826237
## iter 10 value 901.983591
## iter 20 value 893.331916
## iter 30 value 891.547358
## iter 40 value 891.059383
## iter 50 value 890.904169
## final value 890.903600
## converged
## - Fold4: decay= 1.2840, size=2
## + Fold4: decay= 1.6487, size=2
## # weights: 39
## initial value 1799.580560
## iter 10 value 908.006036
## iter 20 value 899.193772
## iter 30 value 897.475416
## iter 40 value 897.221586
## iter 50 value 897.185024
## final value 897.183454
## converged
## - Fold4: decay= 1.6487, size=2
## + Fold4: decay= 2.1170, size=2
## # weights: 39
## initial value 1536.839967
## iter 10 value 918.186605
## iter 20 value 905.612124
## iter 30 value 904.336881
## iter 40 value 904.071973
## iter 50 value 903.903412
## final value 903.902035
## converged
## - Fold4: decay= 2.1170, size=2
## + Fold4: decay= 2.7183, size=2
## # weights: 39
## initial value 1800.441543
## iter 10 value 944.092568
## iter 20 value 916.991029
## iter 30 value 910.351743
## iter 40 value 907.021072
## iter 50 value 905.861170
## iter 60 value 905.743497
## final value 905.743475
## converged
## - Fold4: decay= 2.7183, size=2
## + Fold4: decay= 3.4903, size=2
## # weights: 39
## initial value 1819.110449
## iter 10 value 940.081306
## iter 20 value 918.890402
## iter 30 value 913.774891
## iter 40 value 912.759211
## iter 50 value 912.625529

```

```

## final value 912.623647
## converged
## - Fold4: decay= 3.4903, size=2
## + Fold4: decay= 4.4817, size=2
## # weights: 39
## initial value 1257.765227
## iter 10 value 957.905161
## iter 20 value 927.595419
## iter 30 value 921.119681
## iter 40 value 920.114480
## iter 50 value 919.954693
## final value 919.946255
## converged
## - Fold4: decay= 4.4817, size=2
## + Fold4: decay= 5.7546, size=2
## # weights: 39
## initial value 1402.733934
## iter 10 value 938.292763
## iter 20 value 930.050615
## iter 30 value 928.175386
## iter 40 value 927.911976
## iter 50 value 927.873563
## final value 927.872908
## converged
## - Fold4: decay= 5.7546, size=2
## + Fold4: decay= 7.3891, size=2
## # weights: 39
## initial value 1488.551328
## iter 10 value 942.311867
## iter 20 value 937.579453
## iter 30 value 937.174772
## iter 40 value 937.142206
## final value 937.140613
## converged
## - Fold4: decay= 7.3891, size=2
## + Fold4: decay= 9.4877, size=2
## # weights: 39
## initial value 2348.856975
## iter 10 value 971.066433
## iter 20 value 953.046122
## iter 30 value 948.552737
## iter 40 value 947.914532
## iter 50 value 947.910044
## iter 50 value 947.910038
## iter 50 value 947.910037
## final value 947.910037
## converged
## - Fold4: decay= 9.4877, size=2
## + Fold4: decay=12.1825, size=2
## # weights: 39
## initial value 1220.813714
## iter 10 value 967.579493
## iter 20 value 960.811705
## iter 30 value 960.262531

```

```

## iter 40 value 960.237179
## final value 960.237085
## converged
## - Fold4: decay=12.1825, size=2
## + Fold4: decay= 0.3679, size=3
## # weights: 58
## initial value 1773.571780
## iter 10 value 907.337518
## iter 20 value 887.276961
## iter 30 value 876.169643
## iter 40 value 869.229349
## iter 50 value 863.056783
## iter 60 value 859.938698
## iter 70 value 858.389626
## iter 80 value 857.906084
## iter 90 value 857.760002
## iter 100 value 857.221649
## final value 857.221649
## stopped after 100 iterations
## - Fold4: decay= 0.3679, size=3
## + Fold4: decay= 0.4724, size=3
## # weights: 58
## initial value 2223.866980
## iter 10 value 922.098069
## iter 20 value 911.163088
## iter 30 value 896.531458
## iter 40 value 882.444018
## iter 50 value 877.086105
## iter 60 value 874.180835
## iter 70 value 870.987291
## iter 80 value 869.290668
## iter 90 value 865.880220
## iter 100 value 865.181536
## final value 865.181536
## stopped after 100 iterations
## - Fold4: decay= 0.4724, size=3
## + Fold4: decay= 0.6065, size=3
## # weights: 58
## initial value 2604.904226
## iter 10 value 907.967805
## iter 20 value 887.676134
## iter 30 value 880.505136
## iter 40 value 874.681124
## iter 50 value 872.109197
## iter 60 value 871.359940
## iter 70 value 871.208259
## iter 80 value 871.068883
## final value 871.064205
## converged
## - Fold4: decay= 0.6065, size=3
## + Fold4: decay= 0.7788, size=3
## # weights: 58
## initial value 1468.592720
## iter 10 value 899.435232

```



```

## iter 20 value 884.939789
## iter 30 value 879.934928
## iter 40 value 877.119872
## iter 50 value 874.882751
## iter 60 value 874.179468
## iter 70 value 874.095724
## iter 80 value 874.076988
## final value 874.076432
## converged
## - Fold4: decay= 0.7788, size=3
## + Fold4: decay= 1.0000, size=3
## # weights: 58
## initial value 1529.633960
## iter 10 value 919.372017
## iter 20 value 892.020586
## iter 30 value 886.656865
## iter 40 value 883.665362
## iter 50 value 882.121485
## iter 60 value 881.796575
## iter 70 value 881.762665
## iter 80 value 881.743632
## final value 881.743579
## converged
## - Fold4: decay= 1.0000, size=3
## + Fold4: decay= 1.2840, size=3
## # weights: 58
## initial value 1208.994648
## iter 10 value 914.515982
## iter 20 value 896.242266
## iter 30 value 888.696624
## iter 40 value 887.121597
## iter 50 value 886.408151
## iter 60 value 886.161236
## iter 70 value 886.119759
## iter 80 value 886.106974
## iter 90 value 886.095624
## iter 100 value 886.093766
## final value 886.093766
## stopped after 100 iterations
## - Fold4: decay= 1.2840, size=3
## + Fold4: decay= 1.6487, size=3
## # weights: 58
## initial value 2374.016955
## iter 10 value 939.635952
## iter 20 value 903.625488
## iter 30 value 897.424248
## iter 40 value 895.076587
## iter 50 value 893.552753
## iter 60 value 892.480908
## iter 70 value 892.431721
## final value 892.430589
## converged
## - Fold4: decay= 1.6487, size=3
## + Fold4: decay= 2.1170, size=3

```

```

## # weights:  58
## initial  value 2350.869561
## iter   10 value 964.565405
## iter   20 value 909.410666
## iter   30 value 901.858653
## iter   40 value 899.733316
## iter   50 value 898.802179
## iter   60 value 898.300918
## iter   70 value 898.242693
## iter   80 value 898.238277
## final   value 898.238171
## converged
## - Fold4: decay= 2.1170, size=3
## + Fold4: decay= 2.7183, size=3
## # weights:  58
## initial  value 2019.963723
## iter   10 value 966.506087
## iter   20 value 917.877548
## iter   30 value 907.469567
## iter   40 value 905.021580
## iter   50 value 904.546489
## iter   60 value 904.401253
## iter   70 value 904.237954
## iter   80 value 904.207881
## final   value 904.205054
## converged
## - Fold4: decay= 2.7183, size=3
## + Fold4: decay= 3.4903, size=3
## # weights:  58
## initial  value 1738.546765
## iter   10 value 948.339765
## iter   20 value 917.727719
## iter   30 value 913.502184
## iter   40 value 912.456091
## iter   50 value 912.183238
## iter   60 value 912.138858
## final   value 912.138296
## converged
## - Fold4: decay= 3.4903, size=3
## + Fold4: decay= 4.4817, size=3
## # weights:  58
## initial  value 1250.552561
## iter   10 value 944.752766
## iter   20 value 919.252784
## iter   30 value 917.288529
## iter   40 value 917.053662
## iter   50 value 917.017606
## iter   60 value 917.008836
## final   value 917.007564
## converged
## - Fold4: decay= 4.4817, size=3
## + Fold4: decay= 5.7546, size=3
## # weights:  58
## initial  value 1309.922481

```

```

## iter 10 value 941.384867
## iter 20 value 925.933076
## iter 30 value 924.495292
## iter 40 value 924.416106
## iter 50 value 924.405626
## iter 60 value 924.404537
## iter 60 value 924.404532
## iter 60 value 924.404530
## final value 924.404530
## converged
## - Fold4: decay= 5.7546, size=3
## + Fold4: decay= 7.3891, size=3
## # weights: 58
## initial value 1792.593464
## iter 10 value 968.563386
## iter 20 value 937.733841
## iter 30 value 933.830781
## iter 40 value 933.107552
## iter 50 value 933.022939
## iter 60 value 933.019920
## final value 933.019851
## converged
## - Fold4: decay= 7.3891, size=3
## + Fold4: decay= 9.4877, size=3
## # weights: 58
## initial value 1599.815020
## iter 10 value 1015.105570
## iter 20 value 953.381754
## iter 30 value 948.694532
## iter 40 value 946.798280
## iter 50 value 944.288325
## iter 60 value 943.094421
## iter 70 value 943.077196
## final value 943.076769
## converged
## - Fold4: decay= 9.4877, size=3
## + Fold4: decay=12.1825, size=3
## # weights: 58
## initial value 1333.013672
## iter 10 value 973.522137
## iter 20 value 955.854449
## iter 30 value 954.742168
## iter 40 value 954.638131
## final value 954.635772
## converged
## - Fold4: decay=12.1825, size=3
## + Fold4: decay= 0.3679, size=4
## # weights: 77
## initial value 1330.095980
## iter 10 value 895.366183
## iter 20 value 884.297541
## iter 30 value 874.919921
## iter 40 value 869.737359
## iter 50 value 866.366849

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```

## iter 60 value 861.706945
## iter 70 value 859.762139
## iter 80 value 859.394671
## iter 90 value 859.351740
## iter 100 value 859.348413
## final value 859.348413
## stopped after 100 iterations
## - Fold4: decay= 0.3679, size=4
## + Fold4: decay= 0.4724, size=4
## # weights: 77
## initial value 1402.241578
## iter 10 value 898.753158
## iter 20 value 870.502255
## iter 30 value 861.111656
## iter 40 value 858.481447
## iter 50 value 857.056661
## iter 60 value 855.874517
## iter 70 value 854.323222
## iter 80 value 852.050974
## iter 90 value 851.376479
## iter 100 value 850.918007
## final value 850.918007
## stopped after 100 iterations
## - Fold4: decay= 0.4724, size=4
## + Fold4: decay= 0.6065, size=4
## # weights: 77
## initial value 1202.849451
## iter 10 value 910.284676
## iter 20 value 888.123018
## iter 30 value 875.731551
## iter 40 value 871.620376
## iter 50 value 868.655794
## iter 60 value 865.993788
## iter 70 value 863.950935
## iter 80 value 863.060786
## iter 90 value 862.823353
## iter 100 value 861.826151
## final value 861.826151
## stopped after 100 iterations
## - Fold4: decay= 0.6065, size=4
## + Fold4: decay= 0.7788, size=4
## # weights: 77
## initial value 2091.245569
## iter 10 value 919.788936
## iter 20 value 892.004305
## iter 30 value 883.875309
## iter 40 value 878.894564
## iter 50 value 875.034180
## iter 60 value 872.255567
## iter 70 value 871.415833
## iter 80 value 870.976066
## iter 90 value 870.553449
## iter 100 value 870.515388
## final value 870.515388

```

```

## stopped after 100 iterations
## - Fold4: decay= 0.7788, size=4
## + Fold4: decay= 1.0000, size=4
## # weights: 77
## initial value 2019.474850
## iter 10 value 955.607482
## iter 20 value 899.521338
## iter 30 value 888.499278
## iter 40 value 884.867052
## iter 50 value 882.582737
## iter 60 value 880.853766
## iter 70 value 880.325358
## iter 80 value 880.137393
## iter 90 value 880.057160
## iter 100 value 880.020998
## final value 880.020998
## stopped after 100 iterations
## - Fold4: decay= 1.0000, size=4
## + Fold4: decay= 1.2840, size=4
## # weights: 77
## initial value 1208.578437
## iter 10 value 906.353790
## iter 20 value 892.638218
## iter 30 value 889.869683
## iter 40 value 889.367643
## iter 50 value 888.452798
## iter 60 value 886.930701
## iter 70 value 885.804479
## iter 80 value 885.388938
## iter 90 value 885.282907
## iter 100 value 885.243311
## final value 885.243311
## stopped after 100 iterations
## - Fold4: decay= 1.2840, size=4
## + Fold4: decay= 1.6487, size=4
## # weights: 77
## initial value 3318.457228
## iter 10 value 985.508087
## iter 20 value 933.255520
## iter 30 value 905.542771
## iter 40 value 900.488100
## iter 50 value 897.769117
## iter 60 value 895.274598
## iter 70 value 893.534105
## iter 80 value 892.501766
## iter 90 value 892.365309
## iter 100 value 892.337423
## final value 892.337423
## stopped after 100 iterations
## - Fold4: decay= 1.6487, size=4
## + Fold4: decay= 2.1170, size=4
## # weights: 77
## initial value 1887.819753
## iter 10 value 938.025763

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```

## iter 20 value 907.126078
## iter 30 value 903.161233
## iter 40 value 901.011607
## iter 50 value 899.287048
## iter 60 value 898.228120
## iter 70 value 897.762806
## iter 80 value 897.636325
## iter 90 value 897.633080
## final value 897.632986
## converged
## - Fold4: decay= 2.1170, size=4
## + Fold4: decay= 2.7183, size=4
## # weights: 77
## initial value 1334.123656
## iter 10 value 945.586293
## iter 20 value 911.564627
## iter 30 value 906.150250
## iter 40 value 904.749594
## iter 50 value 904.157762
## iter 60 value 903.902259
## iter 70 value 903.791664
## iter 80 value 903.781423
## iter 90 value 903.776595
## iter 100 value 903.774956
## final value 903.774956
## stopped after 100 iterations
## - Fold4: decay= 2.7183, size=4
## + Fold4: decay= 3.4903, size=4
## # weights: 77
## initial value 1671.497374
## iter 10 value 949.419646
## iter 20 value 915.806457
## iter 30 value 911.949580
## iter 40 value 910.613976
## iter 50 value 909.754093
## iter 60 value 909.575253
## iter 70 value 909.554081
## iter 80 value 909.551576
## iter 90 value 909.550511
## iter 100 value 909.550243
## final value 909.550243
## stopped after 100 iterations
## - Fold4: decay= 3.4903, size=4
## + Fold4: decay= 4.4817, size=4
## # weights: 77
## initial value 1911.924380
## iter 10 value 999.073126
## iter 20 value 940.646113
## iter 30 value 926.630969
## iter 40 value 921.827218
## iter 50 value 920.322569
## iter 60 value 919.411349
## iter 70 value 917.374903
## iter 80 value 916.850594

```

```

## iter 90 value 916.796116
## iter 100 value 916.787379
## final value 916.787379
## stopped after 100 iterations
## - Fold4: decay= 4.4817, size=4
## + Fold4: decay= 5.7546, size=4
## # weights: 77
## initial value 1049.962911
## iter 10 value 947.162431
## iter 20 value 924.483280
## iter 30 value 922.831244
## iter 40 value 922.658334
## iter 50 value 922.631277
## iter 60 value 922.627695
## iter 70 value 922.626902
## final value 922.626783
## converged
## - Fold4: decay= 5.7546, size=4
## + Fold4: decay= 7.3891, size=4
## # weights: 77
## initial value 1902.929691
## iter 10 value 982.946846
## iter 20 value 945.171874
## iter 30 value 933.066361
## iter 40 value 931.066277
## iter 50 value 930.870620
## iter 60 value 930.852434
## final value 930.850855
## converged
## - Fold4: decay= 7.3891, size=4
## + Fold4: decay= 9.4877, size=4
## # weights: 77
## initial value 2327.663320
## iter 10 value 1001.210169
## iter 20 value 962.853249
## iter 30 value 942.556402
## iter 40 value 940.622498
## iter 50 value 940.463380
## iter 60 value 940.454829
## iter 60 value 940.454822
## final value 940.454669
## converged
## - Fold4: decay= 9.4877, size=4
## + Fold4: decay=12.1825, size=4
## # weights: 77
## initial value 2137.897078
## iter 10 value 1005.070942
## iter 20 value 967.430946
## iter 30 value 953.587252
## iter 40 value 951.758003
## iter 50 value 951.503369
## iter 60 value 951.490657
## final value 951.490629
## converged

```

```

## - Fold4: decay=12.1825, size=4
## + Fold4: decay= 0.3679, size=5
## # weights: 96
## initial value 2211.503323
## iter 10 value 913.012327
## iter 20 value 885.603498
## iter 30 value 873.342579
## iter 40 value 864.953349
## iter 50 value 860.307480
## iter 60 value 852.403960
## iter 70 value 845.513309
## iter 80 value 840.940944
## iter 90 value 837.678708
## iter 100 value 834.653427
## final value 834.653427
## stopped after 100 iterations
## - Fold4: decay= 0.3679, size=5
## + Fold4: decay= 0.4724, size=5
## # weights: 96
## initial value 1375.849487
## iter 10 value 910.610084
## iter 20 value 882.254907
## iter 30 value 873.680340
## iter 40 value 867.331850
## iter 50 value 862.778980
## iter 60 value 859.903176
## iter 70 value 856.146388
## iter 80 value 851.614830
## iter 90 value 849.613101
## iter 100 value 847.197366
## final value 847.197366
## stopped after 100 iterations
## - Fold4: decay= 0.4724, size=5
## + Fold4: decay= 0.6065, size=5
## # weights: 96
## initial value 1497.409908
## iter 10 value 926.905597
## iter 20 value 884.268979
## iter 30 value 873.673686
## iter 40 value 866.209791
## iter 50 value 859.375496
## iter 60 value 856.936563
## iter 70 value 855.114685
## iter 80 value 854.003949
## iter 90 value 853.285164
## iter 100 value 853.063323
## final value 853.063323
## stopped after 100 iterations
## - Fold4: decay= 0.6065, size=5
## + Fold4: decay= 0.7788, size=5
## # weights: 96
## initial value 1625.401160
## iter 10 value 916.761974
## iter 20 value 888.205600

```



```

## iter 30 value 873.548653
## iter 40 value 868.790205
## iter 50 value 865.143627
## iter 60 value 863.232066
## iter 70 value 862.488903
## iter 80 value 862.175717
## iter 90 value 861.896558
## iter 100 value 861.529838
## final value 861.529838
## stopped after 100 iterations
## - Fold4: decay= 0.7788, size=5
## + Fold4: decay= 1.0000, size=5
## # weights: 96
## initial value 1465.393782
## iter 10 value 941.474328
## iter 20 value 895.865874
## iter 30 value 887.409548
## iter 40 value 883.582782
## iter 50 value 881.855159
## iter 60 value 880.447035
## iter 70 value 879.368353
## iter 80 value 877.233976
## iter 90 value 876.391012
## iter 100 value 875.962804
## final value 875.962804
## stopped after 100 iterations
## - Fold4: decay= 1.0000, size=5
## + Fold4: decay= 1.2840, size=5
## # weights: 96
## initial value 1941.933690
## iter 10 value 943.587757
## iter 20 value 921.799852
## iter 30 value 905.183374
## iter 40 value 893.560992
## iter 50 value 889.167879
## iter 60 value 887.543647
## iter 70 value 885.720392
## iter 80 value 884.867070
## iter 90 value 884.561420
## iter 100 value 884.522115
## final value 884.522115
## stopped after 100 iterations
## - Fold4: decay= 1.2840, size=5
## + Fold4: decay= 1.6487, size=5
## # weights: 96
## initial value 1290.083137
## iter 10 value 912.243422
## iter 20 value 899.202910
## iter 30 value 893.553958
## iter 40 value 892.181829
## iter 50 value 891.777098
## iter 60 value 891.669226
## iter 70 value 891.628551
## iter 80 value 891.627663

```

```

## final value 891.627644
## converged
## - Fold4: decay= 1.6487, size=5
## + Fold4: decay= 2.1170, size=5
## # weights: 96
## initial value 1362.725607
## iter 10 value 943.604591
## iter 20 value 907.557939
## iter 30 value 901.869601
## iter 40 value 900.139340
## iter 50 value 898.500852
## iter 60 value 897.854099
## iter 70 value 897.777647
## iter 80 value 897.743051
## iter 90 value 897.736716
## iter 100 value 897.726178
## final value 897.726178
## stopped after 100 iterations
## - Fold4: decay= 2.1170, size=5
## + Fold4: decay= 2.7183, size=5
## # weights: 96
## initial value 1422.284623
## iter 10 value 944.407808
## iter 20 value 910.497386
## iter 30 value 905.465020
## iter 40 value 904.022664
## iter 50 value 903.412002
## iter 60 value 903.328713
## iter 70 value 903.267999
## iter 80 value 903.248395
## iter 90 value 903.247751
## final value 903.247527
## converged
## - Fold4: decay= 2.7183, size=5
## + Fold4: decay= 3.4903, size=5
## # weights: 96
## initial value 2040.327365
## iter 10 value 1015.431052
## iter 20 value 937.334046
## iter 30 value 918.617054
## iter 40 value 913.187678
## iter 50 value 910.473870
## iter 60 value 909.562093
## iter 70 value 909.150040
## iter 80 value 909.099601
## iter 90 value 909.096834
## iter 100 value 909.095912
## final value 909.095912
## stopped after 100 iterations
## - Fold4: decay= 3.4903, size=5
## + Fold4: decay= 4.4817, size=5
## # weights: 96
## initial value 1593.816049
## iter 10 value 1018.262619

```

```

## iter 20 value 927.829792
## iter 30 value 921.320607
## iter 40 value 918.473243
## iter 50 value 917.368833
## iter 60 value 916.965894
## iter 70 value 916.691436
## iter 80 value 915.856720
## iter 90 value 915.500229
## iter 100 value 915.328381
## final value 915.328381
## stopped after 100 iterations
## - Fold4: decay= 4.4817, size=5
## + Fold4: decay= 5.7546, size=5
## # weights: 96
## initial value 1435.590109
## iter 10 value 996.796048
## iter 20 value 932.404106
## iter 30 value 924.754800
## iter 40 value 922.992293
## iter 50 value 922.596241
## iter 60 value 922.493073
## iter 70 value 922.458026
## iter 80 value 922.447468
## iter 90 value 922.444069
## iter 100 value 922.443695
## final value 922.443695
## stopped after 100 iterations
## - Fold4: decay= 5.7546, size=5
## + Fold4: decay= 7.3891, size=5
## # weights: 96
## initial value 1641.802617
## iter 10 value 1024.710459
## iter 20 value 944.154112
## iter 30 value 933.815329
## iter 40 value 931.457615
## iter 50 value 930.906354
## iter 60 value 930.841892
## iter 70 value 930.829279
## iter 80 value 930.827411
## final value 930.827214
## converged
## - Fold4: decay= 7.3891, size=5
## + Fold4: decay= 9.4877, size=5
## # weights: 96
## initial value 1706.660694
## iter 10 value 1007.546116
## iter 20 value 949.286037
## iter 30 value 941.985484
## iter 40 value 940.757996
## iter 50 value 940.626221
## iter 60 value 940.336342
## iter 70 value 939.271507
## iter 80 value 938.951860
## iter 90 value 938.933864

```

```

## final value 938.933698
## converged
## - Fold4: decay= 9.4877, size=5
## + Fold4: decay=12.1825, size=5
## # weights: 96
## initial value 1711.888085
## iter 10 value 1015.487517
## iter 20 value 960.798442
## iter 30 value 953.078638
## iter 40 value 951.898714
## iter 50 value 951.099598
## iter 60 value 949.949671
## iter 70 value 949.616768
## iter 80 value 949.600169
## final value 949.599963
## converged
## - Fold4: decay=12.1825, size=5
## + Fold5: decay= 0.3679, size=1
## # weights: 20
## initial value 1825.361975
## iter 10 value 908.291821
## iter 20 value 890.326265
## iter 30 value 887.802041
## iter 40 value 887.252068
## iter 50 value 887.208995
## final value 887.206869
## converged
## - Fold5: decay= 0.3679, size=1
## + Fold5: decay= 0.4724, size=1
## # weights: 20
## initial value 1608.000170
## iter 10 value 901.901999
## iter 20 value 892.776608
## iter 30 value 888.625786
## iter 40 value 888.465337
## iter 50 value 888.462704
## final value 888.462624
## converged
## - Fold5: decay= 0.4724, size=1
## + Fold5: decay= 0.6065, size=1
## # weights: 20
## initial value 2154.484371
## iter 10 value 914.343900
## iter 20 value 897.290208
## iter 30 value 890.599142
## iter 40 value 890.046671
## final value 890.045832
## converged
## - Fold5: decay= 0.6065, size=1
## + Fold5: decay= 0.7788, size=1
## # weights: 20
## initial value 1843.888268
## iter 10 value 895.248001
## iter 20 value 892.585514

```

```

## iter 30 value 892.033964
## final value 892.033531
## converged
## - Fold5: decay= 0.7788, size=1
## + Fold5: decay= 1.0000, size=1
## # weights: 20
## initial value 1735.167607
## iter 10 value 899.730083
## iter 20 value 894.859393
## iter 30 value 894.519052
## final value 894.516572
## converged
## - Fold5: decay= 1.0000, size=1
## + Fold5: decay= 1.2840, size=1
## # weights: 20
## initial value 1869.818358
## iter 10 value 924.464646
## iter 20 value 905.088030
## iter 30 value 897.803383
## iter 40 value 897.601264
## iter 50 value 897.599546
## final value 897.599453
## converged
## - Fold5: decay= 1.2840, size=1
## + Fold5: decay= 1.6487, size=1
## # weights: 20
## initial value 1431.502337
## iter 10 value 926.268255
## iter 20 value 915.210772
## iter 30 value 914.299216
## final value 914.290494
## converged
## - Fold5: decay= 1.6487, size=1
## + Fold5: decay= 2.1170, size=1
## # weights: 20
## initial value 1552.561638
## iter 10 value 927.800329
## iter 20 value 910.602900
## iter 30 value 906.148379
## final value 906.043871
## converged
## - Fold5: decay= 2.1170, size=1
## + Fold5: decay= 2.7183, size=1
## # weights: 20
## initial value 2053.757915
## iter 10 value 931.846629
## iter 20 value 916.392082
## iter 30 value 911.738756
## iter 40 value 911.665052
## final value 911.665028
## converged
## - Fold5: decay= 2.7183, size=1
## + Fold5: decay= 3.4903, size=1
## # weights: 20

```

```

## initial value 1282.680249
## iter 10 value 928.391766
## iter 20 value 918.926282
## iter 30 value 918.397612
## final value 918.393255
## converged
## - Fold5: decay= 3.4903, size=1
## + Fold5: decay= 4.4817, size=1
## # weights: 20
## initial value 1517.281614
## iter 10 value 973.450368
## iter 20 value 956.779945
## iter 30 value 955.265376
## final value 955.230746
## converged
## - Fold5: decay= 4.4817, size=1
## + Fold5: decay= 5.7546, size=1
## # weights: 20
## initial value 1560.387217
## iter 10 value 940.077336
## iter 20 value 935.903235
## iter 30 value 935.627938
## iter 30 value 935.627937
## iter 30 value 935.627937
## final value 935.627937
## converged
## - Fold5: decay= 5.7546, size=1
## + Fold5: decay= 7.3891, size=1
## # weights: 20
## initial value 1724.825210
## iter 10 value 963.233461
## iter 20 value 948.125655
## iter 30 value 946.310743
## final value 946.303278
## converged
## - Fold5: decay= 7.3891, size=1
## + Fold5: decay= 9.4877, size=1
## # weights: 20
## initial value 1269.503183
## iter 10 value 962.441412
## iter 20 value 958.643262
## iter 30 value 958.410665
## iter 30 value 958.410662
## iter 30 value 958.410662
## final value 958.410662
## converged
## - Fold5: decay= 9.4877, size=1
## + Fold5: decay=12.1825, size=1
## # weights: 20
## initial value 1326.085330
## iter 10 value 985.118460
## iter 20 value 972.284498
## iter 30 value 971.957439
## final value 971.957417

```

```

## converged
## - Fold5: decay=12.1825, size=1
## + Fold5: decay= 0.3679, size=2
## # weights: 39
## initial value 1195.671007
## iter 10 value 911.587658
## iter 20 value 885.285282
## iter 30 value 878.480988
## iter 40 value 874.460049
## iter 50 value 872.816961
## iter 60 value 872.640047
## iter 70 value 872.608205
## final value 872.608072
## converged
## - Fold5: decay= 0.3679, size=2
## + Fold5: decay= 0.4724, size=2
## # weights: 39
## initial value 1343.682435
## iter 10 value 903.233740
## iter 20 value 893.425513
## iter 30 value 883.161573
## iter 40 value 880.906965
## iter 50 value 880.130842
## iter 60 value 877.961389
## iter 70 value 877.426884
## iter 80 value 877.369565
## final value 877.369431
## converged
## - Fold5: decay= 0.4724, size=2
## + Fold5: decay= 0.6065, size=2
## # weights: 39
## initial value 1418.144235
## iter 10 value 919.423478
## iter 20 value 893.127252
## iter 30 value 884.783379
## iter 40 value 881.125520
## iter 50 value 879.723436
## iter 60 value 879.641060
## iter 70 value 879.632677
## final value 879.632646
## converged
## - Fold5: decay= 0.6065, size=2
## + Fold5: decay= 0.7788, size=2
## # weights: 39
## initial value 1748.829103
## iter 10 value 909.997951
## iter 20 value 896.480924
## iter 30 value 886.951581
## iter 40 value 881.643488
## iter 50 value 880.468997
## iter 60 value 880.403319
## final value 880.393630
## converged
## - Fold5: decay= 0.7788, size=2

```

```

## + Fold5: decay= 1.0000, size=2
## # weights: 39
## initial value 1306.315456
## iter 10 value 927.953957
## iter 20 value 902.343155
## iter 30 value 891.177777
## iter 40 value 888.419466
## iter 50 value 886.909245
## iter 60 value 886.747748
## iter 70 value 886.738538
## final value 886.738095
## converged
## - Fold5: decay= 1.0000, size=2
## + Fold5: decay= 1.2840, size=2
## # weights: 39
## initial value 2249.709795
## iter 10 value 915.786787
## iter 20 value 902.053124
## iter 30 value 898.274877
## iter 40 value 894.462125
## iter 50 value 890.025739
## iter 60 value 889.221365
## iter 70 value 888.927270
## final value 888.897251
## converged
## - Fold5: decay= 1.2840, size=2
## + Fold5: decay= 1.6487, size=2
## # weights: 39
## initial value 2129.072496
## iter 10 value 922.088464
## iter 20 value 903.143662
## iter 30 value 896.247944
## iter 40 value 894.417128
## iter 50 value 894.020162
## iter 60 value 893.939667
## final value 893.939645
## converged
## - Fold5: decay= 1.6487, size=2
## + Fold5: decay= 2.1170, size=2
## # weights: 39
## initial value 1193.907548
## iter 10 value 938.521503
## iter 20 value 912.561827
## iter 30 value 903.729956
## iter 40 value 900.746148
## iter 50 value 899.534320
## iter 60 value 899.514835
## final value 899.514801
## converged
## - Fold5: decay= 2.1170, size=2
## + Fold5: decay= 2.7183, size=2
## # weights: 39
## initial value 1809.817806
## iter 10 value 950.350764

```



```

## iter 20 value 914.851185
## iter 30 value 911.126842
## iter 40 value 910.399546
## iter 50 value 910.040768
## iter 60 value 909.982607
## final value 909.982165
## converged
## - Fold5: decay= 2.7183, size=2
## + Fold5: decay= 3.4903, size=2
## # weights: 39
## initial value 1736.731341
## iter 10 value 953.389557
## iter 20 value 923.374256
## iter 30 value 920.611437
## iter 40 value 917.780630
## iter 50 value 917.223090
## iter 60 value 917.202202
## final value 917.202130
## converged
## - Fold5: decay= 3.4903, size=2
## + Fold5: decay= 4.4817, size=2
## # weights: 39
## initial value 1960.292100
## iter 10 value 985.136562
## iter 20 value 928.513525
## iter 30 value 920.254755
## iter 40 value 919.245700
## iter 50 value 919.180125
## final value 919.176405
## converged
## - Fold5: decay= 4.4817, size=2
## + Fold5: decay= 5.7546, size=2
## # weights: 39
## initial value 1333.743366
## iter 10 value 939.879432
## iter 20 value 928.065729
## iter 30 value 927.226066
## iter 40 value 927.196259
## final value 927.194795
## converged
## - Fold5: decay= 5.7546, size=2
## + Fold5: decay= 7.3891, size=2
## # weights: 39
## initial value 2048.175088
## iter 10 value 949.426324
## iter 20 value 938.955574
## iter 30 value 936.765719
## iter 40 value 936.590599
## final value 936.587990
## converged
## - Fold5: decay= 7.3891, size=2
## + Fold5: decay= 9.4877, size=2
## # weights: 39
## initial value 2188.349697

```

```

## iter 10 value 975.218153
## iter 20 value 952.064350
## iter 30 value 948.189915
## iter 40 value 947.458949
## iter 50 value 947.448191
## final value 947.448043
## converged
## - Fold5: decay= 9.4877, size=2
## + Fold5: decay=12.1825, size=2
## # weights: 39
## initial value 1787.384566
## iter 10 value 973.258920
## iter 20 value 961.179520
## iter 30 value 959.859453
## iter 40 value 959.830221
## final value 959.830042
## converged
## - Fold5: decay=12.1825, size=2
## + Fold5: decay= 0.3679, size=3
## # weights: 58
## initial value 1549.883683
## iter 10 value 915.649179
## iter 20 value 881.757723
## iter 30 value 873.488970
## iter 40 value 868.747080
## iter 50 value 866.332007
## iter 60 value 863.136056
## iter 70 value 861.527499
## iter 80 value 860.797199
## iter 90 value 856.789311
## iter 100 value 856.378220
## final value 856.378220
## stopped after 100 iterations
## - Fold5: decay= 0.3679, size=3
## + Fold5: decay= 0.4724, size=3
## # weights: 58
## initial value 1285.771389
## iter 10 value 890.321292
## iter 20 value 879.484182
## iter 30 value 872.596434
## iter 40 value 869.734671
## iter 50 value 868.184457
## iter 60 value 867.089288
## iter 70 value 866.615132
## iter 80 value 866.483301
## iter 90 value 866.476927
## final value 866.476847
## converged
## - Fold5: decay= 0.4724, size=3
## + Fold5: decay= 0.6065, size=3
## # weights: 58
## initial value 1386.778547
## iter 10 value 902.978880
## iter 20 value 885.336874

```

```

## iter 30 value 877.510486
## iter 40 value 874.908165
## iter 50 value 873.518167
## iter 60 value 872.657212
## iter 70 value 872.551845
## iter 80 value 872.546237
## final value 872.546008
## converged
## - Fold5: decay= 0.6065, size=3
## + Fold5: decay= 0.7788, size=3
## # weights: 58
## initial value 1200.142499
## iter 10 value 893.318333
## iter 20 value 882.717155
## iter 30 value 878.553841
## iter 40 value 877.005710
## iter 50 value 876.447069
## iter 60 value 876.279407
## iter 70 value 876.041664
## iter 80 value 875.997835
## final value 875.997185
## converged
## - Fold5: decay= 0.7788, size=3
## + Fold5: decay= 1.0000, size=3
## # weights: 58
## initial value 1903.030134
## iter 10 value 926.647119
## iter 20 value 907.860275
## iter 30 value 893.838297
## iter 40 value 887.915618
## iter 50 value 883.247764
## iter 60 value 882.011710
## iter 70 value 881.693743
## iter 80 value 881.579656
## iter 90 value 881.497993
## final value 881.496091
## converged
## - Fold5: decay= 1.0000, size=3
## + Fold5: decay= 1.2840, size=3
## # weights: 58
## initial value 1600.815416
## iter 10 value 930.085535
## iter 20 value 899.045370
## iter 30 value 894.810477
## iter 40 value 893.239721
## iter 50 value 892.168666
## iter 60 value 891.817882
## iter 70 value 891.647539
## iter 80 value 891.566907
## final value 891.566706
## converged
## - Fold5: decay= 1.2840, size=3
## + Fold5: decay= 1.6487, size=3
## # weights: 58

```

```

## initial value 1772.862097
## iter 10 value 935.502030
## iter 20 value 903.037949
## iter 30 value 897.770166
## iter 40 value 894.919850
## iter 50 value 893.143919
## iter 60 value 892.573491
## iter 70 value 892.527041
## iter 80 value 892.519860
## final value 892.519813
## converged
## - Fold5: decay= 1.6487, size=3
## + Fold5: decay= 2.1170, size=3
## # weights: 58
## initial value 2556.827453
## iter 10 value 967.015967
## iter 20 value 917.295804
## iter 30 value 904.916484
## iter 40 value 900.103736
## iter 50 value 898.780505
## iter 60 value 898.041039
## iter 70 value 897.837834
## iter 80 value 897.829275
## iter 80 value 897.829271
## iter 80 value 897.829271
## final value 897.829271
## converged
## - Fold5: decay= 2.1170, size=3
## + Fold5: decay= 2.7183, size=3
## # weights: 58
## initial value 1673.055450
## iter 10 value 945.549246
## iter 20 value 911.419382
## iter 30 value 905.614794
## iter 40 value 904.560843
## iter 50 value 904.194849
## iter 60 value 903.813054
## iter 70 value 903.777749
## final value 903.777106
## converged
## - Fold5: decay= 2.7183, size=3
## + Fold5: decay= 3.4903, size=3
## # weights: 58
## initial value 1407.919381
## iter 10 value 922.541255
## iter 20 value 911.766308
## iter 30 value 910.991938
## iter 40 value 910.432786
## iter 50 value 910.093231
## iter 60 value 909.992675
## iter 70 value 909.977576
## iter 80 value 909.967961
## final value 909.967709
## converged

```

```

## - Fold5: decay= 3.4903, size=3
## + Fold5: decay= 4.4817, size=3
## # weights: 58
## initial value 2136.541144
## iter 10 value 976.350703
## iter 20 value 927.478075
## iter 30 value 921.356995
## iter 40 value 919.527653
## iter 50 value 919.135168
## iter 60 value 918.969873
## iter 70 value 918.954136
## final value 918.952833
## converged
## - Fold5: decay= 4.4817, size=3
## + Fold5: decay= 5.7546, size=3
## # weights: 58
## initial value 2659.002248
## iter 10 value 988.498737
## iter 20 value 937.196942
## iter 30 value 930.106153
## iter 40 value 927.650371
## iter 50 value 927.286406
## iter 60 value 927.214115
## iter 70 value 927.199290
## final value 927.199103
## converged
## - Fold5: decay= 5.7546, size=3
## + Fold5: decay= 7.3891, size=3
## # weights: 58
## initial value 1122.827111
## iter 10 value 947.974758
## iter 20 value 934.015147
## iter 30 value 932.644686
## iter 40 value 932.506549
## iter 50 value 932.495264
## final value 932.495158
## converged
## - Fold5: decay= 7.3891, size=3
## + Fold5: decay= 9.4877, size=3
## # weights: 58
## initial value 2294.019336
## iter 10 value 973.121188
## iter 20 value 947.759546
## iter 30 value 942.827137
## iter 40 value 942.621780
## final value 942.619709
## converged
## - Fold5: decay= 9.4877, size=3
## + Fold5: decay=12.1825, size=3
## # weights: 58
## initial value 2582.999247
## iter 10 value 1016.452016
## iter 20 value 965.209860
## iter 30 value 956.147531

```

```

## iter 40 value 954.249633
## iter 50 value 954.217733
## iter 60 value 954.217386
## iter 60 value 954.217383
## iter 60 value 954.217381
## final value 954.217381
## converged
## - Fold5: decay=12.1825, size=3
## + Fold5: decay= 0.3679, size=4
## # weights: 77
## initial value 1707.412456
## iter 10 value 1021.693687
## iter 20 value 896.927295
## iter 30 value 874.354165
## iter 40 value 866.338599
## iter 50 value 859.850633
## iter 60 value 854.766264
## iter 70 value 850.695723
## iter 80 value 850.046791
## iter 90 value 849.865220
## iter 100 value 849.767681
## final value 849.767681
## stopped after 100 iterations
## - Fold5: decay= 0.3679, size=4
## + Fold5: decay= 0.4724, size=4
## # weights: 77
## initial value 1499.968915
## iter 10 value 901.602925
## iter 20 value 878.355358
## iter 30 value 870.583607
## iter 40 value 866.520226
## iter 50 value 862.497553
## iter 60 value 861.512527
## iter 70 value 861.118000
## iter 80 value 861.068425
## iter 90 value 861.063128
## iter 100 value 861.062858
## final value 861.062858
## stopped after 100 iterations
## - Fold5: decay= 0.4724, size=4
## + Fold5: decay= 0.6065, size=4
## # weights: 77
## initial value 2585.677629
## iter 10 value 926.504322
## iter 20 value 904.676664
## iter 30 value 887.026113
## iter 40 value 875.263744
## iter 50 value 871.556427
## iter 60 value 869.273554
## iter 70 value 866.809315
## iter 80 value 865.015638
## iter 90 value 864.184204
## iter 100 value 864.002939
## final value 864.002939

```

```

## stopped after 100 iterations
## - Fold5: decay= 0.6065, size=4
## + Fold5: decay= 0.7788, size=4
## # weights: 77
## initial value 1202.068427
## iter 10 value 906.750424
## iter 20 value 889.381113
## iter 30 value 879.692555
## iter 40 value 874.211641
## iter 50 value 872.851761
## iter 60 value 872.157929
## iter 70 value 871.651400
## iter 80 value 871.529362
## iter 90 value 871.500696
## final value 871.499422
## converged
## - Fold5: decay= 0.7788, size=4
## + Fold5: decay= 1.0000, size=4
## # weights: 77
## initial value 1209.183365
## iter 10 value 915.550601
## iter 20 value 887.865551
## iter 30 value 883.778975
## iter 40 value 881.870792
## iter 50 value 880.917284
## iter 60 value 879.991808
## iter 70 value 878.980566
## iter 80 value 877.906044
## iter 90 value 877.297579
## iter 100 value 877.092623
## final value 877.092623
## stopped after 100 iterations
## - Fold5: decay= 1.0000, size=4
## + Fold5: decay= 1.2840, size=4
## # weights: 77
## initial value 1776.146182
## iter 10 value 946.462165
## iter 20 value 922.315183
## iter 30 value 894.921944
## iter 40 value 888.713371
## iter 50 value 887.129413
## iter 60 value 886.175501
## iter 70 value 885.097071
## iter 80 value 884.417874
## iter 90 value 884.096956
## iter 100 value 884.063508
## final value 884.063508
## stopped after 100 iterations
## - Fold5: decay= 1.2840, size=4
## + Fold5: decay= 1.6487, size=4
## # weights: 77
## initial value 1339.866409
## iter 10 value 923.561391
## iter 20 value 898.109154

```

```

## iter 30 value 894.455632
## iter 40 value 893.691630
## iter 50 value 893.012619
## iter 60 value 892.374097
## iter 70 value 892.062395
## iter 80 value 891.764694
## iter 90 value 891.524247
## iter 100 value 891.390554
## final value 891.390554
## stopped after 100 iterations
## - Fold5: decay= 1.6487, size=4
## + Fold5: decay= 2.1170, size=4
## # weights: 77
## initial value 2727.457029
## iter 10 value 971.652659
## iter 20 value 932.504053
## iter 30 value 911.304445
## iter 40 value 906.351501
## iter 50 value 902.650442
## iter 60 value 899.956829
## iter 70 value 898.515022
## iter 80 value 898.233355
## iter 90 value 898.090655
## iter 100 value 898.036203
## final value 898.036203
## stopped after 100 iterations
## - Fold5: decay= 2.1170, size=4
## + Fold5: decay= 2.7183, size=4
## # weights: 77
## initial value 2644.341538
## iter 10 value 1031.245100
## iter 20 value 929.783718
## iter 30 value 914.689806
## iter 40 value 910.397340
## iter 50 value 905.516889
## iter 60 value 903.709202
## iter 70 value 903.382493
## iter 80 value 903.288362
## iter 90 value 903.267681
## iter 100 value 903.264653
## final value 903.264653
## stopped after 100 iterations
## - Fold5: decay= 2.7183, size=4
## + Fold5: decay= 3.4903, size=4
## # weights: 77
## initial value 2711.293975
## iter 10 value 1060.232551
## iter 20 value 940.647033
## iter 30 value 925.507542
## iter 40 value 916.427840
## iter 50 value 911.654893
## iter 60 value 909.201565
## iter 70 value 909.041394
## iter 80 value 909.023128

```



```

## iter 90 value 909.021311
## final value 909.021020
## converged
## - Fold5: decay= 3.4903, size=4
## + Fold5: decay= 4.4817, size=4
## # weights: 77
## initial value 1766.880325
## iter 10 value 1027.032988
## iter 20 value 930.553540
## iter 30 value 919.227607
## iter 40 value 917.451129
## iter 50 value 916.445850
## iter 60 value 916.159863
## iter 70 value 916.120757
## iter 80 value 916.112383
## iter 90 value 916.111781
## iter 90 value 916.111772
## iter 90 value 916.111769
## final value 916.111769
## converged
## - Fold5: decay= 4.4817, size=4
## + Fold5: decay= 5.7546, size=4
## # weights: 77
## initial value 1896.075081
## iter 10 value 1018.638703
## iter 20 value 945.153111
## iter 30 value 933.107919
## iter 40 value 926.984233
## iter 50 value 924.591579
## iter 60 value 923.838248
## iter 70 value 923.690496
## iter 80 value 923.680828
## iter 90 value 923.680148
## final value 923.680122
## converged
## - Fold5: decay= 5.7546, size=4
## + Fold5: decay= 7.3891, size=4
## # weights: 77
## initial value 1497.511285
## iter 10 value 961.689106
## iter 20 value 938.053182
## iter 30 value 933.760519
## iter 40 value 932.871065
## iter 50 value 932.634334
## iter 60 value 932.526398
## iter 70 value 931.120883
## iter 80 value 930.416564
## iter 90 value 930.338328
## iter 100 value 930.334743
## final value 930.334743
## stopped after 100 iterations
## - Fold5: decay= 7.3891, size=4
## + Fold5: decay= 9.4877, size=4
## # weights: 77

```

```

## initial value 1442.667198
## iter 10 value 980.194402
## iter 20 value 944.517803
## iter 30 value 940.687215
## iter 40 value 940.071242
## iter 50 value 939.996651
## iter 60 value 939.993874
## final value 939.993818
## converged
## - Fold5: decay= 9.4877, size=4
## + Fold5: decay=12.1825, size=4
## # weights: 77
## initial value 1681.150951
## iter 10 value 1000.674486
## iter 20 value 959.662443
## iter 30 value 952.717373
## iter 40 value 951.121650
## iter 50 value 951.063926
## iter 60 value 951.060202
## iter 60 value 951.060196
## iter 60 value 951.060196
## final value 951.060196
## converged
## - Fold5: decay=12.1825, size=4
## + Fold5: decay= 0.3679, size=5
## # weights: 96
## initial value 1332.779680
## iter 10 value 888.232791
## iter 20 value 870.385043
## iter 30 value 859.520783
## iter 40 value 850.713678
## iter 50 value 845.040935
## iter 60 value 841.506572
## iter 70 value 838.050657
## iter 80 value 836.383769
## iter 90 value 836.050973
## iter 100 value 836.006936
## final value 836.006936
## stopped after 100 iterations
## - Fold5: decay= 0.3679, size=5
## + Fold5: decay= 0.4724, size=5
## # weights: 96
## initial value 1535.121022
## iter 10 value 932.253459
## iter 20 value 879.772428
## iter 30 value 867.290689
## iter 40 value 857.928754
## iter 50 value 853.350065
## iter 60 value 852.040591
## iter 70 value 851.425877
## iter 80 value 850.966724
## iter 90 value 850.484762
## iter 100 value 849.724669
## final value 849.724669

```

```

## stopped after 100 iterations
## - Fold5: decay= 0.4724, size=5
## + Fold5: decay= 0.6065, size=5
## # weights: 96
## initial value 1381.318287
## iter 10 value 902.981538
## iter 20 value 876.519543
## iter 30 value 867.218138
## iter 40 value 858.814905
## iter 50 value 853.595661
## iter 60 value 850.022418
## iter 70 value 849.336957
## iter 80 value 849.065588
## iter 90 value 848.909893
## iter 100 value 848.862824
## final value 848.862824
## stopped after 100 iterations
## - Fold5: decay= 0.6065, size=5
## + Fold5: decay= 0.7788, size=5
## # weights: 96
## initial value 1943.815303
## iter 10 value 945.933650
## iter 20 value 899.773733
## iter 30 value 881.934794
## iter 40 value 876.808556
## iter 50 value 873.414758
## iter 60 value 870.842675
## iter 70 value 868.726085
## iter 80 value 866.370390
## iter 90 value 864.901789
## iter 100 value 864.206899
## final value 864.206899
## stopped after 100 iterations
## - Fold5: decay= 0.7788, size=5
## + Fold5: decay= 1.0000, size=5
## # weights: 96
## initial value 1605.452315
## iter 10 value 926.913671
## iter 20 value 895.361207
## iter 30 value 883.186898
## iter 40 value 879.631556
## iter 50 value 878.559766
## iter 60 value 877.144724
## iter 70 value 876.094105
## iter 80 value 875.527270
## iter 90 value 875.461780
## iter 100 value 875.368134
## final value 875.368134
## stopped after 100 iterations
## - Fold5: decay= 1.0000, size=5
## + Fold5: decay= 1.2840, size=5
## # weights: 96
## initial value 3098.938963
## iter 10 value 1001.500500

```

```

## iter 20 value 950.227302
## iter 30 value 907.895818
## iter 40 value 894.323458
## iter 50 value 890.580176
## iter 60 value 888.315373
## iter 70 value 886.427559
## iter 80 value 885.590442
## iter 90 value 884.936856
## iter 100 value 884.833725
## final value 884.833725
## stopped after 100 iterations
## - Fold5: decay= 1.2840, size=5
## + Fold5: decay= 1.6487, size=5
## # weights: 96
## initial value 1302.220803
## iter 10 value 951.686641
## iter 20 value 908.695193
## iter 30 value 896.442604
## iter 40 value 893.847033
## iter 50 value 892.902621
## iter 60 value 892.498167
## iter 70 value 892.125482
## iter 80 value 891.902840
## iter 90 value 891.810132
## iter 100 value 891.759052
## final value 891.759052
## stopped after 100 iterations
## - Fold5: decay= 1.6487, size=5
## + Fold5: decay= 2.1170, size=5
## # weights: 96
## initial value 2368.231584
## iter 10 value 1018.366340
## iter 20 value 936.411118
## iter 30 value 915.334663
## iter 40 value 910.154310
## iter 50 value 905.751311
## iter 60 value 899.864880
## iter 70 value 897.662629
## iter 80 value 897.282897
## iter 90 value 897.229940
## iter 100 value 897.201351
## final value 897.201351
## stopped after 100 iterations
## - Fold5: decay= 2.1170, size=5
## + Fold5: decay= 2.7183, size=5
## # weights: 96
## initial value 1465.089786
## iter 10 value 918.493973
## iter 20 value 908.893341
## iter 30 value 905.482406
## iter 40 value 903.599934
## iter 50 value 903.036195
## iter 60 value 902.876995
## iter 70 value 902.852417

```

```

## iter 80 value 902.847267
## iter 90 value 902.846324
## iter 90 value 902.846317
## iter 90 value 902.846314
## final value 902.846314
## converged
## - Fold5: decay= 2.7183, size=5
## + Fold5: decay= 3.4903, size=5
## # weights: 96
## initial value 2109.416774
## iter 10 value 977.853856
## iter 20 value 936.679155
## iter 30 value 927.627104
## iter 40 value 914.134406
## iter 50 value 910.311427
## iter 60 value 909.221459
## iter 70 value 908.818232
## iter 80 value 908.644805
## iter 90 value 908.523516
## iter 100 value 908.500576
## final value 908.500576
## stopped after 100 iterations
## - Fold5: decay= 3.4903, size=5
## + Fold5: decay= 4.4817, size=5
## # weights: 96
## initial value 1429.290661
## iter 10 value 963.170950
## iter 20 value 925.756115
## iter 30 value 918.104137
## iter 40 value 916.810538
## iter 50 value 916.316666
## iter 60 value 916.220566
## iter 70 value 916.216251
## iter 80 value 916.215715
## iter 90 value 916.215255
## iter 100 value 916.176451
## final value 916.176451
## stopped after 100 iterations
## - Fold5: decay= 4.4817, size=5
## + Fold5: decay= 5.7546, size=5
## # weights: 96
## initial value 1833.103016
## iter 10 value 1041.742601
## iter 20 value 939.982882
## iter 30 value 927.795961
## iter 40 value 922.838643
## iter 50 value 921.873791
## iter 60 value 921.761018
## iter 70 value 921.748214
## iter 80 value 921.746195
## final value 921.746064
## converged
## - Fold5: decay= 5.7546, size=5
## + Fold5: decay= 7.3891, size=5

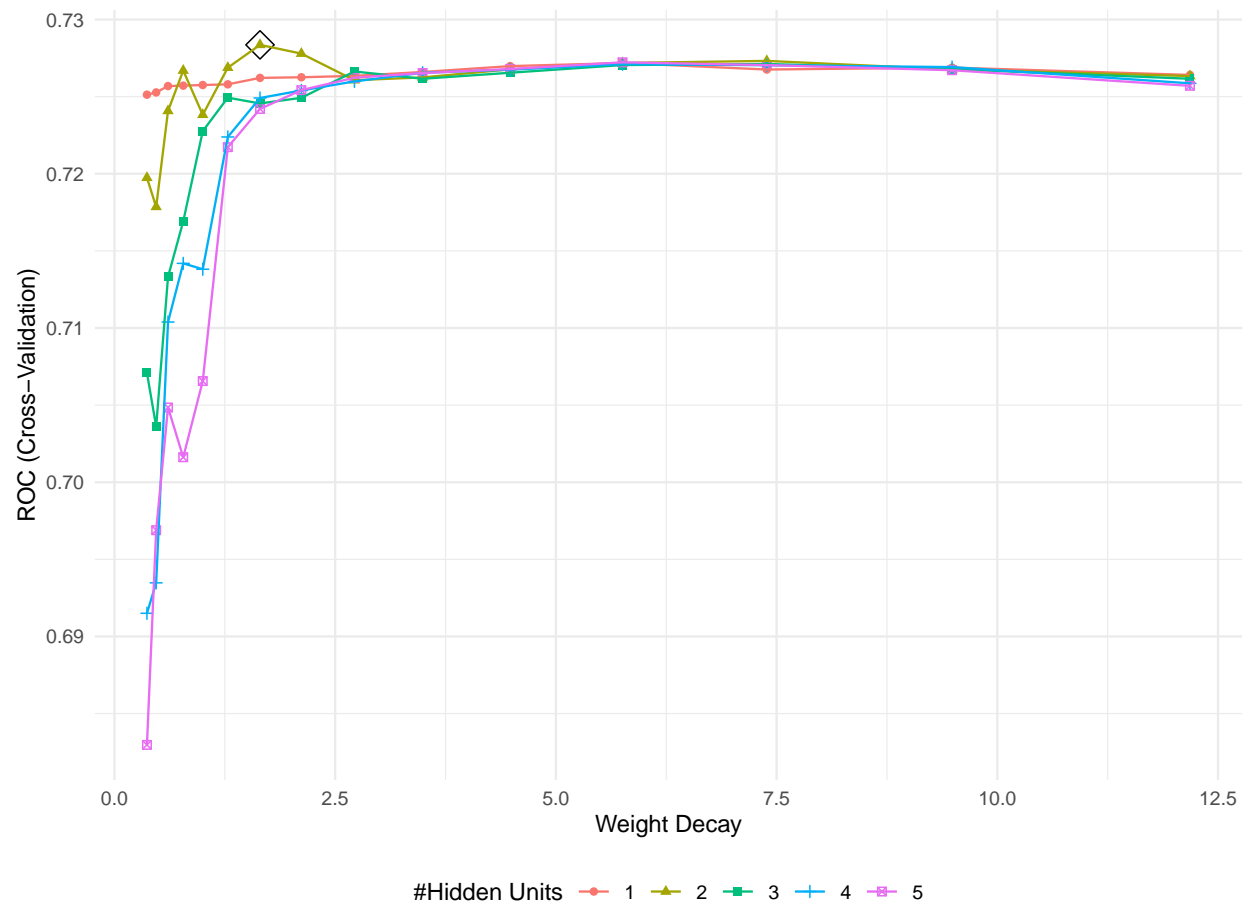
```

```

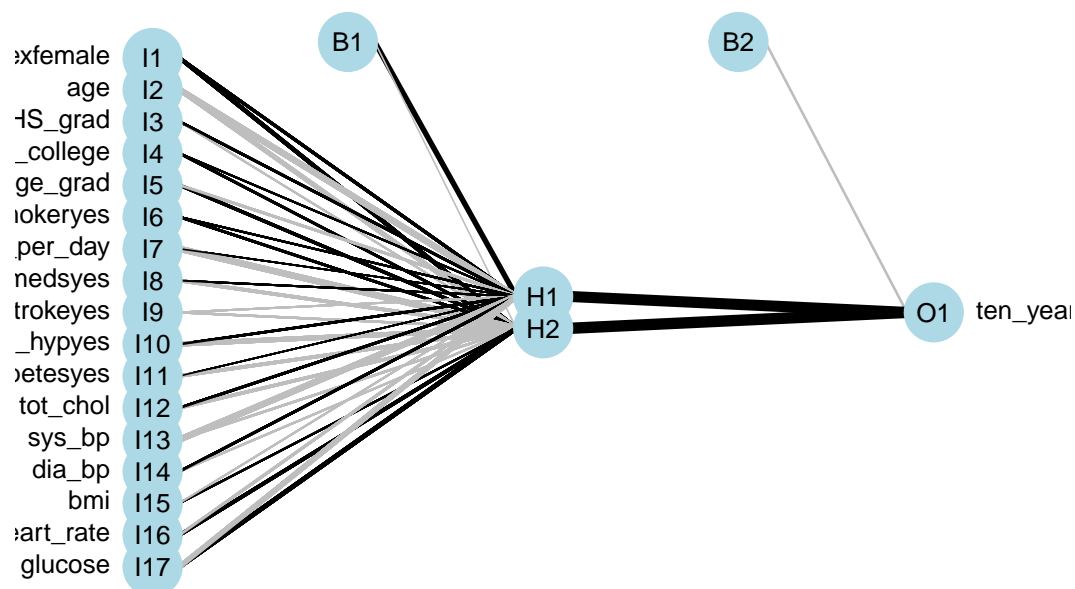
## # weights: 96
## initial value 1635.465246
## iter 10 value 1094.062542
## iter 20 value 952.550507
## iter 30 value 934.180243
## iter 40 value 931.037566
## iter 50 value 930.309243
## iter 60 value 930.247819
## iter 70 value 930.241525
## final value 930.241290
## converged
## - Fold5: decay= 7.3891, size=5
## + Fold5: decay= 9.4877, size=5
## # weights: 96
## initial value 1187.581101
## iter 10 value 962.171453
## iter 20 value 940.723627
## iter 30 value 938.894626
## iter 40 value 938.517006
## iter 50 value 938.475016
## iter 60 value 938.466608
## final value 938.466516
## converged
## - Fold5: decay= 9.4877, size=5
## + Fold5: decay=12.1825, size=5
## # weights: 96
## initial value 1845.895402
## iter 10 value 1022.195846
## iter 20 value 960.829096
## iter 30 value 949.863683
## iter 40 value 949.214496
## iter 50 value 949.159387
## final value 949.158242
## converged
## - Fold5: decay=12.1825, size=5
## Aggregating results
## Selecting tuning parameters
## Fitting size = 2, decay = 1.65 on full training set
## # weights: 39
## initial value 1572.289421
## iter 10 value 1141.080305
## iter 20 value 1123.081798
## iter 30 value 1118.611879
## iter 40 value 1118.083705
## iter 50 value 1117.973792
## final value 1117.965277
## converged

ggplot(nnet_fit, highlight = T)

```

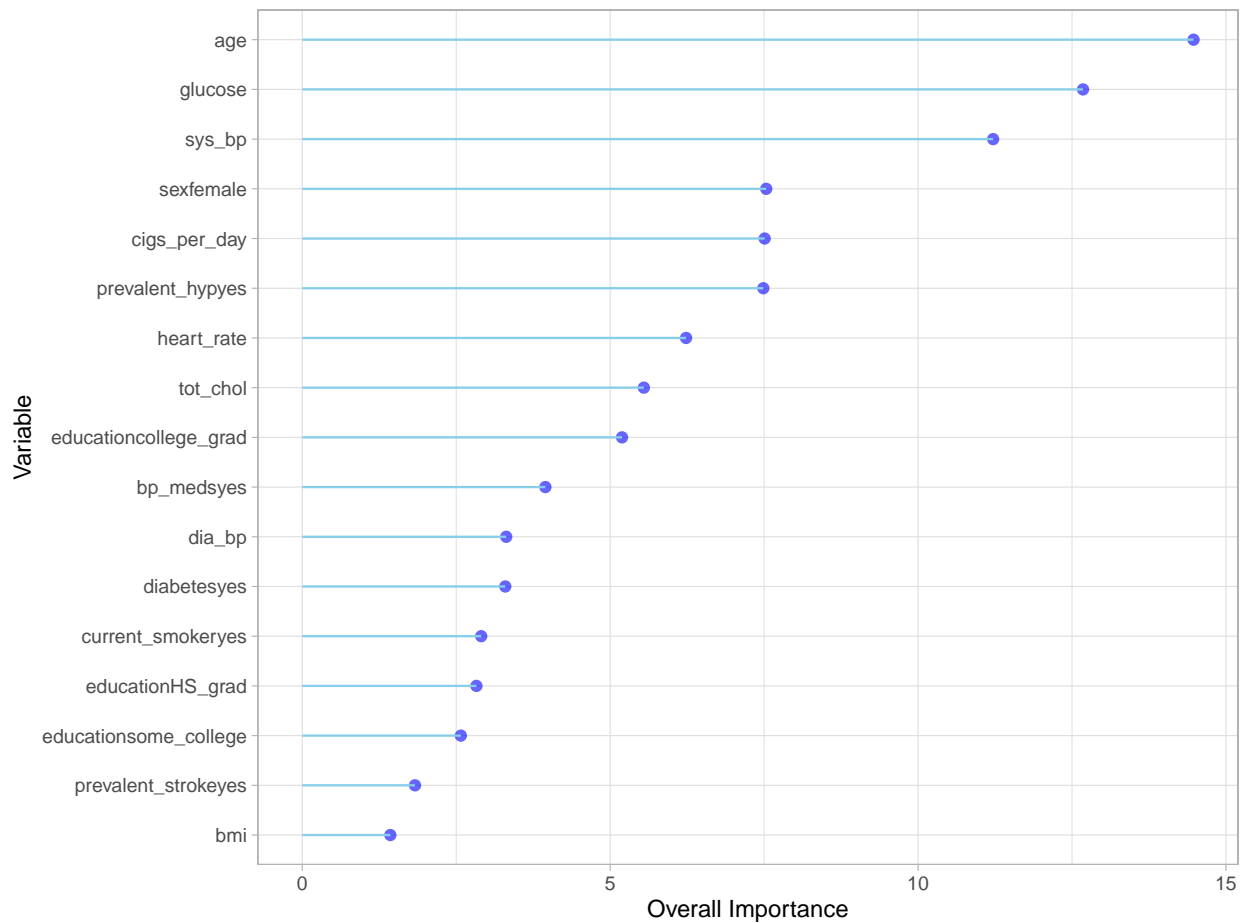


```
#library(NeuralNetTools)
plotnet(nnet_fit)
```



```
V <- varImp(nnet_fit$finalModel)

ggplot(V, aes(x = reorder(rownames(V), Overall), y = Overall)) +
  geom_point(color = "blue", size = 2, alpha = 0.6) +
  geom_segment(aes(x = rownames(V), xend = rownames(V), y = 0, yend = Overall),
               color = 'skyblue') +
  xlab('Variable') +
  ylab('Overall Importance') +
  theme_light() +
  coord_flip()
```

Neural Network Model with imputation

```
nnet_fit_impute <- train(preprocess_recipe,
  data = training_df,
  method = "nnet",
  tuneGrid = expand.grid(decay = exp(seq(-1, 2.5, len = 15)),
    size = c(1:5)),
  metric = "ROC",
  trControl = ctrl)
```

```
## Preparing recipe
## + Fold1: decay= 0.3679, size=1
## # weights: 20
## initial value 1689.420367
## iter 10 value 1070.388027
## iter 20 value 1049.558879
## iter 30 value 1041.950577
## iter 40 value 1041.892869
## final value 1041.890501
## converged
## - Fold1: decay= 0.3679, size=1
```

```

## + Fold1: decay= 0.4724, size=1
## # weights: 20
## initial value 1928.531345
## iter 10 value 1069.946446
## iter 20 value 1049.301940
## iter 30 value 1043.465787
## iter 40 value 1043.445103
## iter 50 value 1043.444561
## iter 50 value 1043.444556
## iter 50 value 1043.444556
## final value 1043.444556
## converged
## - Fold1: decay= 0.4724, size=1
## + Fold1: decay= 0.6065, size=1
## # weights: 20
## initial value 2397.576620
## iter 10 value 1078.862040
## iter 20 value 1051.818191
## iter 30 value 1045.392325
## iter 40 value 1045.232542
## iter 50 value 1045.228711
## final value 1045.228597
## converged
## - Fold1: decay= 0.6065, size=1
## + Fold1: decay= 0.7788, size=1
## # weights: 20
## initial value 1787.813692
## iter 10 value 1083.692930
## iter 20 value 1052.810952
## iter 30 value 1047.768636
## iter 40 value 1047.711087
## iter 50 value 1047.708133
## final value 1047.707990
## converged
## - Fold1: decay= 0.7788, size=1
## + Fold1: decay= 1.0000, size=1
## # weights: 20
## initial value 2169.162345
## iter 10 value 1092.311740
## iter 20 value 1053.842210
## iter 30 value 1050.712032
## iter 40 value 1050.594208
## final value 1050.593943
## converged
## - Fold1: decay= 1.0000, size=1
## + Fold1: decay= 1.2840, size=1
## # weights: 20
## initial value 2225.264069
## iter 10 value 1094.518259
## iter 20 value 1057.924752
## iter 30 value 1054.165234
## iter 40 value 1054.149180
## final value 1054.148995
## converged

```

```

## - Fold1: decay= 1.2840, size=1
## + Fold1: decay= 1.6487, size=1
## # weights: 20
## initial value 2137.752522
## iter 10 value 1087.245199
## iter 20 value 1060.344012
## iter 30 value 1058.328597
## iter 40 value 1058.285650
## iter 40 value 1058.285645
## iter 40 value 1058.285645
## final value 1058.285645
## converged
## - Fold1: decay= 1.6487, size=1
## + Fold1: decay= 2.1170, size=1
## # weights: 20
## initial value 1857.659416
## iter 10 value 1091.849540
## iter 20 value 1066.609654
## iter 30 value 1063.240308
## iter 40 value 1063.219085
## final value 1063.219061
## converged
## - Fold1: decay= 2.1170, size=1
## + Fold1: decay= 2.7183, size=1
## # weights: 20
## initial value 2690.574188
## iter 10 value 1098.111204
## iter 20 value 1073.312081
## iter 30 value 1069.115071
## final value 1069.104030
## converged
## - Fold1: decay= 2.7183, size=1
## + Fold1: decay= 3.4903, size=1
## # weights: 20
## initial value 2010.269615
## iter 10 value 1111.574426
## iter 20 value 1081.332422
## iter 30 value 1076.267214
## final value 1076.232980
## converged
## - Fold1: decay= 3.4903, size=1
## + Fold1: decay= 4.4817, size=1
## # weights: 20
## initial value 1673.983720
## iter 10 value 1100.353451
## iter 20 value 1084.467272
## iter 30 value 1084.199883
## final value 1084.198813
## converged
## - Fold1: decay= 4.4817, size=1
## + Fold1: decay= 5.7546, size=1
## # weights: 20
## initial value 1485.792640
## iter 10 value 1117.746628

```

```

## iter 20 value 1095.270835
## iter 30 value 1093.664231
## final value 1093.650303
## converged
## - Fold1: decay= 5.7546, size=1
## + Fold1: decay= 7.3891, size=1
## # weights: 20
## initial value 1709.368173
## iter 10 value 1114.319109
## iter 20 value 1104.868746
## iter 30 value 1104.367991
## final value 1104.367949
## converged
## - Fold1: decay= 7.3891, size=1
## + Fold1: decay= 9.4877, size=1
## # weights: 20
## initial value 2286.366076
## iter 10 value 1132.291415
## iter 20 value 1117.019746
## iter 30 value 1116.478543
## iter 30 value 1116.478542
## iter 30 value 1116.478542
## final value 1116.478542
## converged
## - Fold1: decay= 9.4877, size=1
## + Fold1: decay=12.1825, size=1
## # weights: 20
## initial value 1643.973107
## iter 10 value 1144.323311
## iter 20 value 1130.443219
## iter 30 value 1130.156669
## final value 1130.156486
## converged
## - Fold1: decay=12.1825, size=1
## + Fold1: decay= 0.3679, size=2
## # weights: 39
## initial value 1633.135909
## iter 10 value 1081.169005
## iter 20 value 1049.366389
## iter 30 value 1035.268921
## iter 40 value 1029.428832
## iter 50 value 1029.074681
## iter 60 value 1029.016674
## iter 70 value 1029.010734
## iter 70 value 1029.010732
## iter 70 value 1029.010732
## final value 1029.010732
## converged
## - Fold1: decay= 0.3679, size=2
## + Fold1: decay= 0.4724, size=2
## # weights: 39
## initial value 1254.865626
## iter 10 value 1055.873850
## iter 20 value 1047.987295

```

```

## iter 30 value 1043.620968
## iter 40 value 1041.948363
## iter 50 value 1039.233537
## iter 60 value 1034.665403
## iter 70 value 1032.199083
## iter 80 value 1031.785752
## iter 90 value 1031.783816
## iter 100 value 1031.783053
## final value 1031.783053
## stopped after 100 iterations
## - Fold1: decay= 0.4724, size=2
## + Fold1: decay= 0.6065, size=2
## # weights: 39
## initial value 2335.326973
## iter 10 value 1097.526337
## iter 20 value 1055.985873
## iter 30 value 1042.560880
## iter 40 value 1036.906535
## iter 50 value 1035.384356
## iter 60 value 1035.062459
## final value 1035.023447
## converged
## - Fold1: decay= 0.6065, size=2
## + Fold1: decay= 0.7788, size=2
## # weights: 39
## initial value 2026.221510
## iter 10 value 1084.983355
## iter 20 value 1055.721180
## iter 30 value 1043.956760
## iter 40 value 1041.253691
## iter 50 value 1039.069079
## iter 60 value 1038.502725
## final value 1038.490642
## converged
## - Fold1: decay= 0.7788, size=2
## + Fold1: decay= 1.0000, size=2
## # weights: 39
## initial value 2150.717456
## iter 10 value 1089.758084
## iter 20 value 1059.332762
## iter 30 value 1048.331756
## iter 40 value 1043.716407
## iter 50 value 1042.679565
## iter 60 value 1042.638756
## final value 1042.638676
## converged
## - Fold1: decay= 1.0000, size=2
## + Fold1: decay= 1.2840, size=2
## # weights: 39
## initial value 1722.915182
## iter 10 value 1101.375657
## iter 20 value 1062.074152
## iter 30 value 1051.141610
## iter 40 value 1047.296155

```

```

## iter 50 value 1047.093773
## iter 60 value 1047.089861
## final value 1047.089606
## converged
## - Fold1: decay= 1.2840, size=2
## + Fold1: decay= 1.6487, size=2
## # weights: 39
## initial value 1741.955944
## iter 10 value 1101.249026
## iter 20 value 1073.307180
## iter 30 value 1059.245293
## iter 40 value 1056.329427
## iter 50 value 1054.638836
## iter 60 value 1054.541729
## final value 1054.541177
## converged
## - Fold1: decay= 1.6487, size=2
## + Fold1: decay= 2.1170, size=2
## # weights: 39
## initial value 1581.140952
## iter 10 value 1106.730467
## iter 20 value 1073.742471
## iter 30 value 1062.021478
## iter 40 value 1057.879292
## iter 50 value 1057.690472
## iter 60 value 1057.689640
## final value 1057.689611
## converged
## - Fold1: decay= 2.1170, size=2
## + Fold1: decay= 2.7183, size=2
## # weights: 39
## initial value 2160.281887
## iter 10 value 1120.653032
## iter 20 value 1075.277802
## iter 30 value 1066.030634
## iter 40 value 1063.855942
## iter 50 value 1063.822986
## final value 1063.822400
## converged
## - Fold1: decay= 2.7183, size=2
## + Fold1: decay= 3.4903, size=2
## # weights: 39
## initial value 1369.540640
## iter 10 value 1082.268219
## iter 20 value 1073.343053
## iter 30 value 1070.400932
## iter 40 value 1070.340059
## final value 1070.339625
## converged
## - Fold1: decay= 3.4903, size=2
## + Fold1: decay= 4.4817, size=2
## # weights: 39
## initial value 1456.116080
## iter 10 value 1086.715106

```

```

## iter 20 value 1079.442366
## iter 30 value 1077.623647
## iter 40 value 1077.470315
## final value 1077.469896
## converged
## - Fold1: decay= 4.4817, size=2
## + Fold1: decay= 5.7546, size=2
## # weights: 39
## initial value 2204.508120
## iter 10 value 1116.620674
## iter 20 value 1094.714404
## iter 30 value 1093.156272
## iter 40 value 1093.138239
## final value 1093.135404
## converged
## - Fold1: decay= 5.7546, size=2
## + Fold1: decay= 7.3891, size=2
## # weights: 39
## initial value 2598.964925
## iter 10 value 1193.435041
## iter 20 value 1112.145104
## iter 30 value 1097.381679
## iter 40 value 1095.625889
## iter 50 value 1095.498290
## iter 60 value 1095.490839
## iter 60 value 1095.490833
## iter 60 value 1095.490832
## final value 1095.490832
## converged
## - Fold1: decay= 7.3891, size=2
## + Fold1: decay= 9.4877, size=2
## # weights: 39
## initial value 2304.324227
## iter 10 value 1147.027475
## iter 20 value 1114.624859
## iter 30 value 1106.698823
## iter 40 value 1106.543056
## final value 1106.542891
## converged
## - Fold1: decay= 9.4877, size=2
## + Fold1: decay=12.1825, size=2
## # weights: 39
## initial value 1361.322619
## iter 10 value 1150.524914
## iter 20 value 1122.093046
## iter 30 value 1119.258651
## iter 40 value 1118.948257
## final value 1118.947341
## converged
## - Fold1: decay=12.1825, size=2
## + Fold1: decay= 0.3679, size=3
## # weights: 58
## initial value 2413.434433
## iter 10 value 1094.821443

```

```

## iter 20 value 1069.881643
## iter 30 value 1048.616618
## iter 40 value 1036.996958
## iter 50 value 1030.488059
## iter 60 value 1025.595558
## iter 70 value 1022.935058
## iter 80 value 1020.640832
## iter 90 value 1020.519775
## iter 100 value 1020.517644
## final value 1020.517644
## stopped after 100 iterations
## - Fold1: decay= 0.3679, size=3
## + Fold1: decay= 0.4724, size=3
## # weights: 58
## initial value 1704.341898
## iter 10 value 1054.819993
## iter 20 value 1037.977491
## iter 30 value 1034.521520
## iter 40 value 1029.714845
## iter 50 value 1028.468996
## iter 60 value 1028.340895
## iter 70 value 1028.287549
## iter 80 value 1028.285740
## iter 80 value 1028.285733
## iter 80 value 1028.285732
## final value 1028.285732
## converged
## - Fold1: decay= 0.4724, size=3
## + Fold1: decay= 0.6065, size=3
## # weights: 58
## initial value 1954.978024
## iter 10 value 1100.312950
## iter 20 value 1063.976438
## iter 30 value 1046.648002
## iter 40 value 1037.819151
## iter 50 value 1033.318515
## iter 60 value 1032.516392
## iter 70 value 1032.410921
## iter 80 value 1032.331462
## iter 90 value 1032.295302
## iter 90 value 1032.295295
## iter 90 value 1032.295295
## final value 1032.295295
## converged
## - Fold1: decay= 0.6065, size=3
## + Fold1: decay= 0.7788, size=3
## # weights: 58
## initial value 2124.393114
## iter 10 value 1095.011503
## iter 20 value 1067.568342
## iter 30 value 1051.819430
## iter 40 value 1041.697084
## iter 50 value 1037.976935
## iter 60 value 1037.516981

```



```

## iter 70 value 1037.413733
## final value 1037.404685
## converged
## - Fold1: decay= 0.7788, size=3
## + Fold1: decay= 1.0000, size=3
## # weights: 58
## initial value 1359.318633
## iter 10 value 1067.649404
## iter 20 value 1054.131013
## iter 30 value 1044.874348
## iter 40 value 1040.794899
## iter 50 value 1040.242252
## iter 60 value 1039.547300
## iter 70 value 1039.232958
## iter 80 value 1039.072439
## final value 1039.063928
## converged
## - Fold1: decay= 1.0000, size=3
## + Fold1: decay= 1.2840, size=3
## # weights: 58
## initial value 2144.567807
## iter 10 value 1166.215554
## iter 20 value 1059.551786
## iter 30 value 1051.176892
## iter 40 value 1048.732777
## iter 50 value 1045.700692
## iter 60 value 1045.298657
## iter 70 value 1045.184062
## iter 80 value 1045.174137
## final value 1045.173240
## converged
## - Fold1: decay= 1.2840, size=3
## + Fold1: decay= 1.6487, size=3
## # weights: 58
## initial value 1940.249681
## iter 10 value 1147.050842
## iter 20 value 1072.792210
## iter 30 value 1059.818575
## iter 40 value 1055.007015
## iter 50 value 1051.092339
## iter 60 value 1050.822491
## iter 70 value 1050.719930
## iter 80 value 1050.711446
## final value 1050.711161
## converged
## - Fold1: decay= 1.6487, size=3
## + Fold1: decay= 2.1170, size=3
## # weights: 58
## initial value 2635.414970
## iter 10 value 1193.728469
## iter 20 value 1082.516704
## iter 30 value 1067.584528
## iter 40 value 1058.121939
## iter 50 value 1057.197948

```

```

## iter 60 value 1056.970544
## iter 70 value 1056.930757
## iter 80 value 1056.929119
## final value 1056.928834
## converged
## - Fold1: decay= 2.1170, size=3
## + Fold1: decay= 2.7183, size=3
## # weights: 58
## initial value 2348.919189
## iter 10 value 1187.017627
## iter 20 value 1085.773616
## iter 30 value 1070.865179
## iter 40 value 1065.328748
## iter 50 value 1063.895666
## iter 60 value 1063.050099
## iter 70 value 1062.867406
## iter 80 value 1062.791326
## final value 1062.786567
## converged
## - Fold1: decay= 2.7183, size=3
## + Fold1: decay= 3.4903, size=3
## # weights: 58
## initial value 2112.984273
## iter 10 value 1190.508451
## iter 20 value 1087.466054
## iter 30 value 1077.707046
## iter 40 value 1071.114711
## iter 50 value 1069.695077
## iter 60 value 1069.642125
## iter 70 value 1069.635626
## iter 80 value 1069.632837
## final value 1069.632787
## converged
## - Fold1: decay= 3.4903, size=3
## + Fold1: decay= 4.4817, size=3
## # weights: 58
## initial value 1599.442594
## iter 10 value 1098.316842
## iter 20 value 1080.375031
## iter 30 value 1077.183617
## iter 40 value 1075.528648
## iter 50 value 1075.266844
## iter 60 value 1075.262800
## final value 1075.262638
## converged
## - Fold1: decay= 4.4817, size=3
## + Fold1: decay= 5.7546, size=3
## # weights: 58
## initial value 1595.325908
## iter 10 value 1155.257552
## iter 20 value 1096.802081
## iter 30 value 1085.078023
## iter 40 value 1083.284311
## iter 50 value 1083.094898

```

```

## iter 60 value 1083.081198
## final value 1083.080651
## converged
## - Fold1: decay= 5.7546, size=3
## + Fold1: decay= 7.3891, size=3
## # weights: 58
## initial value 2633.048796
## iter 10 value 1190.714341
## iter 20 value 1118.433904
## iter 30 value 1100.263135
## iter 40 value 1095.908130
## iter 50 value 1095.732509
## iter 60 value 1095.701118
## iter 70 value 1093.980399
## iter 80 value 1092.217505
## iter 90 value 1092.088024
## final value 1092.085521
## converged
## - Fold1: decay= 7.3891, size=3
## + Fold1: decay= 9.4877, size=3
## # weights: 58
## initial value 1743.841286
## iter 10 value 1124.762110
## iter 20 value 1104.982903
## iter 30 value 1102.457023
## iter 40 value 1102.402859
## final value 1102.402389
## converged
## - Fold1: decay= 9.4877, size=3
## + Fold1: decay=12.1825, size=3
## # weights: 58
## initial value 1372.526116
## iter 10 value 1143.982906
## iter 20 value 1116.772047
## iter 30 value 1114.248270
## iter 40 value 1114.138472
## final value 1114.137545
## converged
## - Fold1: decay=12.1825, size=3
## + Fold1: decay= 0.3679, size=4
## # weights: 77
## initial value 1282.640678
## iter 10 value 1060.240985
## iter 20 value 1043.680606
## iter 30 value 1028.590969
## iter 40 value 1023.010365
## iter 50 value 1019.584748
## iter 60 value 1018.305413
## iter 70 value 1016.955843
## iter 80 value 1016.748422
## iter 90 value 1016.653855
## iter 100 value 1016.649173
## final value 1016.649173
## stopped after 100 iterations

```

```

## - Fold1: decay= 0.3679, size=4
## + Fold1: decay= 0.4724, size=4
## # weights: 77
## initial value 1522.280959
## iter 10 value 1087.943053
## iter 20 value 1055.623308
## iter 30 value 1038.070506
## iter 40 value 1031.119804
## iter 50 value 1029.130397
## iter 60 value 1027.809737
## iter 70 value 1027.363863
## iter 80 value 1026.852908
## iter 90 value 1026.374369
## iter 100 value 1026.339545
## final value 1026.339545
## stopped after 100 iterations
## - Fold1: decay= 0.4724, size=4
## + Fold1: decay= 0.6065, size=4
## # weights: 77
## initial value 1725.344114
## iter 10 value 1079.967825
## iter 20 value 1061.438080
## iter 30 value 1045.794745
## iter 40 value 1041.125576
## iter 50 value 1036.067581
## iter 60 value 1033.793167
## iter 70 value 1031.739979
## iter 80 value 1027.466035
## iter 90 value 1025.868251
## iter 100 value 1025.715575
## final value 1025.715575
## stopped after 100 iterations
## - Fold1: decay= 0.6065, size=4
## + Fold1: decay= 0.7788, size=4
## # weights: 77
## initial value 2629.645108
## iter 10 value 1180.797657
## iter 20 value 1083.721360
## iter 30 value 1060.358064
## iter 40 value 1049.889727
## iter 50 value 1043.571896
## iter 60 value 1040.544708
## iter 70 value 1037.510383
## iter 80 value 1035.386217
## iter 90 value 1034.392731
## iter 100 value 1033.553518
## final value 1033.553518
## stopped after 100 iterations
## - Fold1: decay= 0.7788, size=4
## + Fold1: decay= 1.0000, size=4
## # weights: 77
## initial value 1684.886375
## iter 10 value 1133.590622
## iter 20 value 1063.945142

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## iter 30 value 1051.641761
## iter 40 value 1046.091731
## iter 50 value 1043.136633
## iter 60 value 1040.819119
## iter 70 value 1039.938843
## iter 80 value 1039.326181
## iter 90 value 1039.104538
## iter 100 value 1038.646026
## final value 1038.646026
## stopped after 100 iterations
## - Fold1: decay= 1.0000, size=4
## + Fold1: decay= 1.2840, size=4
## # weights: 77
## initial value 3201.607506
## iter 10 value 1187.565517
## iter 20 value 1070.022517
## iter 30 value 1057.039203
## iter 40 value 1052.871573
## iter 50 value 1048.742464
## iter 60 value 1046.021392
## iter 70 value 1045.064913
## iter 80 value 1044.796598
## iter 90 value 1044.725007
## iter 100 value 1044.700379
## final value 1044.700379
## stopped after 100 iterations
## - Fold1: decay= 1.2840, size=4
## + Fold1: decay= 1.6487, size=4
## # weights: 77
## initial value 1514.171439
## iter 10 value 1106.387617
## iter 20 value 1066.261151
## iter 30 value 1056.476241
## iter 40 value 1053.436886
## iter 50 value 1051.932377
## iter 60 value 1051.538817
## iter 70 value 1051.284919
## iter 80 value 1050.955332
## iter 90 value 1050.728212
## iter 100 value 1050.698510
## final value 1050.698510
## stopped after 100 iterations
## - Fold1: decay= 1.6487, size=4
## + Fold1: decay= 2.1170, size=4
## # weights: 77
## initial value 2334.160857
## iter 10 value 1176.727224
## iter 20 value 1073.469730
## iter 30 value 1062.504489
## iter 40 value 1058.231809
## iter 50 value 1056.268235
## iter 60 value 1056.053469
## iter 70 value 1055.999555
## iter 80 value 1055.988628

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## final value 1055.987578
## converged
## - Fold1: decay= 2.1170, size=4
## + Fold1: decay= 2.7183, size=4
## # weights: 77
## initial value 3317.196124
## iter 10 value 1152.022986
## iter 20 value 1089.667142
## iter 30 value 1075.409603
## iter 40 value 1067.558256
## iter 50 value 1062.687983
## iter 60 value 1062.352054
## iter 70 value 1062.338350
## iter 80 value 1062.331806
## final value 1062.331564
## converged
## - Fold1: decay= 2.7183, size=4
## + Fold1: decay= 3.4903, size=4
## # weights: 77
## initial value 1934.138951
## iter 10 value 1211.770120
## iter 20 value 1095.743407
## iter 30 value 1080.743990
## iter 40 value 1070.077512
## iter 50 value 1068.661341
## iter 60 value 1068.094672
## iter 70 value 1067.998720
## iter 80 value 1067.939495
## iter 90 value 1067.925177
## iter 100 value 1067.918939
## final value 1067.918939
## stopped after 100 iterations
## - Fold1: decay= 3.4903, size=4
## + Fold1: decay= 4.4817, size=4
## # weights: 77
## initial value 2676.976792
## iter 10 value 1228.931156
## iter 20 value 1107.840653
## iter 30 value 1093.010813
## iter 40 value 1083.856447
## iter 50 value 1076.989267
## iter 60 value 1074.949397
## iter 70 value 1074.798323
## iter 80 value 1074.773797
## final value 1074.771751
## converged
## - Fold1: decay= 4.4817, size=4
## + Fold1: decay= 5.7546, size=4
## # weights: 77
## initial value 2340.829834
## iter 10 value 1200.614083
## iter 20 value 1125.440606
## iter 30 value 1104.428582
## iter 40 value 1088.040737

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## iter 50 value 1085.680050
## iter 60 value 1083.572126
## iter 70 value 1082.968947
## iter 80 value 1082.863388
## iter 90 value 1082.857678
## iter 100 value 1082.857332
## final value 1082.857332
## stopped after 100 iterations
## - Fold1: decay= 5.7546, size=4
## + Fold1: decay= 7.3891, size=4
## # weights: 77
## initial value 1539.865134
## iter 10 value 1223.921877
## iter 20 value 1113.427341
## iter 30 value 1097.316840
## iter 40 value 1092.597709
## iter 50 value 1092.145886
## iter 60 value 1092.100797
## iter 70 value 1092.089177
## iter 80 value 1092.087347
## iter 80 value 1092.087337
## iter 80 value 1092.087329
## final value 1092.087329
## converged
## - Fold1: decay= 7.3891, size=4
## + Fold1: decay= 9.4877, size=4
## # weights: 77
## initial value 1756.176330
## iter 10 value 1156.219912
## iter 20 value 1113.885599
## iter 30 value 1101.850688
## iter 40 value 1100.282767
## iter 50 value 1100.249161
## final value 1100.248303
## converged
## - Fold1: decay= 9.4877, size=4
## + Fold1: decay=12.1825, size=4
## # weights: 77
## initial value 2699.485360
## iter 10 value 1217.342172
## iter 20 value 1133.851183
## iter 30 value 1120.584837
## iter 40 value 1114.700339
## iter 50 value 1113.068072
## iter 60 value 1111.694660
## iter 70 value 1111.569499
## final value 1111.568633
## converged
## - Fold1: decay=12.1825, size=4
## + Fold1: decay= 0.3679, size=5
## # weights: 96
## initial value 3173.501873
## iter 10 value 1120.403227
## iter 20 value 1073.225483

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## iter 30 value 1049.411753
## iter 40 value 1031.564855
## iter 50 value 1024.834311
## iter 60 value 1019.616285
## iter 70 value 1015.475097
## iter 80 value 1012.571691
## iter 90 value 1011.331248
## iter 100 value 1010.163531
## final value 1010.163531
## stopped after 100 iterations
## - Fold1: decay= 0.3679, size=5
## + Fold1: decay= 0.4724, size=5
## # weights: 96
## initial value 1593.188563
## iter 10 value 1074.261962
## iter 20 value 1042.690075
## iter 30 value 1034.508808
## iter 40 value 1030.015541
## iter 50 value 1026.605530
## iter 60 value 1024.929112
## iter 70 value 1022.247571
## iter 80 value 1020.540945
## iter 90 value 1019.742343
## iter 100 value 1018.949943
## final value 1018.949943
## stopped after 100 iterations
## - Fold1: decay= 0.4724, size=5
## + Fold1: decay= 0.6065, size=5
## # weights: 96
## initial value 1280.139995
## iter 10 value 1058.162983
## iter 20 value 1040.922690
## iter 30 value 1034.665639
## iter 40 value 1030.792780
## iter 50 value 1028.748296
## iter 60 value 1027.038585
## iter 70 value 1025.779487
## iter 80 value 1024.622952
## iter 90 value 1024.078884
## iter 100 value 1023.478852
## final value 1023.478852
## stopped after 100 iterations
## - Fold1: decay= 0.6065, size=5
## + Fold1: decay= 0.7788, size=5
## # weights: 96
## initial value 2413.595312
## iter 10 value 1173.479357
## iter 20 value 1087.271463
## iter 30 value 1052.649302
## iter 40 value 1044.657058
## iter 50 value 1040.159371
## iter 60 value 1038.608344
## iter 70 value 1036.545393
## iter 80 value 1031.551235

```



```

## iter 90 value 1030.679859
## iter 100 value 1030.405905
## final value 1030.405905
## stopped after 100 iterations
## - Fold1: decay= 0.7788, size=5
## + Fold1: decay= 1.0000, size=5
## # weights: 96
## initial value 2669.016412
## iter 10 value 1190.750983
## iter 20 value 1105.914015
## iter 30 value 1062.611962
## iter 40 value 1051.451517
## iter 50 value 1047.754261
## iter 60 value 1044.619351
## iter 70 value 1041.391641
## iter 80 value 1039.614296
## iter 90 value 1039.267056
## iter 100 value 1038.981238
## final value 1038.981238
## stopped after 100 iterations
## - Fold1: decay= 1.0000, size=5
## + Fold1: decay= 1.2840, size=5
## # weights: 96
## initial value 3999.495444
## iter 10 value 1109.454397
## iter 20 value 1082.118421
## iter 30 value 1068.699101
## iter 40 value 1060.670950
## iter 50 value 1056.454380
## iter 60 value 1050.795484
## iter 70 value 1047.279191
## iter 80 value 1045.982712
## iter 90 value 1045.612120
## iter 100 value 1045.185233
## final value 1045.185233
## stopped after 100 iterations
## - Fold1: decay= 1.2840, size=5
## + Fold1: decay= 1.6487, size=5
## # weights: 96
## initial value 2165.897148
## iter 10 value 1196.183306
## iter 20 value 1089.045088
## iter 30 value 1069.103325
## iter 40 value 1062.501805
## iter 50 value 1056.841761
## iter 60 value 1051.635507
## iter 70 value 1050.667656
## iter 80 value 1050.551355
## iter 90 value 1050.531290
## iter 100 value 1050.523261
## final value 1050.523261
## stopped after 100 iterations
## - Fold1: decay= 1.6487, size=5
## + Fold1: decay= 2.1170, size=5

```

```

## # weights: 96
## initial value 3121.061593
## iter 10 value 1209.091225
## iter 20 value 1095.996739
## iter 30 value 1080.709488
## iter 40 value 1073.594040
## iter 50 value 1059.608043
## iter 60 value 1056.919436
## iter 70 value 1056.221652
## iter 80 value 1055.921585
## iter 90 value 1055.789603
## iter 100 value 1055.751583
## final value 1055.751583
## stopped after 100 iterations
## - Fold1: decay= 2.1170, size=5
## + Fold1: decay= 2.7183, size=5
## # weights: 96
## initial value 1358.063572
## iter 10 value 1107.207621
## iter 20 value 1068.982677
## iter 30 value 1063.662063
## iter 40 value 1062.136564
## iter 50 value 1061.815979
## iter 60 value 1061.709226
## iter 70 value 1061.697800
## iter 80 value 1061.689319
## iter 90 value 1061.677912
## iter 100 value 1061.671849
## final value 1061.671849
## stopped after 100 iterations
## - Fold1: decay= 2.7183, size=5
## + Fold1: decay= 3.4903, size=5
## # weights: 96
## initial value 2012.835427
## iter 10 value 1226.888698
## iter 20 value 1087.975773
## iter 30 value 1078.140757
## iter 40 value 1069.825556
## iter 50 value 1067.346621
## iter 60 value 1067.121217
## iter 70 value 1067.055294
## final value 1067.051273
## converged
## - Fold1: decay= 3.4903, size=5
## + Fold1: decay= 4.4817, size=5
## # weights: 96
## initial value 2609.185162
## iter 10 value 1321.101135
## iter 20 value 1109.913173
## iter 30 value 1094.173584
## iter 40 value 1081.624481
## iter 50 value 1074.670268
## iter 60 value 1073.788278
## iter 70 value 1073.639842

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## iter 80 value 1073.612590
## final value 1073.611528
## converged
## - Fold1: decay= 4.4817, size=5
## + Fold1: decay= 5.7546, size=5
## # weights: 96
## initial value 1312.385146
## iter 10 value 1162.226120
## iter 20 value 1084.652986
## iter 30 value 1081.973108
## iter 40 value 1081.435349
## iter 50 value 1081.353105
## iter 60 value 1081.337701
## final value 1081.337532
## converged
## - Fold1: decay= 5.7546, size=5
## + Fold1: decay= 7.3891, size=5
## # weights: 96
## initial value 1840.982755
## iter 10 value 1172.294440
## iter 20 value 1114.829299
## iter 30 value 1100.540705
## iter 40 value 1093.581366
## iter 50 value 1092.420394
## iter 60 value 1091.663465
## iter 70 value 1090.613245
## iter 80 value 1090.398247
## iter 90 value 1090.286954
## iter 100 value 1090.218959
## final value 1090.218959
## stopped after 100 iterations
## - Fold1: decay= 7.3891, size=5
## + Fold1: decay= 9.4877, size=5
## # weights: 96
## initial value 2236.227866
## iter 10 value 1274.002693
## iter 20 value 1142.800849
## iter 30 value 1119.115911
## iter 40 value 1105.223721
## iter 50 value 1101.145240
## iter 60 value 1100.363051
## iter 70 value 1100.316623
## iter 80 value 1100.092814
## iter 90 value 1099.353982
## iter 100 value 1099.194848
## final value 1099.194848
## stopped after 100 iterations
## - Fold1: decay= 9.4877, size=5
## + Fold1: decay=12.1825, size=5
## # weights: 96
## initial value 3092.605272
## iter 10 value 1331.244549
## iter 20 value 1188.487378
## iter 30 value 1141.002823

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## iter 40 value 1118.110996
## iter 50 value 1113.311826
## iter 60 value 1110.554116
## iter 70 value 1110.119133
## iter 80 value 1110.064499
## iter 90 value 1110.055861
## final value 1110.055781
## converged
## - Fold1: decay=12.1825, size=5
## + Fold2: decay= 0.3679, size=1
## # weights: 20
## initial value 3240.597899
## iter 10 value 1076.320141
## iter 20 value 1049.663249
## iter 30 value 1042.035776
## iter 40 value 1041.614129
## iter 50 value 1041.607597
## final value 1041.606954
## converged
## - Fold2: decay= 0.3679, size=1
## + Fold2: decay= 0.4724, size=1
## # weights: 20
## initial value 1678.511363
## iter 10 value 1068.601181
## iter 20 value 1045.595313
## iter 30 value 1043.501365
## iter 40 value 1043.385728
## iter 50 value 1043.355261
## iter 60 value 1043.354760
## iter 60 value 1043.354755
## iter 60 value 1043.354749
## final value 1043.354749
## converged
## - Fold2: decay= 0.4724, size=1
## + Fold2: decay= 0.6065, size=1
## # weights: 20
## initial value 2370.950905
## iter 10 value 1079.683906
## iter 20 value 1051.807415
## iter 30 value 1045.455209
## iter 40 value 1045.095958
## iter 50 value 1045.052612
## iter 60 value 1045.044599
## final value 1045.044511
## converged
## - Fold2: decay= 0.6065, size=1
## + Fold2: decay= 0.7788, size=1
## # weights: 20
## initial value 1665.599024
## iter 10 value 1070.502918
## iter 20 value 1050.695212
## iter 30 value 1047.363429
## final value 1047.359685
## converged

```

```

## - Fold2: decay= 0.7788, size=1
## + Fold2: decay= 1.0000, size=1
## # weights: 20
## initial value 2289.517973
## iter 10 value 1073.278175
## iter 20 value 1055.417570
## iter 30 value 1050.193660
## iter 40 value 1050.099768
## final value 1050.098554
## converged
## - Fold2: decay= 1.0000, size=1
## + Fold2: decay= 1.2840, size=1
## # weights: 20
## initial value 1798.455346
## iter 10 value 1072.307408
## iter 20 value 1055.541077
## iter 30 value 1053.442530
## iter 40 value 1053.389606
## final value 1053.389451
## converged
## - Fold2: decay= 1.2840, size=1
## + Fold2: decay= 1.6487, size=1
## # weights: 20
## initial value 2468.513226
## iter 10 value 1080.499239
## iter 20 value 1071.031005
## iter 30 value 1070.512976
## final value 1070.504685
## converged
## - Fold2: decay= 1.6487, size=1
## + Fold2: decay= 2.1170, size=1
## # weights: 20
## initial value 2274.480817
## iter 10 value 1095.316542
## iter 20 value 1065.858792
## iter 30 value 1062.235442
## iter 40 value 1062.176141
## final value 1062.176053
## converged
## - Fold2: decay= 2.1170, size=1
## + Fold2: decay= 2.7183, size=1
## # weights: 20
## initial value 1407.839135
## iter 10 value 1082.497083
## iter 20 value 1068.257514
## iter 30 value 1067.783142
## final value 1067.772808
## converged
## - Fold2: decay= 2.7183, size=1
## + Fold2: decay= 3.4903, size=1
## # weights: 20
## initial value 2416.482591
## iter 10 value 1095.301255
## iter 20 value 1075.573643

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```

## iter 30 value 1074.592841
## final value 1074.585827
## converged
## - Fold2: decay= 3.4903, size=1
## + Fold2: decay= 4.4817, size=1
## # weights: 20
## initial value 1747.898087
## iter 10 value 1110.586302
## iter 20 value 1084.491894
## iter 30 value 1082.635527
## final value 1082.631523
## converged
## - Fold2: decay= 4.4817, size=1
## + Fold2: decay= 5.7546, size=1
## # weights: 20
## initial value 2546.728714
## iter 10 value 1101.282136
## iter 20 value 1092.344488
## iter 30 value 1092.117424
## final value 1092.114677
## converged
## - Fold2: decay= 5.7546, size=1
## + Fold2: decay= 7.3891, size=1
## # weights: 20
## initial value 1805.650193
## iter 10 value 1118.939471
## iter 20 value 1103.433101
## iter 30 value 1102.833693
## final value 1102.832743
## converged
## - Fold2: decay= 7.3891, size=1
## + Fold2: decay= 9.4877, size=1
## # weights: 20
## initial value 2128.937078
## iter 10 value 1128.548195
## iter 20 value 1115.831022
## iter 30 value 1114.868301
## final value 1114.868281
## converged
## - Fold2: decay= 9.4877, size=1
## + Fold2: decay=12.1825, size=1
## # weights: 20
## initial value 2396.069328
## iter 10 value 1156.672566
## iter 20 value 1131.388419
## iter 30 value 1128.581211
## final value 1128.580959
## converged
## - Fold2: decay=12.1825, size=1
## + Fold2: decay= 0.3679, size=2
## # weights: 39
## initial value 1542.585421
## iter 10 value 1066.573106
## iter 20 value 1044.400240

```

```

## iter 30 value 1034.080568
## iter 40 value 1030.508198
## iter 50 value 1029.902032
## iter 60 value 1029.749714
## iter 70 value 1029.723370
## final value 1029.722464
## converged
## - Fold2: decay= 0.3679, size=2
## + Fold2: decay= 0.4724, size=2
## # weights: 39
## initial value 1562.307631
## iter 10 value 1052.682630
## iter 20 value 1037.388811
## iter 30 value 1033.963676
## iter 40 value 1033.054430
## iter 50 value 1032.667759
## final value 1032.651704
## converged
## - Fold2: decay= 0.4724, size=2
## + Fold2: decay= 0.6065, size=2
## # weights: 39
## initial value 1471.081090
## iter 10 value 1068.257103
## iter 20 value 1050.193009
## iter 30 value 1038.803154
## iter 40 value 1036.726953
## iter 50 value 1035.705564
## iter 60 value 1035.399175
## iter 70 value 1035.381531
## iter 70 value 1035.381529
## iter 70 value 1035.381529
## final value 1035.381529
## converged
## - Fold2: decay= 0.6065, size=2
## + Fold2: decay= 0.7788, size=2
## # weights: 39
## initial value 2989.645700
## iter 10 value 1108.272967
## iter 20 value 1062.089252
## iter 30 value 1048.563781
## iter 40 value 1041.912715
## iter 50 value 1039.820711
## iter 60 value 1039.111833
## iter 70 value 1038.880227
## final value 1038.877570
## converged
## - Fold2: decay= 0.7788, size=2
## + Fold2: decay= 1.0000, size=2
## # weights: 39
## initial value 2981.353427
## iter 10 value 1098.771133
## iter 20 value 1058.778938
## iter 30 value 1047.514432
## iter 40 value 1043.563053

```

```

## iter 50 value 1042.536126
## iter 60 value 1042.424212
## final value 1042.424094
## converged
## - Fold2: decay= 1.0000, size=2
## + Fold2: decay= 1.2840, size=2
## # weights: 39
## initial value 1598.604060
## iter 10 value 1080.842688
## iter 20 value 1058.699101
## iter 30 value 1049.905786
## iter 40 value 1047.874784
## iter 50 value 1046.999017
## iter 60 value 1046.712268
## final value 1046.697521
## converged
## - Fold2: decay= 1.2840, size=2
## + Fold2: decay= 1.6487, size=2
## # weights: 39
## initial value 2285.301265
## iter 10 value 1125.017128
## iter 20 value 1075.979397
## iter 30 value 1057.641963
## iter 40 value 1052.149083
## iter 50 value 1051.241280
## iter 60 value 1051.235095
## final value 1051.235041
## converged
## - Fold2: decay= 1.6487, size=2
## + Fold2: decay= 2.1170, size=2
## # weights: 39
## initial value 1708.436628
## iter 10 value 1101.637401
## iter 20 value 1064.814328
## iter 30 value 1060.816310
## iter 40 value 1059.596386
## iter 50 value 1059.560370
## final value 1059.559329
## converged
## - Fold2: decay= 2.1170, size=2
## + Fold2: decay= 2.7183, size=2
## # weights: 39
## initial value 3010.487499
## iter 10 value 1113.097064
## iter 20 value 1073.945009
## iter 30 value 1066.240862
## iter 40 value 1062.320185
## iter 50 value 1061.927173
## final value 1061.924441
## converged
## - Fold2: decay= 2.7183, size=2
## + Fold2: decay= 3.4903, size=2
## # weights: 39
## initial value 2913.060125

```



```

## iter 10 value 1124.601926
## iter 20 value 1083.826115
## iter 30 value 1071.480568
## iter 40 value 1068.546040
## iter 50 value 1068.438738
## final value 1068.437114
## converged
## - Fold2: decay= 3.4903, size=2
## + Fold2: decay= 4.4817, size=2
## # weights: 39
## initial value 1415.053580
## iter 10 value 1093.779207
## iter 20 value 1076.926835
## iter 30 value 1075.532556
## iter 40 value 1075.492875
## final value 1075.492571
## converged
## - Fold2: decay= 4.4817, size=2
## + Fold2: decay= 5.7546, size=2
## # weights: 39
## initial value 1614.898128
## iter 10 value 1107.362006
## iter 20 value 1088.899032
## iter 30 value 1084.443877
## iter 40 value 1083.857627
## iter 50 value 1083.851991
## final value 1083.851807
## converged
## - Fold2: decay= 5.7546, size=2
## + Fold2: decay= 7.3891, size=2
## # weights: 39
## initial value 1977.314511
## iter 10 value 1114.120666
## iter 20 value 1102.965254
## iter 30 value 1093.602350
## iter 40 value 1093.456041
## final value 1093.455885
## converged
## - Fold2: decay= 7.3891, size=2
## + Fold2: decay= 9.4877, size=2
## # weights: 39
## initial value 2712.264147
## iter 10 value 1184.935340
## iter 20 value 1119.218349
## iter 30 value 1105.633051
## iter 40 value 1104.591236
## iter 50 value 1104.584257
## final value 1104.584186
## converged
## - Fold2: decay= 9.4877, size=2
## + Fold2: decay=12.1825, size=2
## # weights: 39
## initial value 2543.199198
## iter 10 value 1165.341099

```

```

## iter 20 value 1122.416643
## iter 30 value 1117.209022
## iter 40 value 1117.194610
## iter 40 value 1117.194603
## iter 40 value 1117.194601
## final value 1117.194601
## converged
## - Fold2: decay=12.1825, size=2
## + Fold2: decay= 0.3679, size=3
## # weights: 58
## initial value 1727.584020
## iter 10 value 1068.116262
## iter 20 value 1054.356560
## iter 30 value 1033.257831
## iter 40 value 1027.941120
## iter 50 value 1025.438075
## iter 60 value 1024.178173
## iter 70 value 1023.485363
## iter 80 value 1023.195342
## iter 90 value 1023.162470
## final value 1023.162381
## converged
## - Fold2: decay= 0.3679, size=3
## + Fold2: decay= 0.4724, size=3
## # weights: 58
## initial value 2431.940511
## iter 10 value 1081.712274
## iter 20 value 1051.101343
## iter 30 value 1036.933079
## iter 40 value 1030.671725
## iter 50 value 1029.404721
## iter 60 value 1029.088324
## iter 70 value 1028.831438
## iter 80 value 1028.812316
## iter 90 value 1028.792900
## final value 1028.790031
## converged
## - Fold2: decay= 0.4724, size=3
## + Fold2: decay= 0.6065, size=3
## # weights: 58
## initial value 1540.549645
## iter 10 value 1048.923610
## iter 20 value 1038.825952
## iter 30 value 1034.146633
## iter 40 value 1032.581312
## iter 50 value 1032.424103
## iter 60 value 1032.416855
## iter 70 value 1032.413997
## iter 70 value 1032.413991
## iter 70 value 1032.413991
## final value 1032.413991
## converged
## - Fold2: decay= 0.6065, size=3
## + Fold2: decay= 0.7788, size=3

```

```

## # weights:  58
## initial  value 1805.649140
## iter   10 value 1090.981413
## iter   20 value 1057.847423
## iter   30 value 1043.145132
## iter   40 value 1040.157803
## iter   50 value 1038.958431
## iter   60 value 1036.693272
## iter   70 value 1036.554752
## iter   80 value 1036.471080
## iter   90 value 1036.444969
## iter  100 value 1036.413581
## final   value 1036.413581
## stopped after 100 iterations
## - Fold2: decay= 0.7788, size=3
## + Fold2: decay= 1.0000, size=3
## # weights:  58
## initial  value 1778.268777
## iter   10 value 1077.036788
## iter   20 value 1054.379885
## iter   30 value 1044.835780
## iter   40 value 1041.909838
## iter   50 value 1041.554983
## iter   60 value 1041.483182
## iter   70 value 1041.472047
## final   value 1041.471614
## converged
## - Fold2: decay= 1.0000, size=3
## + Fold2: decay= 1.2840, size=3
## # weights:  58
## initial  value 1735.091607
## iter   10 value 1083.646672
## iter   20 value 1056.353357
## iter   30 value 1050.241082
## iter   40 value 1047.039043
## iter   50 value 1046.248555
## iter   60 value 1045.868796
## iter   70 value 1045.785701
## final   value 1045.785489
## converged
## - Fold2: decay= 1.2840, size=3
## + Fold2: decay= 1.6487, size=3
## # weights:  58
## initial  value 1178.169612
## iter   10 value 1063.962224
## iter   20 value 1055.078138
## iter   30 value 1051.511856
## iter   40 value 1050.252338
## iter   50 value 1049.991002
## iter   60 value 1049.922851
## iter   70 value 1049.907034
## iter   80 value 1049.902356
## final   value 1049.902307
## converged

```

```

## - Fold2: decay= 1.6487, size=3
## + Fold2: decay= 2.1170, size=3
## # weights: 58
## initial value 1966.247667
## iter 10 value 1128.035809
## iter 20 value 1071.495564
## iter 30 value 1060.223933
## iter 40 value 1055.978360
## iter 50 value 1055.511390
## iter 60 value 1055.381480
## iter 70 value 1055.314611
## iter 80 value 1055.296340
## final value 1055.293338
## converged
## - Fold2: decay= 2.1170, size=3
## + Fold2: decay= 2.7183, size=3
## # weights: 58
## initial value 1311.067243
## iter 10 value 1084.171633
## iter 20 value 1064.511294
## iter 30 value 1061.869543
## iter 40 value 1061.164493
## iter 50 value 1061.106392
## iter 60 value 1061.092677
## final value 1061.092350
## converged
## - Fold2: decay= 2.7183, size=3
## + Fold2: decay= 3.4903, size=3
## # weights: 58
## initial value 2434.029548
## iter 10 value 1188.238003
## iter 20 value 1080.205562
## iter 30 value 1071.441381
## iter 40 value 1066.978022
## iter 50 value 1066.373218
## iter 60 value 1066.292365
## iter 70 value 1066.280689
## iter 80 value 1066.276380
## final value 1066.276350
## converged
## - Fold2: decay= 3.4903, size=3
## + Fold2: decay= 4.4817, size=3
## # weights: 58
## initial value 1641.957148
## iter 10 value 1116.267598
## iter 20 value 1083.952616
## iter 30 value 1075.762417
## iter 40 value 1073.181126
## iter 50 value 1072.990197
## final value 1072.984723
## converged
## - Fold2: decay= 4.4817, size=3
## + Fold2: decay= 5.7546, size=3
## # weights: 58

```

```

## initial value 1778.996517
## iter 10 value 1155.103576
## iter 20 value 1094.343938
## iter 30 value 1087.585723
## iter 40 value 1083.394941
## iter 50 value 1081.743778
## iter 60 value 1080.777926
## iter 70 value 1080.759710
## final value 1080.759477
## converged
## - Fold2: decay= 5.7546, size=3
## + Fold2: decay= 7.3891, size=3
## # weights: 58
## initial value 2079.798463
## iter 10 value 1151.174857
## iter 20 value 1110.018577
## iter 30 value 1093.016762
## iter 40 value 1089.913517
## iter 50 value 1089.788972
## final value 1089.785808
## converged
## - Fold2: decay= 7.3891, size=3
## + Fold2: decay= 9.4877, size=3
## # weights: 58
## initial value 1545.621741
## iter 10 value 1137.016056
## iter 20 value 1102.960504
## iter 30 value 1100.417206
## iter 40 value 1100.289416
## final value 1100.287548
## converged
## - Fold2: decay= 9.4877, size=3
## + Fold2: decay=12.1825, size=3
## # weights: 58
## initial value 1985.513615
## iter 10 value 1171.973690
## iter 20 value 1118.712765
## iter 30 value 1114.311756
## iter 40 value 1112.823155
## iter 50 value 1112.227503
## iter 60 value 1112.216323
## final value 1112.216244
## converged
## - Fold2: decay=12.1825, size=3
## + Fold2: decay= 0.3679, size=4
## # weights: 77
## initial value 1458.639315
## iter 10 value 1084.839911
## iter 20 value 1035.032906
## iter 30 value 1026.535750
## iter 40 value 1020.274645
## iter 50 value 1017.357362
## iter 60 value 1016.082496
## iter 70 value 1014.234538

```

```

## iter 80 value 1011.881581
## iter 90 value 1011.080406
## iter 100 value 1010.748432
## final value 1010.748432
## stopped after 100 iterations
## - Fold2: decay= 0.3679, size=4
## + Fold2: decay= 0.4724, size=4
## # weights: 77
## initial value 2382.738200
## iter 10 value 1110.880954
## iter 20 value 1063.434424
## iter 30 value 1045.358164
## iter 40 value 1035.534154
## iter 50 value 1030.762924
## iter 60 value 1027.109559
## iter 70 value 1024.792353
## iter 80 value 1024.407064
## iter 90 value 1024.313181
## iter 100 value 1024.068786
## final value 1024.068786
## stopped after 100 iterations
## - Fold2: decay= 0.4724, size=4
## + Fold2: decay= 0.6065, size=4
## # weights: 77
## initial value 1490.752045
## iter 10 value 1074.939693
## iter 20 value 1044.222509
## iter 30 value 1036.344609
## iter 40 value 1033.303048
## iter 50 value 1031.762097
## iter 60 value 1031.247851
## iter 70 value 1030.878059
## iter 80 value 1030.855974
## iter 90 value 1030.840338
## iter 90 value 1030.840332
## iter 90 value 1030.840332
## final value 1030.840332
## converged
## - Fold2: decay= 0.6065, size=4
## + Fold2: decay= 0.7788, size=4
## # weights: 77
## initial value 2816.656155
## iter 10 value 1134.292200
## iter 20 value 1074.374927
## iter 30 value 1050.474278
## iter 40 value 1044.950691
## iter 50 value 1040.617231
## iter 60 value 1037.769584
## iter 70 value 1036.704422
## iter 80 value 1035.267151
## iter 90 value 1034.685659
## iter 100 value 1034.614544
## final value 1034.614544
## stopped after 100 iterations

```

```

## - Fold2: decay= 0.7788, size=4
## + Fold2: decay= 1.0000, size=4
## # weights: 77
## initial value 2087.945712
## iter 10 value 1105.861140
## iter 20 value 1069.463473
## iter 30 value 1049.417341
## iter 40 value 1044.657608
## iter 50 value 1042.033437
## iter 60 value 1040.633448
## iter 70 value 1040.441198
## iter 80 value 1040.291316
## iter 90 value 1040.058951
## iter 100 value 1039.886543
## final value 1039.886543
## stopped after 100 iterations
## - Fold2: decay= 1.0000, size=4
## + Fold2: decay= 1.2840, size=4
## # weights: 77
## initial value 1411.879386
## iter 10 value 1063.328567
## iter 20 value 1054.324699
## iter 30 value 1048.026285
## iter 40 value 1046.133624
## iter 50 value 1045.393059
## iter 60 value 1045.030836
## iter 70 value 1044.906021
## iter 80 value 1044.852768
## iter 90 value 1044.834271
## iter 100 value 1044.832893
## final value 1044.832893
## stopped after 100 iterations
## - Fold2: decay= 1.2840, size=4
## + Fold2: decay= 1.6487, size=4
## # weights: 77
## initial value 2351.518070
## iter 10 value 1104.302341
## iter 20 value 1069.225170
## iter 30 value 1062.019371
## iter 40 value 1055.656917
## iter 50 value 1052.063441
## iter 60 value 1051.473632
## iter 70 value 1050.782468
## iter 80 value 1050.353582
## iter 90 value 1050.141706
## iter 100 value 1050.091206
## final value 1050.091206
## stopped after 100 iterations
## - Fold2: decay= 1.6487, size=4
## + Fold2: decay= 2.1170, size=4
## # weights: 77
## initial value 2403.396203
## iter 10 value 1150.906684
## iter 20 value 1077.986886

```

```

## iter 30 value 1066.358123
## iter 40 value 1058.217935
## iter 50 value 1054.925671
## iter 60 value 1054.434462
## iter 70 value 1054.368545
## iter 80 value 1054.335342
## iter 90 value 1054.316531
## final value 1054.314431
## converged
## - Fold2: decay= 2.1170, size=4
## + Fold2: decay= 2.7183, size=4
## # weights: 77
## initial value 3048.350901
## iter 10 value 1150.540709
## iter 20 value 1087.759277
## iter 30 value 1074.003673
## iter 40 value 1065.848301
## iter 50 value 1060.218431
## iter 60 value 1059.949444
## iter 70 value 1059.726230
## iter 80 value 1059.710419
## iter 90 value 1059.707965
## final value 1059.707717
## converged
## - Fold2: decay= 2.7183, size=4
## + Fold2: decay= 3.4903, size=4
## # weights: 77
## initial value 1956.756014
## iter 10 value 1176.331539
## iter 20 value 1079.177992
## iter 30 value 1071.769166
## iter 40 value 1066.853123
## iter 50 value 1065.782970
## iter 60 value 1065.612827
## iter 70 value 1065.582149
## iter 80 value 1065.578436
## final value 1065.577820
## converged
## - Fold2: decay= 3.4903, size=4
## + Fold2: decay= 4.4817, size=4
## # weights: 77
## initial value 1468.884028
## iter 10 value 1142.410829
## iter 20 value 1076.629956
## iter 30 value 1073.371201
## iter 40 value 1072.482891
## iter 50 value 1072.273489
## iter 60 value 1072.251194
## final value 1072.248075
## converged
## - Fold2: decay= 4.4817, size=4
## + Fold2: decay= 5.7546, size=4
## # weights: 77
## initial value 1493.037646

```



```

## iter 10 value 1152.948745
## iter 20 value 1090.765910
## iter 30 value 1083.255144
## iter 40 value 1079.626925
## iter 50 value 1079.266308
## iter 60 value 1079.260021
## final value 1079.259650
## converged
## - Fold2: decay= 5.7546, size=4
## + Fold2: decay= 7.3891, size=4
## # weights: 77
## initial value 3223.039799
## iter 10 value 1263.607545
## iter 20 value 1184.204631
## iter 30 value 1124.139753
## iter 40 value 1094.035463
## iter 50 value 1088.881724
## iter 60 value 1087.998586
## iter 70 value 1087.989585
## final value 1087.989466
## converged
## - Fold2: decay= 7.3891, size=4
## + Fold2: decay= 9.4877, size=4
## # weights: 77
## initial value 1740.305246
## iter 10 value 1160.100427
## iter 20 value 1111.184128
## iter 30 value 1101.340188
## iter 40 value 1099.110051
## iter 50 value 1098.064253
## iter 60 value 1098.048529
## final value 1098.048414
## converged
## - Fold2: decay= 9.4877, size=4
## + Fold2: decay=12.1825, size=4
## # weights: 77
## initial value 4200.413436
## iter 10 value 1391.594995
## iter 20 value 1246.044142
## iter 30 value 1130.122214
## iter 40 value 1114.880772
## iter 50 value 1110.926442
## iter 60 value 1109.794912
## iter 70 value 1109.613035
## iter 80 value 1109.608915
## final value 1109.608849
## converged
## - Fold2: decay=12.1825, size=4
## + Fold2: decay= 0.3679, size=5
## # weights: 96
## initial value 2366.169293
## iter 10 value 1113.072441
## iter 20 value 1061.947877
## iter 30 value 1038.169357

```

```

## iter 40 value 1027.512456
## iter 50 value 1020.110792
## iter 60 value 1016.355804
## iter 70 value 1014.457073
## iter 80 value 1012.433507
## iter 90 value 1011.380161
## iter 100 value 1009.382857
## final value 1009.382857
## stopped after 100 iterations
## - Fold2: decay= 0.3679, size=5
## + Fold2: decay= 0.4724, size=5
## # weights: 96
## initial value 1830.557325
## iter 10 value 1085.783286
## iter 20 value 1065.045090
## iter 30 value 1049.235079
## iter 40 value 1038.449572
## iter 50 value 1031.145883
## iter 60 value 1027.949137
## iter 70 value 1026.706974
## iter 80 value 1025.551811
## iter 90 value 1025.448321
## iter 100 value 1025.400848
## final value 1025.400848
## stopped after 100 iterations
## - Fold2: decay= 0.4724, size=5
## + Fold2: decay= 0.6065, size=5
## # weights: 96
## initial value 1580.102625
## iter 10 value 1081.925787
## iter 20 value 1048.526752
## iter 30 value 1034.960024
## iter 40 value 1031.992019
## iter 50 value 1030.420889
## iter 60 value 1028.242517
## iter 70 value 1026.677352
## iter 80 value 1026.427346
## iter 90 value 1026.287536
## iter 100 value 1026.193487
## final value 1026.193487
## stopped after 100 iterations
## - Fold2: decay= 0.6065, size=5
## + Fold2: decay= 0.7788, size=5
## # weights: 96
## initial value 2853.190571
## iter 10 value 1148.240253
## iter 20 value 1090.904966
## iter 30 value 1056.811321
## iter 40 value 1050.802564
## iter 50 value 1046.755818
## iter 60 value 1040.825897
## iter 70 value 1038.588295
## iter 80 value 1036.724590
## iter 90 value 1035.051769

```

```

## iter 100 value 1034.432900
## final value 1034.432900
## stopped after 100 iterations
## - Fold2: decay= 0.7788, size=5
## + Fold2: decay= 1.0000, size=5
## # weights: 96
## initial value 2931.476967
## iter 10 value 1199.898163
## iter 20 value 1094.737195
## iter 30 value 1064.758437
## iter 40 value 1056.863370
## iter 50 value 1052.061690
## iter 60 value 1047.597107
## iter 70 value 1041.044703
## iter 80 value 1039.699018
## iter 90 value 1039.507309
## iter 100 value 1039.062715
## final value 1039.062715
## stopped after 100 iterations
## - Fold2: decay= 1.0000, size=5
## + Fold2: decay= 1.2840, size=5
## # weights: 96
## initial value 2285.519455
## iter 10 value 1177.459695
## iter 20 value 1075.998324
## iter 30 value 1059.079261
## iter 40 value 1052.962172
## iter 50 value 1048.192533
## iter 60 value 1045.880967
## iter 70 value 1045.262292
## iter 80 value 1045.056377
## iter 90 value 1044.916779
## iter 100 value 1044.820262
## final value 1044.820262
## stopped after 100 iterations
## - Fold2: decay= 1.2840, size=5
## + Fold2: decay= 1.6487, size=5
## # weights: 96
## initial value 1517.054731
## iter 10 value 1110.050916
## iter 20 value 1084.826709
## iter 30 value 1058.209825
## iter 40 value 1051.261151
## iter 50 value 1049.977567
## iter 60 value 1049.710843
## iter 70 value 1049.577221
## iter 80 value 1049.556830
## iter 90 value 1049.524789
## iter 100 value 1049.458246
## final value 1049.458246
## stopped after 100 iterations
## - Fold2: decay= 1.6487, size=5
## + Fold2: decay= 2.1170, size=5
## # weights: 96

```

```

## initial value 1732.643269
## iter 10 value 1151.533249
## iter 20 value 1084.245611
## iter 30 value 1068.521387
## iter 40 value 1060.152139
## iter 50 value 1056.588924
## iter 60 value 1054.901944
## iter 70 value 1054.625743
## iter 80 value 1054.573660
## iter 90 value 1054.547727
## iter 100 value 1054.404871
## final value 1054.404871
## stopped after 100 iterations
## - Fold2: decay= 2.1170, size=5
## + Fold2: decay= 2.7183, size=5
## # weights: 96
## initial value 1367.897847
## iter 10 value 1082.622859
## iter 20 value 1063.643620
## iter 30 value 1060.722394
## iter 40 value 1059.347877
## iter 50 value 1059.003176
## iter 60 value 1058.977032
## iter 70 value 1058.970817
## final value 1058.970336
## converged
## - Fold2: decay= 2.7183, size=5
## + Fold2: decay= 3.4903, size=5
## # weights: 96
## initial value 1593.675859
## iter 10 value 1159.076298
## iter 20 value 1083.760626
## iter 30 value 1071.367213
## iter 40 value 1066.912328
## iter 50 value 1065.327653
## iter 60 value 1064.788506
## iter 70 value 1064.606909
## iter 80 value 1064.536786
## iter 90 value 1064.514989
## iter 100 value 1064.506137
## final value 1064.506137
## stopped after 100 iterations
## - Fold2: decay= 3.4903, size=5
## + Fold2: decay= 4.4817, size=5
## # weights: 96
## initial value 2218.263422
## iter 10 value 1180.605302
## iter 20 value 1104.124357
## iter 30 value 1086.467364
## iter 40 value 1075.815417
## iter 50 value 1072.279704
## iter 60 value 1071.145723
## iter 70 value 1070.972728
## iter 80 value 1070.937759

```

```

## iter 90 value 1070.922301
## iter 100 value 1070.920183
## final value 1070.920183
## stopped after 100 iterations
## - Fold2: decay= 4.4817, size=5
## + Fold2: decay= 5.7546, size=5
## # weights: 96
## initial value 1469.539953
## iter 10 value 1175.444344
## iter 20 value 1094.553517
## iter 30 value 1082.165933
## iter 40 value 1079.561028
## iter 50 value 1079.102079
## iter 60 value 1078.743327
## iter 70 value 1078.598647
## iter 80 value 1078.584412
## final value 1078.582843
## converged
## - Fold2: decay= 5.7546, size=5
## + Fold2: decay= 7.3891, size=5
## # weights: 96
## initial value 3983.215340
## iter 10 value 1365.779335
## iter 20 value 1259.765741
## iter 30 value 1185.666548
## iter 40 value 1113.381331
## iter 50 value 1093.644799
## iter 60 value 1088.792585
## iter 70 value 1087.991361
## iter 80 value 1087.926121
## iter 90 value 1087.836170
## iter 100 value 1087.820285
## final value 1087.820285
## stopped after 100 iterations
## - Fold2: decay= 7.3891, size=5
## + Fold2: decay= 9.4877, size=5
## # weights: 96
## initial value 1949.510211
## iter 10 value 1182.901727
## iter 20 value 1117.564900
## iter 30 value 1103.775327
## iter 40 value 1099.297400
## iter 50 value 1098.175508
## iter 60 value 1098.132893
## iter 70 value 1098.116681
## iter 80 value 1098.012557
## iter 90 value 1097.397347
## iter 100 value 1096.949749
## final value 1096.949749
## stopped after 100 iterations
## - Fold2: decay= 9.4877, size=5
## + Fold2: decay=12.1825, size=5
## # weights: 96
## initial value 1705.887239

```

```

## iter 10 value 1188.451609
## iter 20 value 1124.244157
## iter 30 value 1113.277611
## iter 40 value 1110.033817
## iter 50 value 1109.341535
## iter 60 value 1108.195900
## iter 70 value 1108.027375
## iter 80 value 1108.019816
## final value 1108.019749
## converged
## - Fold2: decay=12.1825, size=5
## + Fold3: decay= 0.3679, size=1
## # weights: 20
## initial value 2033.778491
## iter 10 value 1068.630718
## iter 20 value 1045.479850
## iter 30 value 1042.667692
## iter 40 value 1042.627633
## final value 1042.626698
## converged
## - Fold3: decay= 0.3679, size=1
## + Fold3: decay= 0.4724, size=1
## # weights: 20
## initial value 1460.895310
## iter 10 value 1054.584206
## iter 20 value 1045.506914
## iter 30 value 1044.124953
## iter 40 value 1044.053529
## final value 1044.053407
## converged
## - Fold3: decay= 0.4724, size=1
## + Fold3: decay= 0.6065, size=1
## # weights: 20
## initial value 1655.674485
## iter 10 value 1062.612282
## iter 20 value 1053.909295
## iter 30 value 1051.397116
## final value 1051.314699
## converged
## - Fold3: decay= 0.6065, size=1
## + Fold3: decay= 0.7788, size=1
## # weights: 20
## initial value 1639.719147
## iter 10 value 1062.924247
## iter 20 value 1048.786247
## iter 30 value 1048.043091
## iter 40 value 1047.988403
## iter 40 value 1047.988401
## iter 40 value 1047.988401
## final value 1047.988401
## converged
## - Fold3: decay= 0.7788, size=1
## + Fold3: decay= 1.0000, size=1
## # weights: 20

```

```

## initial value 1980.541304
## iter 10 value 1080.064464
## iter 20 value 1052.738938
## iter 30 value 1050.502698
## iter 40 value 1050.421239
## final value 1050.421072
## converged
## - Fold3: decay= 1.0000, size=1
## + Fold3: decay= 1.2840, size=1
## # weights: 20
## initial value 3071.353907
## iter 10 value 1102.201181
## iter 20 value 1063.715607
## iter 30 value 1053.792056
## iter 40 value 1053.664476
## iter 50 value 1053.652323
## final value 1053.651783
## converged
## - Fold3: decay= 1.2840, size=1
## + Fold3: decay= 1.6487, size=1
## # weights: 20
## initial value 1370.798251
## iter 10 value 1078.388142
## iter 20 value 1072.182088
## iter 30 value 1070.736154
## final value 1070.732302
## converged
## - Fold3: decay= 1.6487, size=1
## + Fold3: decay= 2.1170, size=1
## # weights: 20
## initial value 1955.529457
## iter 10 value 1079.878738
## iter 20 value 1063.899927
## iter 30 value 1062.437714
## final value 1062.423910
## converged
## - Fold3: decay= 2.1170, size=1
## + Fold3: decay= 2.7183, size=1
## # weights: 20
## initial value 2236.277079
## iter 10 value 1094.005715
## iter 20 value 1069.355217
## iter 30 value 1067.912933
## final value 1067.906251
## converged
## - Fold3: decay= 2.7183, size=1
## + Fold3: decay= 3.4903, size=1
## # weights: 20
## initial value 1427.843082
## iter 10 value 1095.316648
## iter 20 value 1075.140449
## iter 30 value 1074.762815
## final value 1074.756490
## converged

```

```

## - Fold3: decay= 3.4903, size=1
## + Fold3: decay= 4.4817, size=1
## # weights: 20
## initial value 1508.977905
## iter 10 value 1088.733660
## iter 20 value 1083.420168
## iter 30 value 1082.644254
## iter 30 value 1082.644246
## iter 30 value 1082.644246
## final value 1082.644246
## converged
## - Fold3: decay= 4.4817, size=1
## + Fold3: decay= 5.7546, size=1
## # weights: 20
## initial value 2314.919843
## iter 10 value 1120.860901
## iter 20 value 1094.054948
## iter 30 value 1091.797273
## final value 1091.796122
## converged
## - Fold3: decay= 5.7546, size=1
## + Fold3: decay= 7.3891, size=1
## # weights: 20
## initial value 1625.270913
## iter 10 value 1112.419737
## iter 20 value 1103.064237
## iter 30 value 1102.524129
## final value 1102.524054
## converged
## - Fold3: decay= 7.3891, size=1
## + Fold3: decay= 9.4877, size=1
## # weights: 20
## initial value 2131.575022
## iter 10 value 1126.121097
## iter 20 value 1115.058299
## iter 30 value 1114.861447
## final value 1114.861307
## converged
## - Fold3: decay= 9.4877, size=1
## + Fold3: decay=12.1825, size=1
## # weights: 20
## initial value 2367.597843
## iter 10 value 1151.553474
## iter 20 value 1129.139110
## iter 30 value 1128.615459
## iter 30 value 1128.615455
## iter 30 value 1128.615455
## final value 1128.615455
## converged
## - Fold3: decay=12.1825, size=1
## + Fold3: decay= 0.3679, size=2
## # weights: 39
## initial value 1685.402317
## iter 10 value 1060.469439

```



```

## iter 20 value 1044.898079
## iter 30 value 1035.212658
## iter 40 value 1032.250519
## iter 50 value 1031.606603
## iter 60 value 1031.369448
## iter 70 value 1031.320517
## iter 70 value 1031.320512
## iter 70 value 1031.320512
## final value 1031.320512
## converged
## - Fold3: decay= 0.3679, size=2
## + Fold3: decay= 0.4724, size=2
## # weights: 39
## initial value 2204.091342
## iter 10 value 1084.718369
## iter 20 value 1051.262875
## iter 30 value 1041.911556
## iter 40 value 1037.554251
## iter 50 value 1034.486757
## iter 60 value 1034.071012
## iter 70 value 1034.021917
## final value 1034.021410
## converged
## - Fold3: decay= 0.4724, size=2
## + Fold3: decay= 0.6065, size=2
## # weights: 39
## initial value 1924.253108
## iter 10 value 1064.747039
## iter 20 value 1049.177525
## iter 30 value 1040.629977
## iter 40 value 1036.985182
## iter 50 value 1036.786251
## iter 60 value 1036.773187
## final value 1036.773103
## converged
## - Fold3: decay= 0.6065, size=2
## + Fold3: decay= 0.7788, size=2
## # weights: 39
## initial value 1882.756661
## iter 10 value 1097.201501
## iter 20 value 1057.304528
## iter 30 value 1043.099497
## iter 40 value 1041.475184
## iter 50 value 1041.319494
## iter 60 value 1041.246970
## iter 60 value 1041.246967
## iter 60 value 1041.246967
## final value 1041.246967
## converged
## - Fold3: decay= 0.7788, size=2
## + Fold3: decay= 1.0000, size=2
## # weights: 39
## initial value 1987.946417
## iter 10 value 1079.226645

```

```

## iter 20 value 1053.331270
## iter 30 value 1044.072791
## iter 40 value 1043.316630
## iter 50 value 1043.087289
## final value 1043.078580
## converged
## - Fold3: decay= 1.0000, size=2
## + Fold3: decay= 1.2840, size=2
## # weights: 39
## initial value 1547.313598
## iter 10 value 1082.072139
## iter 20 value 1063.412665
## iter 30 value 1052.154732
## iter 40 value 1049.891478
## iter 50 value 1049.440055
## iter 60 value 1049.415615
## iter 70 value 1049.413177
## final value 1049.413146
## converged
## - Fold3: decay= 1.2840, size=2
## + Fold3: decay= 1.6487, size=2
## # weights: 39
## initial value 2143.495056
## iter 10 value 1081.724627
## iter 20 value 1059.405472
## iter 30 value 1054.794832
## iter 40 value 1052.439936
## iter 50 value 1051.837878
## final value 1051.813253
## converged
## - Fold3: decay= 1.6487, size=2
## + Fold3: decay= 2.1170, size=2
## # weights: 39
## initial value 2137.084252
## iter 10 value 1121.130761
## iter 20 value 1070.851057
## iter 30 value 1057.971708
## iter 40 value 1056.477806
## iter 50 value 1056.471197
## final value 1056.470907
## converged
## - Fold3: decay= 2.1170, size=2
## + Fold3: decay= 2.7183, size=2
## # weights: 39
## initial value 2170.498081
## iter 10 value 1122.363339
## iter 20 value 1073.558387
## iter 30 value 1066.162332
## iter 40 value 1062.378034
## iter 50 value 1062.161922
## final value 1062.157287
## converged
## - Fold3: decay= 2.7183, size=2
## + Fold3: decay= 3.4903, size=2

```

```

## # weights: 39
## initial value 1950.823906
## iter 10 value 1096.951631
## iter 20 value 1075.272700
## iter 30 value 1068.895732
## iter 40 value 1068.525945
## iter 50 value 1068.470334
## final value 1068.469945
## converged
## - Fold3: decay= 3.4903, size=2
## + Fold3: decay= 4.4817, size=2
## # weights: 39
## initial value 1847.903219
## iter 10 value 1100.415143
## iter 20 value 1081.067544
## iter 30 value 1075.637819
## iter 40 value 1075.460175
## iter 50 value 1075.452889
## final value 1075.452604
## converged
## - Fold3: decay= 4.4817, size=2
## + Fold3: decay= 5.7546, size=2
## # weights: 39
## initial value 1580.675637
## iter 10 value 1098.227885
## iter 20 value 1084.576836
## iter 30 value 1083.712170
## iter 40 value 1083.677400
## final value 1083.676780
## converged
## - Fold3: decay= 5.7546, size=2
## + Fold3: decay= 7.3891, size=2
## # weights: 39
## initial value 2032.308238
## iter 10 value 1122.558552
## iter 20 value 1103.113172
## iter 30 value 1093.852218
## iter 40 value 1093.250728
## final value 1093.211429
## converged
## - Fold3: decay= 7.3891, size=2
## + Fold3: decay= 9.4877, size=2
## # weights: 39
## initial value 2334.583927
## iter 10 value 1178.908775
## iter 20 value 1113.808769
## iter 30 value 1105.195833
## iter 40 value 1104.489374
## iter 50 value 1104.465853
## iter 50 value 1104.465852
## iter 50 value 1104.465850
## final value 1104.465850
## converged
## - Fold3: decay= 9.4877, size=2

```

```

## + Fold3: decay=12.1825, size=2
## # weights: 39
## initial value 1327.996697
## iter 10 value 1121.601618
## iter 20 value 1117.329626
## iter 30 value 1117.228779
## final value 1117.228501
## converged
## - Fold3: decay=12.1825, size=2
## + Fold3: decay= 0.3679, size=3
## # weights: 58
## initial value 1781.335460
## iter 10 value 1074.611145
## iter 20 value 1046.599401
## iter 30 value 1034.101658
## iter 40 value 1028.173553
## iter 50 value 1024.856215
## iter 60 value 1022.860136
## iter 70 value 1022.429246
## iter 80 value 1022.036576
## iter 90 value 1021.942860
## final value 1021.919803
## converged
## - Fold3: decay= 0.3679, size=3
## + Fold3: decay= 0.4724, size=3
## # weights: 58
## initial value 2486.647799
## iter 10 value 1148.124580
## iter 20 value 1083.028000
## iter 30 value 1053.144091
## iter 40 value 1036.916104
## iter 50 value 1031.893653
## iter 60 value 1027.953322
## iter 70 value 1026.849876
## iter 80 value 1026.496758
## iter 90 value 1026.326972
## iter 100 value 1026.257199
## final value 1026.257199
## stopped after 100 iterations
## - Fold3: decay= 0.4724, size=3
## + Fold3: decay= 0.6065, size=3
## # weights: 58
## initial value 2019.596212
## iter 10 value 1086.835570
## iter 20 value 1051.920972
## iter 30 value 1036.815558
## iter 40 value 1033.325354
## iter 50 value 1031.997812
## iter 60 value 1031.395832
## iter 70 value 1031.310050
## iter 80 value 1031.299620
## final value 1031.297386
## converged
## - Fold3: decay= 0.6065, size=3

```

```

## + Fold3: decay= 0.7788, size=3
## # weights:  58
## initial  value 1727.683984
## iter   10 value 1089.721556
## iter   20 value 1059.940432
## iter   30 value 1044.040804
## iter   40 value 1037.416042
## iter   50 value 1036.721084
## iter   60 value 1036.586552
## iter   70 value 1036.497237
## final   value 1036.497005
## converged
## - Fold3: decay= 0.7788, size=3
## + Fold3: decay= 1.0000, size=3
## # weights:  58
## initial  value 2154.997790
## iter   10 value 1118.468115
## iter   20 value 1062.544681
## iter   30 value 1048.205846
## iter   40 value 1042.559672
## iter   50 value 1041.208174
## iter   60 value 1040.810134
## iter   70 value 1040.793031
## final   value 1040.791440
## converged
## - Fold3: decay= 1.0000, size=3
## + Fold3: decay= 1.2840, size=3
## # weights:  58
## initial  value 1405.366227
## iter   10 value 1077.843733
## iter   20 value 1057.626545
## iter   30 value 1051.631180
## iter   40 value 1048.478387
## iter   50 value 1046.545412
## iter   60 value 1046.280935
## iter   70 value 1046.157891
## iter   80 value 1046.151700
## final   value 1046.151671
## converged
## - Fold3: decay= 1.2840, size=3
## + Fold3: decay= 1.6487, size=3
## # weights:  58
## initial  value 2254.694087
## iter   10 value 1135.250696
## iter   20 value 1068.520435
## iter   30 value 1055.866703
## iter   40 value 1051.321731
## iter   50 value 1050.978221
## iter   60 value 1050.876462
## iter   70 value 1050.868183
## final   value 1050.867652
## converged
## - Fold3: decay= 1.6487, size=3
## + Fold3: decay= 2.1170, size=3

```

```

## # weights: 58
## initial value 2819.232181
## iter 10 value 1114.422597
## iter 20 value 1074.323551
## iter 30 value 1058.927103
## iter 40 value 1056.426701
## iter 50 value 1056.070031
## iter 60 value 1056.006094
## iter 70 value 1055.988725
## iter 80 value 1055.985793
## final value 1055.985646
## converged
## - Fold3: decay= 2.1170, size=3
## + Fold3: decay= 2.7183, size=3
## # weights: 58
## initial value 1995.980601
## iter 10 value 1137.973445
## iter 20 value 1075.385716
## iter 30 value 1067.466444
## iter 40 value 1062.603866
## iter 50 value 1061.696314
## iter 60 value 1061.600528
## iter 70 value 1061.571194
## final value 1061.570748
## converged
## - Fold3: decay= 2.7183, size=3
## + Fold3: decay= 3.4903, size=3
## # weights: 58
## initial value 1792.239439
## iter 10 value 1131.834304
## iter 20 value 1079.432928
## iter 30 value 1067.854960
## iter 40 value 1066.608410
## iter 50 value 1066.422537
## iter 60 value 1066.408110
## final value 1066.407743
## converged
## - Fold3: decay= 3.4903, size=3
## + Fold3: decay= 4.4817, size=3
## # weights: 58
## initial value 2455.097214
## iter 10 value 1183.326523
## iter 20 value 1095.394085
## iter 30 value 1082.654909
## iter 40 value 1076.205657
## iter 50 value 1075.477149
## iter 60 value 1075.144536
## iter 70 value 1075.120950
## final value 1075.114237
## converged
## - Fold3: decay= 4.4817, size=3
## + Fold3: decay= 5.7546, size=3
## # weights: 58
## initial value 1339.186601

```

```

## iter 10 value 1131.131471
## iter 20 value 1084.113933
## iter 30 value 1081.003398
## iter 40 value 1080.609119
## iter 50 value 1080.556166
## iter 60 value 1080.555419
## final value 1080.555393
## converged
## - Fold3: decay= 5.7546, size=3
## + Fold3: decay= 7.3891, size=3
## # weights: 58
## initial value 2712.000182
## iter 10 value 1201.849442
## iter 20 value 1130.552877
## iter 30 value 1104.633739
## iter 40 value 1094.563564
## iter 50 value 1090.364093
## iter 60 value 1089.658385
## iter 70 value 1089.599249
## final value 1089.597655
## converged
## - Fold3: decay= 7.3891, size=3
## + Fold3: decay= 9.4877, size=3
## # weights: 58
## initial value 1936.526999
## iter 10 value 1152.015875
## iter 20 value 1111.017451
## iter 30 value 1100.676482
## iter 40 value 1100.183716
## iter 50 value 1100.165536
## final value 1100.165279
## converged
## - Fold3: decay= 9.4877, size=3
## + Fold3: decay=12.1825, size=3
## # weights: 58
## initial value 3240.976677
## iter 10 value 1217.398758
## iter 20 value 1140.922978
## iter 30 value 1115.552963
## iter 40 value 1112.252444
## iter 50 value 1112.201862
## final value 1112.201700
## converged
## - Fold3: decay=12.1825, size=3
## + Fold3: decay= 0.3679, size=4
## # weights: 77
## initial value 1797.424793
## iter 10 value 1091.444775
## iter 20 value 1045.377311
## iter 30 value 1033.337425
## iter 40 value 1027.240180
## iter 50 value 1024.898705
## iter 60 value 1020.998473
## iter 70 value 1019.277424

```

```

## iter 80 value 1017.451905
## iter 90 value 1016.410063
## iter 100 value 1015.799278
## final value 1015.799278
## stopped after 100 iterations
## - Fold3: decay= 0.3679, size=4
## + Fold3: decay= 0.4724, size=4
## # weights: 77
## initial value 1903.091000
## iter 10 value 1079.797192
## iter 20 value 1049.348670
## iter 30 value 1036.064008
## iter 40 value 1030.974535
## iter 50 value 1027.888647
## iter 60 value 1024.527797
## iter 70 value 1023.338985
## iter 80 value 1022.952704
## iter 90 value 1022.729241
## iter 100 value 1022.724840
## final value 1022.724840
## stopped after 100 iterations
## - Fold3: decay= 0.4724, size=4
## + Fold3: decay= 0.6065, size=4
## # weights: 77
## initial value 1175.608331
## iter 10 value 1050.344391
## iter 20 value 1038.169609
## iter 30 value 1033.347419
## iter 40 value 1029.726761
## iter 50 value 1027.857743
## iter 60 value 1027.469783
## iter 70 value 1027.276860
## iter 80 value 1027.198728
## iter 90 value 1027.186820
## final value 1027.185448
## converged
## - Fold3: decay= 0.6065, size=4
## + Fold3: decay= 0.7788, size=4
## # weights: 77
## initial value 1234.969770
## iter 10 value 1056.613108
## iter 20 value 1039.822469
## iter 30 value 1037.413139
## iter 40 value 1036.688252
## iter 50 value 1036.619371
## iter 60 value 1036.598416
## iter 70 value 1036.566512
## iter 80 value 1036.538689
## iter 90 value 1035.966969
## iter 100 value 1034.915811
## final value 1034.915811
## stopped after 100 iterations
## - Fold3: decay= 0.7788, size=4
## + Fold3: decay= 1.0000, size=4

```



```

## # weights: 77
## initial value 1812.344392
## iter 10 value 1084.232843
## iter 20 value 1060.680926
## iter 30 value 1045.586546
## iter 40 value 1042.752908
## iter 50 value 1041.095543
## iter 60 value 1040.720018
## iter 70 value 1039.999657
## iter 80 value 1039.162258
## iter 90 value 1038.733184
## iter 100 value 1038.722583
## final value 1038.722583
## stopped after 100 iterations
## - Fold3: decay= 1.0000, size=4
## + Fold3: decay= 1.2840, size=4
## # weights: 77
## initial value 1379.665390
## iter 10 value 1089.783500
## iter 20 value 1053.725937
## iter 30 value 1048.227534
## iter 40 value 1046.793741
## iter 50 value 1045.810396
## iter 60 value 1045.066742
## iter 70 value 1044.908516
## iter 80 value 1044.898556
## iter 90 value 1044.895848
## final value 1044.895585
## converged
## - Fold3: decay= 1.2840, size=4
## + Fold3: decay= 1.6487, size=4
## # weights: 77
## initial value 2585.738303
## iter 10 value 1213.081343
## iter 20 value 1073.404222
## iter 30 value 1058.759021
## iter 40 value 1053.489402
## iter 50 value 1050.734229
## iter 60 value 1050.296796
## iter 70 value 1050.200535
## iter 80 value 1050.178445
## iter 90 value 1050.158085
## iter 100 value 1050.102682
## final value 1050.102682
## stopped after 100 iterations
## - Fold3: decay= 1.6487, size=4
## + Fold3: decay= 2.1170, size=4
## # weights: 77
## initial value 1408.041108
## iter 10 value 1070.314996
## iter 20 value 1059.292009
## iter 30 value 1055.692587
## iter 40 value 1055.110772
## iter 50 value 1054.889319

```

```

## iter 60 value 1054.842813
## iter 70 value 1054.833992
## iter 80 value 1054.829944
## final value 1054.829398
## converged
## - Fold3: decay= 2.1170, size=4
## + Fold3: decay= 2.7183, size=4
## # weights: 77
## initial value 1702.598286
## iter 10 value 1104.039388
## iter 20 value 1071.031503
## iter 30 value 1063.830348
## iter 40 value 1062.012280
## iter 50 value 1060.276813
## iter 60 value 1060.036418
## iter 70 value 1059.978753
## iter 80 value 1059.943975
## iter 90 value 1059.926649
## final value 1059.926276
## converged
## - Fold3: decay= 2.7183, size=4
## + Fold3: decay= 3.4903, size=4
## # weights: 77
## initial value 1667.909333
## iter 10 value 1200.888450
## iter 20 value 1084.804706
## iter 30 value 1071.754455
## iter 40 value 1067.293557
## iter 50 value 1066.019253
## iter 60 value 1065.874940
## iter 70 value 1065.818190
## iter 80 value 1065.786865
## iter 90 value 1065.781485
## final value 1065.781406
## converged
## - Fold3: decay= 3.4903, size=4
## + Fold3: decay= 4.4817, size=4
## # weights: 77
## initial value 2949.009077
## iter 10 value 1274.996431
## iter 20 value 1131.847468
## iter 30 value 1097.066049
## iter 40 value 1076.348933
## iter 50 value 1073.797788
## iter 60 value 1072.998150
## iter 70 value 1072.634968
## iter 80 value 1072.462359
## iter 90 value 1072.455459
## final value 1072.454900
## converged
## - Fold3: decay= 4.4817, size=4
## + Fold3: decay= 5.7546, size=4
## # weights: 77
## initial value 2117.751835

```

```

## iter 10 value 1169.986541
## iter 20 value 1107.037750
## iter 30 value 1094.225604
## iter 40 value 1081.850873
## iter 50 value 1080.534454
## iter 60 value 1080.442365
## iter 70 value 1080.436380
## final value 1080.435690
## converged
## - Fold3: decay= 5.7546, size=4
## + Fold3: decay= 7.3891, size=4
## # weights: 77
## initial value 1592.948609
## iter 10 value 1141.850276
## iter 20 value 1103.108969
## iter 30 value 1096.529022
## iter 40 value 1092.812364
## iter 50 value 1090.532671
## iter 60 value 1088.657018
## iter 70 value 1087.957832
## iter 80 value 1087.846317
## iter 90 value 1087.840387
## final value 1087.840053
## converged
## - Fold3: decay= 7.3891, size=4
## + Fold3: decay= 9.4877, size=4
## # weights: 77
## initial value 1830.118921
## iter 10 value 1257.220464
## iter 20 value 1119.790005
## iter 30 value 1110.816868
## iter 40 value 1102.300409
## iter 50 value 1100.686739
## iter 60 value 1099.611920
## iter 70 value 1098.433560
## iter 80 value 1098.019774
## iter 90 value 1097.998350
## final value 1097.997700
## converged
## - Fold3: decay= 9.4877, size=4
## + Fold3: decay=12.1825, size=4
## # weights: 77
## initial value 1613.484552
## iter 10 value 1271.273750
## iter 20 value 1129.107846
## iter 30 value 1116.313117
## iter 40 value 1113.758021
## iter 50 value 1111.581767
## iter 60 value 1109.730121
## iter 70 value 1109.536175
## iter 80 value 1109.508293
## final value 1109.508167
## converged
## - Fold3: decay=12.1825, size=4

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## + Fold3: decay= 0.3679, size=5
## # weights: 96
## initial value 2078.044489
## iter 10 value 1079.986273
## iter 20 value 1058.757060
## iter 30 value 1029.783693
## iter 40 value 1019.338084
## iter 50 value 1015.756701
## iter 60 value 1013.750929
## iter 70 value 1013.228234
## iter 80 value 1012.948434
## iter 90 value 1012.552749
## iter 100 value 1011.826436
## final value 1011.826436
## stopped after 100 iterations
## - Fold3: decay= 0.3679, size=5
## + Fold3: decay= 0.4724, size=5
## # weights: 96
## initial value 1673.172686
## iter 10 value 1108.440255
## iter 20 value 1047.827688
## iter 30 value 1036.523846
## iter 40 value 1032.252572
## iter 50 value 1026.626051
## iter 60 value 1021.795159
## iter 70 value 1019.734939
## iter 80 value 1018.982118
## iter 90 value 1017.593275
## iter 100 value 1016.932976
## final value 1016.932976
## stopped after 100 iterations
## - Fold3: decay= 0.4724, size=5
## + Fold3: decay= 0.6065, size=5
## # weights: 96
## initial value 3124.939284
## iter 10 value 1167.934578
## iter 20 value 1087.932178
## iter 30 value 1051.706091
## iter 40 value 1044.486227
## iter 50 value 1040.313042
## iter 60 value 1038.177049
## iter 70 value 1036.407750
## iter 80 value 1030.724866
## iter 90 value 1027.714529
## iter 100 value 1025.472943
## final value 1025.472943
## stopped after 100 iterations
## - Fold3: decay= 0.6065, size=5
## + Fold3: decay= 0.7788, size=5
## # weights: 96
## initial value 1597.630302
## iter 10 value 1103.538137
## iter 20 value 1065.020914
## iter 30 value 1044.038019

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## iter 40 value 1037.668041
## iter 50 value 1034.574026
## iter 60 value 1033.313657
## iter 70 value 1032.906834
## iter 80 value 1032.532263
## iter 90 value 1032.264369
## iter 100 value 1031.550069
## final value 1031.550069
## stopped after 100 iterations
## - Fold3: decay= 0.7788, size=5
## + Fold3: decay= 1.0000, size=5
## # weights: 96
## initial value 2427.204315
## iter 10 value 1190.929963
## iter 20 value 1100.885442
## iter 30 value 1051.179605
## iter 40 value 1045.043155
## iter 50 value 1041.458319
## iter 60 value 1039.446888
## iter 70 value 1038.941933
## iter 80 value 1038.758338
## iter 90 value 1038.398526
## iter 100 value 1038.326551
## final value 1038.326551
## stopped after 100 iterations
## - Fold3: decay= 1.0000, size=5
## + Fold3: decay= 1.2840, size=5
## # weights: 96
## initial value 1493.302963
## iter 10 value 1098.718457
## iter 20 value 1056.336294
## iter 30 value 1048.879866
## iter 40 value 1046.399123
## iter 50 value 1045.424905
## iter 60 value 1045.232296
## iter 70 value 1045.067230
## iter 80 value 1044.892997
## iter 90 value 1044.847230
## iter 100 value 1044.832341
## final value 1044.832341
## stopped after 100 iterations
## - Fold3: decay= 1.2840, size=5
## + Fold3: decay= 1.6487, size=5
## # weights: 96
## initial value 2119.194187
## iter 10 value 1188.555762
## iter 20 value 1081.244952
## iter 30 value 1060.798916
## iter 40 value 1055.928710
## iter 50 value 1052.094424
## iter 60 value 1050.150176
## iter 70 value 1050.007938
## iter 80 value 1049.989354
## iter 90 value 1049.984093

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## iter 100 value 1049.979429
## final value 1049.979429
## stopped after 100 iterations
## - Fold3: decay= 1.6487, size=5
## + Fold3: decay= 2.1170, size=5
## # weights: 96
## initial value 1307.552213
## iter 10 value 1093.125053
## iter 20 value 1060.903076
## iter 30 value 1056.728475
## iter 40 value 1055.568981
## iter 50 value 1055.295833
## iter 60 value 1055.263062
## iter 70 value 1055.228723
## iter 80 value 1055.222527
## iter 90 value 1055.220392
## final value 1055.219999
## converged
## - Fold3: decay= 2.1170, size=5
## + Fold3: decay= 2.7183, size=5
## # weights: 96
## initial value 2075.242689
## iter 10 value 1251.065711
## iter 20 value 1082.308620
## iter 30 value 1066.931871
## iter 40 value 1062.856517
## iter 50 value 1060.781748
## iter 60 value 1060.386337
## iter 70 value 1060.082243
## iter 80 value 1059.929555
## iter 90 value 1059.904166
## iter 100 value 1059.902607
## final value 1059.902607
## stopped after 100 iterations
## - Fold3: decay= 2.7183, size=5
## + Fold3: decay= 3.4903, size=5
## # weights: 96
## initial value 3389.423116
## iter 10 value 1269.922781
## iter 20 value 1145.454123
## iter 30 value 1116.507163
## iter 40 value 1095.756340
## iter 50 value 1071.734361
## iter 60 value 1065.549174
## iter 70 value 1064.810648
## iter 80 value 1064.738523
## iter 90 value 1064.724314
## iter 100 value 1064.721635
## final value 1064.721635
## stopped after 100 iterations
## - Fold3: decay= 3.4903, size=5
## + Fold3: decay= 4.4817, size=5
## # weights: 96
## initial value 2052.719306

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## iter 10 value 1240.213759
## iter 20 value 1096.778620
## iter 30 value 1083.432295
## iter 40 value 1072.934303
## iter 50 value 1071.473058
## iter 60 value 1071.131407
## iter 70 value 1071.076681
## iter 80 value 1071.072704
## final value 1071.072385
## converged
## - Fold3: decay= 4.4817, size=5
## + Fold3: decay= 5.7546, size=5
## # weights: 96
## initial value 3170.609985
## iter 10 value 1377.189289
## iter 20 value 1189.047450
## iter 30 value 1130.700863
## iter 40 value 1097.863235
## iter 50 value 1087.614674
## iter 60 value 1082.229498
## iter 70 value 1079.683010
## iter 80 value 1079.233339
## iter 90 value 1079.017025
## iter 100 value 1078.776933
## final value 1078.776933
## stopped after 100 iterations
## - Fold3: decay= 5.7546, size=5
## + Fold3: decay= 7.3891, size=5
## # weights: 96
## initial value 1696.575753
## iter 10 value 1135.556105
## iter 20 value 1097.934979
## iter 30 value 1091.035902
## iter 40 value 1088.664898
## iter 50 value 1087.754846
## iter 60 value 1087.712714
## iter 70 value 1087.711358
## iter 70 value 1087.711350
## iter 70 value 1087.711346
## final value 1087.711346
## converged
## - Fold3: decay= 7.3891, size=5
## + Fold3: decay= 9.4877, size=5
## # weights: 96
## initial value 2526.142028
## iter 10 value 1320.581152
## iter 20 value 1160.457528
## iter 30 value 1130.508209
## iter 40 value 1104.095999
## iter 50 value 1100.621052
## iter 60 value 1099.046527
## iter 70 value 1097.349166
## iter 80 value 1096.973718
## iter 90 value 1096.857795

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## iter 100 value 1096.849389
## final value 1096.849389
## stopped after 100 iterations
## - Fold3: decay= 9.4877, size=5
## + Fold3: decay=12.1825, size=5
## # weights: 96
## initial value 1710.404895
## iter 10 value 1213.881125
## iter 20 value 1132.512285
## iter 30 value 1116.248159
## iter 40 value 1110.808522
## iter 50 value 1108.204548
## iter 60 value 1107.990934
## iter 70 value 1107.978296
## final value 1107.977447
## converged
## - Fold3: decay=12.1825, size=5
## + Fold4: decay= 0.3679, size=1
## # weights: 20
## initial value 2761.305529
## iter 10 value 1069.616349
## iter 20 value 1043.025436
## iter 30 value 1036.409746
## iter 40 value 1035.670158
## iter 50 value 1035.622884
## iter 60 value 1035.603128
## final value 1035.601749
## converged
## - Fold4: decay= 0.3679, size=1
## + Fold4: decay= 0.4724, size=1
## # weights: 20
## initial value 2842.726691
## iter 10 value 1061.890312
## iter 20 value 1043.633022
## iter 30 value 1037.428399
## iter 40 value 1037.307905
## iter 50 value 1037.297143
## iter 60 value 1037.296185
## final value 1037.296163
## converged
## - Fold4: decay= 0.4724, size=1
## + Fold4: decay= 0.6065, size=1
## # weights: 20
## initial value 1638.963379
## iter 10 value 1056.330802
## iter 20 value 1041.442689
## iter 30 value 1039.468456
## iter 40 value 1039.332617
## final value 1039.331865
## converged
## - Fold4: decay= 0.6065, size=1
## + Fold4: decay= 0.7788, size=1
## # weights: 20
## initial value 1995.775782

```



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## iter 10 value 1063.685945
## iter 20 value 1045.779922
## iter 30 value 1041.831491
## iter 40 value 1041.692003
## final value 1041.690091
## converged
## - Fold4: decay= 0.7788, size=1
## + Fold4: decay= 1.0000, size=1
## # weights: 20
## initial value 1919.755295
## iter 10 value 1072.231816
## iter 20 value 1048.380889
## iter 30 value 1044.847062
## iter 40 value 1044.682379
## iter 50 value 1044.680909
## iter 50 value 1044.680906
## iter 50 value 1044.680902
## final value 1044.680902
## converged
## - Fold4: decay= 1.0000, size=1
## + Fold4: decay= 1.2840, size=1
## # weights: 20
## initial value 1676.820285
## iter 10 value 1057.407591
## iter 20 value 1050.152401
## iter 30 value 1048.267109
## final value 1048.232020
## converged
## - Fold4: decay= 1.2840, size=1
## + Fold4: decay= 1.6487, size=1
## # weights: 20
## initial value 1424.141984
## iter 10 value 1094.344821
## iter 20 value 1059.024620
## iter 30 value 1052.513226
## iter 40 value 1052.479880
## final value 1052.478591
## converged
## - Fold4: decay= 1.6487, size=1
## + Fold4: decay= 2.1170, size=1
## # weights: 20
## initial value 1996.894315
## iter 10 value 1081.547476
## iter 20 value 1062.621710
## iter 30 value 1057.516020
## iter 40 value 1057.506046
## final value 1057.505995
## converged
## - Fold4: decay= 2.1170, size=1
## + Fold4: decay= 2.7183, size=1
## # weights: 20
## initial value 1589.769168
## iter 10 value 1072.904369
## iter 20 value 1064.794549

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## iter 30 value 1063.590084
## final value 1063.588170
## converged
## - Fold4: decay= 2.7183, size=1
## + Fold4: decay= 3.4903, size=1
## # weights: 20
## initial value 1517.781021
## iter 10 value 1108.748118
## iter 20 value 1075.829741
## iter 30 value 1070.810315
## iter 40 value 1070.764708
## final value 1070.764654
## converged
## - Fold4: decay= 3.4903, size=1
## + Fold4: decay= 4.4817, size=1
## # weights: 20
## initial value 1435.102784
## iter 10 value 1105.234613
## iter 20 value 1081.188573
## iter 30 value 1079.184110
## final value 1079.180765
## converged
## - Fold4: decay= 4.4817, size=1
## + Fold4: decay= 5.7546, size=1
## # weights: 20
## initial value 1616.625174
## iter 10 value 1116.907175
## iter 20 value 1089.929989
## iter 30 value 1088.975601
## final value 1088.971992
## converged
## - Fold4: decay= 5.7546, size=1
## + Fold4: decay= 7.3891, size=1
## # weights: 20
## initial value 1523.982299
## iter 10 value 1119.872503
## iter 20 value 1101.030254
## iter 30 value 1100.226808
## final value 1100.225536
## converged
## - Fold4: decay= 7.3891, size=1
## + Fold4: decay= 9.4877, size=1
## # weights: 20
## initial value 2747.068205
## iter 10 value 1135.555045
## iter 20 value 1115.495662
## iter 30 value 1113.298438
## final value 1113.035968
## converged
## - Fold4: decay= 9.4877, size=1
## + Fold4: decay=12.1825, size=1
## # weights: 20
## initial value 1908.171776
## iter 10 value 1151.692217

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## iter 20 value 1128.064089
## iter 30 value 1127.423404
## final value 1127.423346
## converged
## - Fold4: decay=12.1825, size=1
## + Fold4: decay= 0.3679, size=2
## # weights: 39
## initial value 1922.195700
## iter 10 value 1059.350224
## iter 20 value 1035.306913
## iter 30 value 1024.280365
## iter 40 value 1021.965627
## iter 50 value 1021.552273
## iter 60 value 1021.503294
## iter 70 value 1021.496544
## iter 70 value 1021.496538
## iter 70 value 1021.496538
## final value 1021.496538
## converged
## - Fold4: decay= 0.3679, size=2
## + Fold4: decay= 0.4724, size=2
## # weights: 39
## initial value 1945.604304
## iter 10 value 1068.634675
## iter 20 value 1045.378145
## iter 30 value 1027.627991
## iter 40 value 1024.436348
## iter 50 value 1024.346725
## iter 60 value 1024.305727
## final value 1024.302195
## converged
## - Fold4: decay= 0.4724, size=2
## + Fold4: decay= 0.6065, size=2
## # weights: 39
## initial value 2307.942299
## iter 10 value 1073.191624
## iter 20 value 1048.876158
## iter 30 value 1033.489906
## iter 40 value 1028.550578
## iter 50 value 1027.855414
## iter 60 value 1027.353101
## iter 70 value 1027.336636
## final value 1027.336620
## converged
## - Fold4: decay= 0.6065, size=2
## + Fold4: decay= 0.7788, size=2
## # weights: 39
## initial value 2077.348572
## iter 10 value 1062.083197
## iter 20 value 1044.807933
## iter 30 value 1037.096585
## iter 40 value 1032.491409
## iter 50 value 1031.309754
## iter 60 value 1030.877028

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## final value 1030.864624
## converged
## - Fold4: decay= 0.7788, size=2
## + Fold4: decay= 1.0000, size=2
## # weights: 39
## initial value 1848.121547
## iter 10 value 1058.099783
## iter 20 value 1046.304144
## iter 30 value 1037.096693
## iter 40 value 1035.081653
## iter 50 value 1035.042906
## final value 1035.038197
## converged
## - Fold4: decay= 1.0000, size=2
## + Fold4: decay= 1.2840, size=2
## # weights: 39
## initial value 2417.444541
## iter 10 value 1094.379252
## iter 20 value 1053.105076
## iter 30 value 1042.939575
## iter 40 value 1040.111915
## iter 50 value 1039.630224
## iter 60 value 1039.572304
## final value 1039.571880
## converged
## - Fold4: decay= 1.2840, size=2
## + Fold4: decay= 1.6487, size=2
## # weights: 39
## initial value 2270.924265
## iter 10 value 1104.007966
## iter 20 value 1057.647072
## iter 30 value 1047.583393
## iter 40 value 1044.954787
## iter 50 value 1044.890611
## final value 1044.883867
## converged
## - Fold4: decay= 1.6487, size=2
## + Fold4: decay= 2.1170, size=2
## # weights: 39
## initial value 1527.082025
## iter 10 value 1065.817311
## iter 20 value 1058.497942
## iter 30 value 1055.149565
## iter 40 value 1054.439103
## iter 50 value 1054.417149
## final value 1054.417079
## converged
## - Fold4: decay= 2.1170, size=2
## + Fold4: decay= 2.7183, size=2
## # weights: 39
## initial value 2575.808483
## iter 10 value 1093.847418
## iter 20 value 1072.231353
## iter 30 value 1062.871816

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## iter 40 value 1058.493957
## iter 50 value 1056.948440
## iter 60 value 1056.927126
## iter 60 value 1056.927123
## iter 60 value 1056.927123
## final value 1056.927123
## converged
## - Fold4: decay= 2.7183, size=2
## + Fold4: decay= 3.4903, size=2
## # weights: 39
## initial value 1474.421376
## iter 10 value 1087.752934
## iter 20 value 1066.825069
## iter 30 value 1064.261592
## iter 40 value 1063.919195
## iter 50 value 1063.912178
## final value 1063.912093
## converged
## - Fold4: decay= 3.4903, size=2
## + Fold4: decay= 4.4817, size=2
## # weights: 39
## initial value 2072.921549
## iter 10 value 1106.474355
## iter 20 value 1082.617845
## iter 30 value 1078.343529
## iter 40 value 1078.041143
## iter 50 value 1078.018939
## final value 1078.018861
## converged
## - Fold4: decay= 4.4817, size=2
## + Fold4: decay= 5.7546, size=2
## # weights: 39
## initial value 1842.428978
## iter 10 value 1114.956465
## iter 20 value 1087.428942
## iter 30 value 1080.883141
## iter 40 value 1080.402360
## iter 50 value 1080.400204
## iter 50 value 1080.400199
## iter 50 value 1080.400196
## final value 1080.400196
## converged
## - Fold4: decay= 5.7546, size=2
## + Fold4: decay= 7.3891, size=2
## # weights: 39
## initial value 1744.844989
## iter 10 value 1099.058082
## iter 20 value 1091.033366
## iter 30 value 1090.576756
## iter 40 value 1090.570582
## iter 40 value 1090.570577
## iter 40 value 1090.570574
## final value 1090.570574
## converged

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```

## - Fold4: decay= 7.3891, size=2
## + Fold4: decay= 9.4877, size=2
## # weights: 39
## initial value 2666.256613
## iter 10 value 1164.635960
## iter 20 value 1123.855240
## iter 30 value 1103.843637
## iter 40 value 1102.417509
## iter 50 value 1102.325907
## final value 1102.325255
## converged
## - Fold4: decay= 9.4877, size=2
## + Fold4: decay=12.1825, size=2
## # weights: 39
## initial value 2431.918044
## iter 10 value 1214.031211
## iter 20 value 1144.276189
## iter 30 value 1116.614081
## iter 40 value 1115.678861
## iter 50 value 1115.666135
## iter 50 value 1115.666132
## iter 50 value 1115.666131
## final value 1115.666131
## converged
## - Fold4: decay=12.1825, size=2
## + Fold4: decay= 0.3679, size=3
## # weights: 58
## initial value 2450.484766
## iter 10 value 1076.178216
## iter 20 value 1046.111557
## iter 30 value 1027.534408
## iter 40 value 1018.129246
## iter 50 value 1014.874493
## iter 60 value 1013.901718
## iter 70 value 1013.826255
## iter 80 value 1013.821173
## iter 80 value 1013.821166
## iter 80 value 1013.821166
## final value 1013.821166
## converged
## - Fold4: decay= 0.3679, size=3
## + Fold4: decay= 0.4724, size=3
## # weights: 58
## initial value 2264.568621
## iter 10 value 1067.805510
## iter 20 value 1038.616142
## iter 30 value 1026.463664
## iter 40 value 1021.926912
## iter 50 value 1019.322850
## iter 60 value 1018.359355
## iter 70 value 1018.071662
## final value 1018.068703
## converged
## - Fold4: decay= 0.4724, size=3

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## + Fold4: decay= 0.6065, size=3
## # weights: 58
## initial value 1359.849078
## iter 10 value 1064.452089
## iter 20 value 1043.217707
## iter 30 value 1031.047141
## iter 40 value 1025.350342
## iter 50 value 1023.129113
## iter 60 value 1022.519962
## iter 70 value 1022.441210
## iter 80 value 1022.434483
## final value 1022.434268
## converged
## - Fold4: decay= 0.6065, size=3
## + Fold4: decay= 0.7788, size=3
## # weights: 58
## initial value 1601.007706
## iter 10 value 1072.313706
## iter 20 value 1049.015872
## iter 30 value 1035.559051
## iter 40 value 1030.756316
## iter 50 value 1030.211366
## iter 60 value 1029.310831
## iter 70 value 1029.072536
## iter 80 value 1028.021326
## iter 90 value 1027.512033
## iter 100 value 1027.464597
## final value 1027.464597
## stopped after 100 iterations
## - Fold4: decay= 0.7788, size=3
## + Fold4: decay= 1.0000, size=3
## # weights: 58
## initial value 2735.512488
## iter 10 value 1111.436515
## iter 20 value 1059.473078
## iter 30 value 1049.330347
## iter 40 value 1041.749060
## iter 50 value 1036.229517
## iter 60 value 1034.061997
## iter 70 value 1033.707277
## iter 80 value 1033.678810
## final value 1033.677573
## converged
## - Fold4: decay= 1.0000, size=3
## + Fold4: decay= 1.2840, size=3
## # weights: 58
## initial value 2267.704910
## iter 10 value 1132.200743
## iter 20 value 1059.992458
## iter 30 value 1045.316787
## iter 40 value 1041.560729
## iter 50 value 1039.088355
## iter 60 value 1038.627404
## iter 70 value 1038.358262

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## iter 80 value 1038.290881
## iter 90 value 1038.290179
## final value 1038.290117
## converged
## - Fold4: decay= 1.2840, size=3
## + Fold4: decay= 1.6487, size=3
## # weights: 58
## initial value 1604.362930
## iter 10 value 1079.768576
## iter 20 value 1051.739787
## iter 30 value 1047.433626
## iter 40 value 1045.403032
## iter 50 value 1044.785609
## iter 60 value 1044.193910
## iter 70 value 1043.787502
## iter 80 value 1043.741211
## iter 90 value 1043.725359
## iter 100 value 1043.724425
## final value 1043.724425
## stopped after 100 iterations
## - Fold4: decay= 1.6487, size=3
## + Fold4: decay= 2.1170, size=3
## # weights: 58
## initial value 1755.451967
## iter 10 value 1119.268816
## iter 20 value 1065.157007
## iter 30 value 1054.570123
## iter 40 value 1050.906814
## iter 50 value 1049.648183
## iter 60 value 1049.564377
## iter 70 value 1049.541143
## iter 80 value 1049.533560
## iter 90 value 1049.532186
## iter 100 value 1049.529837
## final value 1049.529837
## stopped after 100 iterations
## - Fold4: decay= 2.1170, size=3
## + Fold4: decay= 2.7183, size=3
## # weights: 58
## initial value 1358.502580
## iter 10 value 1117.460172
## iter 20 value 1068.666650
## iter 30 value 1058.289136
## iter 40 value 1057.196817
## iter 50 value 1056.494761
## iter 60 value 1056.097303
## iter 70 value 1056.012914
## iter 80 value 1056.004884
## final value 1056.004793
## converged
## - Fold4: decay= 2.7183, size=3
## + Fold4: decay= 3.4903, size=3
## # weights: 58
## initial value 1565.565090

```



```

## iter 10 value 1132.546594
## iter 20 value 1084.772153
## iter 30 value 1071.476952
## iter 40 value 1069.977071
## iter 50 value 1069.544233
## iter 60 value 1069.500770
## iter 70 value 1069.493305
## iter 80 value 1069.492238
## iter 90 value 1069.488907
## final value 1069.488890
## converged
## - Fold4: decay= 3.4903, size=3
## + Fold4: decay= 4.4817, size=3
## # weights: 58
## initial value 1995.934440
## iter 10 value 1117.701980
## iter 20 value 1093.625750
## iter 30 value 1076.458189
## iter 40 value 1072.432908
## iter 50 value 1071.195198
## iter 60 value 1071.145198
## final value 1071.142976
## converged
## - Fold4: decay= 4.4817, size=3
## + Fold4: decay= 5.7546, size=3
## # weights: 58
## initial value 1425.612206
## iter 10 value 1094.279309
## iter 20 value 1079.493304
## iter 30 value 1077.750792
## iter 40 value 1077.242848
## iter 50 value 1077.201015
## final value 1077.200474
## converged
## - Fold4: decay= 5.7546, size=3
## + Fold4: decay= 7.3891, size=3
## # weights: 58
## initial value 1260.294681
## iter 10 value 1094.293580
## iter 20 value 1087.128399
## iter 30 value 1086.885650
## iter 40 value 1086.877311
## final value 1086.877264
## converged
## - Fold4: decay= 7.3891, size=3
## + Fold4: decay= 9.4877, size=3
## # weights: 58
## initial value 2818.922794
## iter 10 value 1236.294497
## iter 20 value 1161.836267
## iter 30 value 1116.611236
## iter 40 value 1101.127188
## iter 50 value 1098.047600
## iter 60 value 1097.972704

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```

## final value 1097.970718
## converged
## - Fold4: decay= 9.4877, size=3
## + Fold4: decay=12.1825, size=3
## # weights: 58
## initial value 2899.320606
## iter 10 value 1214.836655
## iter 20 value 1151.805815
## iter 30 value 1114.218257
## iter 40 value 1110.717117
## iter 50 value 1110.590947
## final value 1110.590533
## converged
## - Fold4: decay=12.1825, size=3
## + Fold4: decay= 0.3679, size=4
## # weights: 77
## initial value 1289.133146
## iter 10 value 1044.787282
## iter 20 value 1032.313132
## iter 30 value 1025.403836
## iter 40 value 1018.250554
## iter 50 value 1013.851305
## iter 60 value 1010.351501
## iter 70 value 1008.939837
## iter 80 value 1008.575465
## iter 90 value 1008.481317
## iter 100 value 1008.447300
## final value 1008.447300
## stopped after 100 iterations
## - Fold4: decay= 0.3679, size=4
## + Fold4: decay= 0.4724, size=4
## # weights: 77
## initial value 2337.191180
## iter 10 value 1096.073717
## iter 20 value 1063.356249
## iter 30 value 1029.739180
## iter 40 value 1023.776753
## iter 50 value 1021.176715
## iter 60 value 1017.796365
## iter 70 value 1014.651728
## iter 80 value 1014.262099
## iter 90 value 1013.943653
## iter 100 value 1013.844841
## final value 1013.844841
## stopped after 100 iterations
## - Fold4: decay= 0.4724, size=4
## + Fold4: decay= 0.6065, size=4
## # weights: 77
## initial value 3043.341450
## iter 10 value 1154.201984
## iter 20 value 1060.856834
## iter 30 value 1042.210922
## iter 40 value 1034.615145
## iter 50 value 1028.430030

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## iter 60 value 1025.799003
## iter 70 value 1024.036060
## iter 80 value 1023.026979
## iter 90 value 1022.702536
## iter 100 value 1022.492636
## final value 1022.492636
## stopped after 100 iterations
## - Fold4: decay= 0.6065, size=4
## + Fold4: decay= 0.7788, size=4
## # weights: 77
## initial value 1623.736160
## iter 10 value 1056.893327
## iter 20 value 1044.662697
## iter 30 value 1038.076642
## iter 40 value 1033.385213
## iter 50 value 1030.240604
## iter 60 value 1028.909458
## iter 70 value 1027.677910
## iter 80 value 1026.795904
## iter 90 value 1026.266913
## iter 100 value 1025.000531
## final value 1025.000531
## stopped after 100 iterations
## - Fold4: decay= 0.7788, size=4
## + Fold4: decay= 1.0000, size=4
## # weights: 77
## initial value 1468.498617
## iter 10 value 1077.041424
## iter 20 value 1045.794991
## iter 30 value 1037.883392
## iter 40 value 1035.060257
## iter 50 value 1034.038693
## iter 60 value 1033.818705
## iter 70 value 1033.773642
## iter 80 value 1033.758202
## iter 90 value 1033.748495
## iter 100 value 1033.705276
## final value 1033.705276
## stopped after 100 iterations
## - Fold4: decay= 1.0000, size=4
## + Fold4: decay= 1.2840, size=4
## # weights: 77
## initial value 2056.111347
## iter 10 value 1127.427991
## iter 20 value 1069.264507
## iter 30 value 1048.283185
## iter 40 value 1041.920951
## iter 50 value 1039.392855
## iter 60 value 1038.726201
## iter 70 value 1038.413953
## iter 80 value 1038.019016
## iter 90 value 1037.731967
## iter 100 value 1037.658166
## final value 1037.658166

```

```

## stopped after 100 iterations
## - Fold4: decay= 1.2840, size=4
## + Fold4: decay= 1.6487, size=4
## # weights: 77
## initial value 1504.776293
## iter 10 value 1088.844568
## iter 20 value 1063.848117
## iter 30 value 1051.861532
## iter 40 value 1048.947170
## iter 50 value 1046.743281
## iter 60 value 1044.567489
## iter 70 value 1043.556445
## iter 80 value 1043.164129
## iter 90 value 1043.115145
## iter 100 value 1043.096861
## final value 1043.096861
## stopped after 100 iterations
## - Fold4: decay= 1.6487, size=4
## + Fold4: decay= 2.1170, size=4
## # weights: 77
## initial value 2339.132459
## iter 10 value 1194.611079
## iter 20 value 1076.650166
## iter 30 value 1057.890867
## iter 40 value 1054.121541
## iter 50 value 1049.091163
## iter 60 value 1048.756117
## iter 70 value 1048.732449
## iter 80 value 1048.708251
## iter 90 value 1048.680295
## final value 1048.637967
## converged
## - Fold4: decay= 2.1170, size=4
## + Fold4: decay= 2.7183, size=4
## # weights: 77
## initial value 3317.462271
## iter 10 value 1253.839342
## iter 20 value 1108.375997
## iter 30 value 1084.273986
## iter 40 value 1072.428252
## iter 50 value 1058.642610
## iter 60 value 1055.920862
## iter 70 value 1055.237169
## iter 80 value 1054.664078
## iter 90 value 1054.579902
## iter 100 value 1054.551696
## final value 1054.551696
## stopped after 100 iterations
## - Fold4: decay= 2.7183, size=4
## + Fold4: decay= 3.4903, size=4
## # weights: 77
## initial value 1665.103901
## iter 10 value 1148.866308
## iter 20 value 1087.895344

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## iter 30 value 1072.227053
## iter 40 value 1065.213821
## iter 50 value 1061.928448
## iter 60 value 1061.317475
## iter 70 value 1061.113381
## iter 80 value 1061.063056
## iter 90 value 1061.051915
## iter 100 value 1061.047512
## final value 1061.047512
## stopped after 100 iterations
## - Fold4: decay= 3.4903, size=4
## + Fold4: decay= 4.4817, size=4
## # weights: 77
## initial value 1235.970706
## iter 10 value 1141.418764
## iter 20 value 1073.517343
## iter 30 value 1069.675559
## iter 40 value 1068.682928
## iter 50 value 1068.459849
## iter 60 value 1068.357647
## iter 70 value 1068.329166
## final value 1068.328891
## converged
## - Fold4: decay= 4.4817, size=4
## + Fold4: decay= 5.7546, size=4
## # weights: 77
## initial value 1592.799603
## iter 10 value 1190.700091
## iter 20 value 1096.875361
## iter 30 value 1086.972404
## iter 40 value 1081.328855
## iter 50 value 1080.348839
## iter 60 value 1078.086333
## iter 70 value 1077.407751
## iter 80 value 1077.016735
## iter 90 value 1076.907787
## iter 100 value 1076.895073
## final value 1076.895073
## stopped after 100 iterations
## - Fold4: decay= 5.7546, size=4
## + Fold4: decay= 7.3891, size=4
## # weights: 77
## initial value 1946.200219
## iter 10 value 1167.359316
## iter 20 value 1113.381399
## iter 30 value 1095.035260
## iter 40 value 1087.677064
## iter 50 value 1086.950777
## iter 60 value 1086.859988
## iter 70 value 1086.841551
## final value 1086.840599
## converged
## - Fold4: decay= 7.3891, size=4
## + Fold4: decay= 9.4877, size=4

```

```

## # weights: 77
## initial value 2139.366784
## iter 10 value 1290.491839
## iter 20 value 1141.145051
## iter 30 value 1107.742853
## iter 40 value 1099.213092
## iter 50 value 1098.215680
## iter 60 value 1098.107238
## iter 70 value 1097.275033
## iter 80 value 1096.017859
## iter 90 value 1095.781694
## iter 100 value 1095.775187
## final value 1095.775187
## stopped after 100 iterations
## - Fold4: decay= 9.4877, size=4
## + Fold4: decay=12.1825, size=4
## # weights: 77
## initial value 2361.398005
## iter 10 value 1236.004483
## iter 20 value 1152.015994
## iter 30 value 1115.695397
## iter 40 value 1111.776595
## iter 50 value 1110.689347
## iter 60 value 1108.075226
## iter 70 value 1107.941717
## final value 1107.939902
## converged
## - Fold4: decay=12.1825, size=4
## + Fold4: decay= 0.3679, size=5
## # weights: 96
## initial value 2567.080724
## iter 10 value 1104.805056
## iter 20 value 1048.284202
## iter 30 value 1025.928001
## iter 40 value 1017.893432
## iter 50 value 1011.084416
## iter 60 value 1006.201385
## iter 70 value 1003.344948
## iter 80 value 1001.796424
## iter 90 value 1001.193786
## iter 100 value 1000.971673
## final value 1000.971673
## stopped after 100 iterations
## - Fold4: decay= 0.3679, size=5
## + Fold4: decay= 0.4724, size=5
## # weights: 96
## initial value 1633.983790
## iter 10 value 1094.627026
## iter 20 value 1052.269837
## iter 30 value 1036.743039
## iter 40 value 1026.160257
## iter 50 value 1020.166540
## iter 60 value 1015.116385
## iter 70 value 1011.308163

```

```

## iter 80 value 1009.704953
## iter 90 value 1008.089074
## iter 100 value 1007.534689
## final value 1007.534689
## stopped after 100 iterations
## - Fold4: decay= 0.4724, size=5
## + Fold4: decay= 0.6065, size=5
## # weights: 96
## initial value 1353.690846
## iter 10 value 1053.523764
## iter 20 value 1036.995217
## iter 30 value 1028.925580
## iter 40 value 1026.270860
## iter 50 value 1024.416773
## iter 60 value 1023.812872
## iter 70 value 1023.751968
## iter 80 value 1023.723533
## iter 90 value 1023.708947
## iter 100 value 1023.698481
## final value 1023.698481
## stopped after 100 iterations
## - Fold4: decay= 0.6065, size=5
## + Fold4: decay= 0.7788, size=5
## # weights: 96
## initial value 1379.768579
## iter 10 value 1061.056906
## iter 20 value 1037.489366
## iter 30 value 1032.263896
## iter 40 value 1028.499292
## iter 50 value 1025.937319
## iter 60 value 1024.362656
## iter 70 value 1023.758423
## iter 80 value 1023.579021
## iter 90 value 1023.520670
## iter 100 value 1023.514140
## final value 1023.514140
## stopped after 100 iterations
## - Fold4: decay= 0.7788, size=5
## + Fold4: decay= 1.0000, size=5
## # weights: 96
## initial value 1253.962718
## iter 10 value 1061.676402
## iter 20 value 1042.355039
## iter 30 value 1035.512416
## iter 40 value 1033.644858
## iter 50 value 1032.607944
## iter 60 value 1031.839632
## iter 70 value 1031.437293
## iter 80 value 1031.267936
## iter 90 value 1031.213678
## iter 100 value 1031.193353
## final value 1031.193353
## stopped after 100 iterations
## - Fold4: decay= 1.0000, size=5

```

```

## + Fold4: decay= 1.2840, size=5
## # weights: 96
## initial value 1426.202776
## iter 10 value 1078.152747
## iter 20 value 1052.426971
## iter 30 value 1041.570211
## iter 40 value 1039.064937
## iter 50 value 1038.394555
## iter 60 value 1038.054142
## iter 70 value 1037.811222
## iter 80 value 1037.560428
## iter 90 value 1037.412997
## iter 100 value 1037.373605
## final value 1037.373605
## stopped after 100 iterations
## - Fold4: decay= 1.2840, size=5
## + Fold4: decay= 1.6487, size=5
## # weights: 96
## initial value 1890.420704
## iter 10 value 1122.671147
## iter 20 value 1063.515795
## iter 30 value 1051.332215
## iter 40 value 1047.620081
## iter 50 value 1044.887697
## iter 60 value 1043.453803
## iter 70 value 1043.227747
## iter 80 value 1043.115380
## iter 90 value 1043.071518
## iter 100 value 1043.050623
## final value 1043.050623
## stopped after 100 iterations
## - Fold4: decay= 1.6487, size=5
## + Fold4: decay= 2.1170, size=5
## # weights: 96
## initial value 1330.461134
## iter 10 value 1083.088389
## iter 20 value 1059.337672
## iter 30 value 1051.843322
## iter 40 value 1049.168064
## iter 50 value 1048.693083
## iter 60 value 1048.573764
## iter 70 value 1048.551913
## iter 80 value 1048.539994
## iter 90 value 1048.538397
## final value 1048.537930
## converged
## - Fold4: decay= 2.1170, size=5
## + Fold4: decay= 2.7183, size=5
## # weights: 96
## initial value 2464.885180
## iter 10 value 1255.588080
## iter 20 value 1093.480346
## iter 30 value 1076.973150
## iter 40 value 1066.605941

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## iter 50 value 1055.954872
## iter 60 value 1054.092713
## iter 70 value 1054.004595
## iter 80 value 1053.975700
## iter 90 value 1053.964549
## iter 100 value 1053.958924
## final value 1053.958924
## stopped after 100 iterations
## - Fold4: decay= 2.7183, size=5
## + Fold4: decay= 3.4903, size=5
## # weights: 96
## initial value 1923.628709
## iter 10 value 1208.983790
## iter 20 value 1086.762138
## iter 30 value 1073.750413
## iter 40 value 1065.536993
## iter 50 value 1060.726000
## iter 60 value 1060.261637
## iter 70 value 1060.086806
## iter 80 value 1060.010293
## iter 90 value 1059.978232
## iter 100 value 1059.965739
## final value 1059.965739
## stopped after 100 iterations
## - Fold4: decay= 3.4903, size=5
## + Fold4: decay= 4.4817, size=5
## # weights: 96
## initial value 2809.652325
## iter 10 value 1242.136509
## iter 20 value 1111.891946
## iter 30 value 1094.536335
## iter 40 value 1079.401872
## iter 50 value 1069.869030
## iter 60 value 1067.964290
## iter 70 value 1067.103008
## iter 80 value 1066.925717
## iter 90 value 1066.914892
## iter 100 value 1066.913910
## final value 1066.913910
## stopped after 100 iterations
## - Fold4: decay= 4.4817, size=5
## + Fold4: decay= 5.7546, size=5
## # weights: 96
## initial value 1857.529109
## iter 10 value 1272.633321
## iter 20 value 1086.054487
## iter 30 value 1079.374862
## iter 40 value 1076.474036
## iter 50 value 1075.370157
## iter 60 value 1075.179583
## iter 70 value 1075.172677
## final value 1075.172397
## converged
## - Fold4: decay= 5.7546, size=5

```

```

## + Fold4: decay= 7.3891, size=5
## # weights: 96
## initial value 1621.277276
## iter 10 value 1237.623736
## iter 20 value 1089.778976
## iter 30 value 1086.016805
## iter 40 value 1084.926285
## iter 50 value 1084.759219
## iter 60 value 1084.748719
## iter 70 value 1084.744049
## final value 1084.743992
## converged
## - Fold4: decay= 7.3891, size=5
## + Fold4: decay= 9.4877, size=5
## # weights: 96
## initial value 2534.197291
## iter 10 value 1261.459840
## iter 20 value 1136.665928
## iter 30 value 1115.377237
## iter 40 value 1101.674252
## iter 50 value 1097.511947
## iter 60 value 1096.010898
## iter 70 value 1095.805136
## iter 80 value 1095.778179
## final value 1095.776203
## converged
## - Fold4: decay= 9.4877, size=5
## + Fold4: decay=12.1825, size=5
## # weights: 96
## initial value 1812.783737
## iter 10 value 1185.302082
## iter 20 value 1129.883143
## iter 30 value 1109.879502
## iter 40 value 1107.872303
## iter 50 value 1106.577485
## iter 60 value 1106.471512
## iter 70 value 1106.466875
## final value 1106.466795
## converged
## - Fold4: decay=12.1825, size=5
## + Fold5: decay= 0.3679, size=1
## # weights: 20
## initial value 2315.989770
## iter 10 value 1055.463760
## iter 20 value 1045.605198
## iter 30 value 1043.336555
## iter 40 value 1043.302802
## iter 40 value 1043.302793
## iter 40 value 1043.302793
## final value 1043.302793
## converged
## - Fold5: decay= 0.3679, size=1
## + Fold5: decay= 0.4724, size=1
## # weights: 20

```

```

## initial value 1762.595391
## iter 10 value 1075.155140
## iter 20 value 1049.274476
## iter 30 value 1041.470306
## iter 40 value 1041.312687
## iter 50 value 1041.308380
## final value 1041.307840
## converged
## - Fold5: decay= 0.4724, size=1
## + Fold5: decay= 0.6065, size=1
## # weights: 20
## initial value 1586.674287
## iter 10 value 1065.448417
## iter 20 value 1047.599974
## iter 30 value 1043.284919
## iter 40 value 1043.265691
## final value 1043.265622
## converged
## - Fold5: decay= 0.6065, size=1
## + Fold5: decay= 0.7788, size=1
## # weights: 20
## initial value 1430.586718
## iter 10 value 1080.630276
## iter 20 value 1053.622302
## iter 30 value 1052.728740
## final value 1052.630449
## converged
## - Fold5: decay= 0.7788, size=1
## + Fold5: decay= 1.0000, size=1
## # weights: 20
## initial value 1656.723160
## iter 10 value 1070.794266
## iter 20 value 1051.590949
## iter 30 value 1048.519558
## iter 40 value 1048.485148
## final value 1048.483693
## converged
## - Fold5: decay= 1.0000, size=1
## + Fold5: decay= 1.2840, size=1
## # weights: 20
## initial value 1707.899747
## iter 10 value 1101.049145
## iter 20 value 1061.068168
## iter 30 value 1052.049806
## iter 40 value 1051.986158
## iter 50 value 1051.979709
## final value 1051.979650
## converged
## - Fold5: decay= 1.2840, size=1
## + Fold5: decay= 1.6487, size=1
## # weights: 20
## initial value 2411.933037
## iter 10 value 1058.728090
## iter 20 value 1056.474446

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```

## iter 30 value 1056.095992
## final value 1056.095152
## converged
## - Fold5: decay= 1.6487, size=1
## + Fold5: decay= 2.1170, size=1
## # weights: 20
## initial value 1425.662192
## iter 10 value 1082.291702
## iter 20 value 1077.366999
## iter 30 value 1077.108989
## final value 1077.108936
## converged
## - Fold5: decay= 2.1170, size=1
## + Fold5: decay= 2.7183, size=1
## # weights: 20
## initial value 2294.015205
## iter 10 value 1092.067793
## iter 20 value 1069.250056
## iter 30 value 1066.971447
## final value 1066.934094
## converged
## - Fold5: decay= 2.7183, size=1
## + Fold5: decay= 3.4903, size=1
## # weights: 20
## initial value 1228.782113
## iter 10 value 1084.984850
## iter 20 value 1074.400536
## iter 30 value 1073.832204
## final value 1073.830466
## converged
## - Fold5: decay= 3.4903, size=1
## + Fold5: decay= 4.4817, size=1
## # weights: 20
## initial value 1460.751000
## iter 10 value 1089.469624
## iter 20 value 1082.476224
## iter 30 value 1082.025937
## final value 1082.025696
## converged
## - Fold5: decay= 4.4817, size=1
## + Fold5: decay= 5.7546, size=1
## # weights: 20
## initial value 2750.632584
## iter 10 value 1118.093321
## iter 20 value 1097.829057
## iter 30 value 1091.526440
## final value 1091.515810
## converged
## - Fold5: decay= 5.7546, size=1
## + Fold5: decay= 7.3891, size=1
## # weights: 20
## initial value 1406.622499
## iter 10 value 1108.376135
## iter 20 value 1102.530890

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```

## iter 30 value 1102.481895
## final value 1102.481857
## converged
## - Fold5: decay= 7.3891, size=1
## + Fold5: decay= 9.4877, size=1
## # weights: 20
## initial value 2747.371941
## iter 10 value 1152.819142
## iter 20 value 1119.579442
## iter 30 value 1114.876371
## final value 1114.866695
## converged
## - Fold5: decay= 9.4877, size=1
## + Fold5: decay=12.1825, size=1
## # weights: 20
## initial value 2298.811920
## iter 10 value 1140.576634
## iter 20 value 1129.494172
## iter 30 value 1128.904304
## final value 1128.902877
## converged
## - Fold5: decay=12.1825, size=1
## + Fold5: decay= 0.3679, size=2
## # weights: 39
## initial value 2032.944270
## iter 10 value 1074.735768
## iter 20 value 1047.866933
## iter 30 value 1037.400057
## iter 40 value 1033.955017
## iter 50 value 1033.239279
## iter 60 value 1032.908817
## iter 70 value 1032.769644
## final value 1032.752599
## converged
## - Fold5: decay= 0.3679, size=2
## + Fold5: decay= 0.4724, size=2
## # weights: 39
## initial value 3457.829265
## iter 10 value 1091.728115
## iter 20 value 1050.464202
## iter 30 value 1038.988508
## iter 40 value 1035.753908
## iter 50 value 1035.173524
## iter 60 value 1034.106699
## iter 70 value 1034.062400
## final value 1034.062260
## converged
## - Fold5: decay= 0.4724, size=2
## + Fold5: decay= 0.6065, size=2
## # weights: 39
## initial value 2673.449636
## iter 10 value 1076.776402
## iter 20 value 1047.654082
## iter 30 value 1042.140571

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## iter 40 value 1039.669159
## iter 50 value 1039.442630
## iter 60 value 1039.231594
## final value 1039.230555
## converged
## - Fold5: decay= 0.6065, size=2
## + Fold5: decay= 0.7788, size=2
## # weights: 39
## initial value 1798.514779
## iter 10 value 1094.763698
## iter 20 value 1058.414975
## iter 30 value 1044.837856
## iter 40 value 1042.997446
## iter 50 value 1040.371423
## iter 60 value 1040.261571
## iter 70 value 1040.236814
## final value 1040.236795
## converged
## - Fold5: decay= 0.7788, size=2
## + Fold5: decay= 1.0000, size=2
## # weights: 39
## initial value 2110.522583
## iter 10 value 1074.237548
## iter 20 value 1052.833704
## iter 30 value 1047.992103
## iter 40 value 1043.726962
## iter 50 value 1043.113919
## iter 60 value 1042.978154
## final value 1042.977336
## converged
## - Fold5: decay= 1.0000, size=2
## + Fold5: decay= 1.2840, size=2
## # weights: 39
## initial value 1566.486008
## iter 10 value 1104.009320
## iter 20 value 1068.181190
## iter 30 value 1061.237577
## iter 40 value 1060.380125
## iter 50 value 1059.923363
## iter 60 value 1059.765517
## final value 1059.761241
## converged
## - Fold5: decay= 1.2840, size=2
## + Fold5: decay= 1.6487, size=2
## # weights: 39
## initial value 3499.868773
## iter 10 value 1109.288538
## iter 20 value 1075.759829
## iter 30 value 1059.407272
## iter 40 value 1052.330414
## iter 50 value 1051.308249
## iter 60 value 1051.228303
## final value 1051.227778
## converged

```

```

## - Fold5: decay= 1.6487, size=2
## + Fold5: decay= 2.1170, size=2
## # weights: 39
## initial value 2220.797391
## iter 10 value 1130.015445
## iter 20 value 1077.107816
## iter 30 value 1060.944066
## iter 40 value 1059.341481
## iter 50 value 1058.951105
## iter 60 value 1058.928280
## iter 70 value 1058.924813
## final value 1058.924800
## converged
## - Fold5: decay= 2.1170, size=2
## + Fold5: decay= 2.7183, size=2
## # weights: 39
## initial value 1544.722489
## iter 10 value 1098.690385
## iter 20 value 1067.441253
## iter 30 value 1061.980071
## iter 40 value 1061.624289
## iter 50 value 1061.599325
## final value 1061.598741
## converged
## - Fold5: decay= 2.7183, size=2
## + Fold5: decay= 3.4903, size=2
## # weights: 39
## initial value 2168.191433
## iter 10 value 1150.310790
## iter 20 value 1080.919802
## iter 30 value 1069.698913
## iter 40 value 1067.881287
## iter 50 value 1067.672626
## iter 60 value 1067.666120
## final value 1067.665972
## converged
## - Fold5: decay= 3.4903, size=2
## + Fold5: decay= 4.4817, size=2
## # weights: 39
## initial value 1817.038781
## iter 10 value 1106.232717
## iter 20 value 1086.955013
## iter 30 value 1082.531330
## iter 40 value 1081.444055
## iter 50 value 1080.973572
## final value 1080.970650
## converged
## - Fold5: decay= 4.4817, size=2
## + Fold5: decay= 5.7546, size=2
## # weights: 39
## initial value 1945.060529
## iter 10 value 1120.866140
## iter 20 value 1094.904869
## iter 30 value 1091.146951

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## iter 40 value 1091.089492
## final value 1091.088757
## converged
## - Fold5: decay= 5.7546, size=2
## + Fold5: decay= 7.3891, size=2
## # weights: 39
## initial value 3160.592395
## iter 10 value 1151.564891
## iter 20 value 1116.138637
## iter 30 value 1094.304775
## iter 40 value 1093.167014
## iter 50 value 1093.159867
## final value 1093.159855
## converged
## - Fold5: decay= 7.3891, size=2
## + Fold5: decay= 9.4877, size=2
## # weights: 39
## initial value 1575.783449
## iter 10 value 1122.094675
## iter 20 value 1106.942892
## iter 30 value 1104.675212
## iter 40 value 1104.502820
## final value 1104.502528
## converged
## - Fold5: decay= 9.4877, size=2
## + Fold5: decay=12.1825, size=2
## # weights: 39
## initial value 2503.366537
## iter 10 value 1142.050925
## iter 20 value 1123.946861
## iter 30 value 1117.925617
## iter 40 value 1117.388295
## final value 1117.387752
## converged
## - Fold5: decay=12.1825, size=2
## + Fold5: decay= 0.3679, size=3
## # weights: 58
## initial value 1432.695716
## iter 10 value 1050.091380
## iter 20 value 1037.702197
## iter 30 value 1032.730356
## iter 40 value 1028.508645
## iter 50 value 1024.985877
## iter 60 value 1024.070293
## iter 70 value 1023.941670
## iter 80 value 1023.923447
## final value 1023.920748
## converged
## - Fold5: decay= 0.3679, size=3
## + Fold5: decay= 0.4724, size=3
## # weights: 58
## initial value 1674.819053
## iter 10 value 1076.537565
## iter 20 value 1045.121816

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## iter 30 value 1033.046921
## iter 40 value 1029.037842
## iter 50 value 1028.484138
## iter 60 value 1028.400531
## iter 70 value 1028.386046
## iter 80 value 1028.383092
## final value 1028.383033
## converged
## - Fold5: decay= 0.4724, size=3
## + Fold5: decay= 0.6065, size=3
## # weights: 58
## initial value 1771.609785
## iter 10 value 1067.284158
## iter 20 value 1048.473709
## iter 30 value 1036.879761
## iter 40 value 1033.459050
## iter 50 value 1032.941433
## iter 60 value 1032.855502
## iter 70 value 1032.777009
## final value 1032.771353
## converged
## - Fold5: decay= 0.6065, size=3
## + Fold5: decay= 0.7788, size=3
## # weights: 58
## initial value 1789.810615
## iter 10 value 1075.264079
## iter 20 value 1052.404198
## iter 30 value 1041.733772
## iter 40 value 1037.595992
## iter 50 value 1037.262197
## iter 60 value 1037.166972
## iter 70 value 1037.090193
## final value 1037.089947
## converged
## - Fold5: decay= 0.7788, size=3
## + Fold5: decay= 1.0000, size=3
## # weights: 58
## initial value 2443.779590
## iter 10 value 1176.401144
## iter 20 value 1069.260133
## iter 30 value 1050.225226
## iter 40 value 1042.886989
## iter 50 value 1041.481636
## iter 60 value 1041.385423
## iter 70 value 1041.383216
## final value 1041.383110
## converged
## - Fold5: decay= 1.0000, size=3
## + Fold5: decay= 1.2840, size=3
## # weights: 58
## initial value 1780.635349
## iter 10 value 1085.326972
## iter 20 value 1062.863038
## iter 30 value 1050.535197

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```

## iter 40 value 1047.065106
## iter 50 value 1045.645960
## iter 60 value 1045.101951
## iter 70 value 1044.703848
## iter 80 value 1044.659253
## final value 1044.658677
## converged
## - Fold5: decay= 1.2840, size=3
## + Fold5: decay= 1.6487, size=3
## # weights: 58
## initial value 1892.197804
## iter 10 value 1104.427707
## iter 20 value 1070.858118
## iter 30 value 1054.994799
## iter 40 value 1051.349746
## iter 50 value 1050.359081
## iter 60 value 1049.873077
## iter 70 value 1049.746201
## iter 80 value 1049.701095
## final value 1049.700180
## converged
## - Fold5: decay= 1.6487, size=3
## + Fold5: decay= 2.1170, size=3
## # weights: 58
## initial value 1975.348822
## iter 10 value 1151.502118
## iter 20 value 1076.166729
## iter 30 value 1059.208333
## iter 40 value 1056.123805
## iter 50 value 1055.208236
## iter 60 value 1055.065290
## iter 70 value 1055.024860
## iter 80 value 1055.023573
## final value 1055.023142
## converged
## - Fold5: decay= 2.1170, size=3
## + Fold5: decay= 2.7183, size=3
## # weights: 58
## initial value 1683.043793
## iter 10 value 1138.118009
## iter 20 value 1078.633999
## iter 30 value 1064.189478
## iter 40 value 1061.389269
## iter 50 value 1060.855878
## iter 60 value 1060.763739
## iter 70 value 1060.736430
## final value 1060.735234
## converged
## - Fold5: decay= 2.7183, size=3
## + Fold5: decay= 3.4903, size=3
## # weights: 58
## initial value 1748.655769
## iter 10 value 1091.686117
## iter 20 value 1074.676128

```

```

## iter 30 value 1069.393700
## iter 40 value 1065.923829
## iter 50 value 1065.524788
## iter 60 value 1065.499139
## iter 70 value 1065.498410
## final value 1065.498388
## converged
## - Fold5: decay= 3.4903, size=3
## + Fold5: decay= 4.4817, size=3
## # weights: 58
## initial value 2168.974891
## iter 10 value 1142.792585
## iter 20 value 1088.065277
## iter 30 value 1074.635462
## iter 40 value 1072.511206
## iter 50 value 1072.239093
## iter 60 value 1072.230559
## final value 1072.230513
## converged
## - Fold5: decay= 4.4817, size=3
## + Fold5: decay= 5.7546, size=3
## # weights: 58
## initial value 2581.293038
## iter 10 value 1187.555211
## iter 20 value 1108.366680
## iter 30 value 1089.630037
## iter 40 value 1083.585194
## iter 50 value 1083.218607
## iter 60 value 1083.181826
## iter 70 value 1083.176811
## final value 1083.176768
## converged
## - Fold5: decay= 5.7546, size=3
## + Fold5: decay= 7.3891, size=3
## # weights: 58
## initial value 3716.330427
## iter 10 value 1207.378850
## iter 20 value 1133.194677
## iter 30 value 1104.684458
## iter 40 value 1094.178536
## iter 50 value 1093.520163
## iter 60 value 1093.290680
## iter 70 value 1092.515474
## iter 80 value 1089.672084
## iter 90 value 1089.378740
## iter 100 value 1089.352401
## final value 1089.352401
## stopped after 100 iterations
## - Fold5: decay= 7.3891, size=3
## + Fold5: decay= 9.4877, size=3
## # weights: 58
## initial value 1661.119694
## iter 10 value 1193.400346
## iter 20 value 1123.297808

```

```

## iter 30 value 1108.547635
## iter 40 value 1105.182531
## iter 50 value 1102.941789
## iter 60 value 1100.422108
## iter 70 value 1100.143710
## iter 80 value 1100.126811
## final value 1100.126732
## converged
## - Fold5: decay= 9.4877, size=3
## + Fold5: decay=12.1825, size=3
## # weights: 58
## initial value 1676.185072
## iter 10 value 1157.749993
## iter 20 value 1120.825088
## iter 30 value 1112.439207
## iter 40 value 1112.340147
## final value 1112.339364
## converged
## - Fold5: decay=12.1825, size=3
## + Fold5: decay= 0.3679, size=4
## # weights: 77
## initial value 1658.788806
## iter 10 value 1061.674217
## iter 20 value 1041.099129
## iter 30 value 1029.624992
## iter 40 value 1025.138398
## iter 50 value 1023.514403
## iter 60 value 1022.575041
## iter 70 value 1020.298905
## iter 80 value 1019.530566
## iter 90 value 1019.487131
## iter 100 value 1019.476911
## final value 1019.476911
## stopped after 100 iterations
## - Fold5: decay= 0.3679, size=4
## + Fold5: decay= 0.4724, size=4
## # weights: 77
## initial value 2897.276692
## iter 10 value 1127.493837
## iter 20 value 1060.360346
## iter 30 value 1041.280017
## iter 40 value 1034.917897
## iter 50 value 1030.914535
## iter 60 value 1027.997987
## iter 70 value 1026.330310
## iter 80 value 1025.660127
## iter 90 value 1024.502800
## iter 100 value 1023.848465
## final value 1023.848465
## stopped after 100 iterations
## - Fold5: decay= 0.4724, size=4
## + Fold5: decay= 0.6065, size=4
## # weights: 77
## initial value 3671.183375

```

```

## iter 10 value 1111.288389
## iter 20 value 1062.510305
## iter 30 value 1048.463626
## iter 40 value 1043.449292
## iter 50 value 1039.305889
## iter 60 value 1036.968057
## iter 70 value 1033.407971
## iter 80 value 1029.178242
## iter 90 value 1027.739921
## iter 100 value 1027.363800
## final value 1027.363800
## stopped after 100 iterations
## - Fold5: decay= 0.6065, size=4
## + Fold5: decay= 0.7788, size=4
## # weights: 77
## initial value 3055.720898
## iter 10 value 1146.544940
## iter 20 value 1070.326459
## iter 30 value 1047.956552
## iter 40 value 1043.423402
## iter 50 value 1040.602570
## iter 60 value 1038.071859
## iter 70 value 1035.610198
## iter 80 value 1034.439382
## iter 90 value 1034.124121
## iter 100 value 1033.849605
## final value 1033.849605
## stopped after 100 iterations
## - Fold5: decay= 0.7788, size=4
## + Fold5: decay= 1.0000, size=4
## # weights: 77
## initial value 4335.076352
## iter 10 value 1181.000690
## iter 20 value 1073.403575
## iter 30 value 1055.856314
## iter 40 value 1049.195684
## iter 50 value 1046.903965
## iter 60 value 1041.834164
## iter 70 value 1039.797403
## iter 80 value 1039.465355
## iter 90 value 1039.374043
## iter 100 value 1039.350823
## final value 1039.350823
## stopped after 100 iterations
## - Fold5: decay= 1.0000, size=4
## + Fold5: decay= 1.2840, size=4
## # weights: 77
## initial value 2237.969726
## iter 10 value 1154.462699
## iter 20 value 1081.425371
## iter 30 value 1054.398129
## iter 40 value 1048.709172
## iter 50 value 1046.442089
## iter 60 value 1045.445230

```

```

## iter 70 value 1044.851161
## iter 80 value 1044.338139
## iter 90 value 1044.204734
## iter 100 value 1044.183872
## final value 1044.183872
## stopped after 100 iterations
## - Fold5: decay= 1.2840, size=4
## + Fold5: decay= 1.6487, size=4
## # weights: 77
## initial value 1486.183777
## iter 10 value 1091.812850
## iter 20 value 1062.202417
## iter 30 value 1054.251854
## iter 40 value 1051.625336
## iter 50 value 1049.454053
## iter 60 value 1048.920508
## iter 70 value 1048.889546
## iter 80 value 1048.873768
## final value 1048.871526
## converged
## - Fold5: decay= 1.6487, size=4
## + Fold5: decay= 2.1170, size=4
## # weights: 77
## initial value 2619.785329
## iter 10 value 1177.877958
## iter 20 value 1083.656434
## iter 30 value 1066.959914
## iter 40 value 1062.912516
## iter 50 value 1054.781523
## iter 60 value 1054.049124
## iter 70 value 1053.783761
## iter 80 value 1053.739627
## iter 90 value 1053.726454
## final value 1053.726191
## converged
## - Fold5: decay= 2.1170, size=4
## + Fold5: decay= 2.7183, size=4
## # weights: 77
## initial value 2409.747026
## iter 10 value 1150.213146
## iter 20 value 1091.468864
## iter 30 value 1078.936703
## iter 40 value 1067.890394
## iter 50 value 1059.920595
## iter 60 value 1059.210656
## iter 70 value 1059.107295
## iter 80 value 1059.061214
## iter 90 value 1059.038744
## iter 100 value 1059.035729
## final value 1059.035729
## stopped after 100 iterations
## - Fold5: decay= 2.7183, size=4
## + Fold5: decay= 3.4903, size=4
## # weights: 77

```

```

## initial value 1692.256600
## iter 10 value 1148.067595
## iter 20 value 1079.670016
## iter 30 value 1071.638378
## iter 40 value 1067.863256
## iter 50 value 1066.739917
## iter 60 value 1065.515799
## iter 70 value 1065.011561
## iter 80 value 1064.847143
## iter 90 value 1064.783605
## iter 100 value 1064.759780
## final value 1064.759780
## stopped after 100 iterations
## - Fold5: decay= 3.4903, size=4
## + Fold5: decay= 4.4817, size=4
## # weights: 77
## initial value 1827.792658
## iter 10 value 1231.881830
## iter 20 value 1087.089520
## iter 30 value 1079.037861
## iter 40 value 1071.949427
## iter 50 value 1071.689800
## iter 60 value 1071.637238
## iter 70 value 1071.631220
## final value 1071.630988
## converged
## - Fold5: decay= 4.4817, size=4
## + Fold5: decay= 5.7546, size=4
## # weights: 77
## initial value 1583.199928
## iter 10 value 1156.577813
## iter 20 value 1089.265160
## iter 30 value 1082.195583
## iter 40 value 1080.316067
## iter 50 value 1079.805126
## iter 60 value 1079.795537
## final value 1079.794989
## converged
## - Fold5: decay= 5.7546, size=4
## + Fold5: decay= 7.3891, size=4
## # weights: 77
## initial value 1971.209005
## iter 10 value 1130.532947
## iter 20 value 1107.618633
## iter 30 value 1094.991121
## iter 40 value 1090.001437
## iter 50 value 1089.436261
## iter 60 value 1089.431223
## final value 1089.430762
## converged
## - Fold5: decay= 7.3891, size=4
## + Fold5: decay= 9.4877, size=4
## # weights: 77
## initial value 2388.303969

```

```

## iter 10 value 1175.991464
## iter 20 value 1121.895196
## iter 30 value 1106.087547
## iter 40 value 1101.048232
## iter 50 value 1100.409700
## iter 60 value 1099.312889
## iter 70 value 1097.914996
## iter 80 value 1097.895181
## final value 1097.894951
## converged
## - Fold5: decay= 9.4877, size=4
## + Fold5: decay=12.1825, size=4
## # weights: 77
## initial value 1643.000375
## iter 10 value 1156.966440
## iter 20 value 1115.455231
## iter 30 value 1110.058958
## iter 40 value 1109.627776
## iter 50 value 1109.618613
## iter 50 value 1109.618605
## final value 1109.618569
## converged
## - Fold5: decay=12.1825, size=4
## + Fold5: decay= 0.3679, size=5
## # weights: 96
## initial value 1772.847640
## iter 10 value 1089.952439
## iter 20 value 1050.203480
## iter 30 value 1038.891692
## iter 40 value 1030.402214
## iter 50 value 1023.440183
## iter 60 value 1016.620916
## iter 70 value 1013.628517
## iter 80 value 1012.579126
## iter 90 value 1010.577104
## iter 100 value 1009.866860
## final value 1009.866860
## stopped after 100 iterations
## - Fold5: decay= 0.3679, size=5
## + Fold5: decay= 0.4724, size=5
## # weights: 96
## initial value 1450.603780
## iter 10 value 1056.488885
## iter 20 value 1040.333334
## iter 30 value 1030.878777
## iter 40 value 1025.781797
## iter 50 value 1023.447622
## iter 60 value 1022.666366
## iter 70 value 1022.173408
## iter 80 value 1021.062374
## iter 90 value 1018.800410
## iter 100 value 1018.403655
## final value 1018.403655
## stopped after 100 iterations

```



```

## - Fold5: decay= 0.4724, size=5
## + Fold5: decay= 0.6065, size=5
## # weights: 96
## initial value 1918.710878
## iter 10 value 1112.397531
## iter 20 value 1064.362625
## iter 30 value 1042.414553
## iter 40 value 1037.342363
## iter 50 value 1034.206438
## iter 60 value 1031.440162
## iter 70 value 1029.481899
## iter 80 value 1028.961786
## iter 90 value 1028.042808
## iter 100 value 1027.741188
## final value 1027.741188
## stopped after 100 iterations
## - Fold5: decay= 0.6065, size=5
## + Fold5: decay= 0.7788, size=5
## # weights: 96
## initial value 1492.909998
## iter 10 value 1097.279446
## iter 20 value 1052.152435
## iter 30 value 1040.608340
## iter 40 value 1037.677604
## iter 50 value 1033.512714
## iter 60 value 1030.225167
## iter 70 value 1028.093619
## iter 80 value 1027.507521
## iter 90 value 1027.170538
## iter 100 value 1026.966975
## final value 1026.966975
## stopped after 100 iterations
## - Fold5: decay= 0.7788, size=5
## + Fold5: decay= 1.0000, size=5
## # weights: 96
## initial value 3384.493620
## iter 10 value 1189.858483
## iter 20 value 1082.666333
## iter 30 value 1054.857006
## iter 40 value 1048.026040
## iter 50 value 1043.294204
## iter 60 value 1040.484410
## iter 70 value 1038.183012
## iter 80 value 1036.410277
## iter 90 value 1035.869828
## iter 100 value 1035.804816
## final value 1035.804816
## stopped after 100 iterations
## - Fold5: decay= 1.0000, size=5
## + Fold5: decay= 1.2840, size=5
## # weights: 96
## initial value 1376.855512
## iter 10 value 1067.363379
## iter 20 value 1051.550656

```

```

## iter 30 value 1048.085741
## iter 40 value 1045.318962
## iter 50 value 1044.629358
## iter 60 value 1044.316608
## iter 70 value 1044.238127
## iter 80 value 1044.199151
## iter 90 value 1044.160093
## iter 100 value 1044.109334
## final value 1044.109334
## stopped after 100 iterations
## - Fold5: decay= 1.2840, size=5
## + Fold5: decay= 1.6487, size=5
## # weights: 96
## initial value 1309.550824
## iter 10 value 1092.211452
## iter 20 value 1066.105345
## iter 30 value 1055.021418
## iter 40 value 1051.155081
## iter 50 value 1049.395176
## iter 60 value 1048.864076
## iter 70 value 1048.781543
## iter 80 value 1048.752708
## iter 90 value 1048.741912
## iter 100 value 1048.730965
## final value 1048.730965
## stopped after 100 iterations
## - Fold5: decay= 1.6487, size=5
## + Fold5: decay= 2.1170, size=5
## # weights: 96
## initial value 1765.044010
## iter 10 value 1168.530466
## iter 20 value 1087.276881
## iter 30 value 1063.423457
## iter 40 value 1057.553362
## iter 50 value 1055.602556
## iter 60 value 1053.756694
## iter 70 value 1053.340238
## iter 80 value 1053.265321
## iter 90 value 1053.246671
## iter 100 value 1053.237301
## final value 1053.237301
## stopped after 100 iterations
## - Fold5: decay= 2.1170, size=5
## + Fold5: decay= 2.7183, size=5
## # weights: 96
## initial value 2133.124990
## iter 10 value 1231.408454
## iter 20 value 1077.926279
## iter 30 value 1068.667412
## iter 40 value 1062.707657
## iter 50 value 1059.225642
## iter 60 value 1058.579384
## iter 70 value 1058.288944
## iter 80 value 1058.203787

```

```

## iter 90 value 1058.166384
## iter 100 value 1058.144881
## final value 1058.144881
## stopped after 100 iterations
## - Fold5: decay= 2.7183, size=5
## + Fold5: decay= 3.4903, size=5
## # weights: 96
## initial value 1707.171001
## iter 10 value 1195.114197
## iter 20 value 1083.422382
## iter 30 value 1071.080288
## iter 40 value 1065.990403
## iter 50 value 1064.931478
## iter 60 value 1064.861112
## iter 70 value 1064.830465
## iter 80 value 1064.825218
## iter 90 value 1064.818849
## iter 100 value 1064.812043
## final value 1064.812043
## stopped after 100 iterations
## - Fold5: decay= 3.4903, size=5
## + Fold5: decay= 4.4817, size=5
## # weights: 96
## initial value 1769.827231
## iter 10 value 1175.114602
## iter 20 value 1088.210168
## iter 30 value 1077.893688
## iter 40 value 1072.269591
## iter 50 value 1070.614555
## iter 60 value 1070.315836
## iter 70 value 1070.269329
## iter 80 value 1070.263592
## final value 1070.263176
## converged
## - Fold5: decay= 4.4817, size=5
## + Fold5: decay= 5.7546, size=5
## # weights: 96
## initial value 1985.681234
## iter 10 value 1242.535141
## iter 20 value 1099.639013
## iter 30 value 1085.821393
## iter 40 value 1080.061529
## iter 50 value 1078.552324
## iter 60 value 1078.247439
## iter 70 value 1078.144452
## iter 80 value 1078.123087
## final value 1078.121030
## converged
## - Fold5: decay= 5.7546, size=5
## + Fold5: decay= 7.3891, size=5
## # weights: 96
## initial value 1421.411211
## iter 10 value 1188.632718
## iter 20 value 1093.519758

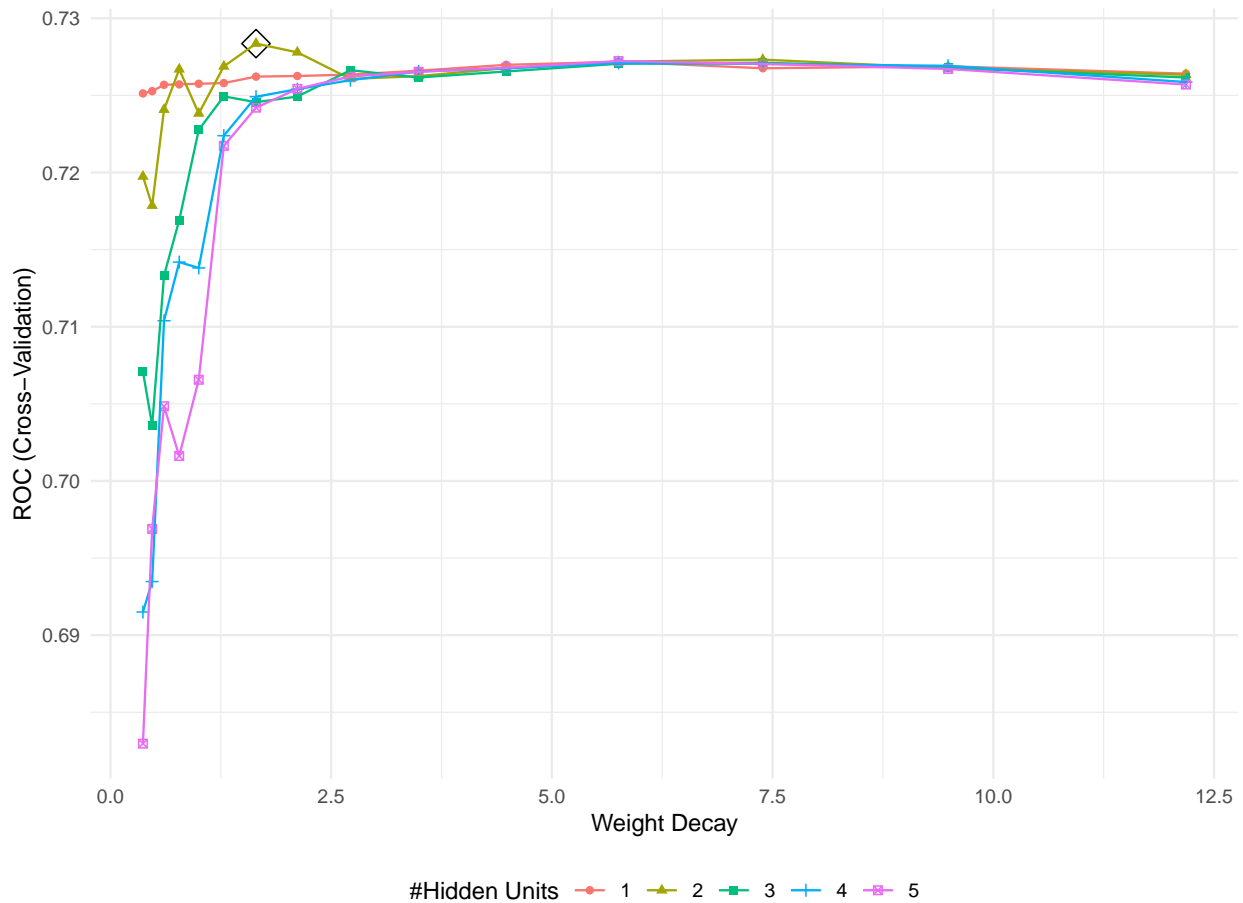
```

```

## iter 30 value 1090.314231
## iter 40 value 1088.637254
## iter 50 value 1087.394670
## iter 60 value 1087.300987
## iter 70 value 1087.291720
## final value 1087.290946
## converged
## - Fold5: decay= 7.3891, size=5
## + Fold5: decay= 9.4877, size=5
## # weights: 96
## initial value 2136.253440
## iter 10 value 1227.207352
## iter 20 value 1148.143021
## iter 30 value 1111.637701
## iter 40 value 1100.017844
## iter 50 value 1098.220144
## iter 60 value 1097.988973
## iter 70 value 1097.965403
## final value 1097.964991
## converged
## - Fold5: decay= 9.4877, size=5
## + Fold5: decay=12.1825, size=5
## # weights: 96
## initial value 3472.630058
## iter 10 value 1487.207105
## iter 20 value 1245.898194
## iter 30 value 1191.887246
## iter 40 value 1118.941784
## iter 50 value 1112.038957
## iter 60 value 1110.020109
## iter 70 value 1109.686682
## iter 80 value 1108.320913
## iter 90 value 1108.085034
## iter 100 value 1108.079468
## final value 1108.079468
## stopped after 100 iterations
## - Fold5: decay=12.1825, size=5
## Aggregating results
## Selecting tuning parameters
## Fitting size = 2, decay = 2.12 on full training set
## # weights: 39
## initial value 2565.416816
## iter 10 value 1426.144887
## iter 20 value 1341.540777
## iter 30 value 1324.576985
## iter 40 value 1317.225355
## iter 50 value 1316.283066
## iter 60 value 1316.231146
## final value 1316.230249
## converged

```

```
ggplot(nnet_fit, highlight = T)
```



Averaged Neural Network Model

```
#library(nnet)
#Fitting Model Averaged Neural Network
#Tuning parameters:
#size (#Hidden Units)
#decay (Weight Decay)
#bag (Bagging)

my.grid <- expand.grid(decay = seq(0, 0.001, 0.0001),
                      size = c(1:7),
                      bag = TRUE)

# get the maximum number of hidden units
maxSize <- max(my.grid$size)

# compute the maximum number of parameters
# there are M(p+1)+M+1 parameters in total, excluding outcome variable
numWts <- 1*(maxSize * (length(training_df_na_omit) - 1 + 1) + maxSize + 1)
```

```

set.seed(2022)
avnet_fit <- train(ten_year_chd ~ .,
  data = training_df_na_omit,
  method = "avNNet",
  MaxNWts = numWts, #maximum allowable weights
  maxit = 1000,
  tuneGrid = my.grid,
  trace = FALSE,
  metric = "ROC",
  preProcess = c("center", "scale", "BoxCox"),
  trControl = ctrl)

```

```

## + Fold1: decay=0e+00, size=1, bag=TRUE
## - Fold1: decay=0e+00, size=1, bag=TRUE
## + Fold1: decay=1e-04, size=1, bag=TRUE
## - Fold1: decay=1e-04, size=1, bag=TRUE
## + Fold1: decay=2e-04, size=1, bag=TRUE
## - Fold1: decay=2e-04, size=1, bag=TRUE
## + Fold1: decay=3e-04, size=1, bag=TRUE
## - Fold1: decay=3e-04, size=1, bag=TRUE
## + Fold1: decay=4e-04, size=1, bag=TRUE
## - Fold1: decay=4e-04, size=1, bag=TRUE
## + Fold1: decay=5e-04, size=1, bag=TRUE
## - Fold1: decay=5e-04, size=1, bag=TRUE
## + Fold1: decay=6e-04, size=1, bag=TRUE
## - Fold1: decay=6e-04, size=1, bag=TRUE
## + Fold1: decay=7e-04, size=1, bag=TRUE
## - Fold1: decay=7e-04, size=1, bag=TRUE
## + Fold1: decay=8e-04, size=1, bag=TRUE
## - Fold1: decay=8e-04, size=1, bag=TRUE
## + Fold1: decay=9e-04, size=1, bag=TRUE
## - Fold1: decay=9e-04, size=1, bag=TRUE
## + Fold1: decay=1e-03, size=1, bag=TRUE
## - Fold1: decay=1e-03, size=1, bag=TRUE
## + Fold1: decay=0e+00, size=2, bag=TRUE
## - Fold1: decay=0e+00, size=2, bag=TRUE
## + Fold1: decay=1e-04, size=2, bag=TRUE
## - Fold1: decay=1e-04, size=2, bag=TRUE
## + Fold1: decay=2e-04, size=2, bag=TRUE
## - Fold1: decay=2e-04, size=2, bag=TRUE
## + Fold1: decay=3e-04, size=2, bag=TRUE
## - Fold1: decay=3e-04, size=2, bag=TRUE
## + Fold1: decay=4e-04, size=2, bag=TRUE
## - Fold1: decay=4e-04, size=2, bag=TRUE
## + Fold1: decay=5e-04, size=2, bag=TRUE
## - Fold1: decay=5e-04, size=2, bag=TRUE
## + Fold1: decay=6e-04, size=2, bag=TRUE
## - Fold1: decay=6e-04, size=2, bag=TRUE
## + Fold1: decay=7e-04, size=2, bag=TRUE
## - Fold1: decay=7e-04, size=2, bag=TRUE
## + Fold1: decay=8e-04, size=2, bag=TRUE
## - Fold1: decay=8e-04, size=2, bag=TRUE
## + Fold1: decay=9e-04, size=2, bag=TRUE

```

```
## - Fold1: decay=9e-04, size=2, bag=TRUE
## + Fold1: decay=1e-03, size=2, bag=TRUE
## - Fold1: decay=1e-03, size=2, bag=TRUE
## + Fold1: decay=0e+00, size=3, bag=TRUE
## - Fold1: decay=0e+00, size=3, bag=TRUE
## + Fold1: decay=1e-04, size=3, bag=TRUE
## - Fold1: decay=1e-04, size=3, bag=TRUE
## + Fold1: decay=2e-04, size=3, bag=TRUE
## - Fold1: decay=2e-04, size=3, bag=TRUE
## + Fold1: decay=3e-04, size=3, bag=TRUE
## - Fold1: decay=3e-04, size=3, bag=TRUE
## + Fold1: decay=4e-04, size=3, bag=TRUE
## - Fold1: decay=4e-04, size=3, bag=TRUE
## + Fold1: decay=5e-04, size=3, bag=TRUE
## - Fold1: decay=5e-04, size=3, bag=TRUE
## + Fold1: decay=6e-04, size=3, bag=TRUE
## - Fold1: decay=6e-04, size=3, bag=TRUE
## + Fold1: decay=7e-04, size=3, bag=TRUE
## - Fold1: decay=7e-04, size=3, bag=TRUE
## + Fold1: decay=8e-04, size=3, bag=TRUE
## - Fold1: decay=8e-04, size=3, bag=TRUE
## + Fold1: decay=9e-04, size=3, bag=TRUE
## - Fold1: decay=9e-04, size=3, bag=TRUE
## + Fold1: decay=1e-03, size=3, bag=TRUE
## - Fold1: decay=1e-03, size=3, bag=TRUE
## + Fold1: decay=0e+00, size=4, bag=TRUE
## - Fold1: decay=0e+00, size=4, bag=TRUE
## + Fold1: decay=1e-04, size=4, bag=TRUE
## - Fold1: decay=1e-04, size=4, bag=TRUE
## + Fold1: decay=2e-04, size=4, bag=TRUE
## - Fold1: decay=2e-04, size=4, bag=TRUE
## + Fold1: decay=3e-04, size=4, bag=TRUE
## - Fold1: decay=3e-04, size=4, bag=TRUE
## + Fold1: decay=4e-04, size=4, bag=TRUE
## - Fold1: decay=4e-04, size=4, bag=TRUE
## + Fold1: decay=5e-04, size=4, bag=TRUE
## - Fold1: decay=5e-04, size=4, bag=TRUE
## + Fold1: decay=6e-04, size=4, bag=TRUE
## - Fold1: decay=6e-04, size=4, bag=TRUE
## + Fold1: decay=7e-04, size=4, bag=TRUE
## - Fold1: decay=7e-04, size=4, bag=TRUE
## + Fold1: decay=8e-04, size=4, bag=TRUE
## - Fold1: decay=8e-04, size=4, bag=TRUE
## + Fold1: decay=9e-04, size=4, bag=TRUE
## - Fold1: decay=9e-04, size=4, bag=TRUE
## + Fold1: decay=1e-03, size=4, bag=TRUE
## - Fold1: decay=1e-03, size=4, bag=TRUE
## + Fold1: decay=0e+00, size=5, bag=TRUE
## - Fold1: decay=0e+00, size=5, bag=TRUE
## + Fold1: decay=1e-04, size=5, bag=TRUE
## - Fold1: decay=1e-04, size=5, bag=TRUE
## + Fold1: decay=2e-04, size=5, bag=TRUE
## - Fold1: decay=2e-04, size=5, bag=TRUE
## + Fold1: decay=3e-04, size=5, bag=TRUE
```

```

## - Fold1: decay=3e-04, size=5, bag=TRUE
## + Fold1: decay=4e-04, size=5, bag=TRUE
## - Fold1: decay=4e-04, size=5, bag=TRUE
## + Fold1: decay=5e-04, size=5, bag=TRUE
## - Fold1: decay=5e-04, size=5, bag=TRUE
## + Fold1: decay=6e-04, size=5, bag=TRUE
## - Fold1: decay=6e-04, size=5, bag=TRUE
## + Fold1: decay=7e-04, size=5, bag=TRUE
## - Fold1: decay=7e-04, size=5, bag=TRUE
## + Fold1: decay=8e-04, size=5, bag=TRUE
## - Fold1: decay=8e-04, size=5, bag=TRUE
## + Fold1: decay=9e-04, size=5, bag=TRUE
## - Fold1: decay=9e-04, size=5, bag=TRUE
## + Fold1: decay=1e-03, size=5, bag=TRUE
## - Fold1: decay=1e-03, size=5, bag=TRUE
## + Fold1: decay=0e+00, size=6, bag=TRUE
## model fit failed for Fold1: decay=0e+00, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold1: decay=0e+00, size=6, bag=TRUE
## + Fold1: decay=1e-04, size=6, bag=TRUE
## model fit failed for Fold1: decay=1e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold1: decay=1e-04, size=6, bag=TRUE
## + Fold1: decay=2e-04, size=6, bag=TRUE
## model fit failed for Fold1: decay=2e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold1: decay=2e-04, size=6, bag=TRUE
## + Fold1: decay=3e-04, size=6, bag=TRUE
## model fit failed for Fold1: decay=3e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold1: decay=3e-04, size=6, bag=TRUE
## + Fold1: decay=4e-04, size=6, bag=TRUE
## model fit failed for Fold1: decay=4e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold1: decay=4e-04, size=6, bag=TRUE
## + Fold1: decay=5e-04, size=6, bag=TRUE
## model fit failed for Fold1: decay=5e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold1: decay=5e-04, size=6, bag=TRUE
## + Fold1: decay=6e-04, size=6, bag=TRUE
## model fit failed for Fold1: decay=6e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold1: decay=6e-04, size=6, bag=TRUE
## + Fold1: decay=7e-04, size=6, bag=TRUE
## model fit failed for Fold1: decay=7e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold1: decay=7e-04, size=6, bag=TRUE
## + Fold1: decay=8e-04, size=6, bag=TRUE
## model fit failed for Fold1: decay=8e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold1: decay=8e-04, size=6, bag=TRUE
## + Fold1: decay=9e-04, size=6, bag=TRUE
## model fit failed for Fold1: decay=9e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##

```



```

## - Fold1: decay=9e-04, size=6, bag=TRUE
## + Fold1: decay=1e-03, size=6, bag=TRUE
## model fit failed for Fold1: decay=1e-03, size=6, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold1: decay=1e-03, size=6, bag=TRUE
## + Fold1: decay=0e+00, size=7, bag=TRUE
## model fit failed for Fold1: decay=0e+00, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold1: decay=0e+00, size=7, bag=TRUE
## + Fold1: decay=1e-04, size=7, bag=TRUE
## model fit failed for Fold1: decay=1e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold1: decay=1e-04, size=7, bag=TRUE
## + Fold1: decay=2e-04, size=7, bag=TRUE
## model fit failed for Fold1: decay=2e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold1: decay=2e-04, size=7, bag=TRUE
## + Fold1: decay=3e-04, size=7, bag=TRUE
## model fit failed for Fold1: decay=3e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold1: decay=3e-04, size=7, bag=TRUE
## + Fold1: decay=4e-04, size=7, bag=TRUE
## model fit failed for Fold1: decay=4e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold1: decay=4e-04, size=7, bag=TRUE
## + Fold1: decay=5e-04, size=7, bag=TRUE
## model fit failed for Fold1: decay=5e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold1: decay=5e-04, size=7, bag=TRUE
## + Fold1: decay=6e-04, size=7, bag=TRUE
## model fit failed for Fold1: decay=6e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold1: decay=6e-04, size=7, bag=TRUE
## + Fold1: decay=7e-04, size=7, bag=TRUE
## model fit failed for Fold1: decay=7e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold1: decay=7e-04, size=7, bag=TRUE
## + Fold1: decay=8e-04, size=7, bag=TRUE
## model fit failed for Fold1: decay=8e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold1: decay=8e-04, size=7, bag=TRUE
## + Fold1: decay=9e-04, size=7, bag=TRUE
## model fit failed for Fold1: decay=9e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold1: decay=9e-04, size=7, bag=TRUE
## + Fold1: decay=1e-03, size=7, bag=TRUE
## model fit failed for Fold1: decay=1e-03, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold1: decay=1e-03, size=7, bag=TRUE
## + Fold2: decay=0e+00, size=1, bag=TRUE
## - Fold2: decay=0e+00, size=1, bag=TRUE
## + Fold2: decay=1e-04, size=1, bag=TRUE
## - Fold2: decay=1e-04, size=1, bag=TRUE
## + Fold2: decay=2e-04, size=1, bag=TRUE

```

```
## - Fold2: decay=2e-04, size=1, bag=TRUE
## + Fold2: decay=3e-04, size=1, bag=TRUE
## - Fold2: decay=3e-04, size=1, bag=TRUE
## + Fold2: decay=4e-04, size=1, bag=TRUE
## - Fold2: decay=4e-04, size=1, bag=TRUE
## + Fold2: decay=5e-04, size=1, bag=TRUE
## - Fold2: decay=5e-04, size=1, bag=TRUE
## + Fold2: decay=6e-04, size=1, bag=TRUE
## - Fold2: decay=6e-04, size=1, bag=TRUE
## + Fold2: decay=7e-04, size=1, bag=TRUE
## - Fold2: decay=7e-04, size=1, bag=TRUE
## + Fold2: decay=8e-04, size=1, bag=TRUE
## - Fold2: decay=8e-04, size=1, bag=TRUE
## + Fold2: decay=9e-04, size=1, bag=TRUE
## - Fold2: decay=9e-04, size=1, bag=TRUE
## + Fold2: decay=1e-03, size=1, bag=TRUE
## - Fold2: decay=1e-03, size=1, bag=TRUE
## + Fold2: decay=0e+00, size=2, bag=TRUE
## - Fold2: decay=0e+00, size=2, bag=TRUE
## + Fold2: decay=1e-04, size=2, bag=TRUE
## - Fold2: decay=1e-04, size=2, bag=TRUE
## + Fold2: decay=2e-04, size=2, bag=TRUE
## - Fold2: decay=2e-04, size=2, bag=TRUE
## + Fold2: decay=3e-04, size=2, bag=TRUE
## - Fold2: decay=3e-04, size=2, bag=TRUE
## + Fold2: decay=4e-04, size=2, bag=TRUE
## - Fold2: decay=4e-04, size=2, bag=TRUE
## + Fold2: decay=5e-04, size=2, bag=TRUE
## - Fold2: decay=5e-04, size=2, bag=TRUE
## + Fold2: decay=6e-04, size=2, bag=TRUE
## - Fold2: decay=6e-04, size=2, bag=TRUE
## + Fold2: decay=7e-04, size=2, bag=TRUE
## - Fold2: decay=7e-04, size=2, bag=TRUE
## + Fold2: decay=8e-04, size=2, bag=TRUE
## - Fold2: decay=8e-04, size=2, bag=TRUE
## + Fold2: decay=9e-04, size=2, bag=TRUE
## - Fold2: decay=9e-04, size=2, bag=TRUE
## + Fold2: decay=1e-03, size=2, bag=TRUE
## - Fold2: decay=1e-03, size=2, bag=TRUE
## + Fold2: decay=0e+00, size=3, bag=TRUE
## - Fold2: decay=0e+00, size=3, bag=TRUE
## + Fold2: decay=1e-04, size=3, bag=TRUE
## - Fold2: decay=1e-04, size=3, bag=TRUE
## + Fold2: decay=2e-04, size=3, bag=TRUE
## - Fold2: decay=2e-04, size=3, bag=TRUE
## + Fold2: decay=3e-04, size=3, bag=TRUE
## - Fold2: decay=3e-04, size=3, bag=TRUE
## + Fold2: decay=4e-04, size=3, bag=TRUE
## - Fold2: decay=4e-04, size=3, bag=TRUE
## + Fold2: decay=5e-04, size=3, bag=TRUE
## - Fold2: decay=5e-04, size=3, bag=TRUE
## + Fold2: decay=6e-04, size=3, bag=TRUE
## - Fold2: decay=6e-04, size=3, bag=TRUE
## + Fold2: decay=7e-04, size=3, bag=TRUE
```

```

## - Fold2: decay=7e-04, size=3, bag=TRUE
## + Fold2: decay=8e-04, size=3, bag=TRUE
## - Fold2: decay=8e-04, size=3, bag=TRUE
## + Fold2: decay=9e-04, size=3, bag=TRUE
## - Fold2: decay=9e-04, size=3, bag=TRUE
## + Fold2: decay=1e-03, size=3, bag=TRUE
## - Fold2: decay=1e-03, size=3, bag=TRUE
## + Fold2: decay=0e+00, size=4, bag=TRUE
## - Fold2: decay=0e+00, size=4, bag=TRUE
## + Fold2: decay=1e-04, size=4, bag=TRUE
## - Fold2: decay=1e-04, size=4, bag=TRUE
## + Fold2: decay=2e-04, size=4, bag=TRUE
## - Fold2: decay=2e-04, size=4, bag=TRUE
## + Fold2: decay=3e-04, size=4, bag=TRUE
## - Fold2: decay=3e-04, size=4, bag=TRUE
## + Fold2: decay=4e-04, size=4, bag=TRUE
## - Fold2: decay=4e-04, size=4, bag=TRUE
## + Fold2: decay=5e-04, size=4, bag=TRUE
## - Fold2: decay=5e-04, size=4, bag=TRUE
## + Fold2: decay=6e-04, size=4, bag=TRUE
## - Fold2: decay=6e-04, size=4, bag=TRUE
## + Fold2: decay=7e-04, size=4, bag=TRUE
## - Fold2: decay=7e-04, size=4, bag=TRUE
## + Fold2: decay=8e-04, size=4, bag=TRUE
## - Fold2: decay=8e-04, size=4, bag=TRUE
## + Fold2: decay=9e-04, size=4, bag=TRUE
## - Fold2: decay=9e-04, size=4, bag=TRUE
## + Fold2: decay=1e-03, size=4, bag=TRUE
## - Fold2: decay=1e-03, size=4, bag=TRUE
## + Fold2: decay=0e+00, size=5, bag=TRUE
## - Fold2: decay=0e+00, size=5, bag=TRUE
## + Fold2: decay=1e-04, size=5, bag=TRUE
## - Fold2: decay=1e-04, size=5, bag=TRUE
## + Fold2: decay=2e-04, size=5, bag=TRUE
## - Fold2: decay=2e-04, size=5, bag=TRUE
## + Fold2: decay=3e-04, size=5, bag=TRUE
## - Fold2: decay=3e-04, size=5, bag=TRUE
## + Fold2: decay=4e-04, size=5, bag=TRUE
## - Fold2: decay=4e-04, size=5, bag=TRUE
## + Fold2: decay=5e-04, size=5, bag=TRUE
## - Fold2: decay=5e-04, size=5, bag=TRUE
## + Fold2: decay=6e-04, size=5, bag=TRUE
## - Fold2: decay=6e-04, size=5, bag=TRUE
## + Fold2: decay=7e-04, size=5, bag=TRUE
## - Fold2: decay=7e-04, size=5, bag=TRUE
## + Fold2: decay=8e-04, size=5, bag=TRUE
## - Fold2: decay=8e-04, size=5, bag=TRUE
## + Fold2: decay=9e-04, size=5, bag=TRUE
## - Fold2: decay=9e-04, size=5, bag=TRUE
## + Fold2: decay=1e-03, size=5, bag=TRUE
## - Fold2: decay=1e-03, size=5, bag=TRUE
## + Fold2: decay=0e+00, size=6, bag=TRUE
## model fit failed for Fold2: decay=0e+00, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##

```

```

## - Fold2: decay=0e+00, size=6, bag=TRUE
## + Fold2: decay=1e-04, size=6, bag=TRUE
## model fit failed for Fold2: decay=1e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold2: decay=1e-04, size=6, bag=TRUE
## + Fold2: decay=2e-04, size=6, bag=TRUE
## model fit failed for Fold2: decay=2e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold2: decay=2e-04, size=6, bag=TRUE
## + Fold2: decay=3e-04, size=6, bag=TRUE
## model fit failed for Fold2: decay=3e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold2: decay=3e-04, size=6, bag=TRUE
## + Fold2: decay=4e-04, size=6, bag=TRUE
## model fit failed for Fold2: decay=4e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold2: decay=4e-04, size=6, bag=TRUE
## + Fold2: decay=5e-04, size=6, bag=TRUE
## model fit failed for Fold2: decay=5e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold2: decay=5e-04, size=6, bag=TRUE
## + Fold2: decay=6e-04, size=6, bag=TRUE
## model fit failed for Fold2: decay=6e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold2: decay=6e-04, size=6, bag=TRUE
## + Fold2: decay=7e-04, size=6, bag=TRUE
## model fit failed for Fold2: decay=7e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold2: decay=7e-04, size=6, bag=TRUE
## + Fold2: decay=8e-04, size=6, bag=TRUE
## model fit failed for Fold2: decay=8e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold2: decay=8e-04, size=6, bag=TRUE
## + Fold2: decay=9e-04, size=6, bag=TRUE
## model fit failed for Fold2: decay=9e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold2: decay=9e-04, size=6, bag=TRUE
## + Fold2: decay=1e-03, size=6, bag=TRUE
## model fit failed for Fold2: decay=1e-03, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold2: decay=1e-03, size=6, bag=TRUE
## + Fold2: decay=0e+00, size=7, bag=TRUE
## model fit failed for Fold2: decay=0e+00, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold2: decay=0e+00, size=7, bag=TRUE
## + Fold2: decay=1e-04, size=7, bag=TRUE
## model fit failed for Fold2: decay=1e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold2: decay=1e-04, size=7, bag=TRUE
## + Fold2: decay=2e-04, size=7, bag=TRUE
## model fit failed for Fold2: decay=2e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold2: decay=2e-04, size=7, bag=TRUE
## + Fold2: decay=3e-04, size=7, bag=TRUE

```

```

## model fit failed for Fold2: decay=3e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold2: decay=3e-04, size=7, bag=TRUE
## + Fold2: decay=4e-04, size=7, bag=TRUE
## model fit failed for Fold2: decay=4e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold2: decay=4e-04, size=7, bag=TRUE
## + Fold2: decay=5e-04, size=7, bag=TRUE
## model fit failed for Fold2: decay=5e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold2: decay=5e-04, size=7, bag=TRUE
## + Fold2: decay=6e-04, size=7, bag=TRUE
## model fit failed for Fold2: decay=6e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold2: decay=6e-04, size=7, bag=TRUE
## + Fold2: decay=7e-04, size=7, bag=TRUE
## model fit failed for Fold2: decay=7e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold2: decay=7e-04, size=7, bag=TRUE
## + Fold2: decay=8e-04, size=7, bag=TRUE
## model fit failed for Fold2: decay=8e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold2: decay=8e-04, size=7, bag=TRUE
## + Fold2: decay=9e-04, size=7, bag=TRUE
## model fit failed for Fold2: decay=9e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold2: decay=9e-04, size=7, bag=TRUE
## + Fold2: decay=1e-03, size=7, bag=TRUE
## model fit failed for Fold2: decay=1e-03, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold2: decay=1e-03, size=7, bag=TRUE
## + Fold3: decay=0e+00, size=1, bag=TRUE
## - Fold3: decay=0e+00, size=1, bag=TRUE
## + Fold3: decay=1e-04, size=1, bag=TRUE
## - Fold3: decay=1e-04, size=1, bag=TRUE
## + Fold3: decay=2e-04, size=1, bag=TRUE
## - Fold3: decay=2e-04, size=1, bag=TRUE
## + Fold3: decay=3e-04, size=1, bag=TRUE
## - Fold3: decay=3e-04, size=1, bag=TRUE
## + Fold3: decay=4e-04, size=1, bag=TRUE
## - Fold3: decay=4e-04, size=1, bag=TRUE
## + Fold3: decay=5e-04, size=1, bag=TRUE
## - Fold3: decay=5e-04, size=1, bag=TRUE
## + Fold3: decay=6e-04, size=1, bag=TRUE
## - Fold3: decay=6e-04, size=1, bag=TRUE
## + Fold3: decay=7e-04, size=1, bag=TRUE
## - Fold3: decay=7e-04, size=1, bag=TRUE
## + Fold3: decay=8e-04, size=1, bag=TRUE
## - Fold3: decay=8e-04, size=1, bag=TRUE
## + Fold3: decay=9e-04, size=1, bag=TRUE
## - Fold3: decay=9e-04, size=1, bag=TRUE
## + Fold3: decay=1e-03, size=1, bag=TRUE
## - Fold3: decay=1e-03, size=1, bag=TRUE
## + Fold3: decay=0e+00, size=2, bag=TRUE

```

```

## - Fold3: decay=0e+00, size=2, bag=TRUE
## + Fold3: decay=1e-04, size=2, bag=TRUE
## - Fold3: decay=1e-04, size=2, bag=TRUE
## + Fold3: decay=2e-04, size=2, bag=TRUE
## - Fold3: decay=2e-04, size=2, bag=TRUE
## + Fold3: decay=3e-04, size=2, bag=TRUE
## - Fold3: decay=3e-04, size=2, bag=TRUE
## + Fold3: decay=4e-04, size=2, bag=TRUE
## - Fold3: decay=4e-04, size=2, bag=TRUE
## + Fold3: decay=5e-04, size=2, bag=TRUE
## - Fold3: decay=5e-04, size=2, bag=TRUE
## + Fold3: decay=6e-04, size=2, bag=TRUE
## - Fold3: decay=6e-04, size=2, bag=TRUE
## + Fold3: decay=7e-04, size=2, bag=TRUE
## - Fold3: decay=7e-04, size=2, bag=TRUE
## + Fold3: decay=8e-04, size=2, bag=TRUE
## - Fold3: decay=8e-04, size=2, bag=TRUE
## + Fold3: decay=9e-04, size=2, bag=TRUE
## - Fold3: decay=9e-04, size=2, bag=TRUE
## + Fold3: decay=1e-03, size=2, bag=TRUE
## - Fold3: decay=1e-03, size=2, bag=TRUE
## + Fold3: decay=0e+00, size=3, bag=TRUE
## - Fold3: decay=0e+00, size=3, bag=TRUE
## + Fold3: decay=1e-04, size=3, bag=TRUE
## - Fold3: decay=1e-04, size=3, bag=TRUE
## + Fold3: decay=2e-04, size=3, bag=TRUE
## - Fold3: decay=2e-04, size=3, bag=TRUE
## + Fold3: decay=3e-04, size=3, bag=TRUE
## - Fold3: decay=3e-04, size=3, bag=TRUE
## + Fold3: decay=4e-04, size=3, bag=TRUE
## - Fold3: decay=4e-04, size=3, bag=TRUE
## + Fold3: decay=5e-04, size=3, bag=TRUE
## - Fold3: decay=5e-04, size=3, bag=TRUE
## + Fold3: decay=6e-04, size=3, bag=TRUE
## - Fold3: decay=6e-04, size=3, bag=TRUE
## + Fold3: decay=7e-04, size=3, bag=TRUE
## - Fold3: decay=7e-04, size=3, bag=TRUE
## + Fold3: decay=8e-04, size=3, bag=TRUE
## - Fold3: decay=8e-04, size=3, bag=TRUE
## + Fold3: decay=9e-04, size=3, bag=TRUE
## - Fold3: decay=9e-04, size=3, bag=TRUE
## + Fold3: decay=1e-03, size=3, bag=TRUE
## - Fold3: decay=1e-03, size=3, bag=TRUE
## + Fold3: decay=0e+00, size=4, bag=TRUE
## - Fold3: decay=0e+00, size=4, bag=TRUE
## + Fold3: decay=1e-04, size=4, bag=TRUE
## - Fold3: decay=1e-04, size=4, bag=TRUE
## + Fold3: decay=2e-04, size=4, bag=TRUE
## - Fold3: decay=2e-04, size=4, bag=TRUE
## + Fold3: decay=3e-04, size=4, bag=TRUE
## - Fold3: decay=3e-04, size=4, bag=TRUE
## + Fold3: decay=4e-04, size=4, bag=TRUE
## - Fold3: decay=4e-04, size=4, bag=TRUE
## + Fold3: decay=5e-04, size=4, bag=TRUE

```

```

## - Fold3: decay=5e-04, size=4, bag=TRUE
## + Fold3: decay=6e-04, size=4, bag=TRUE
## - Fold3: decay=6e-04, size=4, bag=TRUE
## + Fold3: decay=7e-04, size=4, bag=TRUE
## - Fold3: decay=7e-04, size=4, bag=TRUE
## + Fold3: decay=8e-04, size=4, bag=TRUE
## - Fold3: decay=8e-04, size=4, bag=TRUE
## + Fold3: decay=9e-04, size=4, bag=TRUE
## - Fold3: decay=9e-04, size=4, bag=TRUE
## + Fold3: decay=1e-03, size=4, bag=TRUE
## - Fold3: decay=1e-03, size=4, bag=TRUE
## + Fold3: decay=0e+00, size=5, bag=TRUE
## - Fold3: decay=0e+00, size=5, bag=TRUE
## + Fold3: decay=1e-04, size=5, bag=TRUE
## - Fold3: decay=1e-04, size=5, bag=TRUE
## + Fold3: decay=2e-04, size=5, bag=TRUE
## - Fold3: decay=2e-04, size=5, bag=TRUE
## + Fold3: decay=3e-04, size=5, bag=TRUE
## - Fold3: decay=3e-04, size=5, bag=TRUE
## + Fold3: decay=4e-04, size=5, bag=TRUE
## - Fold3: decay=4e-04, size=5, bag=TRUE
## + Fold3: decay=5e-04, size=5, bag=TRUE
## - Fold3: decay=5e-04, size=5, bag=TRUE
## + Fold3: decay=6e-04, size=5, bag=TRUE
## - Fold3: decay=6e-04, size=5, bag=TRUE
## + Fold3: decay=7e-04, size=5, bag=TRUE
## - Fold3: decay=7e-04, size=5, bag=TRUE
## + Fold3: decay=8e-04, size=5, bag=TRUE
## - Fold3: decay=8e-04, size=5, bag=TRUE
## + Fold3: decay=9e-04, size=5, bag=TRUE
## - Fold3: decay=9e-04, size=5, bag=TRUE
## + Fold3: decay=1e-03, size=5, bag=TRUE
## - Fold3: decay=1e-03, size=5, bag=TRUE
## + Fold3: decay=0e+00, size=6, bag=TRUE
## model fit failed for Fold3: decay=0e+00, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold3: decay=0e+00, size=6, bag=TRUE
## + Fold3: decay=1e-04, size=6, bag=TRUE
## model fit failed for Fold3: decay=1e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold3: decay=1e-04, size=6, bag=TRUE
## + Fold3: decay=2e-04, size=6, bag=TRUE
## model fit failed for Fold3: decay=2e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold3: decay=2e-04, size=6, bag=TRUE
## + Fold3: decay=3e-04, size=6, bag=TRUE
## model fit failed for Fold3: decay=3e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold3: decay=3e-04, size=6, bag=TRUE
## + Fold3: decay=4e-04, size=6, bag=TRUE
## model fit failed for Fold3: decay=4e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold3: decay=4e-04, size=6, bag=TRUE
## + Fold3: decay=5e-04, size=6, bag=TRUE

```

```

## model fit failed for Fold3: decay=5e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold3: decay=5e-04, size=6, bag=TRUE
## + Fold3: decay=6e-04, size=6, bag=TRUE
## model fit failed for Fold3: decay=6e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold3: decay=6e-04, size=6, bag=TRUE
## + Fold3: decay=7e-04, size=6, bag=TRUE
## model fit failed for Fold3: decay=7e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold3: decay=7e-04, size=6, bag=TRUE
## + Fold3: decay=8e-04, size=6, bag=TRUE
## model fit failed for Fold3: decay=8e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold3: decay=8e-04, size=6, bag=TRUE
## + Fold3: decay=9e-04, size=6, bag=TRUE
## model fit failed for Fold3: decay=9e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold3: decay=9e-04, size=6, bag=TRUE
## + Fold3: decay=1e-03, size=6, bag=TRUE
## model fit failed for Fold3: decay=1e-03, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold3: decay=1e-03, size=6, bag=TRUE
## + Fold3: decay=0e+00, size=7, bag=TRUE
## model fit failed for Fold3: decay=0e+00, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold3: decay=0e+00, size=7, bag=TRUE
## + Fold3: decay=1e-04, size=7, bag=TRUE
## model fit failed for Fold3: decay=1e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold3: decay=1e-04, size=7, bag=TRUE
## + Fold3: decay=2e-04, size=7, bag=TRUE
## model fit failed for Fold3: decay=2e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold3: decay=2e-04, size=7, bag=TRUE
## + Fold3: decay=3e-04, size=7, bag=TRUE
## model fit failed for Fold3: decay=3e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold3: decay=3e-04, size=7, bag=TRUE
## + Fold3: decay=4e-04, size=7, bag=TRUE
## model fit failed for Fold3: decay=4e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold3: decay=4e-04, size=7, bag=TRUE
## + Fold3: decay=5e-04, size=7, bag=TRUE
## model fit failed for Fold3: decay=5e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold3: decay=5e-04, size=7, bag=TRUE
## + Fold3: decay=6e-04, size=7, bag=TRUE
## model fit failed for Fold3: decay=6e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold3: decay=6e-04, size=7, bag=TRUE
## + Fold3: decay=7e-04, size=7, bag=TRUE
## model fit failed for Fold3: decay=7e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##

```



```

## - Fold3: decay=7e-04, size=7, bag=TRUE
## + Fold3: decay=8e-04, size=7, bag=TRUE
## model fit failed for Fold3: decay=8e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold3: decay=8e-04, size=7, bag=TRUE
## + Fold3: decay=9e-04, size=7, bag=TRUE
## model fit failed for Fold3: decay=9e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold3: decay=9e-04, size=7, bag=TRUE
## + Fold3: decay=1e-03, size=7, bag=TRUE
## model fit failed for Fold3: decay=1e-03, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold3: decay=1e-03, size=7, bag=TRUE
## + Fold4: decay=0e+00, size=1, bag=TRUE
## - Fold4: decay=0e+00, size=1, bag=TRUE
## + Fold4: decay=1e-04, size=1, bag=TRUE
## - Fold4: decay=1e-04, size=1, bag=TRUE
## + Fold4: decay=2e-04, size=1, bag=TRUE
## - Fold4: decay=2e-04, size=1, bag=TRUE
## + Fold4: decay=3e-04, size=1, bag=TRUE
## - Fold4: decay=3e-04, size=1, bag=TRUE
## + Fold4: decay=4e-04, size=1, bag=TRUE
## - Fold4: decay=4e-04, size=1, bag=TRUE
## + Fold4: decay=5e-04, size=1, bag=TRUE
## - Fold4: decay=5e-04, size=1, bag=TRUE
## + Fold4: decay=6e-04, size=1, bag=TRUE
## - Fold4: decay=6e-04, size=1, bag=TRUE
## + Fold4: decay=7e-04, size=1, bag=TRUE
## - Fold4: decay=7e-04, size=1, bag=TRUE
## + Fold4: decay=8e-04, size=1, bag=TRUE
## - Fold4: decay=8e-04, size=1, bag=TRUE
## + Fold4: decay=9e-04, size=1, bag=TRUE
## - Fold4: decay=9e-04, size=1, bag=TRUE
## + Fold4: decay=1e-03, size=1, bag=TRUE
## - Fold4: decay=1e-03, size=1, bag=TRUE
## + Fold4: decay=0e+00, size=2, bag=TRUE
## - Fold4: decay=0e+00, size=2, bag=TRUE
## + Fold4: decay=1e-04, size=2, bag=TRUE
## - Fold4: decay=1e-04, size=2, bag=TRUE
## + Fold4: decay=2e-04, size=2, bag=TRUE
## - Fold4: decay=2e-04, size=2, bag=TRUE
## + Fold4: decay=3e-04, size=2, bag=TRUE
## - Fold4: decay=3e-04, size=2, bag=TRUE
## + Fold4: decay=4e-04, size=2, bag=TRUE
## - Fold4: decay=4e-04, size=2, bag=TRUE
## + Fold4: decay=5e-04, size=2, bag=TRUE
## - Fold4: decay=5e-04, size=2, bag=TRUE
## + Fold4: decay=6e-04, size=2, bag=TRUE
## - Fold4: decay=6e-04, size=2, bag=TRUE
## + Fold4: decay=7e-04, size=2, bag=TRUE
## - Fold4: decay=7e-04, size=2, bag=TRUE
## + Fold4: decay=8e-04, size=2, bag=TRUE
## - Fold4: decay=8e-04, size=2, bag=TRUE
## + Fold4: decay=9e-04, size=2, bag=TRUE

```

```

## - Fold4: decay=9e-04, size=2, bag=TRUE
## + Fold4: decay=1e-03, size=2, bag=TRUE
## - Fold4: decay=1e-03, size=2, bag=TRUE
## + Fold4: decay=0e+00, size=3, bag=TRUE
## - Fold4: decay=0e+00, size=3, bag=TRUE
## + Fold4: decay=1e-04, size=3, bag=TRUE
## - Fold4: decay=1e-04, size=3, bag=TRUE
## + Fold4: decay=2e-04, size=3, bag=TRUE
## - Fold4: decay=2e-04, size=3, bag=TRUE
## + Fold4: decay=3e-04, size=3, bag=TRUE
## - Fold4: decay=3e-04, size=3, bag=TRUE
## + Fold4: decay=4e-04, size=3, bag=TRUE
## - Fold4: decay=4e-04, size=3, bag=TRUE
## + Fold4: decay=5e-04, size=3, bag=TRUE
## - Fold4: decay=5e-04, size=3, bag=TRUE
## + Fold4: decay=6e-04, size=3, bag=TRUE
## - Fold4: decay=6e-04, size=3, bag=TRUE
## + Fold4: decay=7e-04, size=3, bag=TRUE
## - Fold4: decay=7e-04, size=3, bag=TRUE
## + Fold4: decay=8e-04, size=3, bag=TRUE
## - Fold4: decay=8e-04, size=3, bag=TRUE
## + Fold4: decay=9e-04, size=3, bag=TRUE
## - Fold4: decay=9e-04, size=3, bag=TRUE
## + Fold4: decay=1e-03, size=3, bag=TRUE
## - Fold4: decay=1e-03, size=3, bag=TRUE
## + Fold4: decay=0e+00, size=4, bag=TRUE
## - Fold4: decay=0e+00, size=4, bag=TRUE
## + Fold4: decay=1e-04, size=4, bag=TRUE
## - Fold4: decay=1e-04, size=4, bag=TRUE
## + Fold4: decay=2e-04, size=4, bag=TRUE
## - Fold4: decay=2e-04, size=4, bag=TRUE
## + Fold4: decay=3e-04, size=4, bag=TRUE
## - Fold4: decay=3e-04, size=4, bag=TRUE
## + Fold4: decay=4e-04, size=4, bag=TRUE
## - Fold4: decay=4e-04, size=4, bag=TRUE
## + Fold4: decay=5e-04, size=4, bag=TRUE
## - Fold4: decay=5e-04, size=4, bag=TRUE
## + Fold4: decay=6e-04, size=4, bag=TRUE
## - Fold4: decay=6e-04, size=4, bag=TRUE
## + Fold4: decay=7e-04, size=4, bag=TRUE
## - Fold4: decay=7e-04, size=4, bag=TRUE
## + Fold4: decay=8e-04, size=4, bag=TRUE
## - Fold4: decay=8e-04, size=4, bag=TRUE
## + Fold4: decay=9e-04, size=4, bag=TRUE
## - Fold4: decay=9e-04, size=4, bag=TRUE
## + Fold4: decay=1e-03, size=4, bag=TRUE
## - Fold4: decay=1e-03, size=4, bag=TRUE
## + Fold4: decay=0e+00, size=5, bag=TRUE
## - Fold4: decay=0e+00, size=5, bag=TRUE
## + Fold4: decay=1e-04, size=5, bag=TRUE
## - Fold4: decay=1e-04, size=5, bag=TRUE
## + Fold4: decay=2e-04, size=5, bag=TRUE
## - Fold4: decay=2e-04, size=5, bag=TRUE
## + Fold4: decay=3e-04, size=5, bag=TRUE

```

```

## - Fold4: decay=3e-04, size=5, bag=TRUE
## + Fold4: decay=4e-04, size=5, bag=TRUE
## - Fold4: decay=4e-04, size=5, bag=TRUE
## + Fold4: decay=5e-04, size=5, bag=TRUE
## - Fold4: decay=5e-04, size=5, bag=TRUE
## + Fold4: decay=6e-04, size=5, bag=TRUE
## - Fold4: decay=6e-04, size=5, bag=TRUE
## + Fold4: decay=7e-04, size=5, bag=TRUE
## - Fold4: decay=7e-04, size=5, bag=TRUE
## + Fold4: decay=8e-04, size=5, bag=TRUE
## - Fold4: decay=8e-04, size=5, bag=TRUE
## + Fold4: decay=9e-04, size=5, bag=TRUE
## - Fold4: decay=9e-04, size=5, bag=TRUE
## + Fold4: decay=1e-03, size=5, bag=TRUE
## - Fold4: decay=1e-03, size=5, bag=TRUE
## + Fold4: decay=0e+00, size=6, bag=TRUE
## model fit failed for Fold4: decay=0e+00, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold4: decay=0e+00, size=6, bag=TRUE
## + Fold4: decay=1e-04, size=6, bag=TRUE
## model fit failed for Fold4: decay=1e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold4: decay=1e-04, size=6, bag=TRUE
## + Fold4: decay=2e-04, size=6, bag=TRUE
## model fit failed for Fold4: decay=2e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold4: decay=2e-04, size=6, bag=TRUE
## + Fold4: decay=3e-04, size=6, bag=TRUE
## model fit failed for Fold4: decay=3e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold4: decay=3e-04, size=6, bag=TRUE
## + Fold4: decay=4e-04, size=6, bag=TRUE
## model fit failed for Fold4: decay=4e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold4: decay=4e-04, size=6, bag=TRUE
## + Fold4: decay=5e-04, size=6, bag=TRUE
## model fit failed for Fold4: decay=5e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold4: decay=5e-04, size=6, bag=TRUE
## + Fold4: decay=6e-04, size=6, bag=TRUE
## model fit failed for Fold4: decay=6e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold4: decay=6e-04, size=6, bag=TRUE
## + Fold4: decay=7e-04, size=6, bag=TRUE
## model fit failed for Fold4: decay=7e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold4: decay=7e-04, size=6, bag=TRUE
## + Fold4: decay=8e-04, size=6, bag=TRUE
## model fit failed for Fold4: decay=8e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold4: decay=8e-04, size=6, bag=TRUE
## + Fold4: decay=9e-04, size=6, bag=TRUE
## model fit failed for Fold4: decay=9e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##

```

```

## - Fold4: decay=9e-04, size=6, bag=TRUE
## + Fold4: decay=1e-03, size=6, bag=TRUE
## model fit failed for Fold4: decay=1e-03, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold4: decay=1e-03, size=6, bag=TRUE
## + Fold4: decay=0e+00, size=7, bag=TRUE
## model fit failed for Fold4: decay=0e+00, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold4: decay=0e+00, size=7, bag=TRUE
## + Fold4: decay=1e-04, size=7, bag=TRUE
## model fit failed for Fold4: decay=1e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold4: decay=1e-04, size=7, bag=TRUE
## + Fold4: decay=2e-04, size=7, bag=TRUE
## model fit failed for Fold4: decay=2e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold4: decay=2e-04, size=7, bag=TRUE
## + Fold4: decay=3e-04, size=7, bag=TRUE
## model fit failed for Fold4: decay=3e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold4: decay=3e-04, size=7, bag=TRUE
## + Fold4: decay=4e-04, size=7, bag=TRUE
## model fit failed for Fold4: decay=4e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold4: decay=4e-04, size=7, bag=TRUE
## + Fold4: decay=5e-04, size=7, bag=TRUE
## model fit failed for Fold4: decay=5e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold4: decay=5e-04, size=7, bag=TRUE
## + Fold4: decay=6e-04, size=7, bag=TRUE
## model fit failed for Fold4: decay=6e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold4: decay=6e-04, size=7, bag=TRUE
## + Fold4: decay=7e-04, size=7, bag=TRUE
## model fit failed for Fold4: decay=7e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold4: decay=7e-04, size=7, bag=TRUE
## + Fold4: decay=8e-04, size=7, bag=TRUE
## model fit failed for Fold4: decay=8e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold4: decay=8e-04, size=7, bag=TRUE
## + Fold4: decay=9e-04, size=7, bag=TRUE
## model fit failed for Fold4: decay=9e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold4: decay=9e-04, size=7, bag=TRUE
## + Fold4: decay=1e-03, size=7, bag=TRUE
## model fit failed for Fold4: decay=1e-03, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold4: decay=1e-03, size=7, bag=TRUE
## + Fold5: decay=0e+00, size=1, bag=TRUE
## - Fold5: decay=0e+00, size=1, bag=TRUE
## + Fold5: decay=1e-04, size=1, bag=TRUE
## - Fold5: decay=1e-04, size=1, bag=TRUE
## + Fold5: decay=2e-04, size=1, bag=TRUE

```

```
## - Fold5: decay=2e-04, size=1, bag=TRUE
## + Fold5: decay=3e-04, size=1, bag=TRUE
## - Fold5: decay=3e-04, size=1, bag=TRUE
## + Fold5: decay=4e-04, size=1, bag=TRUE
## - Fold5: decay=4e-04, size=1, bag=TRUE
## + Fold5: decay=5e-04, size=1, bag=TRUE
## - Fold5: decay=5e-04, size=1, bag=TRUE
## + Fold5: decay=6e-04, size=1, bag=TRUE
## - Fold5: decay=6e-04, size=1, bag=TRUE
## + Fold5: decay=7e-04, size=1, bag=TRUE
## - Fold5: decay=7e-04, size=1, bag=TRUE
## + Fold5: decay=8e-04, size=1, bag=TRUE
## - Fold5: decay=8e-04, size=1, bag=TRUE
## + Fold5: decay=9e-04, size=1, bag=TRUE
## - Fold5: decay=9e-04, size=1, bag=TRUE
## + Fold5: decay=1e-03, size=1, bag=TRUE
## - Fold5: decay=1e-03, size=1, bag=TRUE
## + Fold5: decay=0e+00, size=2, bag=TRUE
## - Fold5: decay=0e+00, size=2, bag=TRUE
## + Fold5: decay=1e-04, size=2, bag=TRUE
## - Fold5: decay=1e-04, size=2, bag=TRUE
## + Fold5: decay=2e-04, size=2, bag=TRUE
## - Fold5: decay=2e-04, size=2, bag=TRUE
## + Fold5: decay=3e-04, size=2, bag=TRUE
## - Fold5: decay=3e-04, size=2, bag=TRUE
## + Fold5: decay=4e-04, size=2, bag=TRUE
## - Fold5: decay=4e-04, size=2, bag=TRUE
## + Fold5: decay=5e-04, size=2, bag=TRUE
## - Fold5: decay=5e-04, size=2, bag=TRUE
## + Fold5: decay=6e-04, size=2, bag=TRUE
## - Fold5: decay=6e-04, size=2, bag=TRUE
## + Fold5: decay=7e-04, size=2, bag=TRUE
## - Fold5: decay=7e-04, size=2, bag=TRUE
## + Fold5: decay=8e-04, size=2, bag=TRUE
## - Fold5: decay=8e-04, size=2, bag=TRUE
## + Fold5: decay=9e-04, size=2, bag=TRUE
## - Fold5: decay=9e-04, size=2, bag=TRUE
## + Fold5: decay=1e-03, size=2, bag=TRUE
## - Fold5: decay=1e-03, size=2, bag=TRUE
## + Fold5: decay=0e+00, size=3, bag=TRUE
## - Fold5: decay=0e+00, size=3, bag=TRUE
## + Fold5: decay=1e-04, size=3, bag=TRUE
## - Fold5: decay=1e-04, size=3, bag=TRUE
## + Fold5: decay=2e-04, size=3, bag=TRUE
## - Fold5: decay=2e-04, size=3, bag=TRUE
## + Fold5: decay=3e-04, size=3, bag=TRUE
## - Fold5: decay=3e-04, size=3, bag=TRUE
## + Fold5: decay=4e-04, size=3, bag=TRUE
## - Fold5: decay=4e-04, size=3, bag=TRUE
## + Fold5: decay=5e-04, size=3, bag=TRUE
## - Fold5: decay=5e-04, size=3, bag=TRUE
## + Fold5: decay=6e-04, size=3, bag=TRUE
## - Fold5: decay=6e-04, size=3, bag=TRUE
## + Fold5: decay=7e-04, size=3, bag=TRUE
```

```

## - Fold5: decay=7e-04, size=3, bag=TRUE
## + Fold5: decay=8e-04, size=3, bag=TRUE
## - Fold5: decay=8e-04, size=3, bag=TRUE
## + Fold5: decay=9e-04, size=3, bag=TRUE
## - Fold5: decay=9e-04, size=3, bag=TRUE
## + Fold5: decay=1e-03, size=3, bag=TRUE
## - Fold5: decay=1e-03, size=3, bag=TRUE
## + Fold5: decay=0e+00, size=4, bag=TRUE
## - Fold5: decay=0e+00, size=4, bag=TRUE
## + Fold5: decay=1e-04, size=4, bag=TRUE
## - Fold5: decay=1e-04, size=4, bag=TRUE
## + Fold5: decay=2e-04, size=4, bag=TRUE
## - Fold5: decay=2e-04, size=4, bag=TRUE
## + Fold5: decay=3e-04, size=4, bag=TRUE
## - Fold5: decay=3e-04, size=4, bag=TRUE
## + Fold5: decay=4e-04, size=4, bag=TRUE
## - Fold5: decay=4e-04, size=4, bag=TRUE
## + Fold5: decay=5e-04, size=4, bag=TRUE
## - Fold5: decay=5e-04, size=4, bag=TRUE
## + Fold5: decay=6e-04, size=4, bag=TRUE
## - Fold5: decay=6e-04, size=4, bag=TRUE
## + Fold5: decay=7e-04, size=4, bag=TRUE
## - Fold5: decay=7e-04, size=4, bag=TRUE
## + Fold5: decay=8e-04, size=4, bag=TRUE
## - Fold5: decay=8e-04, size=4, bag=TRUE
## + Fold5: decay=9e-04, size=4, bag=TRUE
## - Fold5: decay=9e-04, size=4, bag=TRUE
## + Fold5: decay=1e-03, size=4, bag=TRUE
## - Fold5: decay=1e-03, size=4, bag=TRUE
## + Fold5: decay=0e+00, size=5, bag=TRUE
## - Fold5: decay=0e+00, size=5, bag=TRUE
## + Fold5: decay=1e-04, size=5, bag=TRUE
## - Fold5: decay=1e-04, size=5, bag=TRUE
## + Fold5: decay=2e-04, size=5, bag=TRUE
## - Fold5: decay=2e-04, size=5, bag=TRUE
## + Fold5: decay=3e-04, size=5, bag=TRUE
## - Fold5: decay=3e-04, size=5, bag=TRUE
## + Fold5: decay=4e-04, size=5, bag=TRUE
## - Fold5: decay=4e-04, size=5, bag=TRUE
## + Fold5: decay=5e-04, size=5, bag=TRUE
## - Fold5: decay=5e-04, size=5, bag=TRUE
## + Fold5: decay=6e-04, size=5, bag=TRUE
## - Fold5: decay=6e-04, size=5, bag=TRUE
## + Fold5: decay=7e-04, size=5, bag=TRUE
## - Fold5: decay=7e-04, size=5, bag=TRUE
## + Fold5: decay=8e-04, size=5, bag=TRUE
## - Fold5: decay=8e-04, size=5, bag=TRUE
## + Fold5: decay=9e-04, size=5, bag=TRUE
## - Fold5: decay=9e-04, size=5, bag=TRUE
## + Fold5: decay=1e-03, size=5, bag=TRUE
## - Fold5: decay=1e-03, size=5, bag=TRUE
## + Fold5: decay=0e+00, size=6, bag=TRUE
## model fit failed for Fold5: decay=0e+00, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##

```

```

## - Fold5: decay=0e+00, size=6, bag=TRUE
## + Fold5: decay=1e-04, size=6, bag=TRUE
## model fit failed for Fold5: decay=1e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold5: decay=1e-04, size=6, bag=TRUE
## + Fold5: decay=2e-04, size=6, bag=TRUE
## model fit failed for Fold5: decay=2e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold5: decay=2e-04, size=6, bag=TRUE
## + Fold5: decay=3e-04, size=6, bag=TRUE
## model fit failed for Fold5: decay=3e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold5: decay=3e-04, size=6, bag=TRUE
## + Fold5: decay=4e-04, size=6, bag=TRUE
## model fit failed for Fold5: decay=4e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold5: decay=4e-04, size=6, bag=TRUE
## + Fold5: decay=5e-04, size=6, bag=TRUE
## model fit failed for Fold5: decay=5e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold5: decay=5e-04, size=6, bag=TRUE
## + Fold5: decay=6e-04, size=6, bag=TRUE
## model fit failed for Fold5: decay=6e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold5: decay=6e-04, size=6, bag=TRUE
## + Fold5: decay=7e-04, size=6, bag=TRUE
## model fit failed for Fold5: decay=7e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold5: decay=7e-04, size=6, bag=TRUE
## + Fold5: decay=8e-04, size=6, bag=TRUE
## model fit failed for Fold5: decay=8e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold5: decay=8e-04, size=6, bag=TRUE
## + Fold5: decay=9e-04, size=6, bag=TRUE
## model fit failed for Fold5: decay=9e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold5: decay=9e-04, size=6, bag=TRUE
## + Fold5: decay=1e-03, size=6, bag=TRUE
## model fit failed for Fold5: decay=1e-03, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold5: decay=1e-03, size=6, bag=TRUE
## + Fold5: decay=0e+00, size=7, bag=TRUE
## model fit failed for Fold5: decay=0e+00, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold5: decay=0e+00, size=7, bag=TRUE
## + Fold5: decay=1e-04, size=7, bag=TRUE
## model fit failed for Fold5: decay=1e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold5: decay=1e-04, size=7, bag=TRUE
## + Fold5: decay=2e-04, size=7, bag=TRUE
## model fit failed for Fold5: decay=2e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold5: decay=2e-04, size=7, bag=TRUE
## + Fold5: decay=3e-04, size=7, bag=TRUE

```

```

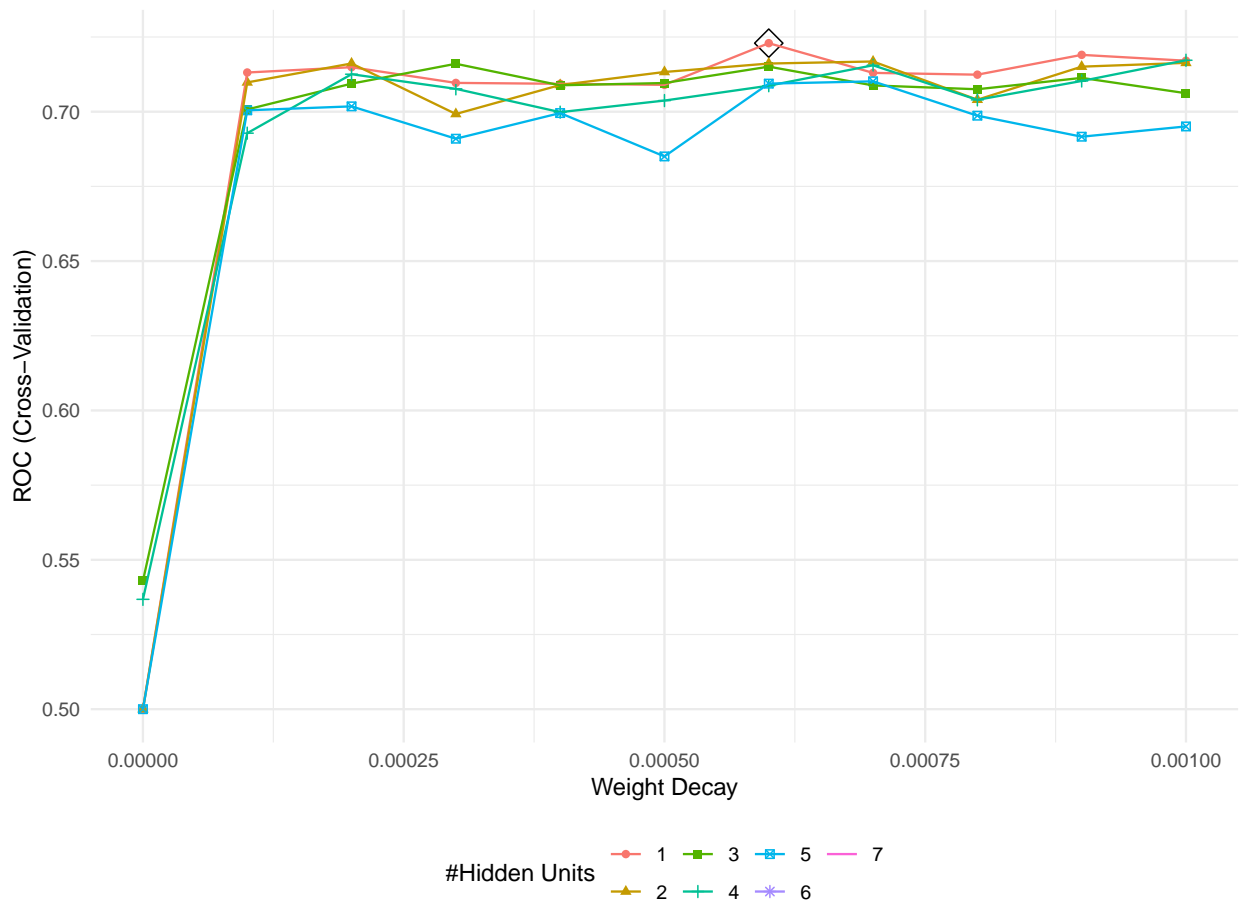
## model fit failed for Fold5: decay=3e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14)
##
## - Fold5: decay=3e-04, size=7, bag=TRUE
## + Fold5: decay=4e-04, size=7, bag=TRUE
## model fit failed for Fold5: decay=4e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14)
##
## - Fold5: decay=4e-04, size=7, bag=TRUE
## + Fold5: decay=5e-04, size=7, bag=TRUE
## model fit failed for Fold5: decay=5e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14)
##
## - Fold5: decay=5e-04, size=7, bag=TRUE
## + Fold5: decay=6e-04, size=7, bag=TRUE
## model fit failed for Fold5: decay=6e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14)
##
## - Fold5: decay=6e-04, size=7, bag=TRUE
## + Fold5: decay=7e-04, size=7, bag=TRUE
## model fit failed for Fold5: decay=7e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14)
##
## - Fold5: decay=7e-04, size=7, bag=TRUE
## + Fold5: decay=8e-04, size=7, bag=TRUE
## model fit failed for Fold5: decay=8e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14)
##
## - Fold5: decay=8e-04, size=7, bag=TRUE
## + Fold5: decay=9e-04, size=7, bag=TRUE
## model fit failed for Fold5: decay=9e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14)
##
## - Fold5: decay=9e-04, size=7, bag=TRUE
## + Fold5: decay=1e-03, size=7, bag=TRUE
## model fit failed for Fold5: decay=1e-03, size=7, bag=TRUE Error in { : task 1 failed - "too many (14)
##
## - Fold5: decay=1e-03, size=7, bag=TRUE
## Aggregating results
## Selecting tuning parameters
## Fitting size = 1, decay = 6e-04, bag = TRUE on full training set

```

```

ggplot(avnet_fit, highlight = T)

```

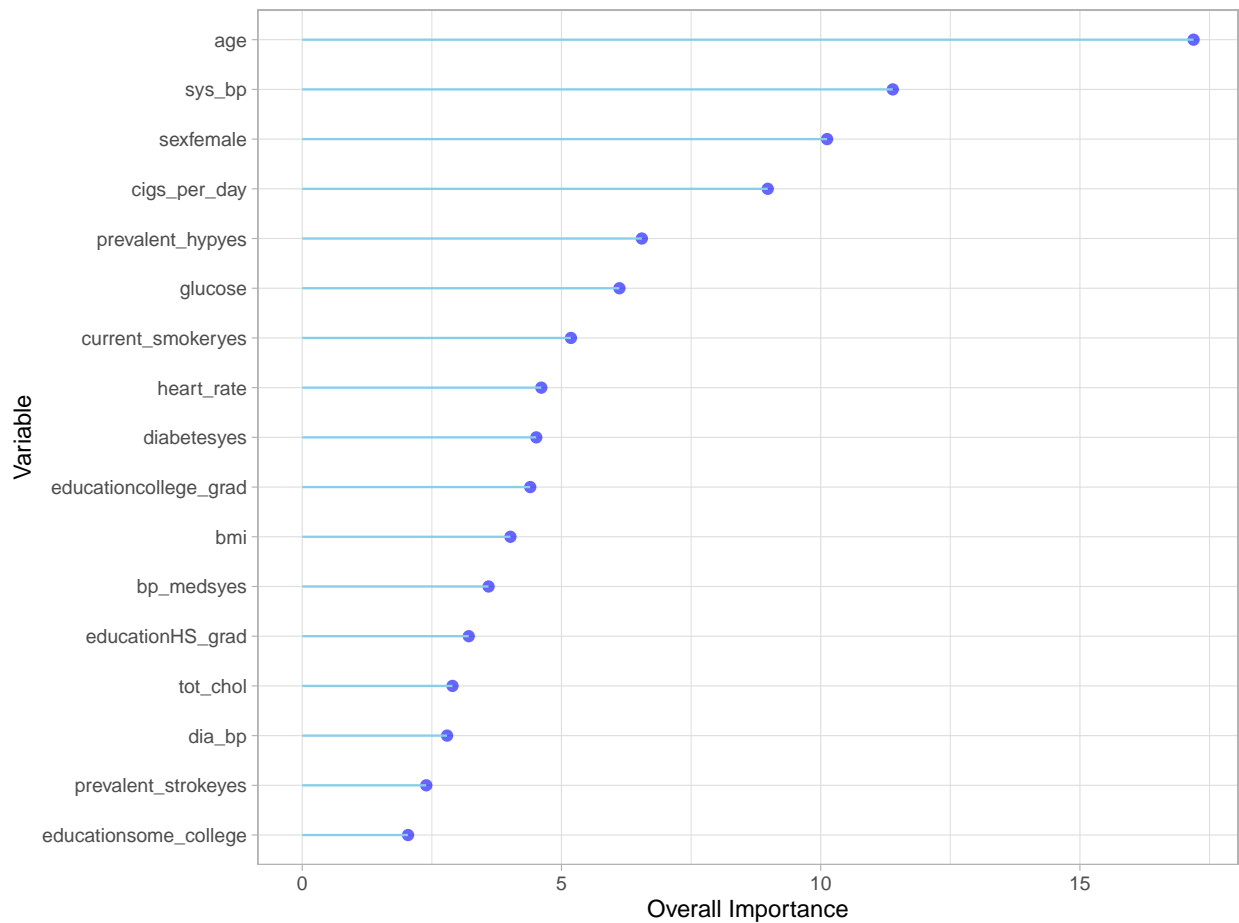



```
names <- avnet_fit$coefnames

V2 = varImp(avnet_fit$finalModel)

rownames(V2) <- c(names[1], names[10], names[11], names[12], names[13], names[14],
  names[15], names[16], names[17], names[2], names[3], names[4],
  names[5], names[6], names[7], names[8], names[9])

ggplot(V2, aes(x = reorder(rownames(V2), Overall), y = Overall)) +
  geom_point(color = "blue", size = 2, alpha = 0.6) +
  geom_segment(aes(x = rownames(V2), xend = rownames(V2), y = 0, yend = Overall),
    color = 'skyblue') +
  xlab('Variable') +
  ylab('Overall Importance') +
  theme_light() +
  coord_flip()
```



Averaged Neural Network Model with imputation

```
#with imputation
set.seed(2022)
avnet_fit_impute <- train(preprocess_recipe,
  data = training_df,
  method = "avNNet",
  MaxNWts = numWts, #maximum allowable weights
  maxit = 1000,
  tuneGrid = my.grid,
  trace = FALSE,
  metric = "ROC",
  trControl = ctrl)
```

```
## Preparing recipe
## + Fold1: decay=0e+00, size=1, bag=TRUE
## - Fold1: decay=0e+00, size=1, bag=TRUE
## + Fold1: decay=1e-04, size=1, bag=TRUE
## - Fold1: decay=1e-04, size=1, bag=TRUE
## + Fold1: decay=2e-04, size=1, bag=TRUE
## - Fold1: decay=2e-04, size=1, bag=TRUE
## + Fold1: decay=3e-04, size=1, bag=TRUE
```

```
## - Fold1: decay=3e-04, size=1, bag=TRUE
## + Fold1: decay=4e-04, size=1, bag=TRUE
## - Fold1: decay=4e-04, size=1, bag=TRUE
## + Fold1: decay=5e-04, size=1, bag=TRUE
## - Fold1: decay=5e-04, size=1, bag=TRUE
## + Fold1: decay=6e-04, size=1, bag=TRUE
## - Fold1: decay=6e-04, size=1, bag=TRUE
## + Fold1: decay=7e-04, size=1, bag=TRUE
## - Fold1: decay=7e-04, size=1, bag=TRUE
## + Fold1: decay=8e-04, size=1, bag=TRUE
## - Fold1: decay=8e-04, size=1, bag=TRUE
## + Fold1: decay=9e-04, size=1, bag=TRUE
## - Fold1: decay=9e-04, size=1, bag=TRUE
## + Fold1: decay=1e-03, size=1, bag=TRUE
## - Fold1: decay=1e-03, size=1, bag=TRUE
## + Fold1: decay=0e+00, size=2, bag=TRUE
## - Fold1: decay=0e+00, size=2, bag=TRUE
## + Fold1: decay=1e-04, size=2, bag=TRUE
## - Fold1: decay=1e-04, size=2, bag=TRUE
## + Fold1: decay=2e-04, size=2, bag=TRUE
## - Fold1: decay=2e-04, size=2, bag=TRUE
## + Fold1: decay=3e-04, size=2, bag=TRUE
## - Fold1: decay=3e-04, size=2, bag=TRUE
## + Fold1: decay=4e-04, size=2, bag=TRUE
## - Fold1: decay=4e-04, size=2, bag=TRUE
## + Fold1: decay=5e-04, size=2, bag=TRUE
## - Fold1: decay=5e-04, size=2, bag=TRUE
## + Fold1: decay=6e-04, size=2, bag=TRUE
## - Fold1: decay=6e-04, size=2, bag=TRUE
## + Fold1: decay=7e-04, size=2, bag=TRUE
## - Fold1: decay=7e-04, size=2, bag=TRUE
## + Fold1: decay=8e-04, size=2, bag=TRUE
## - Fold1: decay=8e-04, size=2, bag=TRUE
## + Fold1: decay=9e-04, size=2, bag=TRUE
## - Fold1: decay=9e-04, size=2, bag=TRUE
## + Fold1: decay=1e-03, size=2, bag=TRUE
## - Fold1: decay=1e-03, size=2, bag=TRUE
## + Fold1: decay=0e+00, size=3, bag=TRUE
## - Fold1: decay=0e+00, size=3, bag=TRUE
## + Fold1: decay=1e-04, size=3, bag=TRUE
## - Fold1: decay=1e-04, size=3, bag=TRUE
## + Fold1: decay=2e-04, size=3, bag=TRUE
## - Fold1: decay=2e-04, size=3, bag=TRUE
## + Fold1: decay=3e-04, size=3, bag=TRUE
## - Fold1: decay=3e-04, size=3, bag=TRUE
## + Fold1: decay=4e-04, size=3, bag=TRUE
## - Fold1: decay=4e-04, size=3, bag=TRUE
## + Fold1: decay=5e-04, size=3, bag=TRUE
## - Fold1: decay=5e-04, size=3, bag=TRUE
## + Fold1: decay=6e-04, size=3, bag=TRUE
## - Fold1: decay=6e-04, size=3, bag=TRUE
## + Fold1: decay=7e-04, size=3, bag=TRUE
## - Fold1: decay=7e-04, size=3, bag=TRUE
## + Fold1: decay=8e-04, size=3, bag=TRUE
```

```

## - Fold1: decay=8e-04, size=3, bag=TRUE
## + Fold1: decay=9e-04, size=3, bag=TRUE
## - Fold1: decay=9e-04, size=3, bag=TRUE
## + Fold1: decay=1e-03, size=3, bag=TRUE
## - Fold1: decay=1e-03, size=3, bag=TRUE
## + Fold1: decay=0e+00, size=4, bag=TRUE
## - Fold1: decay=0e+00, size=4, bag=TRUE
## + Fold1: decay=1e-04, size=4, bag=TRUE
## - Fold1: decay=1e-04, size=4, bag=TRUE
## + Fold1: decay=2e-04, size=4, bag=TRUE
## - Fold1: decay=2e-04, size=4, bag=TRUE
## + Fold1: decay=3e-04, size=4, bag=TRUE
## - Fold1: decay=3e-04, size=4, bag=TRUE
## + Fold1: decay=4e-04, size=4, bag=TRUE
## - Fold1: decay=4e-04, size=4, bag=TRUE
## + Fold1: decay=5e-04, size=4, bag=TRUE
## - Fold1: decay=5e-04, size=4, bag=TRUE
## + Fold1: decay=6e-04, size=4, bag=TRUE
## - Fold1: decay=6e-04, size=4, bag=TRUE
## + Fold1: decay=7e-04, size=4, bag=TRUE
## - Fold1: decay=7e-04, size=4, bag=TRUE
## + Fold1: decay=8e-04, size=4, bag=TRUE
## - Fold1: decay=8e-04, size=4, bag=TRUE
## + Fold1: decay=9e-04, size=4, bag=TRUE
## - Fold1: decay=9e-04, size=4, bag=TRUE
## + Fold1: decay=1e-03, size=4, bag=TRUE
## - Fold1: decay=1e-03, size=4, bag=TRUE
## + Fold1: decay=0e+00, size=5, bag=TRUE
## - Fold1: decay=0e+00, size=5, bag=TRUE
## + Fold1: decay=1e-04, size=5, bag=TRUE
## - Fold1: decay=1e-04, size=5, bag=TRUE
## + Fold1: decay=2e-04, size=5, bag=TRUE
## - Fold1: decay=2e-04, size=5, bag=TRUE
## + Fold1: decay=3e-04, size=5, bag=TRUE
## - Fold1: decay=3e-04, size=5, bag=TRUE
## + Fold1: decay=4e-04, size=5, bag=TRUE
## - Fold1: decay=4e-04, size=5, bag=TRUE
## + Fold1: decay=5e-04, size=5, bag=TRUE
## - Fold1: decay=5e-04, size=5, bag=TRUE
## + Fold1: decay=6e-04, size=5, bag=TRUE
## - Fold1: decay=6e-04, size=5, bag=TRUE
## + Fold1: decay=7e-04, size=5, bag=TRUE
## - Fold1: decay=7e-04, size=5, bag=TRUE
## + Fold1: decay=8e-04, size=5, bag=TRUE
## - Fold1: decay=8e-04, size=5, bag=TRUE
## + Fold1: decay=9e-04, size=5, bag=TRUE
## - Fold1: decay=9e-04, size=5, bag=TRUE
## + Fold1: decay=1e-03, size=5, bag=TRUE
## - Fold1: decay=1e-03, size=5, bag=TRUE
## + Fold1: decay=0e+00, size=6, bag=TRUE
## model fit failed for Fold1: decay=0e+00, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold1: decay=0e+00, size=6, bag=TRUE
## + Fold1: decay=1e-04, size=6, bag=TRUE

```

```

## model fit failed for Fold1: decay=1e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold1: decay=1e-04, size=6, bag=TRUE
## + Fold1: decay=2e-04, size=6, bag=TRUE
## model fit failed for Fold1: decay=2e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold1: decay=2e-04, size=6, bag=TRUE
## + Fold1: decay=3e-04, size=6, bag=TRUE
## model fit failed for Fold1: decay=3e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold1: decay=3e-04, size=6, bag=TRUE
## + Fold1: decay=4e-04, size=6, bag=TRUE
## model fit failed for Fold1: decay=4e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold1: decay=4e-04, size=6, bag=TRUE
## + Fold1: decay=5e-04, size=6, bag=TRUE
## model fit failed for Fold1: decay=5e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold1: decay=5e-04, size=6, bag=TRUE
## + Fold1: decay=6e-04, size=6, bag=TRUE
## model fit failed for Fold1: decay=6e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold1: decay=6e-04, size=6, bag=TRUE
## + Fold1: decay=7e-04, size=6, bag=TRUE
## model fit failed for Fold1: decay=7e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold1: decay=7e-04, size=6, bag=TRUE
## + Fold1: decay=8e-04, size=6, bag=TRUE
## model fit failed for Fold1: decay=8e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold1: decay=8e-04, size=6, bag=TRUE
## + Fold1: decay=9e-04, size=6, bag=TRUE
## model fit failed for Fold1: decay=9e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold1: decay=9e-04, size=6, bag=TRUE
## + Fold1: decay=1e-03, size=6, bag=TRUE
## model fit failed for Fold1: decay=1e-03, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold1: decay=1e-03, size=6, bag=TRUE
## + Fold1: decay=0e+00, size=7, bag=TRUE
## model fit failed for Fold1: decay=0e+00, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold1: decay=0e+00, size=7, bag=TRUE
## + Fold1: decay=1e-04, size=7, bag=TRUE
## model fit failed for Fold1: decay=1e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold1: decay=1e-04, size=7, bag=TRUE
## + Fold1: decay=2e-04, size=7, bag=TRUE
## model fit failed for Fold1: decay=2e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold1: decay=2e-04, size=7, bag=TRUE
## + Fold1: decay=3e-04, size=7, bag=TRUE
## model fit failed for Fold1: decay=3e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##

```

```

## - Fold1: decay=3e-04, size=7, bag=TRUE
## + Fold1: decay=4e-04, size=7, bag=TRUE
## model fit failed for Fold1: decay=4e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold1: decay=4e-04, size=7, bag=TRUE
## + Fold1: decay=5e-04, size=7, bag=TRUE
## model fit failed for Fold1: decay=5e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold1: decay=5e-04, size=7, bag=TRUE
## + Fold1: decay=6e-04, size=7, bag=TRUE
## model fit failed for Fold1: decay=6e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold1: decay=6e-04, size=7, bag=TRUE
## + Fold1: decay=7e-04, size=7, bag=TRUE
## model fit failed for Fold1: decay=7e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold1: decay=7e-04, size=7, bag=TRUE
## + Fold1: decay=8e-04, size=7, bag=TRUE
## model fit failed for Fold1: decay=8e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold1: decay=8e-04, size=7, bag=TRUE
## + Fold1: decay=9e-04, size=7, bag=TRUE
## model fit failed for Fold1: decay=9e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold1: decay=9e-04, size=7, bag=TRUE
## + Fold1: decay=1e-03, size=7, bag=TRUE
## model fit failed for Fold1: decay=1e-03, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold1: decay=1e-03, size=7, bag=TRUE
## + Fold2: decay=0e+00, size=1, bag=TRUE
## - Fold2: decay=0e+00, size=1, bag=TRUE
## + Fold2: decay=1e-04, size=1, bag=TRUE
## - Fold2: decay=1e-04, size=1, bag=TRUE
## + Fold2: decay=2e-04, size=1, bag=TRUE
## - Fold2: decay=2e-04, size=1, bag=TRUE
## + Fold2: decay=3e-04, size=1, bag=TRUE
## - Fold2: decay=3e-04, size=1, bag=TRUE
## + Fold2: decay=4e-04, size=1, bag=TRUE
## - Fold2: decay=4e-04, size=1, bag=TRUE
## + Fold2: decay=5e-04, size=1, bag=TRUE
## - Fold2: decay=5e-04, size=1, bag=TRUE
## + Fold2: decay=6e-04, size=1, bag=TRUE
## - Fold2: decay=6e-04, size=1, bag=TRUE
## + Fold2: decay=7e-04, size=1, bag=TRUE
## - Fold2: decay=7e-04, size=1, bag=TRUE
## + Fold2: decay=8e-04, size=1, bag=TRUE
## - Fold2: decay=8e-04, size=1, bag=TRUE
## + Fold2: decay=9e-04, size=1, bag=TRUE
## - Fold2: decay=9e-04, size=1, bag=TRUE
## + Fold2: decay=1e-03, size=1, bag=TRUE
## - Fold2: decay=1e-03, size=1, bag=TRUE
## + Fold2: decay=0e+00, size=2, bag=TRUE
## - Fold2: decay=0e+00, size=2, bag=TRUE
## + Fold2: decay=1e-04, size=2, bag=TRUE

```

```
## - Fold2: decay=1e-04, size=2, bag=TRUE
## + Fold2: decay=2e-04, size=2, bag=TRUE
## - Fold2: decay=2e-04, size=2, bag=TRUE
## + Fold2: decay=3e-04, size=2, bag=TRUE
## - Fold2: decay=3e-04, size=2, bag=TRUE
## + Fold2: decay=4e-04, size=2, bag=TRUE
## - Fold2: decay=4e-04, size=2, bag=TRUE
## + Fold2: decay=5e-04, size=2, bag=TRUE
## - Fold2: decay=5e-04, size=2, bag=TRUE
## + Fold2: decay=6e-04, size=2, bag=TRUE
## - Fold2: decay=6e-04, size=2, bag=TRUE
## + Fold2: decay=7e-04, size=2, bag=TRUE
## - Fold2: decay=7e-04, size=2, bag=TRUE
## + Fold2: decay=8e-04, size=2, bag=TRUE
## - Fold2: decay=8e-04, size=2, bag=TRUE
## + Fold2: decay=9e-04, size=2, bag=TRUE
## - Fold2: decay=9e-04, size=2, bag=TRUE
## + Fold2: decay=1e-03, size=2, bag=TRUE
## - Fold2: decay=1e-03, size=2, bag=TRUE
## + Fold2: decay=0e+00, size=3, bag=TRUE
## - Fold2: decay=0e+00, size=3, bag=TRUE
## + Fold2: decay=1e-04, size=3, bag=TRUE
## - Fold2: decay=1e-04, size=3, bag=TRUE
## + Fold2: decay=2e-04, size=3, bag=TRUE
## - Fold2: decay=2e-04, size=3, bag=TRUE
## + Fold2: decay=3e-04, size=3, bag=TRUE
## - Fold2: decay=3e-04, size=3, bag=TRUE
## + Fold2: decay=4e-04, size=3, bag=TRUE
## - Fold2: decay=4e-04, size=3, bag=TRUE
## + Fold2: decay=5e-04, size=3, bag=TRUE
## - Fold2: decay=5e-04, size=3, bag=TRUE
## + Fold2: decay=6e-04, size=3, bag=TRUE
## - Fold2: decay=6e-04, size=3, bag=TRUE
## + Fold2: decay=7e-04, size=3, bag=TRUE
## - Fold2: decay=7e-04, size=3, bag=TRUE
## + Fold2: decay=8e-04, size=3, bag=TRUE
## - Fold2: decay=8e-04, size=3, bag=TRUE
## + Fold2: decay=9e-04, size=3, bag=TRUE
## - Fold2: decay=9e-04, size=3, bag=TRUE
## + Fold2: decay=1e-03, size=3, bag=TRUE
## - Fold2: decay=1e-03, size=3, bag=TRUE
## + Fold2: decay=0e+00, size=4, bag=TRUE
## - Fold2: decay=0e+00, size=4, bag=TRUE
## + Fold2: decay=1e-04, size=4, bag=TRUE
## - Fold2: decay=1e-04, size=4, bag=TRUE
## + Fold2: decay=2e-04, size=4, bag=TRUE
## - Fold2: decay=2e-04, size=4, bag=TRUE
## + Fold2: decay=3e-04, size=4, bag=TRUE
## - Fold2: decay=3e-04, size=4, bag=TRUE
## + Fold2: decay=4e-04, size=4, bag=TRUE
## - Fold2: decay=4e-04, size=4, bag=TRUE
## + Fold2: decay=5e-04, size=4, bag=TRUE
## - Fold2: decay=5e-04, size=4, bag=TRUE
## + Fold2: decay=6e-04, size=4, bag=TRUE
```

```

## - Fold2: decay=6e-04, size=4, bag=TRUE
## + Fold2: decay=7e-04, size=4, bag=TRUE
## - Fold2: decay=7e-04, size=4, bag=TRUE
## + Fold2: decay=8e-04, size=4, bag=TRUE
## - Fold2: decay=8e-04, size=4, bag=TRUE
## + Fold2: decay=9e-04, size=4, bag=TRUE
## - Fold2: decay=9e-04, size=4, bag=TRUE
## + Fold2: decay=1e-03, size=4, bag=TRUE
## - Fold2: decay=1e-03, size=4, bag=TRUE
## + Fold2: decay=0e+00, size=5, bag=TRUE
## - Fold2: decay=0e+00, size=5, bag=TRUE
## + Fold2: decay=1e-04, size=5, bag=TRUE
## - Fold2: decay=1e-04, size=5, bag=TRUE
## + Fold2: decay=2e-04, size=5, bag=TRUE
## - Fold2: decay=2e-04, size=5, bag=TRUE
## + Fold2: decay=3e-04, size=5, bag=TRUE
## - Fold2: decay=3e-04, size=5, bag=TRUE
## + Fold2: decay=4e-04, size=5, bag=TRUE
## - Fold2: decay=4e-04, size=5, bag=TRUE
## + Fold2: decay=5e-04, size=5, bag=TRUE
## - Fold2: decay=5e-04, size=5, bag=TRUE
## + Fold2: decay=6e-04, size=5, bag=TRUE
## - Fold2: decay=6e-04, size=5, bag=TRUE
## + Fold2: decay=7e-04, size=5, bag=TRUE
## - Fold2: decay=7e-04, size=5, bag=TRUE
## + Fold2: decay=8e-04, size=5, bag=TRUE
## - Fold2: decay=8e-04, size=5, bag=TRUE
## + Fold2: decay=9e-04, size=5, bag=TRUE
## - Fold2: decay=9e-04, size=5, bag=TRUE
## + Fold2: decay=1e-03, size=5, bag=TRUE
## - Fold2: decay=1e-03, size=5, bag=TRUE
## + Fold2: decay=0e+00, size=6, bag=TRUE
## model fit failed for Fold2: decay=0e+00, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold2: decay=0e+00, size=6, bag=TRUE
## + Fold2: decay=1e-04, size=6, bag=TRUE
## model fit failed for Fold2: decay=1e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold2: decay=1e-04, size=6, bag=TRUE
## + Fold2: decay=2e-04, size=6, bag=TRUE
## model fit failed for Fold2: decay=2e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold2: decay=2e-04, size=6, bag=TRUE
## + Fold2: decay=3e-04, size=6, bag=TRUE
## model fit failed for Fold2: decay=3e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold2: decay=3e-04, size=6, bag=TRUE
## + Fold2: decay=4e-04, size=6, bag=TRUE
## model fit failed for Fold2: decay=4e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold2: decay=4e-04, size=6, bag=TRUE
## + Fold2: decay=5e-04, size=6, bag=TRUE
## model fit failed for Fold2: decay=5e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##

```



```

## - Fold2: decay=5e-04, size=6, bag=TRUE
## + Fold2: decay=6e-04, size=6, bag=TRUE
## model fit failed for Fold2: decay=6e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold2: decay=6e-04, size=6, bag=TRUE
## + Fold2: decay=7e-04, size=6, bag=TRUE
## model fit failed for Fold2: decay=7e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold2: decay=7e-04, size=6, bag=TRUE
## + Fold2: decay=8e-04, size=6, bag=TRUE
## model fit failed for Fold2: decay=8e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold2: decay=8e-04, size=6, bag=TRUE
## + Fold2: decay=9e-04, size=6, bag=TRUE
## model fit failed for Fold2: decay=9e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold2: decay=9e-04, size=6, bag=TRUE
## + Fold2: decay=1e-03, size=6, bag=TRUE
## model fit failed for Fold2: decay=1e-03, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold2: decay=1e-03, size=6, bag=TRUE
## + Fold2: decay=0e+00, size=7, bag=TRUE
## model fit failed for Fold2: decay=0e+00, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold2: decay=0e+00, size=7, bag=TRUE
## + Fold2: decay=1e-04, size=7, bag=TRUE
## model fit failed for Fold2: decay=1e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold2: decay=1e-04, size=7, bag=TRUE
## + Fold2: decay=2e-04, size=7, bag=TRUE
## model fit failed for Fold2: decay=2e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold2: decay=2e-04, size=7, bag=TRUE
## + Fold2: decay=3e-04, size=7, bag=TRUE
## model fit failed for Fold2: decay=3e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold2: decay=3e-04, size=7, bag=TRUE
## + Fold2: decay=4e-04, size=7, bag=TRUE
## model fit failed for Fold2: decay=4e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold2: decay=4e-04, size=7, bag=TRUE
## + Fold2: decay=5e-04, size=7, bag=TRUE
## model fit failed for Fold2: decay=5e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold2: decay=5e-04, size=7, bag=TRUE
## + Fold2: decay=6e-04, size=7, bag=TRUE
## model fit failed for Fold2: decay=6e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold2: decay=6e-04, size=7, bag=TRUE
## + Fold2: decay=7e-04, size=7, bag=TRUE
## model fit failed for Fold2: decay=7e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold2: decay=7e-04, size=7, bag=TRUE
## + Fold2: decay=8e-04, size=7, bag=TRUE

```

```

## model fit failed for Fold2: decay=8e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold2: decay=8e-04, size=7, bag=TRUE
## + Fold2: decay=9e-04, size=7, bag=TRUE
## model fit failed for Fold2: decay=9e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold2: decay=9e-04, size=7, bag=TRUE
## + Fold2: decay=1e-03, size=7, bag=TRUE
## model fit failed for Fold2: decay=1e-03, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold2: decay=1e-03, size=7, bag=TRUE
## + Fold3: decay=0e+00, size=1, bag=TRUE
## - Fold3: decay=0e+00, size=1, bag=TRUE
## + Fold3: decay=1e-04, size=1, bag=TRUE
## - Fold3: decay=1e-04, size=1, bag=TRUE
## + Fold3: decay=2e-04, size=1, bag=TRUE
## - Fold3: decay=2e-04, size=1, bag=TRUE
## + Fold3: decay=3e-04, size=1, bag=TRUE
## - Fold3: decay=3e-04, size=1, bag=TRUE
## + Fold3: decay=4e-04, size=1, bag=TRUE
## - Fold3: decay=4e-04, size=1, bag=TRUE
## + Fold3: decay=5e-04, size=1, bag=TRUE
## - Fold3: decay=5e-04, size=1, bag=TRUE
## + Fold3: decay=6e-04, size=1, bag=TRUE
## - Fold3: decay=6e-04, size=1, bag=TRUE
## + Fold3: decay=7e-04, size=1, bag=TRUE
## - Fold3: decay=7e-04, size=1, bag=TRUE
## + Fold3: decay=8e-04, size=1, bag=TRUE
## - Fold3: decay=8e-04, size=1, bag=TRUE
## + Fold3: decay=9e-04, size=1, bag=TRUE
## - Fold3: decay=9e-04, size=1, bag=TRUE
## + Fold3: decay=1e-03, size=1, bag=TRUE
## - Fold3: decay=1e-03, size=1, bag=TRUE
## + Fold3: decay=0e+00, size=2, bag=TRUE
## - Fold3: decay=0e+00, size=2, bag=TRUE
## + Fold3: decay=1e-04, size=2, bag=TRUE
## - Fold3: decay=1e-04, size=2, bag=TRUE
## + Fold3: decay=2e-04, size=2, bag=TRUE
## - Fold3: decay=2e-04, size=2, bag=TRUE
## + Fold3: decay=3e-04, size=2, bag=TRUE
## - Fold3: decay=3e-04, size=2, bag=TRUE
## + Fold3: decay=4e-04, size=2, bag=TRUE
## - Fold3: decay=4e-04, size=2, bag=TRUE
## + Fold3: decay=5e-04, size=2, bag=TRUE
## - Fold3: decay=5e-04, size=2, bag=TRUE
## + Fold3: decay=6e-04, size=2, bag=TRUE
## - Fold3: decay=6e-04, size=2, bag=TRUE
## + Fold3: decay=7e-04, size=2, bag=TRUE
## - Fold3: decay=7e-04, size=2, bag=TRUE
## + Fold3: decay=8e-04, size=2, bag=TRUE
## - Fold3: decay=8e-04, size=2, bag=TRUE
## + Fold3: decay=9e-04, size=2, bag=TRUE
## - Fold3: decay=9e-04, size=2, bag=TRUE
## + Fold3: decay=1e-03, size=2, bag=TRUE

```

```
## - Fold3: decay=1e-03, size=2, bag=TRUE
## + Fold3: decay=0e+00, size=3, bag=TRUE
## - Fold3: decay=0e+00, size=3, bag=TRUE
## + Fold3: decay=1e-04, size=3, bag=TRUE
## - Fold3: decay=1e-04, size=3, bag=TRUE
## + Fold3: decay=2e-04, size=3, bag=TRUE
## - Fold3: decay=2e-04, size=3, bag=TRUE
## + Fold3: decay=3e-04, size=3, bag=TRUE
## - Fold3: decay=3e-04, size=3, bag=TRUE
## + Fold3: decay=4e-04, size=3, bag=TRUE
## - Fold3: decay=4e-04, size=3, bag=TRUE
## + Fold3: decay=5e-04, size=3, bag=TRUE
## - Fold3: decay=5e-04, size=3, bag=TRUE
## + Fold3: decay=6e-04, size=3, bag=TRUE
## - Fold3: decay=6e-04, size=3, bag=TRUE
## + Fold3: decay=7e-04, size=3, bag=TRUE
## - Fold3: decay=7e-04, size=3, bag=TRUE
## + Fold3: decay=8e-04, size=3, bag=TRUE
## - Fold3: decay=8e-04, size=3, bag=TRUE
## + Fold3: decay=9e-04, size=3, bag=TRUE
## - Fold3: decay=9e-04, size=3, bag=TRUE
## + Fold3: decay=1e-03, size=3, bag=TRUE
## - Fold3: decay=1e-03, size=3, bag=TRUE
## + Fold3: decay=0e+00, size=4, bag=TRUE
## - Fold3: decay=0e+00, size=4, bag=TRUE
## + Fold3: decay=1e-04, size=4, bag=TRUE
## - Fold3: decay=1e-04, size=4, bag=TRUE
## + Fold3: decay=2e-04, size=4, bag=TRUE
## - Fold3: decay=2e-04, size=4, bag=TRUE
## + Fold3: decay=3e-04, size=4, bag=TRUE
## - Fold3: decay=3e-04, size=4, bag=TRUE
## + Fold3: decay=4e-04, size=4, bag=TRUE
## - Fold3: decay=4e-04, size=4, bag=TRUE
## + Fold3: decay=5e-04, size=4, bag=TRUE
## - Fold3: decay=5e-04, size=4, bag=TRUE
## + Fold3: decay=6e-04, size=4, bag=TRUE
## - Fold3: decay=6e-04, size=4, bag=TRUE
## + Fold3: decay=7e-04, size=4, bag=TRUE
## - Fold3: decay=7e-04, size=4, bag=TRUE
## + Fold3: decay=8e-04, size=4, bag=TRUE
## - Fold3: decay=8e-04, size=4, bag=TRUE
## + Fold3: decay=9e-04, size=4, bag=TRUE
## - Fold3: decay=9e-04, size=4, bag=TRUE
## + Fold3: decay=1e-03, size=4, bag=TRUE
## - Fold3: decay=1e-03, size=4, bag=TRUE
## + Fold3: decay=0e+00, size=5, bag=TRUE
## - Fold3: decay=0e+00, size=5, bag=TRUE
## + Fold3: decay=1e-04, size=5, bag=TRUE
## - Fold3: decay=1e-04, size=5, bag=TRUE
## + Fold3: decay=2e-04, size=5, bag=TRUE
## - Fold3: decay=2e-04, size=5, bag=TRUE
## + Fold3: decay=3e-04, size=5, bag=TRUE
## - Fold3: decay=3e-04, size=5, bag=TRUE
## + Fold3: decay=4e-04, size=5, bag=TRUE
```

```

## - Fold3: decay=4e-04, size=5, bag=TRUE
## + Fold3: decay=5e-04, size=5, bag=TRUE
## - Fold3: decay=5e-04, size=5, bag=TRUE
## + Fold3: decay=6e-04, size=5, bag=TRUE
## - Fold3: decay=6e-04, size=5, bag=TRUE
## + Fold3: decay=7e-04, size=5, bag=TRUE
## - Fold3: decay=7e-04, size=5, bag=TRUE
## + Fold3: decay=8e-04, size=5, bag=TRUE
## - Fold3: decay=8e-04, size=5, bag=TRUE
## + Fold3: decay=9e-04, size=5, bag=TRUE
## - Fold3: decay=9e-04, size=5, bag=TRUE
## + Fold3: decay=1e-03, size=5, bag=TRUE
## - Fold3: decay=1e-03, size=5, bag=TRUE
## + Fold3: decay=0e+00, size=6, bag=TRUE
## model fit failed for Fold3: decay=0e+00, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold3: decay=0e+00, size=6, bag=TRUE
## + Fold3: decay=1e-04, size=6, bag=TRUE
## model fit failed for Fold3: decay=1e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold3: decay=1e-04, size=6, bag=TRUE
## + Fold3: decay=2e-04, size=6, bag=TRUE
## model fit failed for Fold3: decay=2e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold3: decay=2e-04, size=6, bag=TRUE
## + Fold3: decay=3e-04, size=6, bag=TRUE
## model fit failed for Fold3: decay=3e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold3: decay=3e-04, size=6, bag=TRUE
## + Fold3: decay=4e-04, size=6, bag=TRUE
## model fit failed for Fold3: decay=4e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold3: decay=4e-04, size=6, bag=TRUE
## + Fold3: decay=5e-04, size=6, bag=TRUE
## model fit failed for Fold3: decay=5e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold3: decay=5e-04, size=6, bag=TRUE
## + Fold3: decay=6e-04, size=6, bag=TRUE
## model fit failed for Fold3: decay=6e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold3: decay=6e-04, size=6, bag=TRUE
## + Fold3: decay=7e-04, size=6, bag=TRUE
## model fit failed for Fold3: decay=7e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold3: decay=7e-04, size=6, bag=TRUE
## + Fold3: decay=8e-04, size=6, bag=TRUE
## model fit failed for Fold3: decay=8e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold3: decay=8e-04, size=6, bag=TRUE
## + Fold3: decay=9e-04, size=6, bag=TRUE
## model fit failed for Fold3: decay=9e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold3: decay=9e-04, size=6, bag=TRUE
## + Fold3: decay=1e-03, size=6, bag=TRUE

```

```

## model fit failed for Fold3: decay=1e-03, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold3: decay=1e-03, size=6, bag=TRUE
## + Fold3: decay=0e+00, size=7, bag=TRUE
## model fit failed for Fold3: decay=0e+00, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold3: decay=0e+00, size=7, bag=TRUE
## + Fold3: decay=1e-04, size=7, bag=TRUE
## model fit failed for Fold3: decay=1e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold3: decay=1e-04, size=7, bag=TRUE
## + Fold3: decay=2e-04, size=7, bag=TRUE
## model fit failed for Fold3: decay=2e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold3: decay=2e-04, size=7, bag=TRUE
## + Fold3: decay=3e-04, size=7, bag=TRUE
## model fit failed for Fold3: decay=3e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold3: decay=3e-04, size=7, bag=TRUE
## + Fold3: decay=4e-04, size=7, bag=TRUE
## model fit failed for Fold3: decay=4e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold3: decay=4e-04, size=7, bag=TRUE
## + Fold3: decay=5e-04, size=7, bag=TRUE
## model fit failed for Fold3: decay=5e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold3: decay=5e-04, size=7, bag=TRUE
## + Fold3: decay=6e-04, size=7, bag=TRUE
## model fit failed for Fold3: decay=6e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold3: decay=6e-04, size=7, bag=TRUE
## + Fold3: decay=7e-04, size=7, bag=TRUE
## model fit failed for Fold3: decay=7e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold3: decay=7e-04, size=7, bag=TRUE
## + Fold3: decay=8e-04, size=7, bag=TRUE
## model fit failed for Fold3: decay=8e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold3: decay=8e-04, size=7, bag=TRUE
## + Fold3: decay=9e-04, size=7, bag=TRUE
## model fit failed for Fold3: decay=9e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold3: decay=9e-04, size=7, bag=TRUE
## + Fold3: decay=1e-03, size=7, bag=TRUE
## model fit failed for Fold3: decay=1e-03, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold3: decay=1e-03, size=7, bag=TRUE
## + Fold4: decay=0e+00, size=1, bag=TRUE
## - Fold4: decay=0e+00, size=1, bag=TRUE
## + Fold4: decay=1e-04, size=1, bag=TRUE
## - Fold4: decay=1e-04, size=1, bag=TRUE
## + Fold4: decay=2e-04, size=1, bag=TRUE
## - Fold4: decay=2e-04, size=1, bag=TRUE
## + Fold4: decay=3e-04, size=1, bag=TRUE

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## - Fold4: decay=3e-04, size=1, bag=TRUE
## + Fold4: decay=4e-04, size=1, bag=TRUE
## - Fold4: decay=4e-04, size=1, bag=TRUE
## + Fold4: decay=5e-04, size=1, bag=TRUE
## - Fold4: decay=5e-04, size=1, bag=TRUE
## + Fold4: decay=6e-04, size=1, bag=TRUE
## - Fold4: decay=6e-04, size=1, bag=TRUE
## + Fold4: decay=7e-04, size=1, bag=TRUE
## - Fold4: decay=7e-04, size=1, bag=TRUE
## + Fold4: decay=8e-04, size=1, bag=TRUE
## - Fold4: decay=8e-04, size=1, bag=TRUE
## + Fold4: decay=9e-04, size=1, bag=TRUE
## - Fold4: decay=9e-04, size=1, bag=TRUE
## + Fold4: decay=1e-03, size=1, bag=TRUE
## - Fold4: decay=1e-03, size=1, bag=TRUE
## + Fold4: decay=0e+00, size=2, bag=TRUE
## - Fold4: decay=0e+00, size=2, bag=TRUE
## + Fold4: decay=1e-04, size=2, bag=TRUE
## - Fold4: decay=1e-04, size=2, bag=TRUE
## + Fold4: decay=2e-04, size=2, bag=TRUE
## - Fold4: decay=2e-04, size=2, bag=TRUE
## + Fold4: decay=3e-04, size=2, bag=TRUE
## - Fold4: decay=3e-04, size=2, bag=TRUE
## + Fold4: decay=4e-04, size=2, bag=TRUE
## - Fold4: decay=4e-04, size=2, bag=TRUE
## + Fold4: decay=5e-04, size=2, bag=TRUE
## - Fold4: decay=5e-04, size=2, bag=TRUE
## + Fold4: decay=6e-04, size=2, bag=TRUE
## - Fold4: decay=6e-04, size=2, bag=TRUE
## + Fold4: decay=7e-04, size=2, bag=TRUE
## - Fold4: decay=7e-04, size=2, bag=TRUE
## + Fold4: decay=8e-04, size=2, bag=TRUE
## - Fold4: decay=8e-04, size=2, bag=TRUE
## + Fold4: decay=9e-04, size=2, bag=TRUE
## - Fold4: decay=9e-04, size=2, bag=TRUE
## + Fold4: decay=1e-03, size=2, bag=TRUE
## - Fold4: decay=1e-03, size=2, bag=TRUE
## + Fold4: decay=0e+00, size=3, bag=TRUE
## - Fold4: decay=0e+00, size=3, bag=TRUE
## + Fold4: decay=1e-04, size=3, bag=TRUE
## - Fold4: decay=1e-04, size=3, bag=TRUE
## + Fold4: decay=2e-04, size=3, bag=TRUE
## - Fold4: decay=2e-04, size=3, bag=TRUE
## + Fold4: decay=3e-04, size=3, bag=TRUE
## - Fold4: decay=3e-04, size=3, bag=TRUE
## + Fold4: decay=4e-04, size=3, bag=TRUE
## - Fold4: decay=4e-04, size=3, bag=TRUE
## + Fold4: decay=5e-04, size=3, bag=TRUE
## - Fold4: decay=5e-04, size=3, bag=TRUE
## + Fold4: decay=6e-04, size=3, bag=TRUE
## - Fold4: decay=6e-04, size=3, bag=TRUE
## + Fold4: decay=7e-04, size=3, bag=TRUE
## - Fold4: decay=7e-04, size=3, bag=TRUE
## + Fold4: decay=8e-04, size=3, bag=TRUE
```

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## - Fold4: decay=8e-04, size=3, bag=TRUE
## + Fold4: decay=9e-04, size=3, bag=TRUE
## - Fold4: decay=9e-04, size=3, bag=TRUE
## + Fold4: decay=1e-03, size=3, bag=TRUE
## - Fold4: decay=1e-03, size=3, bag=TRUE
## + Fold4: decay=0e+00, size=4, bag=TRUE
## - Fold4: decay=0e+00, size=4, bag=TRUE
## + Fold4: decay=1e-04, size=4, bag=TRUE
## - Fold4: decay=1e-04, size=4, bag=TRUE
## + Fold4: decay=2e-04, size=4, bag=TRUE
## - Fold4: decay=2e-04, size=4, bag=TRUE
## + Fold4: decay=3e-04, size=4, bag=TRUE
## - Fold4: decay=3e-04, size=4, bag=TRUE
## + Fold4: decay=4e-04, size=4, bag=TRUE
## - Fold4: decay=4e-04, size=4, bag=TRUE
## + Fold4: decay=5e-04, size=4, bag=TRUE
## - Fold4: decay=5e-04, size=4, bag=TRUE
## + Fold4: decay=6e-04, size=4, bag=TRUE
## - Fold4: decay=6e-04, size=4, bag=TRUE
## + Fold4: decay=7e-04, size=4, bag=TRUE
## - Fold4: decay=7e-04, size=4, bag=TRUE
## + Fold4: decay=8e-04, size=4, bag=TRUE
## - Fold4: decay=8e-04, size=4, bag=TRUE
## + Fold4: decay=9e-04, size=4, bag=TRUE
## - Fold4: decay=9e-04, size=4, bag=TRUE
## + Fold4: decay=1e-03, size=4, bag=TRUE
## - Fold4: decay=1e-03, size=4, bag=TRUE
## + Fold4: decay=0e+00, size=5, bag=TRUE
## - Fold4: decay=0e+00, size=5, bag=TRUE
## + Fold4: decay=1e-04, size=5, bag=TRUE
## - Fold4: decay=1e-04, size=5, bag=TRUE
## + Fold4: decay=2e-04, size=5, bag=TRUE
## - Fold4: decay=2e-04, size=5, bag=TRUE
## + Fold4: decay=3e-04, size=5, bag=TRUE
## - Fold4: decay=3e-04, size=5, bag=TRUE
## + Fold4: decay=4e-04, size=5, bag=TRUE
## - Fold4: decay=4e-04, size=5, bag=TRUE
## + Fold4: decay=5e-04, size=5, bag=TRUE
## - Fold4: decay=5e-04, size=5, bag=TRUE
## + Fold4: decay=6e-04, size=5, bag=TRUE
## - Fold4: decay=6e-04, size=5, bag=TRUE
## + Fold4: decay=7e-04, size=5, bag=TRUE
## - Fold4: decay=7e-04, size=5, bag=TRUE
## + Fold4: decay=8e-04, size=5, bag=TRUE
## - Fold4: decay=8e-04, size=5, bag=TRUE
## + Fold4: decay=9e-04, size=5, bag=TRUE
## - Fold4: decay=9e-04, size=5, bag=TRUE
## + Fold4: decay=1e-03, size=5, bag=TRUE
## - Fold4: decay=1e-03, size=5, bag=TRUE
## + Fold4: decay=0e+00, size=6, bag=TRUE
## model fit failed for Fold4: decay=0e+00, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold4: decay=0e+00, size=6, bag=TRUE
## + Fold4: decay=1e-04, size=6, bag=TRUE

```

```

## model fit failed for Fold4: decay=1e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold4: decay=1e-04, size=6, bag=TRUE
## + Fold4: decay=2e-04, size=6, bag=TRUE
## model fit failed for Fold4: decay=2e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold4: decay=2e-04, size=6, bag=TRUE
## + Fold4: decay=3e-04, size=6, bag=TRUE
## model fit failed for Fold4: decay=3e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold4: decay=3e-04, size=6, bag=TRUE
## + Fold4: decay=4e-04, size=6, bag=TRUE
## model fit failed for Fold4: decay=4e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold4: decay=4e-04, size=6, bag=TRUE
## + Fold4: decay=5e-04, size=6, bag=TRUE
## model fit failed for Fold4: decay=5e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold4: decay=5e-04, size=6, bag=TRUE
## + Fold4: decay=6e-04, size=6, bag=TRUE
## model fit failed for Fold4: decay=6e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold4: decay=6e-04, size=6, bag=TRUE
## + Fold4: decay=7e-04, size=6, bag=TRUE
## model fit failed for Fold4: decay=7e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold4: decay=7e-04, size=6, bag=TRUE
## + Fold4: decay=8e-04, size=6, bag=TRUE
## model fit failed for Fold4: decay=8e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold4: decay=8e-04, size=6, bag=TRUE
## + Fold4: decay=9e-04, size=6, bag=TRUE
## model fit failed for Fold4: decay=9e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold4: decay=9e-04, size=6, bag=TRUE
## + Fold4: decay=1e-03, size=6, bag=TRUE
## model fit failed for Fold4: decay=1e-03, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold4: decay=1e-03, size=6, bag=TRUE
## + Fold4: decay=0e+00, size=7, bag=TRUE
## model fit failed for Fold4: decay=0e+00, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold4: decay=0e+00, size=7, bag=TRUE
## + Fold4: decay=1e-04, size=7, bag=TRUE
## model fit failed for Fold4: decay=1e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold4: decay=1e-04, size=7, bag=TRUE
## + Fold4: decay=2e-04, size=7, bag=TRUE
## model fit failed for Fold4: decay=2e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold4: decay=2e-04, size=7, bag=TRUE
## + Fold4: decay=3e-04, size=7, bag=TRUE
## model fit failed for Fold4: decay=3e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##

```



```

## - Fold4: decay=3e-04, size=7, bag=TRUE
## + Fold4: decay=4e-04, size=7, bag=TRUE
## model fit failed for Fold4: decay=4e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold4: decay=4e-04, size=7, bag=TRUE
## + Fold4: decay=5e-04, size=7, bag=TRUE
## model fit failed for Fold4: decay=5e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold4: decay=5e-04, size=7, bag=TRUE
## + Fold4: decay=6e-04, size=7, bag=TRUE
## model fit failed for Fold4: decay=6e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold4: decay=6e-04, size=7, bag=TRUE
## + Fold4: decay=7e-04, size=7, bag=TRUE
## model fit failed for Fold4: decay=7e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold4: decay=7e-04, size=7, bag=TRUE
## + Fold4: decay=8e-04, size=7, bag=TRUE
## model fit failed for Fold4: decay=8e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold4: decay=8e-04, size=7, bag=TRUE
## + Fold4: decay=9e-04, size=7, bag=TRUE
## model fit failed for Fold4: decay=9e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold4: decay=9e-04, size=7, bag=TRUE
## + Fold4: decay=1e-03, size=7, bag=TRUE
## model fit failed for Fold4: decay=1e-03, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold4: decay=1e-03, size=7, bag=TRUE
## + Fold5: decay=0e+00, size=1, bag=TRUE
## - Fold5: decay=0e+00, size=1, bag=TRUE
## + Fold5: decay=1e-04, size=1, bag=TRUE
## - Fold5: decay=1e-04, size=1, bag=TRUE
## + Fold5: decay=2e-04, size=1, bag=TRUE
## - Fold5: decay=2e-04, size=1, bag=TRUE
## + Fold5: decay=3e-04, size=1, bag=TRUE
## - Fold5: decay=3e-04, size=1, bag=TRUE
## + Fold5: decay=4e-04, size=1, bag=TRUE
## - Fold5: decay=4e-04, size=1, bag=TRUE
## + Fold5: decay=5e-04, size=1, bag=TRUE
## - Fold5: decay=5e-04, size=1, bag=TRUE
## + Fold5: decay=6e-04, size=1, bag=TRUE
## - Fold5: decay=6e-04, size=1, bag=TRUE
## + Fold5: decay=7e-04, size=1, bag=TRUE
## - Fold5: decay=7e-04, size=1, bag=TRUE
## + Fold5: decay=8e-04, size=1, bag=TRUE
## - Fold5: decay=8e-04, size=1, bag=TRUE
## + Fold5: decay=9e-04, size=1, bag=TRUE
## - Fold5: decay=9e-04, size=1, bag=TRUE
## + Fold5: decay=1e-03, size=1, bag=TRUE
## - Fold5: decay=1e-03, size=1, bag=TRUE
## + Fold5: decay=0e+00, size=2, bag=TRUE
## - Fold5: decay=0e+00, size=2, bag=TRUE
## + Fold5: decay=1e-04, size=2, bag=TRUE

```

```
## - Fold5: decay=1e-04, size=2, bag=TRUE
## + Fold5: decay=2e-04, size=2, bag=TRUE
## - Fold5: decay=2e-04, size=2, bag=TRUE
## + Fold5: decay=3e-04, size=2, bag=TRUE
## - Fold5: decay=3e-04, size=2, bag=TRUE
## + Fold5: decay=4e-04, size=2, bag=TRUE
## - Fold5: decay=4e-04, size=2, bag=TRUE
## + Fold5: decay=5e-04, size=2, bag=TRUE
## - Fold5: decay=5e-04, size=2, bag=TRUE
## + Fold5: decay=6e-04, size=2, bag=TRUE
## - Fold5: decay=6e-04, size=2, bag=TRUE
## + Fold5: decay=7e-04, size=2, bag=TRUE
## - Fold5: decay=7e-04, size=2, bag=TRUE
## + Fold5: decay=8e-04, size=2, bag=TRUE
## - Fold5: decay=8e-04, size=2, bag=TRUE
## + Fold5: decay=9e-04, size=2, bag=TRUE
## - Fold5: decay=9e-04, size=2, bag=TRUE
## + Fold5: decay=1e-03, size=2, bag=TRUE
## - Fold5: decay=1e-03, size=2, bag=TRUE
## + Fold5: decay=0e+00, size=3, bag=TRUE
## - Fold5: decay=0e+00, size=3, bag=TRUE
## + Fold5: decay=1e-04, size=3, bag=TRUE
## - Fold5: decay=1e-04, size=3, bag=TRUE
## + Fold5: decay=2e-04, size=3, bag=TRUE
## - Fold5: decay=2e-04, size=3, bag=TRUE
## + Fold5: decay=3e-04, size=3, bag=TRUE
## - Fold5: decay=3e-04, size=3, bag=TRUE
## + Fold5: decay=4e-04, size=3, bag=TRUE
## - Fold5: decay=4e-04, size=3, bag=TRUE
## + Fold5: decay=5e-04, size=3, bag=TRUE
## - Fold5: decay=5e-04, size=3, bag=TRUE
## + Fold5: decay=6e-04, size=3, bag=TRUE
## - Fold5: decay=6e-04, size=3, bag=TRUE
## + Fold5: decay=7e-04, size=3, bag=TRUE
## - Fold5: decay=7e-04, size=3, bag=TRUE
## + Fold5: decay=8e-04, size=3, bag=TRUE
## - Fold5: decay=8e-04, size=3, bag=TRUE
## + Fold5: decay=9e-04, size=3, bag=TRUE
## - Fold5: decay=9e-04, size=3, bag=TRUE
## + Fold5: decay=1e-03, size=3, bag=TRUE
## - Fold5: decay=1e-03, size=3, bag=TRUE
## + Fold5: decay=0e+00, size=4, bag=TRUE
## - Fold5: decay=0e+00, size=4, bag=TRUE
## + Fold5: decay=1e-04, size=4, bag=TRUE
## - Fold5: decay=1e-04, size=4, bag=TRUE
## + Fold5: decay=2e-04, size=4, bag=TRUE
## - Fold5: decay=2e-04, size=4, bag=TRUE
## + Fold5: decay=3e-04, size=4, bag=TRUE
## - Fold5: decay=3e-04, size=4, bag=TRUE
## + Fold5: decay=4e-04, size=4, bag=TRUE
## - Fold5: decay=4e-04, size=4, bag=TRUE
## + Fold5: decay=5e-04, size=4, bag=TRUE
## - Fold5: decay=5e-04, size=4, bag=TRUE
## + Fold5: decay=6e-04, size=4, bag=TRUE
```

```

## - Fold5: decay=6e-04, size=4, bag=TRUE
## + Fold5: decay=7e-04, size=4, bag=TRUE
## - Fold5: decay=7e-04, size=4, bag=TRUE
## + Fold5: decay=8e-04, size=4, bag=TRUE
## - Fold5: decay=8e-04, size=4, bag=TRUE
## + Fold5: decay=9e-04, size=4, bag=TRUE
## - Fold5: decay=9e-04, size=4, bag=TRUE
## + Fold5: decay=1e-03, size=4, bag=TRUE
## - Fold5: decay=1e-03, size=4, bag=TRUE
## + Fold5: decay=0e+00, size=5, bag=TRUE
## - Fold5: decay=0e+00, size=5, bag=TRUE
## + Fold5: decay=1e-04, size=5, bag=TRUE
## - Fold5: decay=1e-04, size=5, bag=TRUE
## + Fold5: decay=2e-04, size=5, bag=TRUE
## - Fold5: decay=2e-04, size=5, bag=TRUE
## + Fold5: decay=3e-04, size=5, bag=TRUE
## - Fold5: decay=3e-04, size=5, bag=TRUE
## + Fold5: decay=4e-04, size=5, bag=TRUE
## - Fold5: decay=4e-04, size=5, bag=TRUE
## + Fold5: decay=5e-04, size=5, bag=TRUE
## - Fold5: decay=5e-04, size=5, bag=TRUE
## + Fold5: decay=6e-04, size=5, bag=TRUE
## - Fold5: decay=6e-04, size=5, bag=TRUE
## + Fold5: decay=7e-04, size=5, bag=TRUE
## - Fold5: decay=7e-04, size=5, bag=TRUE
## + Fold5: decay=8e-04, size=5, bag=TRUE
## - Fold5: decay=8e-04, size=5, bag=TRUE
## + Fold5: decay=9e-04, size=5, bag=TRUE
## - Fold5: decay=9e-04, size=5, bag=TRUE
## + Fold5: decay=1e-03, size=5, bag=TRUE
## - Fold5: decay=1e-03, size=5, bag=TRUE
## + Fold5: decay=0e+00, size=6, bag=TRUE
## model fit failed for Fold5: decay=0e+00, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold5: decay=0e+00, size=6, bag=TRUE
## + Fold5: decay=1e-04, size=6, bag=TRUE
## model fit failed for Fold5: decay=1e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold5: decay=1e-04, size=6, bag=TRUE
## + Fold5: decay=2e-04, size=6, bag=TRUE
## model fit failed for Fold5: decay=2e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold5: decay=2e-04, size=6, bag=TRUE
## + Fold5: decay=3e-04, size=6, bag=TRUE
## model fit failed for Fold5: decay=3e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold5: decay=3e-04, size=6, bag=TRUE
## + Fold5: decay=4e-04, size=6, bag=TRUE
## model fit failed for Fold5: decay=4e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold5: decay=4e-04, size=6, bag=TRUE
## + Fold5: decay=5e-04, size=6, bag=TRUE
## model fit failed for Fold5: decay=5e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##

```

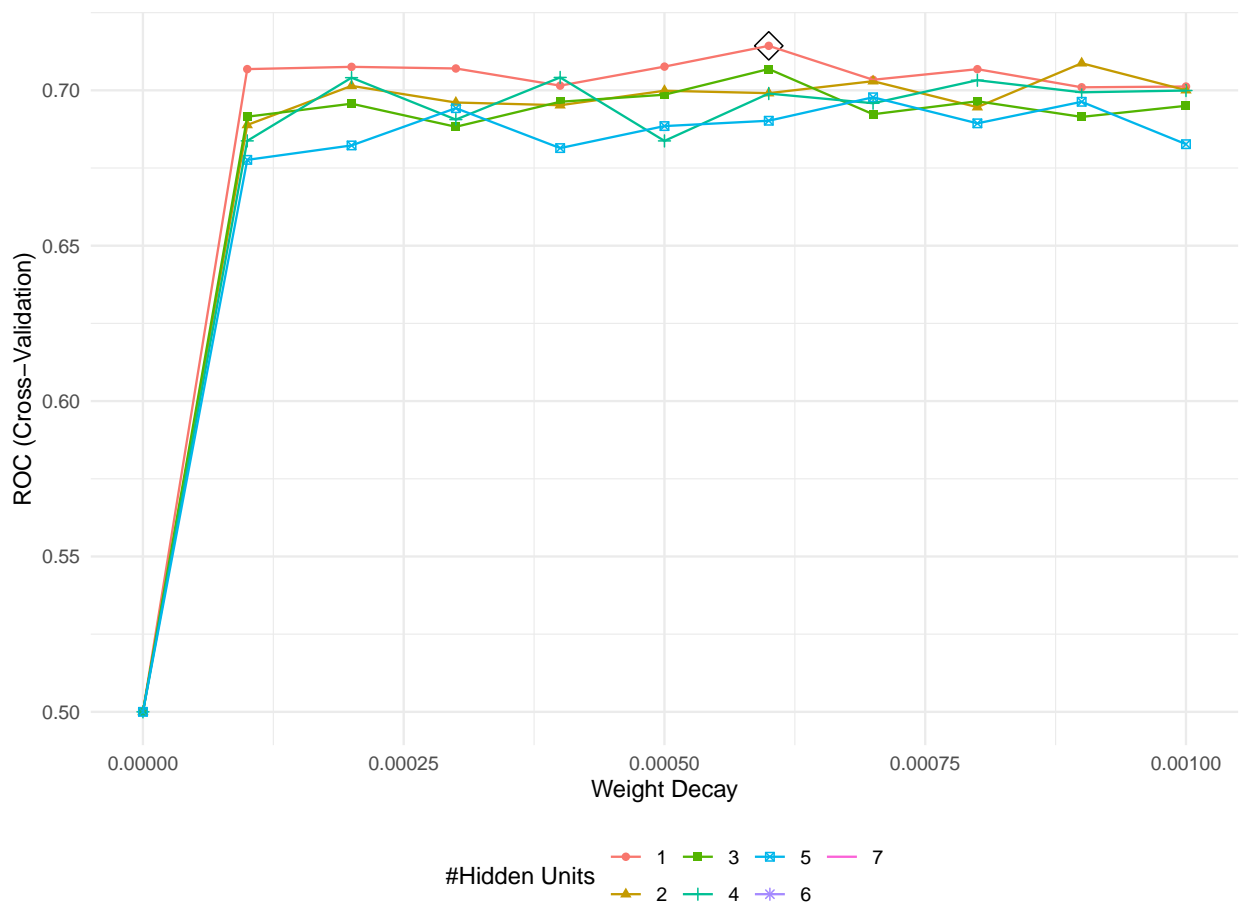
```

## - Fold5: decay=5e-04, size=6, bag=TRUE
## + Fold5: decay=6e-04, size=6, bag=TRUE
## model fit failed for Fold5: decay=6e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold5: decay=6e-04, size=6, bag=TRUE
## + Fold5: decay=7e-04, size=6, bag=TRUE
## model fit failed for Fold5: decay=7e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold5: decay=7e-04, size=6, bag=TRUE
## + Fold5: decay=8e-04, size=6, bag=TRUE
## model fit failed for Fold5: decay=8e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold5: decay=8e-04, size=6, bag=TRUE
## + Fold5: decay=9e-04, size=6, bag=TRUE
## model fit failed for Fold5: decay=9e-04, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold5: decay=9e-04, size=6, bag=TRUE
## + Fold5: decay=1e-03, size=6, bag=TRUE
## model fit failed for Fold5: decay=1e-03, size=6, bag=TRUE Error in { : task 1 failed - "too many (12
##
## - Fold5: decay=1e-03, size=6, bag=TRUE
## + Fold5: decay=0e+00, size=7, bag=TRUE
## model fit failed for Fold5: decay=0e+00, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold5: decay=0e+00, size=7, bag=TRUE
## + Fold5: decay=1e-04, size=7, bag=TRUE
## model fit failed for Fold5: decay=1e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold5: decay=1e-04, size=7, bag=TRUE
## + Fold5: decay=2e-04, size=7, bag=TRUE
## model fit failed for Fold5: decay=2e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold5: decay=2e-04, size=7, bag=TRUE
## + Fold5: decay=3e-04, size=7, bag=TRUE
## model fit failed for Fold5: decay=3e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold5: decay=3e-04, size=7, bag=TRUE
## + Fold5: decay=4e-04, size=7, bag=TRUE
## model fit failed for Fold5: decay=4e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold5: decay=4e-04, size=7, bag=TRUE
## + Fold5: decay=5e-04, size=7, bag=TRUE
## model fit failed for Fold5: decay=5e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold5: decay=5e-04, size=7, bag=TRUE
## + Fold5: decay=6e-04, size=7, bag=TRUE
## model fit failed for Fold5: decay=6e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold5: decay=6e-04, size=7, bag=TRUE
## + Fold5: decay=7e-04, size=7, bag=TRUE
## model fit failed for Fold5: decay=7e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold5: decay=7e-04, size=7, bag=TRUE
## + Fold5: decay=8e-04, size=7, bag=TRUE

```

```
## model fit failed for Fold5: decay=8e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold5: decay=8e-04, size=7, bag=TRUE
## + Fold5: decay=9e-04, size=7, bag=TRUE
## model fit failed for Fold5: decay=9e-04, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold5: decay=9e-04, size=7, bag=TRUE
## + Fold5: decay=1e-03, size=7, bag=TRUE
## model fit failed for Fold5: decay=1e-03, size=7, bag=TRUE Error in { : task 1 failed - "too many (14
##
## - Fold5: decay=1e-03, size=7, bag=TRUE
## Aggregating results
## Selecting tuning parameters
## Fitting size = 1, decay = 6e-04, bag = TRUE on full training set
```

```
ggplot(avnet_fit_impute, highlight = T)
```



```
avnet_fit_impute$resample
```

```
##      ROC      Sens Spec Resample
## 1 0.709 0.00000 0.998   Fold3
## 2 0.734 0.00000 1.000   Fold2
```

```
## 3 0.709 0.06731 0.997    Fold5
## 4 0.700 0.00000 1.000    Fold1
## 5 0.719 0.00971 0.998    Fold4
```

Extreme Gradient Boosting Model

```
#Fitting Extreme Gradient Boosting
#library(xgboost)
#Tuning PARAMETERS:
#nrounds (# Boosting Iterations)
#lambda (L2 Regularization)
#alpha (L1 Regularization)
#eta (Learning Rate)

set.seed(2022)
xgbGrid <- expand.grid(nrounds = c(1:15),
                      lambda = exp(seq(-1, 2, len = 10)) %>% round(digits = 0),
                      alpha = exp(seq(-1, 2, len = 10)) %>% round(digits = 0),
                      eta = c(0.00001, 0.0001, 0.001))

ex_gradient_boost_fit <- train(ten_year_chd ~ .,
                              data = training_df_na_omit,
                              method = "xgbLinear",
                              tuneGrid = xgbGrid,
                              metric = "ROC",
                              preProcess = c("center", "scale", "BoxCox"),
                              trControl = ctrl)

## + Fold1: nrounds= 1, lambda=0, alpha=0, eta=1e-05
## - Fold1: nrounds= 1, lambda=0, alpha=0, eta=1e-05
## + Fold1: nrounds= 2, lambda=0, alpha=0, eta=1e-05
## - Fold1: nrounds= 2, lambda=0, alpha=0, eta=1e-05
## + Fold1: nrounds= 3, lambda=0, alpha=0, eta=1e-05
## - Fold1: nrounds= 3, lambda=0, alpha=0, eta=1e-05
## + Fold1: nrounds= 4, lambda=0, alpha=0, eta=1e-05
## - Fold1: nrounds= 4, lambda=0, alpha=0, eta=1e-05
## + Fold1: nrounds= 5, lambda=0, alpha=0, eta=1e-05
## - Fold1: nrounds= 5, lambda=0, alpha=0, eta=1e-05
## + Fold1: nrounds= 6, lambda=0, alpha=0, eta=1e-05
## - Fold1: nrounds= 6, lambda=0, alpha=0, eta=1e-05
## + Fold1: nrounds= 7, lambda=0, alpha=0, eta=1e-05
## - Fold1: nrounds= 7, lambda=0, alpha=0, eta=1e-05
## + Fold1: nrounds= 8, lambda=0, alpha=0, eta=1e-05
## - Fold1: nrounds= 8, lambda=0, alpha=0, eta=1e-05
## + Fold1: nrounds= 9, lambda=0, alpha=0, eta=1e-05
## - Fold1: nrounds= 9, lambda=0, alpha=0, eta=1e-05
## + Fold1: nrounds=10, lambda=0, alpha=0, eta=1e-05
## - Fold1: nrounds=10, lambda=0, alpha=0, eta=1e-05
## + Fold1: nrounds=11, lambda=0, alpha=0, eta=1e-05
## - Fold1: nrounds=11, lambda=0, alpha=0, eta=1e-05
## + Fold1: nrounds=12, lambda=0, alpha=0, eta=1e-05
## - Fold1: nrounds=12, lambda=0, alpha=0, eta=1e-05
```


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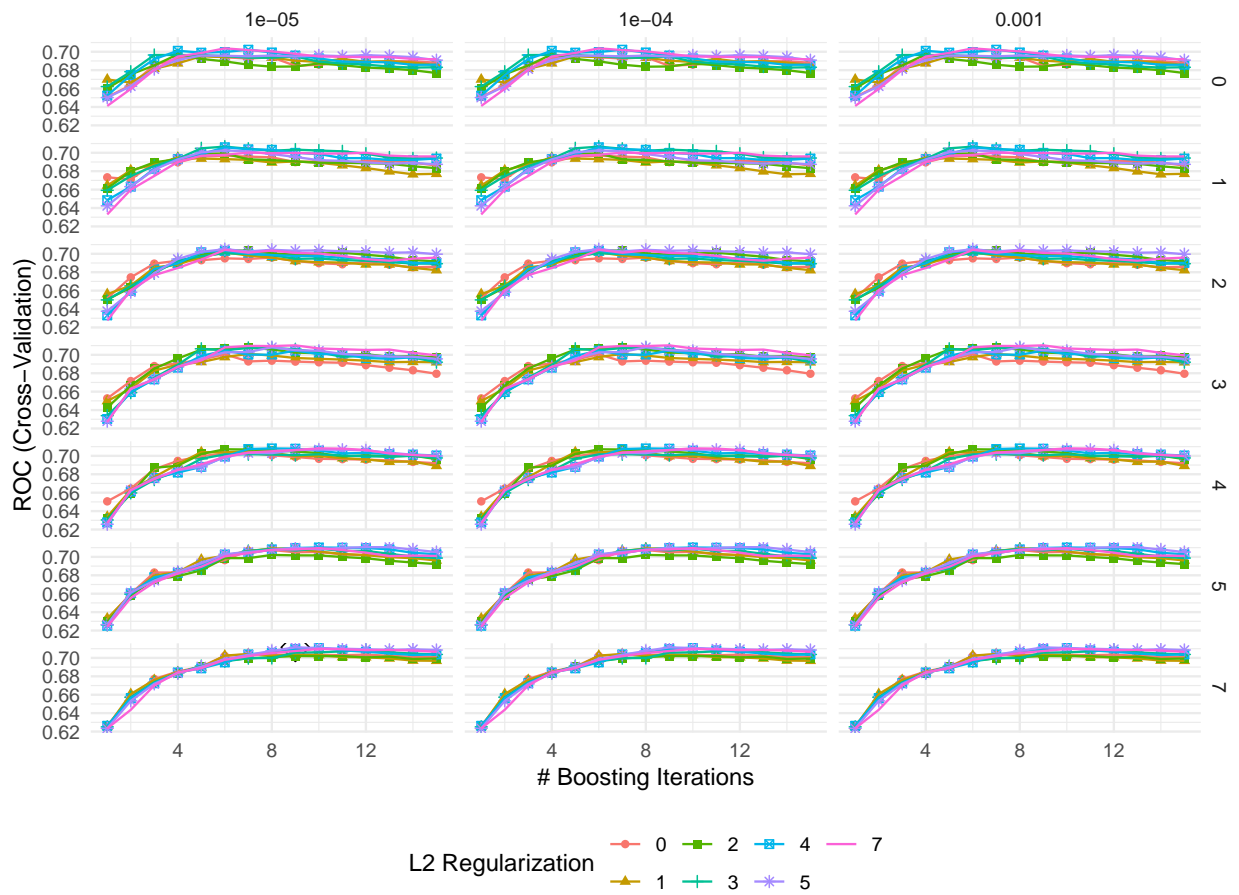
[illegible]

```

## + Fold5: nrounds= 7, lambda=5, alpha=7, eta=1e-03
## - Fold5: nrounds= 7, lambda=5, alpha=7, eta=1e-03
## + Fold5: nrounds= 8, lambda=5, alpha=7, eta=1e-03
## - Fold5: nrounds= 8, lambda=5, alpha=7, eta=1e-03
## + Fold5: nrounds= 9, lambda=5, alpha=7, eta=1e-03
## - Fold5: nrounds= 9, lambda=5, alpha=7, eta=1e-03
## + Fold5: nrounds=10, lambda=5, alpha=7, eta=1e-03
## - Fold5: nrounds=10, lambda=5, alpha=7, eta=1e-03
## + Fold5: nrounds=11, lambda=5, alpha=7, eta=1e-03
## - Fold5: nrounds=11, lambda=5, alpha=7, eta=1e-03
## + Fold5: nrounds=12, lambda=5, alpha=7, eta=1e-03
## - Fold5: nrounds=12, lambda=5, alpha=7, eta=1e-03
## + Fold5: nrounds=13, lambda=5, alpha=7, eta=1e-03
## - Fold5: nrounds=13, lambda=5, alpha=7, eta=1e-03
## + Fold5: nrounds=14, lambda=5, alpha=7, eta=1e-03
## - Fold5: nrounds=14, lambda=5, alpha=7, eta=1e-03
## + Fold5: nrounds=15, lambda=5, alpha=7, eta=1e-03
## - Fold5: nrounds=15, lambda=5, alpha=7, eta=1e-03
## + Fold5: nrounds= 1, lambda=7, alpha=7, eta=1e-03
## - Fold5: nrounds= 1, lambda=7, alpha=7, eta=1e-03
## + Fold5: nrounds= 2, lambda=7, alpha=7, eta=1e-03
## - Fold5: nrounds= 2, lambda=7, alpha=7, eta=1e-03
## + Fold5: nrounds= 3, lambda=7, alpha=7, eta=1e-03
## - Fold5: nrounds= 3, lambda=7, alpha=7, eta=1e-03
## + Fold5: nrounds= 4, lambda=7, alpha=7, eta=1e-03
## - Fold5: nrounds= 4, lambda=7, alpha=7, eta=1e-03
## + Fold5: nrounds= 5, lambda=7, alpha=7, eta=1e-03
## - Fold5: nrounds= 5, lambda=7, alpha=7, eta=1e-03
## + Fold5: nrounds= 6, lambda=7, alpha=7, eta=1e-03
## - Fold5: nrounds= 6, lambda=7, alpha=7, eta=1e-03
## + Fold5: nrounds= 7, lambda=7, alpha=7, eta=1e-03
## - Fold5: nrounds= 7, lambda=7, alpha=7, eta=1e-03
## + Fold5: nrounds= 8, lambda=7, alpha=7, eta=1e-03
## - Fold5: nrounds= 8, lambda=7, alpha=7, eta=1e-03
## + Fold5: nrounds= 9, lambda=7, alpha=7, eta=1e-03
## - Fold5: nrounds= 9, lambda=7, alpha=7, eta=1e-03
## + Fold5: nrounds=10, lambda=7, alpha=7, eta=1e-03
## - Fold5: nrounds=10, lambda=7, alpha=7, eta=1e-03
## + Fold5: nrounds=11, lambda=7, alpha=7, eta=1e-03
## - Fold5: nrounds=11, lambda=7, alpha=7, eta=1e-03
## + Fold5: nrounds=12, lambda=7, alpha=7, eta=1e-03
## - Fold5: nrounds=12, lambda=7, alpha=7, eta=1e-03
## + Fold5: nrounds=13, lambda=7, alpha=7, eta=1e-03
## - Fold5: nrounds=13, lambda=7, alpha=7, eta=1e-03
## + Fold5: nrounds=14, lambda=7, alpha=7, eta=1e-03
## - Fold5: nrounds=14, lambda=7, alpha=7, eta=1e-03
## + Fold5: nrounds=15, lambda=7, alpha=7, eta=1e-03
## - Fold5: nrounds=15, lambda=7, alpha=7, eta=1e-03
## Aggregating results
## Selecting tuning parameters
## Fitting nrounds = 9, lambda = 5, alpha = 7, eta = 1e-05 on full training set

ggplot(ex_gradient_boost_fit, highlight = T)

```

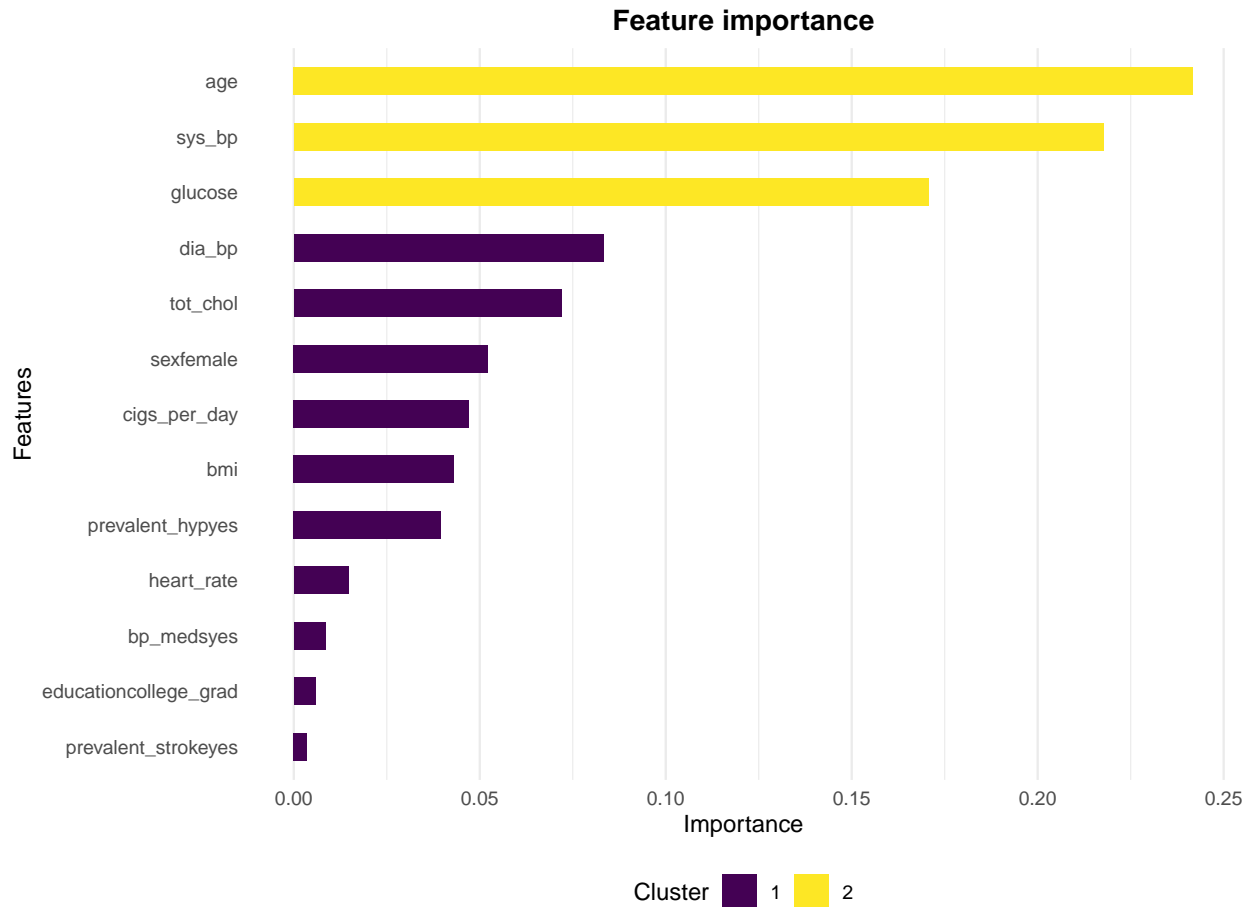


```
ex_gradient_boost_fit$resample
```

```
##      ROC   Sens  Spec Resample
## 1 0.728 0.0556 0.998   Fold2
## 2 0.723 0.0899 0.988   Fold3
## 3 0.691 0.0778 0.988   Fold4
## 4 0.688 0.0449 1.000   Fold1
## 5 0.726 0.0667 0.994   Fold5
```

```
importance_df <- xgb.importance(model = ex_gradient_boost_fit$finalModel)
```

```
#library(Ckmeans.1d.dp)
xgb.ggplot.importance(importance_df, top_n = 15, measure = "Gain")
```



MARS Model

```
set.seed(2022)
mars_fit <- train(ten_year_chd~.,
                  data = training_df_na_omit,
                  method = "earth",
                  tuneGrid = expand.grid(degree = 1:3,
                                         nprune = 2:35),
                  metric = "ROC",
                  preProcess = c("center", "scale", "BoxCox"),
                  trControl = ctrl)
```

```
## + Fold1: degree=1, nprune=35
## - Fold1: degree=1, nprune=35
## + Fold1: degree=2, nprune=35
## - Fold1: degree=2, nprune=35
## + Fold1: degree=3, nprune=35
## - Fold1: degree=3, nprune=35
## + Fold2: degree=1, nprune=35
## - Fold2: degree=1, nprune=35
## + Fold2: degree=2, nprune=35
```



```

## - Fold2: degree=2, nprune=35
## + Fold2: degree=3, nprune=35
## - Fold2: degree=3, nprune=35
## + Fold3: degree=1, nprune=35
## - Fold3: degree=1, nprune=35
## + Fold3: degree=2, nprune=35
## - Fold3: degree=2, nprune=35
## + Fold3: degree=3, nprune=35
## - Fold3: degree=3, nprune=35
## + Fold4: degree=1, nprune=35
## - Fold4: degree=1, nprune=35
## + Fold4: degree=2, nprune=35
## - Fold4: degree=2, nprune=35
## + Fold4: degree=3, nprune=35
## - Fold4: degree=3, nprune=35
## + Fold5: degree=1, nprune=35
## - Fold5: degree=1, nprune=35
## + Fold5: degree=2, nprune=35
## - Fold5: degree=2, nprune=35
## + Fold5: degree=3, nprune=35
## - Fold5: degree=3, nprune=35
## Aggregating results
## Selecting tuning parameters
## Fitting nprune = 6, degree = 1 on full training set

```

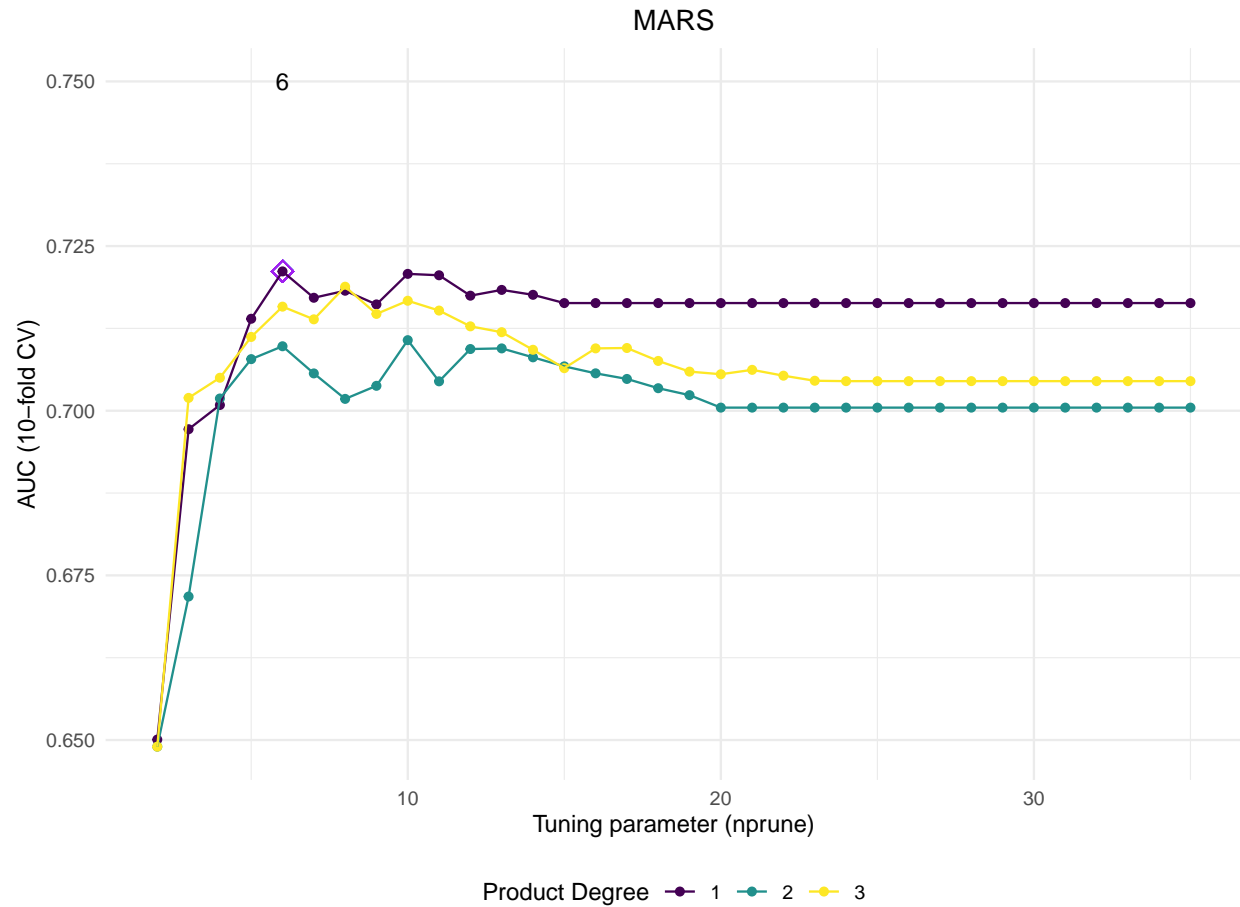
```

result_df <- mars_fit[4] %>% data.frame()

p_mars <-
  result_df %>%
  mutate(best_prune = mars_fit$bestTune$nprune,
         results.degree = as.factor(results.degree)) %>%
  ggplot(aes(x = results.nprune, y = results.ROC,
            group = results.degree, color = results.degree)) +
  geom_point() +
  geom_point(aes(best_prune, max(results.ROC)), size = 3, shape = 5, color = "purple") +
  geom_line() +
  labs(title = "MARS", y = "AUC (10-fold CV)", x = "Tuning parameter (nprune)") +
  annotate("text", x = 6, y = 0.75, label = "6") +
  theme(plot.title = element_text(hjust = 0.5), legend.position = "bottom") +
  labs(color = "Product Degree")

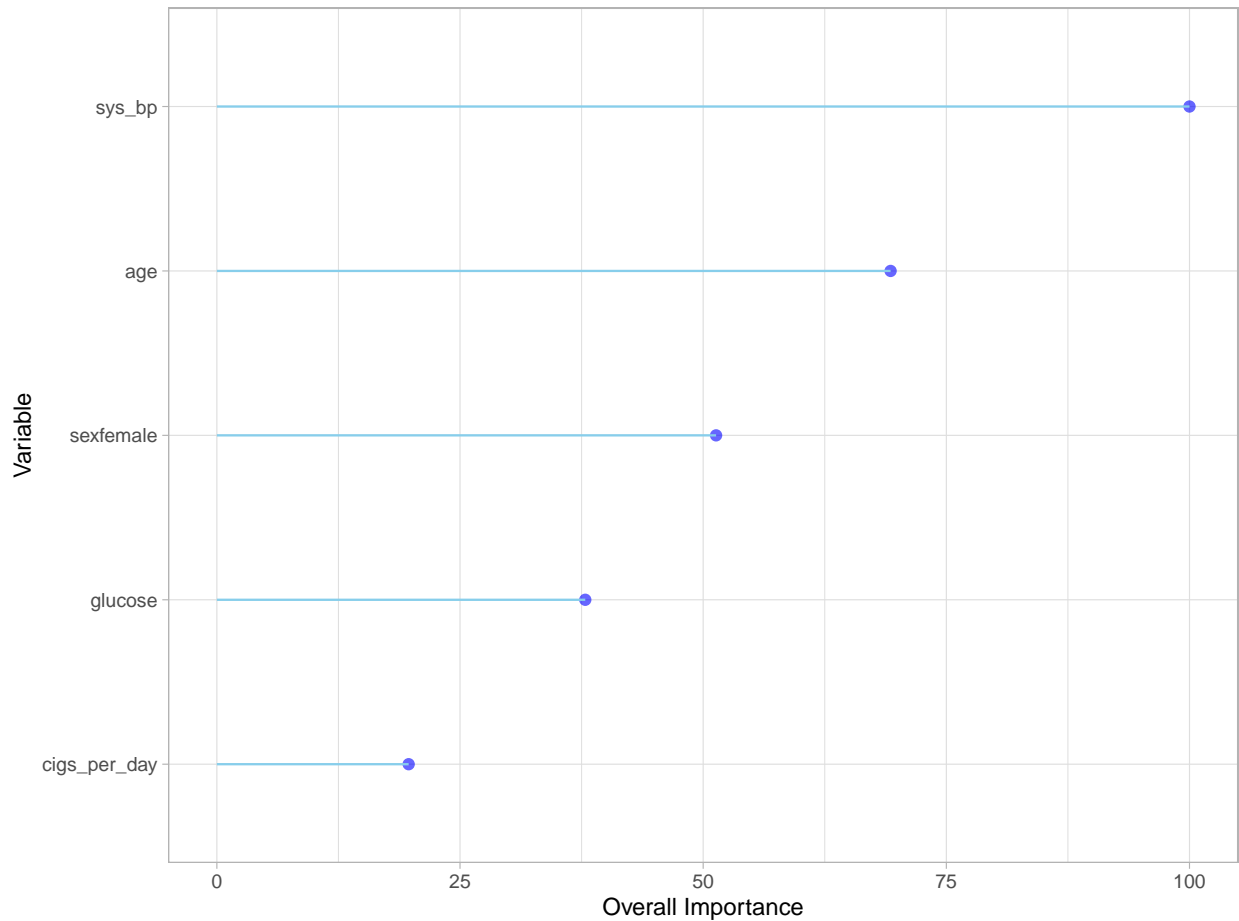
p_mars

```



```
V3 <- varImp(mars_fit$finalModel)

ggplot(V3, aes(x = reorder(rownames(V3), Overall), y = Overall)) +
  geom_point(color = "blue", size = 2, alpha = 0.6) +
  geom_segment(aes(x = rownames(V3), xend = rownames(V3), y = 0, yend = Overall),
    color = 'skyblue') +
  xlab('Variable') +
  ylab('Overall Importance') +
  theme_light() +
  coord_flip()
```



MARS Model with imputation

```
set.seed(2022)
mars_fit_impute <- train(preprocess_recipe,
  data = training_df,
  method = "earth",
  tuneGrid = expand.grid(degree = 1:3,
    nprune = 2:35),
  metric = "ROC",
  trControl = ctrl)
```

```
## Preparing recipe
## + Fold1: degree=1, nprune=35
## - Fold1: degree=1, nprune=35
## + Fold1: degree=2, nprune=35
## - Fold1: degree=2, nprune=35
## + Fold1: degree=3, nprune=35
## - Fold1: degree=3, nprune=35
## + Fold2: degree=1, nprune=35
## - Fold2: degree=1, nprune=35
## + Fold2: degree=2, nprune=35
```

```

## - Fold2: degree=2, nprune=35
## + Fold2: degree=3, nprune=35
## - Fold2: degree=3, nprune=35
## + Fold3: degree=1, nprune=35
## - Fold3: degree=1, nprune=35
## + Fold3: degree=2, nprune=35
## - Fold3: degree=2, nprune=35
## + Fold3: degree=3, nprune=35
## - Fold3: degree=3, nprune=35
## + Fold4: degree=1, nprune=35
## - Fold4: degree=1, nprune=35
## + Fold4: degree=2, nprune=35
## - Fold4: degree=2, nprune=35
## + Fold4: degree=3, nprune=35
## - Fold4: degree=3, nprune=35
## + Fold5: degree=1, nprune=35
## - Fold5: degree=1, nprune=35
## + Fold5: degree=2, nprune=35
## - Fold5: degree=2, nprune=35
## + Fold5: degree=3, nprune=35
## - Fold5: degree=3, nprune=35
## Aggregating results
## Selecting tuning parameters
## Fitting nprune = 7, degree = 1 on full training set

```

GAM Model

```

GAM_fit <- train(ten_year_chd~.,
                 data = training_df_na_omit,
                 method = "gam",
                 metric = "ROC",
                 family = "binomial",
                 preProcess = c("center", "scale", "BoxCox"),
                 tuneGrid = data.frame(method = "GCV.Cp", select = c(TRUE, FALSE)),
                 trControl = ctrl)

```

```

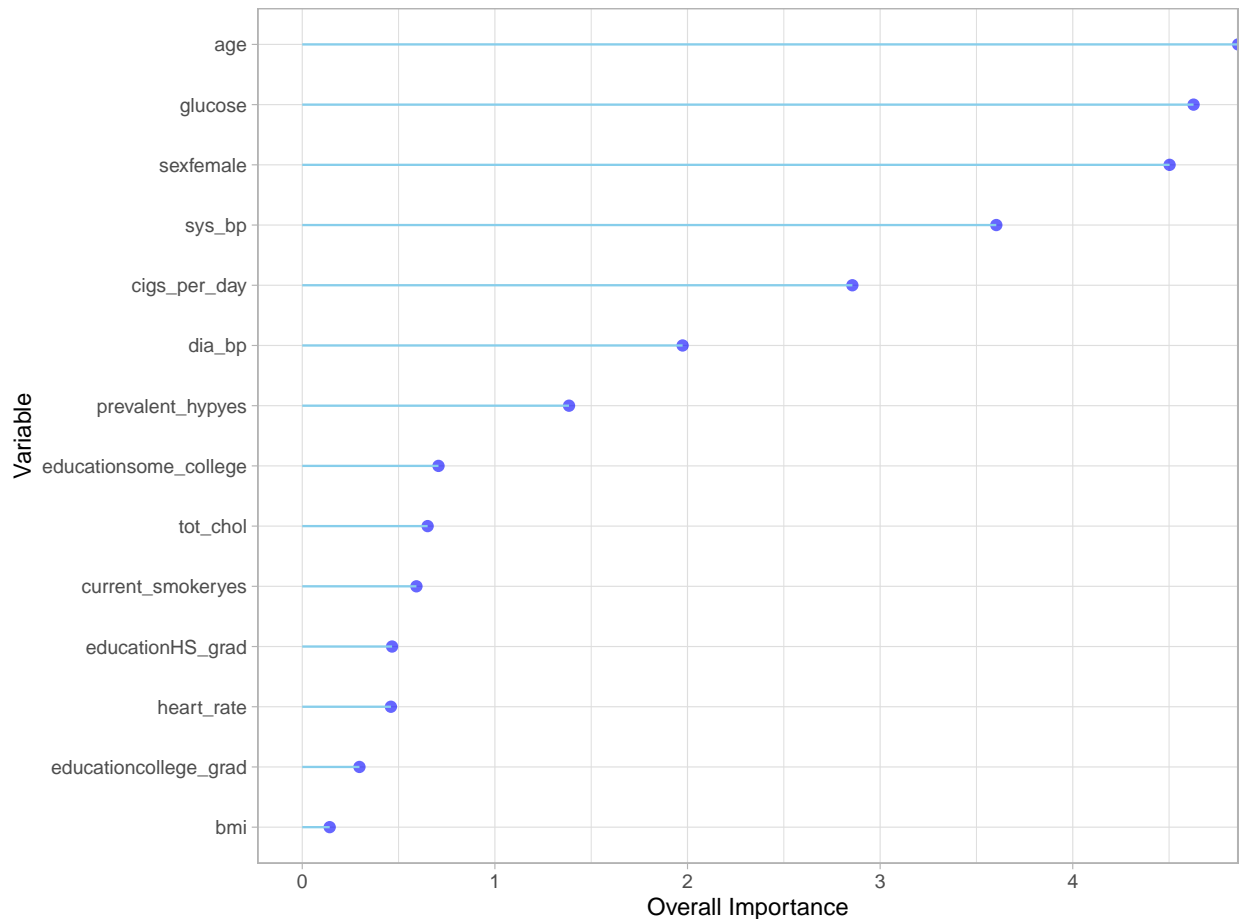
## + Fold1: method=GCV.Cp, select= TRUE
## - Fold1: method=GCV.Cp, select= TRUE
## + Fold1: method=GCV.Cp, select=FALSE
## - Fold1: method=GCV.Cp, select=FALSE
## + Fold2: method=GCV.Cp, select= TRUE
## - Fold2: method=GCV.Cp, select= TRUE
## + Fold2: method=GCV.Cp, select=FALSE
## - Fold2: method=GCV.Cp, select=FALSE
## + Fold3: method=GCV.Cp, select= TRUE
## - Fold3: method=GCV.Cp, select= TRUE
## + Fold3: method=GCV.Cp, select=FALSE
## - Fold3: method=GCV.Cp, select=FALSE
## + Fold4: method=GCV.Cp, select= TRUE
## - Fold4: method=GCV.Cp, select= TRUE
## + Fold4: method=GCV.Cp, select=FALSE
## - Fold4: method=GCV.Cp, select=FALSE

```

```
## + Fold5: method=GCV.Cp, select= TRUE
## - Fold5: method=GCV.Cp, select= TRUE
## + Fold5: method=GCV.Cp, select=FALSE
## - Fold5: method=GCV.Cp, select=FALSE
## Aggregating results
## Selecting tuning parameters
## Fitting select = TRUE, method = GCV.Cp on full training set
```

```
V4 <- varImp(GAM_fit$finalModel)
```

```
ggplot(V4, aes(x = reorder(rownames(V4), Overall), y = Overall)) +
  geom_point(color = "blue", size = 2, alpha = 0.6) +
  geom_segment(aes(x = rownames(V4), xend = rownames(V4), y = 0, yend = Overall),
    color = 'skyblue') +
  xlab('Variable') +
  ylab('Overall Importance') +
  theme_light() +
  coord_flip()
```



GAM Model with imputation

```
set.seed(2022)

GAM_fit_impute <- train(preprocess_recipe,
                        data = training_df,
                        method = "gam",
                        metric = "ROC",
                        family = "binomial",
                        tuneGrid = data.frame(method = "GCV.Cp", select = c(TRUE, FALSE)),
                        trControl = ctrl)

## Preparing recipe
## + Fold1: method=GCV.Cp, select= TRUE
## - Fold1: method=GCV.Cp, select= TRUE
## + Fold1: method=GCV.Cp, select=FALSE
## - Fold1: method=GCV.Cp, select=FALSE
## + Fold2: method=GCV.Cp, select= TRUE
## - Fold2: method=GCV.Cp, select= TRUE
## + Fold2: method=GCV.Cp, select=FALSE
## - Fold2: method=GCV.Cp, select=FALSE
## + Fold3: method=GCV.Cp, select= TRUE
## - Fold3: method=GCV.Cp, select= TRUE
## + Fold3: method=GCV.Cp, select=FALSE
## - Fold3: method=GCV.Cp, select=FALSE
## + Fold4: method=GCV.Cp, select= TRUE
## - Fold4: method=GCV.Cp, select= TRUE
## + Fold4: method=GCV.Cp, select=FALSE
## - Fold4: method=GCV.Cp, select=FALSE
## + Fold5: method=GCV.Cp, select= TRUE
## - Fold5: method=GCV.Cp, select= TRUE
## + Fold5: method=GCV.Cp, select=FALSE
## - Fold5: method=GCV.Cp, select=FALSE
## Aggregating results
## Selecting tuning parameters
## Fitting select = FALSE, method = GCV.Cp on full training set

# Results from resampling on training data
resamp = resamples(list(Neural_Network = nnet_fit,
                        Neural_Network_Impute = nnet_fit_impute,
                        Aveeraged_Neural_Network = avnet_fit,
                        Aveeraged_Neural_Network_Impute = avnet_fit_impute,
                        Extreme_Gradient_Boosting = ex_gradient_boost_fit,
                        MARS = mars_fit,
                        MARS_Impute = mars_fit_impute,
                        GAM = GAM_fit,
                        GAM_Impute = GAM_fit_impute))

# Median AUC is highest for glmnet (0.727), and boost_caret_impute (0.722)
result <- summary(resamp)

ROC_df <-
```

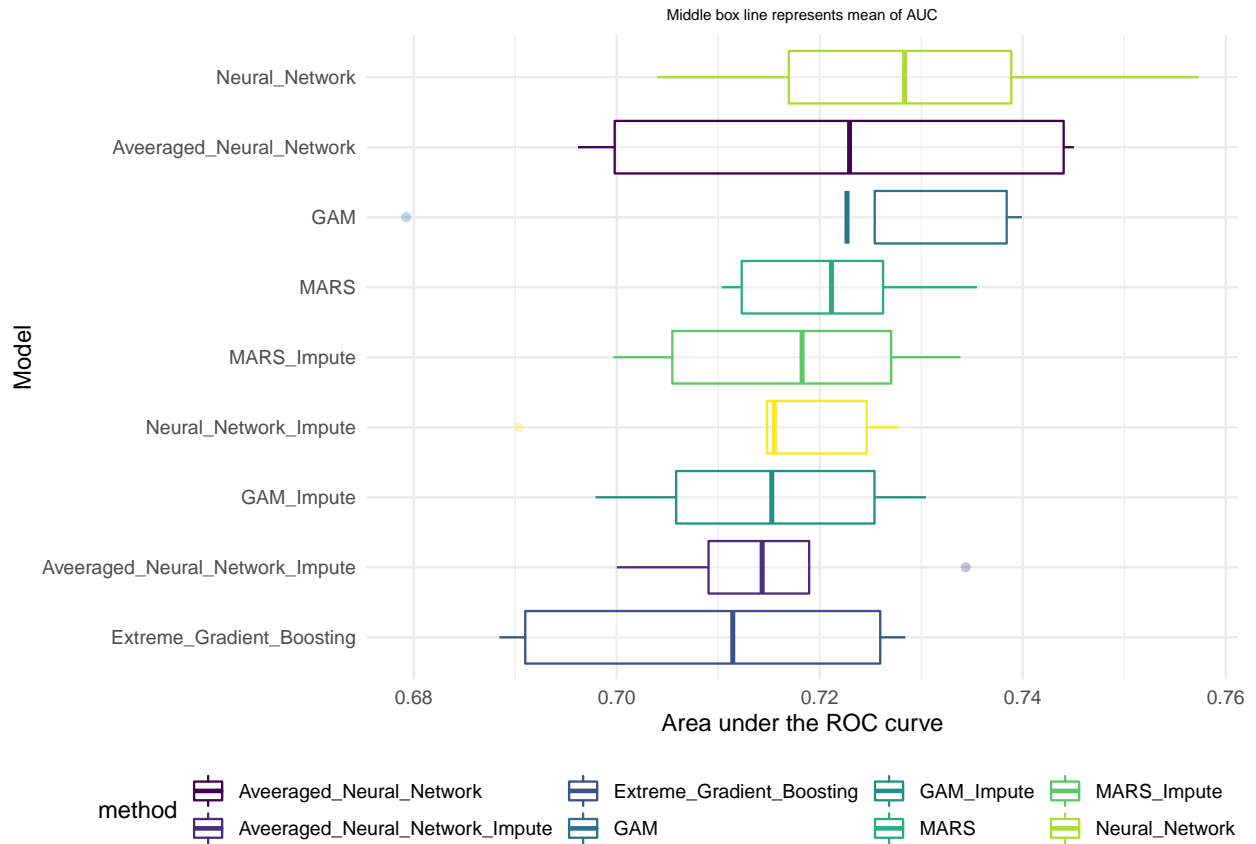
```

tibble(Neural_Network = result$values$`Neural_Network~ROC`,
       Neural_Network_Impute = result$values$`Neural_Network_Impute~ROC`,
       Aveeraged_Neural_Network = result$values$`Aveeraged_Neural_Network~ROC`,
       Aveeraged_Neural_Network_Impute = result$values$`Aveeraged_Neural_Network_Impute~ROC`,
       Extreme_Gradient_Boosting = result$values$`Extreme_Gradient_Boosting~ROC`,
       MARS = result$values$`MARS~ROC`,
       MARS_Impute = result$values$`MARS_Impute~ROC`,
       GAM = result$values$`GAM~ROC`,
       GAM_Impute = result$values$`GAM_Impute~ROC`) %>%
pivot_longer(Neural_Network:GAM_Impute, names_to = "method", values_to = "values")

plot_result <-
  ROC_df %>%
  ggplot(aes(x = reorder(method, values), values, color = method)) +
  geom_boxplot(fatten = NULL, alpha = 0.3) +
  stat_summary(fun.y = mean, geom = "errorbar", aes(ymax = ..y.., ymin = ..y..),
              width = 0.75, size = 1, linetype = "solid") +
  coord_flip() +
  labs(title = "Fig.5 Distribution of the Estimated AUC for six models from 5-fold CV",
       subtitle = "Middle box line represents mean of AUC",
       x = "Model", y = "Area under the ROC curve",
       caption = "") +
  theme(plot.title = element_text(size = 10, hjust = 0.5, face = "bold"),
        plot.subtitle = element_text(size = 7, hjust = 0.5),
        plot.caption = element_text(hjust = 0.5))
plot_result

```

Fig.5 Distribution of the Estimated AUC for six models from 5-fold CV



```
table_result <-
  result$statistics$ROC[, -7] %>%
  data.frame() %>%
  round(digits = 4) %>%
  rownames_to_column() %>%
  dplyr::rename(Models = rowname) %>%
  arrange(desc(Mean)) %>%
  kbl(caption = "ROC from 5-fold CV estimate") %>%
  kable_classic("striped", full_width = F, html_font = "Cambria",
    latex_options = "HOLD_position")
table_result
```


Table 1: ROC from 5-fold CV estimate

Models	Min.	X1st.Qu.	Median	Mean	X3rd.Qu.	Max.
Neural_Network	0.704	0.717	0.725	0.728	0.739	0.757
Aveeraged_Neural_Network	0.696	0.700	0.730	0.723	0.744	0.745
GAM	0.679	0.725	0.730	0.723	0.738	0.740
MARS	0.710	0.712	0.721	0.721	0.726	0.736
MARS_Impute	0.700	0.706	0.725	0.718	0.727	0.734
Neural_Network_Impute	0.690	0.715	0.720	0.716	0.725	0.728
GAM_Impute	0.698	0.706	0.717	0.715	0.725	0.731
Aveeraged_Neural_Network_Impute	0.700	0.709	0.709	0.714	0.719	0.734
Extreme_Gradient_Boosting	0.688	0.691	0.723	0.711	0.726	0.728

```

glm.pred <- predict(nnet_fit, newdata = testing_df_na_omit, type = "prob")[,2]
roc.nnet <- roc(testing_df_na_omit$ten_year_chd, glm.pred)

glm.pred <- predict(nnet_fit_impute, newdata = testing_df, type = "prob")[,2]
roc.nnet.impute <- roc(testing_df$ten_year_chd, glm.pred)

glm.pred <- predict(avnet_fit, newdata = testing_df_na_omit, type = "prob")[,2]
roc.avnnnet <- roc(testing_df_na_omit$ten_year_chd, glm.pred)

glm.pred <- predict(avnet_fit_impute, newdata = testing_df, type = "prob")[,2]
roc.avnnnet.impute <- roc(testing_df$ten_year_chd, glm.pred)

glm.pred <- predict(ex_gradient_boost_fit, newdata = testing_df_na_omit, type = "prob")[,2]
egb.roc <- roc(testing_df_na_omit$ten_year_chd, glm.pred)

glm.pred <- predict(mars_fit, newdata = testing_df_na_omit, type = "prob")[,2]
roc.mars <- roc(testing_df_na_omit$ten_year_chd, glm.pred)

glm.pred <- predict(mars_fit_impute, newdata = testing_df, type = "prob")[,2]
roc.mars.impute <- roc(testing_df$ten_year_chd, glm.pred)

glm.pred <- predict(GAM_fit, newdata = testing_df_na_omit, type = "prob")[,2]
roc.gam <- roc(testing_df_na_omit$ten_year_chd, glm.pred)

glm.pred <- predict(GAM_fit_impute, newdata = testing_df, type = "prob")[,2]
roc.gam.impute <- roc(testing_df$ten_year_chd, glm.pred)

plot(roc.nnet, col = 1, legacy.axes = TRUE, main = "Fig.6 AUC-ROC Curve Performance on the Test Set")
plot(roc.nnet.impute, col = 2, add = TRUE)
plot(roc.avnnnet, col = 3, add = TRUE)
plot(roc.avnnnet.impute, col = 4, add = TRUE)
plot(egb.roc, col = 5, add = TRUE)
plot(roc.mars, col = 6, add = TRUE)
plot(roc.mars.impute, col = 7, add = TRUE)
plot(roc.gam, col = 8, add = TRUE)
plot(roc.gam.impute, col = 9, add = TRUE)

```

```

auc <- sort(c(roc.nnet$auc[1], roc.nnet.impute$auc[1], roc.avnnnet$auc[1],
             roc.avnnnet.impute$auc[1], egb.roc$auc[1], roc.mars$auc[1],
             roc.mars.impute$auc[1], roc.gam$auc[1], roc.gam.impute$auc[1]), decreasing = TRUE)

modelNames <- c("Neural Network", "Neural Network Impute", "Averaged Neural Network",
                "Averaged Neural Network Impute", "Extreme Gradient Boosting",
                "MARS", "MARS Impute", "GAM", "GAM Impute")

legend("bottomright", legend = paste0(modelNames, ": ", round(auc,4)),
      col = c(1:9), lwd = 2)

```

