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BAN 502: Predictive Analytics

Module 5: Assignment 1 – Parameter Selection, Neural Networks, and Ensembles

options(tidyverse.quiet = TRUE)  
  
library(tidyverse)  
library(mice) #package for imputation

## Loading required package: lattice

##   
## Attaching package: 'mice'

## The following object is masked from 'package:tidyr':  
##   
## complete

## The following objects are masked from 'package:base':  
##   
## cbind, rbind

library(VIM) #visualizing missingness

## Loading required package: colorspace

## Loading required package: grid

## Loading required package: data.table

##   
## Attaching package: 'data.table'

## The following objects are masked from 'package:dplyr':  
##   
## between, first, last

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

## VIM is ready to use.   
## Since version 4.0.0 the GUI is in its own package VIMGUI.  
##   
## Please use the package to use the new (and old) GUI.

## Suggestions and bug-reports can be submitted at: https://github.com/alexkowa/VIM/issues

##   
## Attaching package: 'VIM'

## The following object is masked from 'package:datasets':  
##   
## sleep

library(randomForest) #random forests, using rather than ranger, bug as of Feb 2019 in ranger parameter tuning

## randomForest 4.6-14

## Type rfNews() to see new features/changes/bug fixes.

##   
## Attaching package: 'randomForest'

## The following object is masked from 'package:dplyr':  
##   
## combine

## The following object is masked from 'package:ggplot2':  
##   
## margin

library(caret) #control model building

##   
## Attaching package: 'caret'

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

library(e1071) #often needed for model building assistance  
library(gbm)

## Loaded gbm 2.1.5

library(rpart)  
library(caretEnsemble)

##   
## Attaching package: 'caretEnsemble'

## The following object is masked from 'package:ggplot2':  
##   
## autoplot

library(ranger)

##   
## Attaching package: 'ranger'

## The following object is masked from 'package:randomForest':  
##   
## importance

library(VIM)

parole <- read\_csv("~/Predictive Analysis/Module 4/parole.csv")

## Parsed with column specification:  
## cols(  
## male = col\_double(),  
## race = col\_double(),  
## age = col\_double(),  
## state = col\_double(),  
## time.served = col\_double(),  
## max.sentence = col\_double(),  
## multiple.offenses = col\_double(),  
## crime = col\_double(),  
## violator = col\_double()  
## )

summary(parole)

## male race age state   
## Min. :0.0000 Min. :1.000 Min. :18.40 Min. :1.000   
## 1st Qu.:1.0000 1st Qu.:1.000 1st Qu.:25.35 1st Qu.:2.000   
## Median :1.0000 Median :1.000 Median :33.70 Median :3.000   
## Mean :0.8074 Mean :1.424 Mean :34.51 Mean :2.887   
## 3rd Qu.:1.0000 3rd Qu.:2.000 3rd Qu.:42.55 3rd Qu.:4.000   
## Max. :1.0000 Max. :2.000 Max. :67.00 Max. :4.000   
## time.served max.sentence multiple.offenses crime   
## Min. :0.000 Min. : 1.00 Min. :0.0000 Min. :1.000   
## 1st Qu.:3.250 1st Qu.:12.00 1st Qu.:0.0000 1st Qu.:1.000   
## Median :4.400 Median :12.00 Median :1.0000 Median :2.000   
## Mean :4.198 Mean :13.06 Mean :0.5363 Mean :2.059   
## 3rd Qu.:5.200 3rd Qu.:15.00 3rd Qu.:1.0000 3rd Qu.:3.000   
## Max. :6.000 Max. :18.00 Max. :1.0000 Max. :4.000   
## violator   
## Min. :0.0000   
## 1st Qu.:0.0000   
## Median :0.0000   
## Mean :0.1156   
## 3rd Qu.:0.0000   
## Max. :1.0000

paroledata = parole %>% mutate(male= as\_factor(as.numeric(male)),   
 race= as\_factor(as.numeric(race)),   
 state= as\_factor(as.numeric(state)),   
 crime= as\_factor(as.numeric(crime)),  
 multiple.offenses= as\_factor(as.numeric(multiple.offenses)),   
 violator = as\_factor(as.numeric(violator)) ) %>%  
   
 mutate(male = fct\_recode(male,  
 "male" = "1",  
 "Female" = "0"),  
 race = fct\_recode(race,  
 "white" = "1",  
 "otherwise" = "2"),  
 state = fct\_recode(state,  
 "others" = "1",  
 "Kentucky" = "2",  
 "Louisiana" = "3",  
 "Virginia" = "4"),  
 crime = fct\_recode(crime,  
 "others" = "1",  
 "larceny" = "2",  
 "drug-related" = "3",  
 "driving-related" = "4"),  
multiple.offenses = fct\_recode(multiple.offenses,  
 "multiple" = "1",  
 "otherwise" = "0"),  
 violator = fct\_recode(violator,  
 "violatedparole" = "1",  
 "completedparole" = "0") )

# Task 1

set.seed(12345)#set random number seed for cross validation  
split.paroledata = createDataPartition(y = paroledata$violator, p=0.7, list = FALSE) #70% in training  
traindata = paroledata[split.paroledata,]   
testdata = paroledata[-split.paroledata,]

# Task 2

fitControl = trainControl(method = "cv",   
 number = 10)  
  
nnetGrid1 <- expand.grid(size = 12, decay = 0.1)  
  
set.seed(1234)  
x=paroledata[,-9]  
violator=paroledata[,9]  
parole\_parole\_dataframe=as.data.frame(paroledata[,-9])  
  
parole\_dataframe <- data.frame(parole\_parole\_dataframe, violator)  
  
nnetFit = train(violator ~ .,   
 parole\_dataframe,  
 method = "nnet",  
 trControl = fitControl,  
 tuneGrid = nnetGrid1,  
 verbose = FALSE)

## # weights: 169  
## initial value 224.037423   
## iter 10 value 201.854856  
## iter 20 value 175.585204  
## iter 30 value 161.673520  
## iter 40 value 149.958321  
## iter 50 value 142.606701  
## iter 60 value 138.117835  
## iter 70 value 135.266771  
## iter 80 value 131.140492  
## iter 90 value 124.454711  
## iter 100 value 120.209690  
## final value 120.209690   
## stopped after 100 iterations  
## # weights: 169  
## initial value 1024.800287   
## iter 10 value 212.165481  
## iter 20 value 175.678338  
## iter 30 value 167.732611  
## iter 40 value 162.525560  
## iter 50 value 156.919857  
## iter 60 value 152.362136  
## iter 70 value 145.411200  
## iter 80 value 139.025095  
## iter 90 value 134.562513  
## iter 100 value 129.083992  
## final value 129.083992   
## stopped after 100 iterations  
## # weights: 169  
## initial value 351.241995   
## iter 10 value 208.768862  
## iter 20 value 170.951206  
## iter 30 value 167.682974  
## iter 40 value 160.427626  
## iter 50 value 157.349117  
## iter 60 value 153.840832  
## iter 70 value 149.335752  
## iter 80 value 141.982882  
## iter 90 value 137.390204  
## iter 100 value 134.512200  
## final value 134.512200   
## stopped after 100 iterations  
## # weights: 169  
## initial value 381.305792   
## iter 10 value 207.374977  
## iter 20 value 177.014177  
## iter 30 value 156.178092  
## iter 40 value 151.735649  
## iter 50 value 148.250204  
## iter 60 value 146.557706  
## iter 70 value 145.293715  
## iter 80 value 142.049430  
## iter 90 value 139.054084  
## iter 100 value 136.055043  
## final value 136.055043   
## stopped after 100 iterations  
## # weights: 169  
## initial value 260.132208   
## iter 10 value 204.306632  
## iter 20 value 170.671872  
## iter 30 value 155.505310  
## iter 40 value 148.413299  
## iter 50 value 144.902601  
## iter 60 value 142.781576  
## iter 70 value 141.263090  
## iter 80 value 134.839533  
## iter 90 value 129.100387  
## iter 100 value 127.609344  
## final value 127.609344   
## stopped after 100 iterations  
## # weights: 169  
## initial value 523.655900   
## iter 10 value 211.040341  
## iter 20 value 185.481253  
## iter 30 value 165.879170  
## iter 40 value 157.787975  
## iter 50 value 149.011315  
## iter 60 value 141.388966  
## iter 70 value 133.532023  
## iter 80 value 129.650000  
## iter 90 value 128.132378  
## iter 100 value 126.433940  
## final value 126.433940   
## stopped after 100 iterations  
## # weights: 169  
## initial value 311.781240   
## iter 10 value 215.804402  
## iter 20 value 202.563812  
## iter 30 value 167.647462  
## iter 40 value 155.215410  
## iter 50 value 147.469883  
## iter 60 value 141.191193  
## iter 70 value 136.783004  
## iter 80 value 133.405805  
## iter 90 value 132.116364  
## iter 100 value 130.795945  
## final value 130.795945   
## stopped after 100 iterations  
## # weights: 169  
## initial value 278.796304   
## iter 10 value 206.666774  
## iter 20 value 173.322458  
## iter 30 value 160.184532  
## iter 40 value 154.259963  
## iter 50 value 145.337081  
## iter 60 value 140.187879  
## iter 70 value 137.446461  
## iter 80 value 131.448342  
## iter 90 value 129.852655  
## iter 100 value 129.044153  
## final value 129.044153   
## stopped after 100 iterations  
## # weights: 169  
## initial value 925.172881   
## iter 10 value 394.471125  
## iter 20 value 287.423599  
## iter 30 value 193.882780  
## iter 40 value 166.678625  
## iter 50 value 156.381411  
## iter 60 value 147.566251  
## iter 70 value 140.789074  
## iter 80 value 135.498141  
## iter 90 value 132.785354  
## iter 100 value 130.777792  
## final value 130.777792   
## stopped after 100 iterations  
## # weights: 169  
## initial value 394.558953   
## iter 10 value 209.914056  
## iter 20 value 180.176543  
## iter 30 value 159.639812  
## iter 40 value 150.003109  
## iter 50 value 142.958792  
## iter 60 value 138.927904  
## iter 70 value 135.070486  
## iter 80 value 132.545932  
## iter 90 value 130.201186  
## iter 100 value 128.164724  
## final value 128.164724   
## stopped after 100 iterations  
## # weights: 169  
## initial value 312.484802   
## iter 10 value 226.395362  
## iter 20 value 199.976785  
## iter 30 value 181.703477  
## iter 40 value 170.174888  
## iter 50 value 164.209167  
## iter 60 value 159.949762  
## iter 70 value 153.342773  
## iter 80 value 148.709611  
## iter 90 value 146.982426  
## iter 100 value 145.985416  
## final value 145.985416   
## stopped after 100 iterations

nnetFit

## Neural Network   
##   
## 675 samples  
## 8 predictor  
## 2 classes: 'completedparole', 'violatedparole'   
##   
## No pre-processing  
## Resampling: Cross-Validated (10 fold)   
## Summary of sample sizes: 608, 607, 609, 607, 607, 607, ...   
## Resampling results:  
##   
## Accuracy Kappa   
## 0.8799505 0.309989  
##   
## Tuning parameter 'size' was held constant at a value of 12  
##   
## Tuning parameter 'decay' was held constant at a value of 0.1

# Task 3

# Predictions on Training Set

prednnetfit = predict(nnetFit, traindata)  
#Confusion Matrix  
confusionMatrix(prednnetfit, traindata$violator, positive = "completedparole")

## Confusion Matrix and Statistics  
##   
## Reference  
## Prediction completedparole violatedparole  
## completedparole 411 25  
## violatedparole 7 30  
##   
## Accuracy : 0.9323   
## 95% CI : (0.9058, 0.9533)  
## No Information Rate : 0.8837   
## P-Value [Acc > NIR] : 0.0002879   
##   
## Kappa : 0.6163   
##   
## Mcnemar's Test P-Value : 0.0026540   
##   
## Sensitivity : 0.9833   
## Specificity : 0.5455   
## Pos Pred Value : 0.9427   
## Neg Pred Value : 0.8108   
## Prevalence : 0.8837   
## Detection Rate : 0.8689   
## Detection Prevalence : 0.9218   
## Balanced Accuracy : 0.7644   
##   
## 'Positive' Class : completedparole   
##

# The accuracy on the training dataset if about 0.93. This is approximately 0.06 greater that accuracy from neural network which is 0.87.

# Task 4

# This task involves using Grid Search

paroledata

## # A tibble: 675 x 9  
## male race age state time.served max.sentence multiple.offens~ crime  
## <fct> <fct> <dbl> <fct> <dbl> <dbl> <fct> <fct>  
## 1 male white 33.2 othe~ 5.5 18 otherwise driv~  
## 2 Fema~ white 39.7 othe~ 5.4 12 otherwise drug~  
## 3 male othe~ 29.5 othe~ 5.6 12 otherwise drug~  
## 4 male white 22.4 othe~ 5.7 18 otherwise othe~  
## 5 male othe~ 21.6 othe~ 5.4 12 otherwise othe~  
## 6 male othe~ 46.7 othe~ 6 18 otherwise driv~  
## 7 male white 31 othe~ 6 18 otherwise drug~  
## 8 Fema~ white 24.6 othe~ 4.8 12 otherwise othe~  
## 9 Fema~ white 32.6 othe~ 4.5 13 otherwise drug~  
## 10 male othe~ 29.1 othe~ 4.7 12 otherwise larc~  
## # ... with 665 more rows, and 1 more variable: violator <fct>

fitControl = trainControl(method = "cv",   
 number = 10)  
  
nnetGridparole = expand.grid(size = seq(from = 1, to = 12, by = 1),   
 decay = seq(from = 0.1, to = 0.5, by = 0.1))  
  
set.seed(1234)  
nnetrun = train(violator ~ .,   
 parole\_dataframe,  
 method = "nnet",  
 tuneGrid = nnetGridparole,  
 trControl = fitControl,  
 verbose = FALSE)

## # weights: 15  
## initial value 507.521041   
## iter 10 value 217.769477  
## iter 20 value 212.660238  
## iter 30 value 171.326027  
## iter 40 value 160.751482  
## iter 50 value 160.325756  
## iter 60 value 160.324950  
## final value 160.324921   
## converged  
## # weights: 29  
## initial value 408.621759   
## iter 10 value 213.021775  
## iter 20 value 165.399575  
## iter 30 value 160.707904  
## iter 40 value 160.333478  
## iter 50 value 160.137902  
## iter 60 value 157.589357  
## iter 70 value 152.239636  
## iter 80 value 149.232750  
## iter 90 value 149.146327  
## final value 149.146212   
## converged  
## # weights: 43  
## initial value 363.716713   
## iter 10 value 193.283192  
## iter 20 value 175.552787  
## iter 30 value 161.045430  
## iter 40 value 156.903532  
## iter 50 value 149.655877  
## iter 60 value 149.143519  
## iter 70 value 148.558601  
## iter 80 value 143.275740  
## iter 90 value 141.493640  
## iter 100 value 141.400574  
## final value 141.400574   
## stopped after 100 iterations  
## # weights: 57  
## initial value 421.404723   
## iter 10 value 195.006674  
## iter 20 value 162.287129  
## iter 30 value 160.941625  
## iter 40 value 160.862933  
## iter 50 value 160.786535  
## iter 60 value 158.282037  
## iter 70 value 157.663187  
## iter 80 value 156.855299  
## iter 90 value 156.339937  
## iter 100 value 156.281444  
## final value 156.281444   
## stopped after 100 iterations  
## # weights: 71  
## initial value 376.177237   
## iter 10 value 181.750021  
## iter 20 value 160.201808  
## iter 30 value 147.063256  
## iter 40 value 143.862554  
## iter 50 value 139.800884  
## iter 60 value 138.792923  
## iter 70 value 138.525435  
## iter 80 value 138.484653  
## iter 90 value 138.465721  
## iter 100 value 138.433010  
## final value 138.433010   
## stopped after 100 iterations  
## # weights: 85  
## initial value 288.010788   
## iter 10 value 217.432944  
## iter 20 value 210.471034  
## iter 30 value 176.920592  
## iter 40 value 161.665585  
## iter 50 value 161.028434  
## iter 60 value 157.014716  
## iter 70 value 150.526038  
## iter 80 value 148.445107  
## iter 90 value 145.835018  
## iter 100 value 145.227208  
## final value 145.227208   
## stopped after 100 iterations  
## # weights: 99  
## initial value 985.671425   
## iter 10 value 214.643474  
## iter 20 value 199.827467  
## iter 30 value 176.383978  
## iter 40 value 154.861603  
## iter 50 value 146.594780  
## iter 60 value 138.782845  
## iter 70 value 134.678607  
## iter 80 value 132.820847  
## iter 90 value 131.514893  
## iter 100 value 129.861139  
## final value 129.861139   
## stopped after 100 iterations  
## # weights: 113  
## initial value 642.981006   
## iter 10 value 223.102898  
## iter 20 value 198.359540  
## iter 30 value 167.372786  
## iter 40 value 157.754155  
## iter 50 value 153.935283  
## iter 60 value 146.913481  
## iter 70 value 141.318549  
## iter 80 value 138.308099  
## iter 90 value 137.145049  
## iter 100 value 136.854792  
## final value 136.854792   
## stopped after 100 iterations  
## # weights: 127  
## initial value 449.759495   
## iter 10 value 216.218254  
## iter 20 value 188.726855  
## iter 30 value 162.259674  
## iter 40 value 154.257180  
## iter 50 value 150.393837  
## iter 60 value 146.371332  
## iter 70 value 143.920977  
## iter 80 value 140.989752  
## iter 90 value 137.209342  
## iter 100 value 135.146145  
## final value 135.146145   
## stopped after 100 iterations  
## # weights: 141  
## initial value 482.195970   
## iter 10 value 214.801947  
## iter 20 value 188.553154  
## iter 30 value 162.302902  
## iter 40 value 154.275909  
## iter 50 value 146.532917  
## iter 60 value 140.589176  
## iter 70 value 137.070573  
## iter 80 value 134.079882  
## iter 90 value 131.371348  
## iter 100 value 129.519316  
## final value 129.519316   
## stopped after 100 iterations  
## # weights: 155  
## initial value 519.363065   
## iter 10 value 210.037889  
## iter 20 value 196.218380  
## iter 30 value 172.822097  
## iter 40 value 151.774955  
## iter 50 value 145.118939  
## iter 60 value 143.897446  
## iter 70 value 140.358974  
## iter 80 value 138.053353  
## iter 90 value 133.646298  
## iter 100 value 128.208003  
## final value 128.208003   
## stopped after 100 iterations  
## # weights: 169  
## initial value 467.868297   
## iter 10 value 198.743248  
## iter 20 value 176.175352  
## iter 30 value 159.635123  
## iter 40 value 147.834480  
## iter 50 value 138.146060  
## iter 60 value 132.004178  
## iter 70 value 129.508159  
## iter 80 value 126.596737  
## iter 90 value 122.563528  
## iter 100 value 118.940582  
## final value 118.940582   
## stopped after 100 iterations  
## # weights: 15  
## initial value 304.990742   
## iter 10 value 217.511788  
## iter 20 value 207.862065  
## iter 30 value 166.169616  
## iter 40 value 164.269317  
## iter 50 value 164.265150  
## final value 164.265142   
## converged  
## # weights: 29  
## initial value 293.046692   
## iter 10 value 212.553844  
## iter 20 value 189.704588  
## iter 30 value 165.450547  
## iter 40 value 164.295392  
## iter 50 value 164.272337  
## iter 60 value 164.041352  
## iter 70 value 161.443698  
## iter 80 value 157.446980  
## iter 90 value 156.771468  
## final value 156.768680   
## converged  
## # weights: 43  
## initial value 544.396215   
## iter 10 value 224.312522  
## iter 20 value 206.661820  
## iter 30 value 182.296923  
## iter 40 value 164.362092  
## iter 50 value 158.181287  
## iter 60 value 154.111358  
## iter 70 value 153.422080  
## iter 80 value 153.405144  
## final value 153.405093   
## converged  
## # weights: 57  
## initial value 435.372020   
## iter 10 value 216.579822  
## iter 20 value 172.660605  
## iter 30 value 164.601532  
## iter 40 value 162.693086  
## iter 50 value 159.867101  
## iter 60 value 158.679597  
## iter 70 value 158.178090  
## iter 80 value 156.682296  
## iter 90 value 155.022235  
## iter 100 value 153.512112  
## final value 153.512112   
## stopped after 100 iterations  
## # weights: 71  
## initial value 1056.730096   
## iter 10 value 218.319102  
## iter 20 value 202.544356  
## iter 30 value 170.987999  
## iter 40 value 161.567394  
## iter 50 value 160.755430  
## iter 60 value 159.348589  
## iter 70 value 158.926202  
## iter 80 value 158.800528  
## final value 158.797681   
## converged  
## # weights: 85  
## initial value 579.348311   
## iter 10 value 219.079735  
## iter 20 value 202.986602  
## iter 30 value 183.778938  
## iter 40 value 165.647190  
## iter 50 value 158.726426  
## iter 60 value 153.874527  
## iter 70 value 151.038429  
## iter 80 value 150.484087  
## iter 90 value 150.055666  
## iter 100 value 148.676088  
## final value 148.676088   
## stopped after 100 iterations  
## # weights: 99  
## initial value 508.240622   
## iter 10 value 205.748543  
## iter 20 value 171.467226  
## iter 30 value 159.604647  
## iter 40 value 155.181385  
## iter 50 value 154.722097  
## iter 60 value 154.098286  
## iter 70 value 152.152700  
## iter 80 value 148.061750  
## iter 90 value 145.678284  
## iter 100 value 145.026019  
## final value 145.026019   
## stopped after 100 iterations  
## # weights: 113  
## initial value 341.852646   
## iter 10 value 217.388060  
## iter 20 value 210.847658  
## iter 30 value 184.915333  
## iter 40 value 161.601149  
## iter 50 value 154.915117  
## iter 60 value 152.160534  
## iter 70 value 150.302161  
## iter 80 value 149.101745  
## iter 90 value 147.219458  
## iter 100 value 147.006862  
## final value 147.006862   
## stopped after 100 iterations  
## # weights: 127  
## initial value 441.742304   
## iter 10 value 219.388073  
## iter 20 value 191.466715  
## iter 30 value 168.255431  
## iter 40 value 163.084444  
## iter 50 value 156.032199  
## iter 60 value 149.128363  
## iter 70 value 148.298269  
## iter 80 value 146.859785  
## iter 90 value 146.185434  
## iter 100 value 146.028090  
## final value 146.028090   
## stopped after 100 iterations  
## # weights: 141  
## initial value 341.834239   
## iter 10 value 214.295926  
## iter 20 value 188.277831  
## iter 30 value 171.224196  
## iter 40 value 161.055349  
## iter 50 value 156.972396  
## iter 60 value 154.750830  
## iter 70 value 152.708730  
## iter 80 value 149.542076  
## iter 90 value 146.410574  
## iter 100 value 145.122050  
## final value 145.122050   
## stopped after 100 iterations  
## # weights: 155  
## initial value 439.627654   
## iter 10 value 214.964493  
## iter 20 value 188.503333  
## iter 30 value 165.913553  
## iter 40 value 152.690121  
## iter 50 value 148.519085  
## iter 60 value 146.546110  
## iter 70 value 144.848282  
## iter 80 value 143.866127  
## iter 90 value 143.432864  
## iter 100 value 143.189408  
## final value 143.189408   
## stopped after 100 iterations  
## # weights: 169  
## initial value 309.611935   
## iter 10 value 211.475229  
## iter 20 value 188.983281  
## iter 30 value 166.864855  
## iter 40 value 160.574877  
## iter 50 value 156.471688  
## iter 60 value 152.182031  
## iter 70 value 148.906545  
## iter 80 value 147.661770  
## iter 90 value 146.875292  
## iter 100 value 145.810630  
## final value 145.810630   
## stopped after 100 iterations  
## # weights: 15  
## initial value 426.750063   
## iter 10 value 217.820897  
## iter 20 value 205.163689  
## iter 30 value 173.705107  
## iter 40 value 172.348736  
## iter 50 value 172.338387  
## final value 172.338371   
## converged  
## # weights: 29  
## initial value 367.860471   
## iter 10 value 218.641086  
## iter 20 value 211.306401  
## iter 30 value 172.576364  
## iter 40 value 167.879266  
## iter 50 value 167.835908  
## iter 60 value 167.216486  
## iter 70 value 163.253239  
## iter 80 value 163.028416  
## final value 163.027223   
## converged  
## # weights: 43  
## initial value 493.309097   
## iter 10 value 222.845548  
## iter 20 value 208.229918  
## iter 30 value 171.532679  
## iter 40 value 164.096721  
## iter 50 value 162.691504  
## iter 60 value 160.056964  
## iter 70 value 159.327500  
## iter 80 value 159.189591  
## final value 159.189170   
## converged  
## # weights: 57  
## initial value 290.793574   
## iter 10 value 217.832922  
## iter 20 value 193.198058  
## iter 30 value 171.838338  
## iter 40 value 169.254410  
## iter 50 value 169.184102  
## iter 60 value 169.087908  
## final value 169.087904   
## converged  
## # weights: 71  
## initial value 438.763749   
## iter 10 value 221.556799  
## iter 20 value 212.204761  
## iter 30 value 187.010739  
## iter 40 value 167.177216  
## iter 50 value 165.263894  
## iter 60 value 164.548358  
## iter 70 value 164.110144  
## iter 80 value 161.747033  
## iter 90 value 160.548860  
## iter 100 value 159.255220  
## final value 159.255220   
## stopped after 100 iterations  
## # weights: 85  
## initial value 897.183926   
## iter 10 value 218.882358  
## iter 20 value 172.508301  
## iter 30 value 167.626188  
## iter 40 value 164.788789  
## iter 50 value 162.422673  
## iter 60 value 160.766905  
## iter 70 value 157.759032  
## iter 80 value 156.083383  
## iter 90 value 155.666401  
## iter 100 value 155.515554  
## final value 155.515554   
## stopped after 100 iterations  
## # weights: 99  
## initial value 710.014940   
## iter 10 value 214.270035  
## iter 20 value 190.363691  
## iter 30 value 169.184280  
## iter 40 value 168.639684  
## iter 50 value 168.619923  
## iter 60 value 168.617849  
## final value 168.617733   
## converged  
## # weights: 113  
## initial value 572.186193   
## iter 10 value 231.198330  
## iter 20 value 198.204173  
## iter 30 value 181.116678  
## iter 40 value 168.097034  
## iter 50 value 162.281002  
## iter 60 value 160.682738  
## iter 70 value 158.124355  
## iter 80 value 157.367152  
## iter 90 value 156.513826  
## iter 100 value 156.101294  
## final value 156.101294   
## stopped after 100 iterations  
## # weights: 127  
## initial value 606.710699   
## iter 10 value 216.397310  
## iter 20 value 195.780681  
## iter 30 value 171.904441  
## iter 40 value 165.539085  
## iter 50 value 162.868271  
## iter 60 value 161.286856  
## iter 70 value 159.941712  
## iter 80 value 158.470552  
## iter 90 value 157.735837  
## iter 100 value 155.967193  
## final value 155.967193   
## stopped after 100 iterations  
## # weights: 141  
## initial value 759.311765   
## iter 10 value 214.674647  
## iter 20 value 180.732751  
## iter 30 value 168.428623  
## iter 40 value 164.213504  
## iter 50 value 162.687295  
## iter 60 value 161.085799  
## iter 70 value 159.272138  
## iter 80 value 157.599469  
## iter 90 value 156.156898  
## iter 100 value 155.468364  
## final value 155.468364   
## stopped after 100 iterations  
## # weights: 155  
## initial value 358.072096   
## iter 10 value 218.814474  
## iter 20 value 203.964300  
## iter 30 value 180.112072  
## iter 40 value 166.856107  
## iter 50 value 163.809090  
## iter 60 value 161.561205  
## iter 70 value 160.440006  
## iter 80 value 158.740259  
## iter 90 value 156.186481  
## iter 100 value 154.893408  
## final value 154.893408   
## stopped after 100 iterations  
## # weights: 169  
## initial value 293.737444   
## iter 10 value 218.586788  
## iter 20 value 195.518644  
## iter 30 value 178.619513  
## iter 40 value 170.943724  
## iter 50 value 166.680295  
## iter 60 value 163.672855  
## iter 70 value 161.565607  
## iter 80 value 158.841132  
## iter 90 value 157.569395  
## iter 100 value 157.121149  
## final value 157.121149   
## stopped after 100 iterations  
## # weights: 15  
## initial value 745.756108   
## iter 10 value 218.164602  
## iter 20 value 203.234980  
## iter 30 value 177.186275  
## iter 40 value 176.739193  
## final value 176.736711   
## converged  
## # weights: 29  
## initial value 374.810221   
## iter 10 value 212.769612  
## iter 20 value 179.161225  
## iter 30 value 171.252682  
## iter 40 value 170.868688  
## iter 50 value 168.749920  
## iter 60 value 168.304242  
## final value 168.301672   
## converged  
## # weights: 43  
## initial value 314.295716   
## iter 10 value 215.736310  
## iter 20 value 189.564648  
## iter 30 value 171.619269  
## iter 40 value 169.416731  
## iter 50 value 168.196341  
## iter 60 value 166.927474  
## iter 70 value 165.837322  
## iter 80 value 165.361031  
## iter 90 value 165.279055  
## iter 100 value 165.277560  
## final value 165.277560   
## stopped after 100 iterations  
## # weights: 57  
## initial value 312.881378   
## iter 10 value 214.252342  
## iter 20 value 209.084995  
## iter 30 value 182.791307  
## iter 40 value 170.982962  
## iter 50 value 168.433601  
## iter 60 value 165.810614  
## iter 70 value 165.124959  
## iter 80 value 165.018912  
## iter 90 value 164.985178  
## final value 164.980910   
## converged  
## # weights: 71  
## initial value 404.346395   
## iter 10 value 217.788222  
## iter 20 value 210.046151  
## iter 30 value 174.540091  
## iter 40 value 172.193860  
## iter 50 value 169.518495  
## iter 60 value 168.103147  
## iter 70 value 167.961440  
## iter 80 value 166.832841  
## iter 90 value 165.826397  
## iter 100 value 165.260910  
## final value 165.260910   
## stopped after 100 iterations  
## # weights: 85  
## initial value 578.773311   
## iter 10 value 244.935794  
## iter 20 value 214.380261  
## iter 30 value 183.404202  
## iter 40 value 169.084824  
## iter 50 value 166.168662  
## iter 60 value 165.293675  
## iter 70 value 164.433384  
## iter 80 value 164.095990  
## iter 90 value 163.836903  
## iter 100 value 163.671703  
## final value 163.671703   
## stopped after 100 iterations  
## # weights: 99  
## initial value 962.332696   
## iter 10 value 263.918997  
## iter 20 value 183.678887  
## iter 30 value 169.204187  
## iter 40 value 167.861023  
## iter 50 value 167.005729  
## iter 60 value 166.036369  
## iter 70 value 165.725873  
## iter 80 value 164.446932  
## iter 90 value 163.468070  
## iter 100 value 163.226388  
## final value 163.226388   
## stopped after 100 iterations  
## # weights: 113  
## initial value 228.772426   
## iter 10 value 213.846540  
## iter 20 value 185.720573  
## iter 30 value 168.619265  
## iter 40 value 167.498351  
## iter 50 value 166.917633  
## iter 60 value 164.181787  
## iter 70 value 163.365733  
## iter 80 value 163.199433  
## iter 90 value 163.042274  
## iter 100 value 162.832796  
## final value 162.832796   
## stopped after 100 iterations  
## # weights: 127  
## initial value 422.140724   
## iter 10 value 214.316075  
## iter 20 value 191.253687  
## iter 30 value 175.462009  
## iter 40 value 169.644927  
## iter 50 value 166.729219  
## iter 60 value 164.302164  
## iter 70 value 163.361869  
## iter 80 value 163.216865  
## iter 90 value 162.911239  
## iter 100 value 162.611079  
## final value 162.611079   
## stopped after 100 iterations  
## # weights: 141  
## initial value 516.830121   
## iter 10 value 217.742760  
## iter 20 value 201.034921  
## iter 30 value 178.665673  
## iter 40 value 170.987068  
## iter 50 value 168.132836  
## iter 60 value 166.221654  
## iter 70 value 164.679002  
## iter 80 value 163.801908  
## iter 90 value 162.888556  
## iter 100 value 162.428393  
## final value 162.428393   
## stopped after 100 iterations  
## # weights: 155  
## initial value 614.561935   
## iter 10 value 222.122300  
## iter 20 value 210.257710  
## iter 30 value 198.299762  
## iter 40 value 169.746533  
## iter 50 value 166.007866  
## iter 60 value 164.422804  
## iter 70 value 163.622115  
## iter 80 value 163.115569  
## iter 90 value 162.828527  
## iter 100 value 162.634617  
## final value 162.634617   
## stopped after 100 iterations  
## # weights: 169  
## initial value 611.624709   
## iter 10 value 216.316013  
## iter 20 value 211.153704  
## iter 30 value 187.913147  
## iter 40 value 175.375081  
## iter 50 value 169.100494  
## iter 60 value 166.691101  
## iter 70 value 164.859832  
## iter 80 value 163.168555  
## iter 90 value 162.765836  
## iter 100 value 162.381696  
## final value 162.381696   
## stopped after 100 iterations  
## # weights: 15  
## initial value 662.976387   
## iter 10 value 219.810167  
## iter 20 value 185.928248  
## iter 30 value 174.850260  
## iter 40 value 174.203747  
## iter 50 value 174.191808  
## final value 174.191794   
## converged  
## # weights: 29  
## initial value 364.402859   
## iter 10 value 186.329588  
## iter 20 value 175.262991  
## iter 30 value 173.573456  
## iter 40 value 172.134517  
## final value 172.116916   
## converged  
## # weights: 43  
## initial value 374.569900   
## iter 10 value 217.805994  
## iter 20 value 208.473406  
## iter 30 value 185.721016  
## iter 40 value 174.086001  
## iter 50 value 173.338346  
## iter 60 value 172.012736  
## iter 70 value 170.088655  
## iter 80 value 169.730962  
## iter 90 value 169.605304  
## final value 169.605149   
## converged  
## # weights: 57  
## initial value 231.038356   
## iter 10 value 208.783065  
## iter 20 value 175.399652  
## iter 30 value 173.289915  
## iter 40 value 172.596328  
## iter 50 value 172.051767  
## iter 60 value 171.959914  
## iter 70 value 171.700469  
## iter 80 value 169.768612  
## iter 90 value 168.784999  
## iter 100 value 168.323922  
## final value 168.323922   
## stopped after 100 iterations  
## # weights: 71  
## initial value 313.858018   
## iter 10 value 218.983300  
## iter 20 value 206.642444  
## iter 30 value 176.931248  
## iter 40 value 173.327306  
## iter 50 value 172.156594  
## iter 60 value 171.360840  
## iter 70 value 170.404229  
## iter 80 value 169.705321  
## iter 90 value 169.222115  
## iter 100 value 168.757414  
## final value 168.757414   
## stopped after 100 iterations  
## # weights: 85  
## initial value 772.933810   
## iter 10 value 250.988822  
## iter 20 value 215.619604  
## iter 30 value 202.025151  
## iter 40 value 179.991775  
## iter 50 value 172.083682  
## iter 60 value 170.712458  
## iter 70 value 170.209302  
## iter 80 value 169.159222  
## iter 90 value 168.810374  
## iter 100 value 168.490361  
## final value 168.490361   
## stopped after 100 iterations  
## # weights: 99  
## initial value 464.881692   
## iter 10 value 217.513446  
## iter 20 value 210.316530  
## iter 30 value 188.832775  
## iter 40 value 172.629909  
## iter 50 value 169.164003  
## iter 60 value 168.514464  
## iter 70 value 167.926826  
## iter 80 value 167.687543  
## iter 90 value 167.602593  
## iter 100 value 167.581173  
## final value 167.581173   
## stopped after 100 iterations  
## # weights: 113  
## initial value 320.485831   
## iter 10 value 217.998140  
## iter 20 value 193.702555  
## iter 30 value 174.162878  
## iter 40 value 170.587934  
## iter 50 value 169.327629  
## iter 60 value 168.888291  
## iter 70 value 168.516169  
## iter 80 value 168.239106  
## iter 90 value 167.776216  
## iter 100 value 167.669203  
## final value 167.669203   
## stopped after 100 iterations  
## # weights: 127  
## initial value 449.631092   
## iter 10 value 213.950124  
## iter 20 value 190.841834  
## iter 30 value 174.421488  
## iter 40 value 169.789711  
## iter 50 value 168.424469  
## iter 60 value 167.900910  
## iter 70 value 167.465027  
## iter 80 value 167.305015  
## iter 90 value 167.217939  
## iter 100 value 167.055710  
## final value 167.055710   
## stopped after 100 iterations  
## # weights: 141  
## initial value 284.401025   
## iter 10 value 201.732543  
## iter 20 value 179.673941  
## iter 30 value 173.383900  
## iter 40 value 171.562481  
## iter 50 value 170.586943  
## iter 60 value 169.806884  
## iter 70 value 168.352827  
## iter 80 value 167.835291  
## iter 90 value 167.627149  
## iter 100 value 167.536032  
## final value 167.536032   
## stopped after 100 iterations  
## # weights: 155  
## initial value 393.187647   
## iter 10 value 215.980114  
## iter 20 value 200.589820  
## iter 30 value 172.756186  
## iter 40 value 169.561379  
## iter 50 value 168.941619  
## iter 60 value 168.615696  
## iter 70 value 168.269903  
## iter 80 value 167.345928  
## iter 90 value 167.164215  
## iter 100 value 167.084591  
## final value 167.084591   
## stopped after 100 iterations  
## # weights: 169  
## initial value 318.571707   
## iter 10 value 208.146690  
## iter 20 value 185.087824  
## iter 30 value 176.150138  
## iter 40 value 172.570545  
## iter 50 value 171.634472  
## iter 60 value 170.864406  
## iter 70 value 169.318344  
## iter 80 value 167.727150  
## iter 90 value 167.216770  
## iter 100 value 167.031427  
## final value 167.031427   
## stopped after 100 iterations  
## # weights: 15  
## initial value 263.872757   
## iter 10 value 217.364377  
## iter 20 value 211.480378  
## iter 30 value 187.350463  
## iter 40 value 168.667915  
## iter 50 value 167.342708  
## iter 60 value 167.277030  
## final value 167.276975   
## converged  
## # weights: 29  
## initial value 456.270879   
## iter 10 value 213.334202  
## iter 20 value 179.617282  
## iter 30 value 168.279953  
## iter 40 value 166.165193  
## iter 50 value 162.424960  
## iter 60 value 159.754225  
## iter 70 value 158.269626  
## iter 80 value 157.771358  
## iter 90 value 157.725851  
## iter 100 value 157.721425  
## final value 157.721425   
## stopped after 100 iterations  
## # weights: 43  
## initial value 311.923181   
## iter 10 value 210.739950  
## iter 20 value 199.188846  
## iter 30 value 174.537660  
## iter 40 value 164.067656  
## iter 50 value 159.428482  
## iter 60 value 158.121737  
## iter 70 value 157.154153  
## iter 80 value 157.108835  
## final value 157.105951   
## converged  
## # weights: 57  
## initial value 359.278400   
## iter 10 value 215.618250  
## iter 20 value 181.036943  
## iter 30 value 171.110924  
## iter 40 value 161.972451  
## iter 50 value 153.842715  
## iter 60 value 151.315924  
## iter 70 value 150.867295  
## iter 80 value 150.456472  
## iter 90 value 150.047005  
## iter 100 value 147.930821  
## final value 147.930821   
## stopped after 100 iterations  
## # weights: 71  
## initial value 818.850195   
## iter 10 value 211.435075  
## iter 20 value 181.952949  
## iter 30 value 170.196485  
## iter 40 value 160.350263  
## iter 50 value 155.625094  
## iter 60 value 153.075990  
## iter 70 value 148.541724  
## iter 80 value 142.802844  
## iter 90 value 139.626989  
## iter 100 value 139.079755  
## final value 139.079755   
## stopped after 100 iterations  
## # weights: 85  
## initial value 493.388035   
## iter 10 value 214.184058  
## iter 20 value 188.289456  
## iter 30 value 164.119423  
## iter 40 value 156.694039  
## iter 50 value 153.759974  
## iter 60 value 149.653618  
## iter 70 value 146.994651  
## iter 80 value 145.371643  
## iter 90 value 144.371888  
## iter 100 value 141.162407  
## final value 141.162407   
## stopped after 100 iterations  
## # weights: 99  
## initial value 358.441701   
## iter 10 value 207.625136  
## iter 20 value 180.591803  
## iter 30 value 167.712010  
## iter 40 value 158.033240  
## iter 50 value 149.988871  
## iter 60 value 144.022480  
## iter 70 value 136.055611  
## iter 80 value 133.913482  
## iter 90 value 132.297898  
## iter 100 value 130.726930  
## final value 130.726930   
## stopped after 100 iterations  
## # weights: 113  
## initial value 301.705058   
## iter 10 value 208.381568  
## iter 20 value 199.307018  
## iter 30 value 167.375163  
## iter 40 value 163.169207  
## iter 50 value 159.721556  
## iter 60 value 154.899487  
## iter 70 value 147.610213  
## iter 80 value 144.391983  
## iter 90 value 141.569837  
## iter 100 value 140.625391  
## final value 140.625391   
## stopped after 100 iterations  
## # weights: 127  
## initial value 558.411067   
## iter 10 value 198.074779  
## iter 20 value 168.843065  
## iter 30 value 166.698887  
## iter 40 value 163.800462  
## iter 50 value 158.212022  
## iter 60 value 151.626360  
## iter 70 value 146.433674  
## iter 80 value 138.104357  
## iter 90 value 135.029965  
## iter 100 value 130.299153  
## final value 130.299153   
## stopped after 100 iterations  
## # weights: 141  
## initial value 672.641593   
## iter 10 value 203.356460  
## iter 20 value 180.655043  
## iter 30 value 165.476459  
## iter 40 value 155.730097  
## iter 50 value 153.728693  
## iter 60 value 146.741789  
## iter 70 value 141.802715  
## iter 80 value 137.646514  
## iter 90 value 134.579365  
## iter 100 value 131.873781  
## final value 131.873781   
## stopped after 100 iterations  
## # weights: 155  
## initial value 427.907252   
## iter 10 value 213.723680  
## iter 20 value 209.212789  
## iter 30 value 190.997817  
## iter 40 value 165.700895  
## iter 50 value 152.906063  
## iter 60 value 143.943483  
## iter 70 value 137.883307  
## iter 80 value 135.284656  
## iter 90 value 131.498095  
## iter 100 value 128.606626  
## final value 128.606626   
## stopped after 100 iterations  
## # weights: 169  
## initial value 265.529338   
## iter 10 value 213.214262  
## iter 20 value 191.317371  
## iter 30 value 170.137522  
## iter 40 value 160.467350  
## iter 50 value 146.994045  
## iter 60 value 137.820976  
## iter 70 value 132.073633  
## iter 80 value 129.708222  
## iter 90 value 128.358048  
## iter 100 value 125.059970  
## final value 125.059970   
## stopped after 100 iterations  
## # weights: 15  
## initial value 332.744057   
## iter 10 value 217.679212  
## iter 20 value 205.899930  
## iter 30 value 175.803860  
## iter 40 value 174.025522  
## iter 50 value 173.986724  
## final value 173.986699   
## converged  
## # weights: 29  
## initial value 300.473114   
## iter 10 value 216.577544  
## iter 20 value 182.548232  
## iter 30 value 173.842812  
## iter 40 value 172.982453  
## iter 50 value 172.438260  
## iter 60 value 172.426674  
## iter 70 value 172.352890  
## iter 80 value 172.315544  
## final value 172.314738   
## converged  
## # weights: 43  
## initial value 328.025029   
## iter 10 value 214.462748  
## iter 20 value 196.607603  
## iter 30 value 173.748745  
## iter 40 value 171.023503  
## iter 50 value 169.030932  
## iter 60 value 166.627919  
## iter 70 value 164.144110  
## iter 80 value 161.498926  
## iter 90 value 160.272517  
## iter 100 value 159.843645  
## final value 159.843645   
## stopped after 100 iterations  
## # weights: 57  
## initial value 395.181176   
## iter 10 value 194.536182  
## iter 20 value 172.429723  
## iter 30 value 167.543606  
## iter 40 value 166.562768  
## iter 50 value 165.932882  
## iter 60 value 165.117032  
## iter 70 value 163.923497  
## iter 80 value 163.889094  
## iter 90 value 163.887834  
## final value 163.887029   
## converged  
## # weights: 71  
## initial value 444.971338   
## iter 10 value 212.225076  
## iter 20 value 194.280362  
## iter 30 value 172.407202  
## iter 40 value 170.474894  
## iter 50 value 164.868883  
## iter 60 value 162.606035  
## iter 70 value 161.858839  
## iter 80 value 160.192379  
## iter 90 value 157.289751  
## iter 100 value 152.834739  
## final value 152.834739   
## stopped after 100 iterations  
## # weights: 85  
## initial value 370.852395   
## iter 10 value 213.450356  
## iter 20 value 196.334763  
## iter 30 value 171.395538  
## iter 40 value 165.963290  
## iter 50 value 160.864423  
## iter 60 value 156.965049  
## iter 70 value 154.588476  
## iter 80 value 151.767503  
## iter 90 value 150.511702  
## iter 100 value 150.121192  
## final value 150.121192   
## stopped after 100 iterations  
## # weights: 99  
## initial value 475.600639   
## iter 10 value 226.166600  
## iter 20 value 215.451671  
## iter 30 value 195.867220  
## iter 40 value 174.476922  
## iter 50 value 167.079502  
## iter 60 value 165.507740  
## iter 70 value 164.484735  
## iter 80 value 163.186197  
## iter 90 value 162.187547  
## iter 100 value 162.006057  
## final value 162.006057   
## stopped after 100 iterations  
## # weights: 113  
## initial value 456.208203   
## iter 10 value 213.085973  
## iter 20 value 193.733760  
## iter 30 value 175.726043  
## iter 40 value 168.056456  
## iter 50 value 167.102082  
## iter 60 value 163.962147  
## iter 70 value 163.072733  
## iter 80 value 162.314552  
## iter 90 value 161.592639  
## iter 100 value 159.889345  
## final value 159.889345   
## stopped after 100 iterations  
## # weights: 127  
## initial value 866.524246   
## iter 10 value 212.869032  
## iter 20 value 195.415692  
## iter 30 value 185.443995  
## iter 40 value 168.915954  
## iter 50 value 164.972527  
## iter 60 value 162.418107  
## iter 70 value 156.349387  
## iter 80 value 152.898433  
## iter 90 value 151.648609  
## iter 100 value 150.880126  
## final value 150.880126   
## stopped after 100 iterations  
## # weights: 141  
## initial value 411.555285   
## iter 10 value 214.508963  
## iter 20 value 178.180686  
## iter 30 value 170.954139  
## iter 40 value 166.886275  
## iter 50 value 163.351920  
## iter 60 value 161.311362  
## iter 70 value 159.059469  
## iter 80 value 156.451770  
## iter 90 value 154.668479  
## iter 100 value 152.069337  
## final value 152.069337   
## stopped after 100 iterations  
## # weights: 155  
## initial value 662.649649   
## iter 10 value 208.582396  
## iter 20 value 178.861849  
## iter 30 value 167.411003  
## iter 40 value 161.378573  
## iter 50 value 156.467233  
## iter 60 value 153.181529  
## iter 70 value 150.068918  
## iter 80 value 148.393364  
## iter 90 value 147.261883  
## iter 100 value 146.703666  
## final value 146.703666   
## stopped after 100 iterations  
## # weights: 169  
## initial value 829.730323   
## iter 10 value 217.606563  
## iter 20 value 181.441744  
## iter 30 value 170.074671  
## iter 40 value 167.797131  
## iter 50 value 164.591695  
## iter 60 value 162.032416  
## iter 70 value 160.555219  
## iter 80 value 158.957388  
## iter 90 value 155.148341  
## iter 100 value 152.942098  
## final value 152.942098   
## stopped after 100 iterations  
## # weights: 15  
## initial value 599.204634   
## iter 10 value 214.668365  
## iter 20 value 192.483771  
## iter 30 value 178.783952  
## iter 40 value 178.409364  
## final value 178.409014   
## converged  
## # weights: 29  
## initial value 361.120806   
## iter 10 value 217.607285  
## iter 20 value 208.454610  
## iter 30 value 182.363646  
## iter 40 value 174.270940  
## iter 50 value 173.928647  
## iter 60 value 172.921886  
## iter 70 value 171.738279  
## iter 80 value 171.408150  
## iter 90 value 171.403789  
## final value 171.402839   
## converged  
## # weights: 43  
## initial value 319.199603   
## iter 10 value 229.743569  
## iter 20 value 210.583233  
## iter 30 value 195.175066  
## iter 40 value 173.891630  
## iter 50 value 171.290397  
## iter 60 value 170.844578  
## iter 70 value 170.544116  
## iter 80 value 168.870295  
## iter 90 value 167.856367  
## iter 100 value 167.641116  
## final value 167.641116   
## stopped after 100 iterations  
## # weights: 57  
## initial value 317.497440   
## iter 10 value 215.052115  
## iter 20 value 192.390729  
## iter 30 value 174.784024  
## iter 40 value 171.723224  
## iter 50 value 170.998103  
## iter 60 value 170.644108  
## iter 70 value 168.503285  
## iter 80 value 167.128921  
## iter 90 value 166.364686  
## iter 100 value 163.948502  
## final value 163.948502   
## stopped after 100 iterations  
## # weights: 71  
## initial value 979.799147   
## iter 10 value 245.960975  
## iter 20 value 218.270826  
## iter 30 value 181.965487  
## iter 40 value 174.458668  
## iter 50 value 170.323420  
## iter 60 value 168.511419  
## iter 70 value 167.507719  
## iter 80 value 167.327128  
## iter 90 value 167.119213  
## iter 100 value 165.971395  
## final value 165.971395   
## stopped after 100 iterations  
## # weights: 85  
## initial value 303.862246   
## iter 10 value 206.917676  
## iter 20 value 181.324049  
## iter 30 value 173.061275  
## iter 40 value 168.606723  
## iter 50 value 166.656592  
## iter 60 value 165.206940  
## iter 70 value 164.231211  
## iter 80 value 163.409313  
## iter 90 value 161.242073  
## iter 100 value 160.987157  
## final value 160.987157   
## stopped after 100 iterations  
## # weights: 99  
## initial value 226.762562   
## iter 10 value 211.598144  
## iter 20 value 198.264438  
## iter 30 value 178.547595  
## iter 40 value 170.875743  
## iter 50 value 166.333764  
## iter 60 value 164.877039  
## iter 70 value 164.197507  
## iter 80 value 163.949604  
## iter 90 value 163.813233  
## iter 100 value 163.642171  
## final value 163.642171   
## stopped after 100 iterations  
## # weights: 113  
## initial value 564.694863   
## iter 10 value 226.251715  
## iter 20 value 199.959500  
## iter 30 value 180.329962  
## iter 40 value 171.849009  
## iter 50 value 167.141138  
## iter 60 value 166.261700  
## iter 70 value 165.834558  
## iter 80 value 164.805665  
## iter 90 value 163.727495  
## iter 100 value 162.831753  
## final value 162.831753   
## stopped after 100 iterations  
## # weights: 127  
## initial value 321.670249   
## iter 10 value 204.646051  
## iter 20 value 183.795569  
## iter 30 value 171.767490  
## iter 40 value 167.563756  
## iter 50 value 166.890329  
## iter 60 value 165.488913  
## iter 70 value 161.953768  
## iter 80 value 160.704819  
## iter 90 value 160.549477  
## iter 100 value 160.522435  
## final value 160.522435   
## stopped after 100 iterations  
## # weights: 141  
## initial value 402.380525   
## iter 10 value 211.818632  
## iter 20 value 199.821682  
## iter 30 value 178.076698  
## iter 40 value 167.780430  
## iter 50 value 162.962697  
## iter 60 value 160.547380  
## iter 70 value 159.809837  
## iter 80 value 159.437643  
## iter 90 value 159.223817  
## iter 100 value 159.073178  
## final value 159.073178   
## stopped after 100 iterations  
## # weights: 155  
## initial value 232.987405   
## iter 10 value 217.198004  
## iter 20 value 199.860739  
## iter 30 value 178.132775  
## iter 40 value 170.018654  
## iter 50 value 167.638277  
## iter 60 value 166.747001  
## iter 70 value 166.327579  
## iter 80 value 166.000250  
## iter 90 value 165.575286  
## iter 100 value 163.440224  
## final value 163.440224   
## stopped after 100 iterations  
## # weights: 169  
## initial value 1040.274651   
## iter 10 value 213.310225  
## iter 20 value 194.637823  
## iter 30 value 174.460290  
## iter 40 value 169.674544  
## iter 50 value 167.864767  
## iter 60 value 167.045771  
## iter 70 value 165.566694  
## iter 80 value 163.238863  
## iter 90 value 161.810822  
## iter 100 value 160.835851  
## final value 160.835851   
## stopped after 100 iterations  
## # weights: 15  
## initial value 364.598640   
## iter 10 value 217.877222  
## iter 20 value 207.412881  
## iter 30 value 178.039802  
## iter 40 value 177.006587  
## final value 177.006101   
## converged  
## # weights: 29  
## initial value 512.399282   
## iter 10 value 225.195285  
## iter 20 value 184.822906  
## iter 30 value 178.492079  
## iter 40 value 177.123584  
## iter 50 value 175.269216  
## iter 60 value 174.450948  
## iter 70 value 174.342616  
## iter 80 value 174.333828  
## final value 174.333817   
## converged  
## # weights: 43  
## initial value 393.351351   
## iter 10 value 219.472245  
## iter 20 value 199.009735  
## iter 30 value 180.745257  
## iter 40 value 179.339292  
## iter 50 value 178.846547  
## iter 60 value 178.767015  
## final value 178.762120   
## converged  
## # weights: 57  
## initial value 440.009848   
## iter 10 value 223.016773  
## iter 20 value 199.355773  
## iter 30 value 177.452593  
## iter 40 value 175.947610  
## iter 50 value 175.461768  
## iter 60 value 175.202621  
## iter 70 value 173.766696  
## iter 80 value 171.747729  
## iter 90 value 170.883778  
## iter 100 value 169.451532  
## final value 169.451532   
## stopped after 100 iterations  
## # weights: 71  
## initial value 755.635614   
## iter 10 value 245.087330  
## iter 20 value 219.917942  
## iter 30 value 201.888977  
## iter 40 value 194.465829  
## iter 50 value 182.274418  
## iter 60 value 177.570722  
## iter 70 value 175.975713  
## iter 80 value 175.377624  
## iter 90 value 174.583095  
## iter 100 value 173.683159  
## final value 173.683159   
## stopped after 100 iterations  
## # weights: 85  
## initial value 297.162548   
## iter 10 value 217.161011  
## iter 20 value 196.138923  
## iter 30 value 177.863956  
## iter 40 value 174.846200  
## iter 50 value 174.263755  
## iter 60 value 174.027084  
## iter 70 value 173.398759  
## iter 80 value 172.527099  
## iter 90 value 171.807968  
## iter 100 value 169.520020  
## final value 169.520020   
## stopped after 100 iterations  
## # weights: 99  
## initial value 356.154988   
## iter 10 value 210.118281  
## iter 20 value 197.924217  
## iter 30 value 178.539786  
## iter 40 value 173.445287  
## iter 50 value 172.421789  
## iter 60 value 171.626457  
## iter 70 value 171.174268  
## iter 80 value 170.489436  
## iter 90 value 170.142689  
## iter 100 value 169.697762  
## final value 169.697762   
## stopped after 100 iterations  
## # weights: 113  
## initial value 314.315062   
## iter 10 value 215.511342  
## iter 20 value 201.943193  
## iter 30 value 180.435471  
## iter 40 value 175.525110  
## iter 50 value 174.824670  
## iter 60 value 174.203121  
## iter 70 value 173.733354  
## iter 80 value 172.439807  
## iter 90 value 171.108840  
## iter 100 value 170.720161  
## final value 170.720161   
## stopped after 100 iterations  
## # weights: 127  
## initial value 324.242912   
## iter 10 value 214.367283  
## iter 20 value 194.273720  
## iter 30 value 178.197290  
## iter 40 value 174.937508  
## iter 50 value 174.166464  
## iter 60 value 173.013743  
## iter 70 value 170.917275  
## iter 80 value 169.955659  
## iter 90 value 169.772982  
## iter 100 value 169.101287  
## final value 169.101287   
## stopped after 100 iterations  
## # weights: 141  
## initial value 544.111525   
## iter 10 value 214.974835  
## iter 20 value 199.256846  
## iter 30 value 180.530508  
## iter 40 value 171.970708  
## iter 50 value 170.827358  
## iter 60 value 169.569321  
## iter 70 value 168.961674  
## iter 80 value 168.326864  
## iter 90 value 168.173392  
## iter 100 value 167.958476  
## final value 167.958476   
## stopped after 100 iterations  
## # weights: 155  
## initial value 453.446794   
## iter 10 value 217.395896  
## iter 20 value 203.087686  
## iter 30 value 178.181762  
## iter 40 value 173.564923  
## iter 50 value 172.492569  
## iter 60 value 170.888497  
## iter 70 value 169.966144  
## iter 80 value 168.901510  
## iter 90 value 168.412314  
## iter 100 value 167.920794  
## final value 167.920794   
## stopped after 100 iterations  
## # weights: 169  
## initial value 320.037040   
## iter 10 value 207.149848  
## iter 20 value 189.475759  
## iter 30 value 178.319300  
## iter 40 value 175.081176  
## iter 50 value 172.939457  
## iter 60 value 170.934842  
## iter 70 value 169.892004  
## iter 80 value 169.175596  
## iter 90 value 168.293820  
## iter 100 value 168.115097  
## final value 168.115097   
## stopped after 100 iterations  
## # weights: 15  
## initial value 415.470910   
## iter 10 value 219.050307  
## iter 20 value 214.119836  
## iter 30 value 189.572638  
## iter 40 value 186.159219  
## iter 50 value 186.145961  
## final value 186.145789   
## converged  
## # weights: 29  
## initial value 353.207940   
## iter 10 value 219.465317  
## iter 20 value 210.120766  
## iter 30 value 186.413998  
## iter 40 value 180.238062  
## iter 50 value 180.069480  
## iter 60 value 178.843620  
## iter 70 value 177.711774  
## final value 177.709566   
## converged  
## # weights: 43  
## initial value 567.712582   
## iter 10 value 223.341167  
## iter 20 value 194.854244  
## iter 30 value 180.686244  
## iter 40 value 179.328672  
## iter 50 value 178.005593  
## iter 60 value 177.870579  
## iter 70 value 176.922031  
## iter 80 value 175.578546  
## iter 90 value 175.352957  
## iter 100 value 175.338287  
## final value 175.338287   
## stopped after 100 iterations  
## # weights: 57  
## initial value 358.090881   
## iter 10 value 213.142432  
## iter 20 value 186.045383  
## iter 30 value 179.750817  
## iter 40 value 178.847989  
## iter 50 value 178.222047  
## iter 60 value 178.076591  
## iter 70 value 177.834958  
## iter 80 value 177.140191  
## iter 90 value 176.459795  
## iter 100 value 175.835377  
## final value 175.835377   
## stopped after 100 iterations  
## # weights: 71  
## initial value 409.564640   
## iter 10 value 199.756562  
## iter 20 value 178.633218  
## iter 30 value 177.649443  
## iter 40 value 177.570748  
## iter 50 value 177.544386  
## iter 60 value 177.517218  
## iter 70 value 177.465250  
## iter 80 value 176.925135  
## iter 90 value 174.890850  
## iter 100 value 174.425173  
## final value 174.425173   
## stopped after 100 iterations  
## # weights: 85  
## initial value 540.744642   
## iter 10 value 218.111310  
## iter 20 value 210.124256  
## iter 30 value 191.263519  
## iter 40 value 181.527629  
## iter 50 value 177.471147  
## iter 60 value 175.650273  
## iter 70 value 175.152174  
## iter 80 value 174.930907  
## iter 90 value 174.635532  
## iter 100 value 173.791804  
## final value 173.791804   
## stopped after 100 iterations  
## # weights: 99  
## initial value 568.048232   
## iter 10 value 229.229322  
## iter 20 value 209.281486  
## iter 30 value 189.218880  
## iter 40 value 180.733311  
## iter 50 value 177.459472  
## iter 60 value 176.064587  
## iter 70 value 175.731051  
## iter 80 value 175.420567  
## iter 90 value 174.870199  
## iter 100 value 174.445541  
## final value 174.445541   
## stopped after 100 iterations  
## # weights: 113  
## initial value 542.057708   
## iter 10 value 232.156395  
## iter 20 value 195.894381  
## iter 30 value 180.624515  
## iter 40 value 177.735346  
## iter 50 value 176.250474  
## iter 60 value 174.965061  
## iter 70 value 174.654633  
## iter 80 value 174.524109  
## iter 90 value 174.329737  
## iter 100 value 174.080668  
## final value 174.080668   
## stopped after 100 iterations  
## # weights: 127  
## initial value 853.325508   
## iter 10 value 214.819557  
## iter 20 value 208.285391  
## iter 30 value 184.340010  
## iter 40 value 178.676304  
## iter 50 value 175.889986  
## iter 60 value 174.672271  
## iter 70 value 174.343024  
## iter 80 value 173.901840  
## iter 90 value 173.382323  
## iter 100 value 172.980265  
## final value 172.980265   
## stopped after 100 iterations  
## # weights: 141  
## initial value 306.981444   
## iter 10 value 216.966274  
## iter 20 value 211.881633  
## iter 30 value 189.256349  
## iter 40 value 178.041589  
## iter 50 value 176.811356  
## iter 60 value 175.558311  
## iter 70 value 174.744082  
## iter 80 value 173.699642  
## iter 90 value 172.975611  
## iter 100 value 172.767525  
## final value 172.767525   
## stopped after 100 iterations  
## # weights: 155  
## initial value 768.107325   
## iter 10 value 217.477045  
## iter 20 value 210.834027  
## iter 30 value 189.137848  
## iter 40 value 178.188675  
## iter 50 value 176.346789  
## iter 60 value 175.966257  
## iter 70 value 175.779968  
## iter 80 value 175.571179  
## iter 90 value 174.964289  
## iter 100 value 174.768254  
## final value 174.768254   
## stopped after 100 iterations  
## # weights: 169  
## initial value 718.144531   
## iter 10 value 218.389880  
## iter 20 value 205.596792  
## iter 30 value 186.669196  
## iter 40 value 178.306583  
## iter 50 value 176.180563  
## iter 60 value 175.346511  
## iter 70 value 174.749494  
## iter 80 value 174.152919  
## iter 90 value 173.964044  
## iter 100 value 173.794654  
## final value 173.794654   
## stopped after 100 iterations  
## # weights: 15  
## initial value 574.435049   
## iter 10 value 219.506182  
## iter 20 value 215.734217  
## iter 30 value 189.236970  
## iter 40 value 170.014896  
## iter 50 value 168.588388  
## iter 60 value 168.546105  
## final value 168.544907   
## converged  
## # weights: 29  
## initial value 489.998696   
## iter 10 value 213.360589  
## iter 20 value 174.364968  
## iter 30 value 167.746023  
## iter 40 value 165.190461  
## iter 50 value 160.260590  
## iter 60 value 158.431536  
## iter 70 value 157.764503  
## iter 80 value 155.724929  
## iter 90 value 155.595803  
## final value 155.595389   
## converged  
## # weights: 43  
## initial value 270.796760   
## iter 10 value 214.341273  
## iter 20 value 196.190706  
## iter 30 value 162.203688  
## iter 40 value 159.747258  
## iter 50 value 155.935398  
## iter 60 value 153.860302  
## iter 70 value 153.320042  
## iter 80 value 153.207678  
## iter 90 value 152.990064  
## iter 100 value 152.872542  
## final value 152.872542   
## stopped after 100 iterations  
## # weights: 57  
## initial value 357.434637   
## iter 10 value 219.147168  
## iter 20 value 210.513991  
## iter 30 value 185.131212  
## iter 40 value 162.419800  
## iter 50 value 159.830762  
## iter 60 value 153.716300  
## iter 70 value 151.126467  
## iter 80 value 149.534162  
## iter 90 value 148.518283  
## iter 100 value 148.425425  
## final value 148.425425   
## stopped after 100 iterations  
## # weights: 71  
## initial value 473.228410   
## iter 10 value 224.411700  
## iter 20 value 184.440344  
## iter 30 value 169.200110  
## iter 40 value 163.495200  
## iter 50 value 156.623314  
## iter 60 value 153.423023  
## iter 70 value 152.706855  
## iter 80 value 150.676934  
## iter 90 value 148.539439  
## iter 100 value 147.858384  
## final value 147.858384   
## stopped after 100 iterations  
## # weights: 85  
## initial value 285.938235   
## iter 10 value 213.716293  
## iter 20 value 180.725767  
## iter 30 value 165.814276  
## iter 40 value 162.083618  
## iter 50 value 155.101734  
## iter 60 value 150.204220  
## iter 70 value 146.755312  
## iter 80 value 143.101448  
## iter 90 value 140.960871  
## iter 100 value 139.787876  
## final value 139.787876   
## stopped after 100 iterations  
## # weights: 99  
## initial value 314.741694   
## iter 10 value 198.214642  
## iter 20 value 170.696241  
## iter 30 value 166.758895  
## iter 40 value 159.707770  
## iter 50 value 156.451401  
## iter 60 value 154.790912  
## iter 70 value 153.305297  
## iter 80 value 151.388094  
## iter 90 value 146.501526  
## iter 100 value 142.260330  
## final value 142.260330   
## stopped after 100 iterations  
## # weights: 113  
## initial value 302.089563   
## iter 10 value 200.894032  
## iter 20 value 169.284066  
## iter 30 value 160.775812  
## iter 40 value 152.726651  
## iter 50 value 148.076543  
## iter 60 value 145.466265  
## iter 70 value 140.843002  
## iter 80 value 138.278051  
## iter 90 value 136.714194  
## iter 100 value 133.132726  
## final value 133.132726   
## stopped after 100 iterations  
## # weights: 127  
## initial value 458.062673   
## iter 10 value 215.323936  
## iter 20 value 189.319041  
## iter 30 value 170.865198  
## iter 40 value 160.899700  
## iter 50 value 154.693911  
## iter 60 value 150.390980  
## iter 70 value 147.255148  
## iter 80 value 144.200556  
## iter 90 value 141.654904  
## iter 100 value 139.958808  
## final value 139.958808   
## stopped after 100 iterations  
## # weights: 141  
## initial value 240.878012   
## iter 10 value 214.068304  
## iter 20 value 178.818603  
## iter 30 value 163.381391  
## iter 40 value 158.647522  
## iter 50 value 153.008416  
## iter 60 value 150.138168  
## iter 70 value 147.387548  
## iter 80 value 143.000610  
## iter 90 value 138.962480  
## iter 100 value 136.024103  
## final value 136.024103   
## stopped after 100 iterations  
## # weights: 155  
## initial value 247.740246   
## iter 10 value 189.251518  
## iter 20 value 172.917863  
## iter 30 value 165.452214  
## iter 40 value 161.919350  
## iter 50 value 151.711253  
## iter 60 value 147.812771  
## iter 70 value 140.259620  
## iter 80 value 136.804025  
## iter 90 value 135.713572  
## iter 100 value 133.706736  
## final value 133.706736   
## stopped after 100 iterations  
## # weights: 169  
## initial value 647.317377   
## iter 10 value 220.414400  
## iter 20 value 205.321435  
## iter 30 value 173.598161  
## iter 40 value 164.674254  
## iter 50 value 159.448936  
## iter 60 value 152.271096  
## iter 70 value 146.416268  
## iter 80 value 143.980966  
## iter 90 value 141.596087  
## iter 100 value 139.375503  
## final value 139.375503   
## stopped after 100 iterations  
## # weights: 15  
## initial value 529.591071   
## iter 10 value 216.082577  
## iter 20 value 196.459339  
## iter 30 value 174.241540  
## iter 40 value 170.810156  
## iter 50 value 170.236477  
## final value 170.233226   
## converged  
## # weights: 29  
## initial value 368.759785   
## iter 10 value 219.228608  
## iter 20 value 209.532012  
## iter 30 value 173.787712  
## iter 40 value 170.388927  
## iter 50 value 170.322215  
## iter 60 value 170.223299  
## iter 70 value 169.662445  
## iter 80 value 165.211600  
## iter 90 value 164.526014  
## iter 100 value 164.391788  
## final value 164.391788   
## stopped after 100 iterations  
## # weights: 43  
## initial value 344.220367   
## iter 10 value 218.438635  
## iter 20 value 203.790632  
## iter 30 value 179.965797  
## iter 40 value 170.019532  
## iter 50 value 167.798109  
## iter 60 value 162.167926  
## iter 70 value 159.599239  
## iter 80 value 159.440850  
## iter 90 value 159.367734  
## iter 100 value 159.337975  
## final value 159.337975   
## stopped after 100 iterations  
## # weights: 57  
## initial value 278.486307   
## iter 10 value 220.820019  
## iter 20 value 189.355742  
## iter 30 value 170.829045  
## iter 40 value 165.483028  
## iter 50 value 161.283504  
## iter 60 value 160.720582  
## iter 70 value 159.247927  
## iter 80 value 158.995955  
## iter 90 value 158.176145  
## iter 100 value 157.320472  
## final value 157.320472   
## stopped after 100 iterations  
## # weights: 71  
## initial value 411.204543   
## iter 10 value 213.095502  
## iter 20 value 178.483980  
## iter 30 value 171.589240  
## iter 40 value 169.769460  
## iter 50 value 165.332323  
## iter 60 value 163.123908  
## iter 70 value 161.248600  
## iter 80 value 160.881501  
## iter 90 value 160.362240  
## iter 100 value 158.954538  
## final value 158.954538   
## stopped after 100 iterations  
## # weights: 85  
## initial value 448.114012   
## iter 10 value 216.424557  
## iter 20 value 202.973472  
## iter 30 value 171.478385  
## iter 40 value 168.943782  
## iter 50 value 167.735147  
## iter 60 value 167.066882  
## iter 70 value 165.788199  
## iter 80 value 161.782581  
## iter 90 value 158.790751  
## iter 100 value 156.648961  
## final value 156.648961   
## stopped after 100 iterations  
## # weights: 99  
## initial value 456.186861   
## iter 10 value 213.562544  
## iter 20 value 191.145105  
## iter 30 value 179.341169  
## iter 40 value 167.178739  
## iter 50 value 163.066900  
## iter 60 value 159.270791  
## iter 70 value 155.514320  
## iter 80 value 154.741132  
## iter 90 value 154.611656  
## iter 100 value 154.583979  
## final value 154.583979   
## stopped after 100 iterations  
## # weights: 113  
## initial value 583.550248   
## iter 10 value 214.919741  
## iter 20 value 202.743534  
## iter 30 value 174.860895  
## iter 40 value 170.785315  
## iter 50 value 166.691404  
## iter 60 value 164.124197  
## iter 70 value 162.457679  
## iter 80 value 161.405399  
## iter 90 value 159.320098  
## iter 100 value 157.615752  
## final value 157.615752   
## stopped after 100 iterations  
## # weights: 127  
## initial value 600.390374   
## iter 10 value 215.872050  
## iter 20 value 203.630697  
## iter 30 value 178.738067  
## iter 40 value 170.571594  
## iter 50 value 167.221363  
## iter 60 value 163.654410  
## iter 70 value 161.932625  
## iter 80 value 157.252308  
## iter 90 value 155.562164  
## iter 100 value 155.190544  
## final value 155.190544   
## stopped after 100 iterations  
## # weights: 141  
## initial value 625.593043   
## iter 10 value 218.739101  
## iter 20 value 183.633047  
## iter 30 value 171.725717  
## iter 40 value 169.237827  
## iter 50 value 166.042317  
## iter 60 value 163.679186  
## iter 70 value 161.313554  
## iter 80 value 157.275247  
## iter 90 value 153.422245  
## iter 100 value 151.556599  
## final value 151.556599   
## stopped after 100 iterations  
## # weights: 155  
## initial value 440.169031   
## iter 10 value 211.121719  
## iter 20 value 187.384390  
## iter 30 value 169.076691  
## iter 40 value 160.312257  
## iter 50 value 157.222922  
## iter 60 value 155.158679  
## iter 70 value 153.299792  
## iter 80 value 152.508519  
## iter 90 value 152.043325  
## iter 100 value 151.790085  
## final value 151.790085   
## stopped after 100 iterations  
## # weights: 169  
## initial value 602.669764   
## iter 10 value 217.347014  
## iter 20 value 199.170353  
## iter 30 value 179.857039  
## iter 40 value 173.488027  
## iter 50 value 168.672549  
## iter 60 value 165.740733  
## iter 70 value 163.851325  
## iter 80 value 161.188163  
## iter 90 value 160.036711  
## iter 100 value 157.553623  
## final value 157.553623   
## stopped after 100 iterations  
## # weights: 15  
## initial value 295.956970   
## iter 10 value 220.485928  
## iter 20 value 212.648897  
## iter 30 value 177.659429  
## iter 40 value 173.441846  
## iter 50 value 173.420614  
## final value 173.420347   
## converged  
## # weights: 29  
## initial value 383.210707   
## iter 10 value 217.620196  
## iter 20 value 196.217931  
## iter 30 value 180.179160  
## iter 40 value 177.733310  
## iter 50 value 176.688102  
## iter 60 value 176.661151  
## final value 176.661143   
## converged  
## # weights: 43  
## initial value 531.742531   
## iter 10 value 219.298191  
## iter 20 value 190.904734  
## iter 30 value 172.888494  
## iter 40 value 171.242591  
## iter 50 value 169.460043  
## iter 60 value 167.570202  
## iter 70 value 167.233087  
## iter 80 value 167.230945  
## final value 167.230795   
## converged  
## # weights: 57  
## initial value 496.175604   
## iter 10 value 223.469570  
## iter 20 value 191.045174  
## iter 30 value 181.498059  
## iter 40 value 173.410645  
## iter 50 value 169.893775  
## iter 60 value 169.792746  
## iter 70 value 169.479964  
## iter 80 value 168.553658  
## iter 90 value 167.089515  
## iter 100 value 166.866652  
## final value 166.866652   
## stopped after 100 iterations  
## # weights: 71  
## initial value 524.218147   
## iter 10 value 225.364155  
## iter 20 value 189.765985  
## iter 30 value 176.346381  
## iter 40 value 175.679560  
## iter 50 value 174.013164  
## iter 60 value 171.239583  
## iter 70 value 170.145084  
## iter 80 value 170.090600  
## iter 90 value 170.018829  
## iter 100 value 168.767430  
## final value 168.767430   
## stopped after 100 iterations  
## # weights: 85  
## initial value 373.160146   
## iter 10 value 216.579329  
## iter 20 value 185.581794  
## iter 30 value 174.242468  
## iter 40 value 171.718549  
## iter 50 value 170.181879  
## iter 60 value 169.093394  
## iter 70 value 165.390259  
## iter 80 value 163.652759  
## iter 90 value 162.631991  
## iter 100 value 162.316891  
## final value 162.316891   
## stopped after 100 iterations  
## # weights: 99  
## initial value 1293.410174   
## iter 10 value 307.075137  
## iter 20 value 222.307015  
## iter 30 value 197.391927  
## iter 40 value 178.739198  
## iter 50 value 171.183672  
## iter 60 value 170.523368  
## iter 70 value 170.073563  
## iter 80 value 167.406287  
## iter 90 value 166.721314  
## iter 100 value 165.358244  
## final value 165.358244   
## stopped after 100 iterations  
## # weights: 113  
## initial value 645.961237   
## iter 10 value 205.838163  
## iter 20 value 180.954414  
## iter 30 value 173.846346  
## iter 40 value 171.188385  
## iter 50 value 169.995026  
## iter 60 value 168.090527  
## iter 70 value 165.614866  
## iter 80 value 163.838867  
## iter 90 value 163.086623  
## iter 100 value 162.275929  
## final value 162.275929   
## stopped after 100 iterations  
## # weights: 127  
## initial value 553.351086   
## iter 10 value 219.096666  
## iter 20 value 202.368921  
## iter 30 value 180.263963  
## iter 40 value 168.879257  
## iter 50 value 166.431562  
## iter 60 value 165.602662  
## iter 70 value 162.850786  
## iter 80 value 161.683810  
## iter 90 value 161.296800  
## iter 100 value 161.187068  
## final value 161.187068   
## stopped after 100 iterations  
## # weights: 141  
## initial value 338.979464   
## iter 10 value 208.714954  
## iter 20 value 176.338727  
## iter 30 value 173.068764  
## iter 40 value 170.312313  
## iter 50 value 169.735670  
## iter 60 value 169.554821  
## iter 70 value 169.490057  
## iter 80 value 168.909772  
## iter 90 value 165.269504  
## iter 100 value 162.989381  
## final value 162.989381   
## stopped after 100 iterations  
## # weights: 155  
## initial value 255.910517   
## iter 10 value 216.559634  
## iter 20 value 188.746197  
## iter 30 value 173.259937  
## iter 40 value 170.499700  
## iter 50 value 169.368694  
## iter 60 value 166.694284  
## iter 70 value 163.491141  
## iter 80 value 162.768016  
## iter 90 value 161.910489  
## iter 100 value 160.653651  
## final value 160.653651   
## stopped after 100 iterations  
## # weights: 169  
## initial value 863.374297   
## iter 10 value 217.838035  
## iter 20 value 213.537271  
## iter 30 value 189.871042  
## iter 40 value 174.358032  
## iter 50 value 167.473588  
## iter 60 value 164.324492  
## iter 70 value 162.239967  
## iter 80 value 161.116087  
## iter 90 value 160.307494  
## iter 100 value 159.805828  
## final value 159.805828   
## stopped after 100 iterations  
## # weights: 15  
## initial value 439.322851   
## iter 10 value 221.244692  
## iter 20 value 217.716866  
## iter 30 value 191.174271  
## iter 40 value 181.863140  
## iter 50 value 181.801145  
## iter 60 value 181.793494  
## final value 181.793491   
## converged  
## # weights: 29  
## initial value 311.994741   
## iter 10 value 219.188298  
## iter 20 value 192.812730  
## iter 30 value 177.608484  
## iter 40 value 176.709047  
## iter 50 value 176.410242  
## iter 60 value 176.211992  
## iter 70 value 174.403030  
## iter 80 value 174.033565  
## final value 174.031697   
## converged  
## # weights: 43  
## initial value 403.648664   
## iter 10 value 223.757668  
## iter 20 value 206.191186  
## iter 30 value 183.867656  
## iter 40 value 180.438239  
## iter 50 value 179.384930  
## iter 60 value 177.541806  
## iter 70 value 175.679507  
## iter 80 value 172.583783  
## iter 90 value 172.482861  
## iter 100 value 172.086235  
## final value 172.086235   
## stopped after 100 iterations  
## # weights: 57  
## initial value 569.140412   
## iter 10 value 235.018818  
## iter 20 value 210.396211  
## iter 30 value 184.101960  
## iter 40 value 179.203715  
## iter 50 value 177.299187  
## iter 60 value 176.442538  
## iter 70 value 174.892553  
## iter 80 value 172.696930  
## iter 90 value 172.133221  
## iter 100 value 171.713979  
## final value 171.713979   
## stopped after 100 iterations  
## # weights: 71  
## initial value 404.732811   
## iter 10 value 209.072008  
## iter 20 value 187.427153  
## iter 30 value 177.662175  
## iter 40 value 176.039770  
## iter 50 value 173.907872  
## iter 60 value 172.939090  
## iter 70 value 172.419667  
## iter 80 value 171.805921  
## iter 90 value 170.827288  
## iter 100 value 170.258972  
## final value 170.258972   
## stopped after 100 iterations  
## # weights: 85  
## initial value 286.732752   
## iter 10 value 213.131644  
## iter 20 value 186.182454  
## iter 30 value 174.628297  
## iter 40 value 174.117927  
## iter 50 value 173.219823  
## iter 60 value 171.051798  
## iter 70 value 169.841400  
## iter 80 value 169.024354  
## iter 90 value 168.758906  
## iter 100 value 168.581890  
## final value 168.581890   
## stopped after 100 iterations  
## # weights: 99  
## initial value 361.570447   
## iter 10 value 216.190760  
## iter 20 value 199.716684  
## iter 30 value 177.253010  
## iter 40 value 172.719513  
## iter 50 value 170.939988  
## iter 60 value 169.836474  
## iter 70 value 168.965027  
## iter 80 value 168.155809  
## iter 90 value 167.798044  
## iter 100 value 167.658234  
## final value 167.658234   
## stopped after 100 iterations  
## # weights: 113  
## initial value 1063.984035   
## iter 10 value 219.162704  
## iter 20 value 186.201015  
## iter 30 value 175.894109  
## iter 40 value 174.653939  
## iter 50 value 172.525765  
## iter 60 value 170.295855  
## iter 70 value 169.235778  
## iter 80 value 169.142472  
## iter 90 value 168.775584  
## iter 100 value 168.508943  
## final value 168.508943   
## stopped after 100 iterations  
## # weights: 127  
## initial value 344.434851   
## iter 10 value 215.915080  
## iter 20 value 188.156944  
## iter 30 value 175.702879  
## iter 40 value 173.161266  
## iter 50 value 171.546459  
## iter 60 value 170.742203  
## iter 70 value 169.714879  
## iter 80 value 169.342301  
## iter 90 value 169.106697  
## iter 100 value 168.369606  
## final value 168.369606   
## stopped after 100 iterations  
## # weights: 141  
## initial value 647.535497   
## iter 10 value 220.370657  
## iter 20 value 203.805148  
## iter 30 value 178.966286  
## iter 40 value 176.799331  
## iter 50 value 174.252120  
## iter 60 value 173.189740  
## iter 70 value 171.911387  
## iter 80 value 171.622144  
## iter 90 value 171.174012  
## iter 100 value 170.121401  
## final value 170.121401   
## stopped after 100 iterations  
## # weights: 155  
## initial value 277.181036   
## iter 10 value 212.896981  
## iter 20 value 187.714443  
## iter 30 value 179.876689  
## iter 40 value 177.593551  
## iter 50 value 175.039672  
## iter 60 value 172.644402  
## iter 70 value 171.390525  
## iter 80 value 171.304999  
## iter 90 value 171.131797  
## iter 100 value 170.506064  
## final value 170.506064   
## stopped after 100 iterations  
## # weights: 169  
## initial value 402.589349   
## iter 10 value 200.725727  
## iter 20 value 189.620080  
## iter 30 value 177.657217  
## iter 40 value 173.411347  
## iter 50 value 171.742291  
## iter 60 value 171.225302  
## iter 70 value 170.814804  
## iter 80 value 170.143350  
## iter 90 value 168.509317  
## iter 100 value 168.128028  
## final value 168.128028   
## stopped after 100 iterations  
## # weights: 15  
## initial value 728.809274   
## iter 10 value 224.056060  
## iter 20 value 211.475561  
## iter 30 value 186.642644  
## iter 40 value 185.471995  
## final value 185.470492   
## converged  
## # weights: 29  
## initial value 302.587415   
## iter 10 value 209.387831  
## iter 20 value 179.781460  
## iter 30 value 178.640220  
## iter 40 value 178.108677  
## iter 50 value 177.055824  
## iter 60 value 176.811235  
## iter 70 value 176.801750  
## final value 176.801472   
## converged  
## # weights: 43  
## initial value 327.425699   
## iter 10 value 220.243447  
## iter 20 value 210.624615  
## iter 30 value 179.860604  
## iter 40 value 178.110847  
## iter 50 value 177.766187  
## iter 60 value 175.869260  
## iter 70 value 175.524037  
## iter 80 value 175.434799  
## final value 175.433358   
## converged  
## # weights: 57  
## initial value 738.585454   
## iter 10 value 247.853877  
## iter 20 value 215.959016  
## iter 30 value 183.348346  
## iter 40 value 179.200920  
## iter 50 value 177.931902  
## iter 60 value 177.463142  
## iter 70 value 177.323213  
## iter 80 value 176.326999  
## iter 90 value 174.776895  
## iter 100 value 174.283279  
## final value 174.283279   
## stopped after 100 iterations  
## # weights: 71  
## initial value 643.412307   
## iter 10 value 216.651764  
## iter 20 value 183.217126  
## iter 30 value 178.739121  
## iter 40 value 178.185545  
## iter 50 value 177.551466  
## iter 60 value 177.278340  
## iter 70 value 177.138951  
## iter 80 value 176.989233  
## iter 90 value 176.405089  
## iter 100 value 174.613602  
## final value 174.613602   
## stopped after 100 iterations  
## # weights: 85  
## initial value 431.422388   
## iter 10 value 214.136862  
## iter 20 value 187.325342  
## iter 30 value 180.789240  
## iter 40 value 179.807951  
## iter 50 value 178.764231  
## iter 60 value 177.769256  
## iter 70 value 176.553988  
## iter 80 value 175.411102  
## iter 90 value 174.936633  
## iter 100 value 174.536904  
## final value 174.536904   
## stopped after 100 iterations  
## # weights: 99  
## initial value 449.402236   
## iter 10 value 215.517187  
## iter 20 value 206.263086  
## iter 30 value 185.528059  
## iter 40 value 176.500511  
## iter 50 value 175.254521  
## iter 60 value 174.397407  
## iter 70 value 173.960626  
## iter 80 value 173.770387  
## iter 90 value 173.734315  
## iter 100 value 173.706816  
## final value 173.706816   
## stopped after 100 iterations  
## # weights: 113  
## initial value 261.529488   
## iter 10 value 203.211181  
## iter 20 value 185.628131  
## iter 30 value 177.933319  
## iter 40 value 175.040238  
## iter 50 value 173.846762  
## iter 60 value 173.472067  
## iter 70 value 173.242443  
## iter 80 value 173.138140  
## iter 90 value 173.081332  
## iter 100 value 173.052613  
## final value 173.052613   
## stopped after 100 iterations  
## # weights: 127  
## initial value 373.823933   
## iter 10 value 219.200693  
## iter 20 value 192.765601  
## iter 30 value 180.483383  
## iter 40 value 177.806904  
## iter 50 value 176.546699  
## iter 60 value 175.815326  
## iter 70 value 175.445203  
## iter 80 value 175.066293  
## iter 90 value 174.673997  
## iter 100 value 174.232305  
## final value 174.232305   
## stopped after 100 iterations  
## # weights: 141  
## initial value 369.508707   
## iter 10 value 218.952944  
## iter 20 value 210.081391  
## iter 30 value 196.544791  
## iter 40 value 182.072455  
## iter 50 value 176.100519  
## iter 60 value 173.948160  
## iter 70 value 173.525624  
## iter 80 value 173.134358  
## iter 90 value 172.920599  
## iter 100 value 172.655126  
## final value 172.655126   
## stopped after 100 iterations  
## # weights: 155  
## initial value 2033.986544   
## iter 10 value 219.120536  
## iter 20 value 202.443412  
## iter 30 value 184.375251  
## iter 40 value 176.755588  
## iter 50 value 174.915610  
## iter 60 value 174.242067  
## iter 70 value 173.948614  
## iter 80 value 173.140182  
## iter 90 value 172.736106  
## iter 100 value 172.595192  
## final value 172.595192   
## stopped after 100 iterations  
## # weights: 169  
## initial value 678.284030   
## iter 10 value 222.612059  
## iter 20 value 218.894244  
## iter 30 value 212.196890  
## iter 40 value 193.648718  
## iter 50 value 181.509296  
## iter 60 value 176.654717  
## iter 70 value 175.183344  
## iter 80 value 173.735253  
## iter 90 value 172.889936  
## iter 100 value 172.316075  
## final value 172.316075   
## stopped after 100 iterations  
## # weights: 15  
## initial value 423.234806   
## iter 10 value 213.872993  
## iter 20 value 160.068003  
## iter 30 value 158.225325  
## iter 40 value 158.101814  
## iter 50 value 158.099779  
## iter 50 value 158.099778  
## iter 50 value 158.099778  
## final value 158.099778   
## converged  
## # weights: 29  
## initial value 465.913538   
## iter 10 value 215.146574  
## iter 20 value 200.099281  
## iter 30 value 169.132662  
## iter 40 value 159.634721  
## iter 50 value 159.110773  
## iter 60 value 159.092739  
## iter 60 value 159.092739  
## iter 60 value 159.092739  
## final value 159.092739   
## converged  
## # weights: 43  
## initial value 501.066439   
## iter 10 value 214.498625  
## iter 20 value 187.148595  
## iter 30 value 161.260649  
## iter 40 value 159.513884  
## iter 50 value 159.138606  
## iter 60 value 156.978770  
## iter 70 value 152.087439  
## iter 80 value 147.709334  
## iter 90 value 146.667828  
## iter 100 value 146.645113  
## final value 146.645113   
## stopped after 100 iterations  
## # weights: 57  
## initial value 250.254479   
## iter 10 value 216.886808  
## iter 20 value 185.109760  
## iter 30 value 158.950963  
## iter 40 value 155.649780  
## iter 50 value 152.326832  
## iter 60 value 150.669143  
## iter 70 value 147.160384  
## iter 80 value 145.676157  
## iter 90 value 144.232779  
## iter 100 value 144.209035  
## final value 144.209035   
## stopped after 100 iterations  
## # weights: 71  
## initial value 452.866128   
## iter 10 value 214.910986  
## iter 20 value 197.634462  
## iter 30 value 172.642192  
## iter 40 value 157.086648  
## iter 50 value 151.202568  
## iter 60 value 149.611146  
## iter 70 value 142.550857  
## iter 80 value 141.169871  
## iter 90 value 140.989509  
## iter 100 value 140.293626  
## final value 140.293626   
## stopped after 100 iterations  
## # weights: 85  
## initial value 546.297850   
## iter 10 value 204.130176  
## iter 20 value 182.619358  
## iter 30 value 157.983917  
## iter 40 value 150.527616  
## iter 50 value 144.651937  
## iter 60 value 137.462804  
## iter 70 value 133.879844  
## iter 80 value 133.057399  
## iter 90 value 132.160484  
## iter 100 value 131.389194  
## final value 131.389194   
## stopped after 100 iterations  
## # weights: 99  
## initial value 476.773547   
## iter 10 value 199.972533  
## iter 20 value 161.205922  
## iter 30 value 158.072401  
## iter 40 value 153.670829  
## iter 50 value 148.239994  
## iter 60 value 144.017170  
## iter 70 value 139.939015  
## iter 80 value 135.937154  
## iter 90 value 132.723309  
## iter 100 value 129.602069  
## final value 129.602069   
## stopped after 100 iterations  
## # weights: 113  
## initial value 922.459154   
## iter 10 value 222.248955  
## iter 20 value 191.706712  
## iter 30 value 163.792638  
## iter 40 value 153.082995  
## iter 50 value 149.691420  
## iter 60 value 143.991786  
## iter 70 value 134.997829  
## iter 80 value 132.952441  
## iter 90 value 131.739141  
## iter 100 value 129.284511  
## final value 129.284511   
## stopped after 100 iterations  
## # weights: 127  
## initial value 320.809165   
## iter 10 value 214.196376  
## iter 20 value 171.060570  
## iter 30 value 157.587155  
## iter 40 value 155.772354  
## iter 50 value 151.386800  
## iter 60 value 144.006519  
## iter 70 value 132.529527  
## iter 80 value 128.965823  
## iter 90 value 124.684721  
## iter 100 value 122.170899  
## final value 122.170899   
## stopped after 100 iterations  
## # weights: 141  
## initial value 343.807751   
## iter 10 value 201.810127  
## iter 20 value 167.138893  
## iter 30 value 156.323716  
## iter 40 value 145.407539  
## iter 50 value 141.772188  
## iter 60 value 138.115073  
## iter 70 value 135.572020  
## iter 80 value 135.054178  
## iter 90 value 134.827899  
## iter 100 value 133.331598  
## final value 133.331598   
## stopped after 100 iterations  
## # weights: 155  
## initial value 254.552137   
## iter 10 value 208.951099  
## iter 20 value 194.000609  
## iter 30 value 160.404501  
## iter 40 value 149.466523  
## iter 50 value 144.748613  
## iter 60 value 139.092882  
## iter 70 value 133.392745  
## iter 80 value 129.341507  
## iter 90 value 126.210998  
## iter 100 value 121.168553  
## final value 121.168553   
## stopped after 100 iterations  
## # weights: 169  
## initial value 522.194972   
## iter 10 value 214.760824  
## iter 20 value 191.727395  
## iter 30 value 165.580671  
## iter 40 value 155.596344  
## iter 50 value 148.905469  
## iter 60 value 144.600559  
## iter 70 value 142.170102  
## iter 80 value 139.845639  
## iter 90 value 137.872897  
## iter 100 value 136.639966  
## final value 136.639966   
## stopped after 100 iterations  
## # weights: 15  
## initial value 387.495085   
## iter 10 value 217.532221  
## iter 20 value 193.880407  
## iter 30 value 166.182850  
## iter 40 value 165.303801  
## iter 50 value 165.296694  
## final value 165.296690   
## converged  
## # weights: 29  
## initial value 324.174627   
## iter 10 value 215.556238  
## iter 20 value 174.058041  
## iter 30 value 162.679034  
## iter 40 value 161.118804  
## iter 50 value 160.564638  
## final value 160.548000   
## converged  
## # weights: 43  
## initial value 476.081565   
## iter 10 value 208.944236  
## iter 20 value 168.953110  
## iter 30 value 162.634613  
## iter 40 value 162.302366  
## iter 50 value 160.432278  
## iter 60 value 158.221084  
## iter 70 value 157.697371  
## iter 80 value 156.071529  
## iter 90 value 153.522214  
## iter 100 value 152.270284  
## final value 152.270284   
## stopped after 100 iterations  
## # weights: 57  
## initial value 278.220456   
## iter 10 value 217.013965  
## iter 20 value 198.432533  
## iter 30 value 168.200774  
## iter 40 value 160.780477  
## iter 50 value 157.905505  
## iter 60 value 157.294723  
## iter 70 value 155.768199  
## iter 80 value 150.470883  
## iter 90 value 148.717016  
## iter 100 value 148.424441  
## final value 148.424441   
## stopped after 100 iterations  
## # weights: 71  
## initial value 724.642592   
## iter 10 value 214.889868  
## iter 20 value 207.197371  
## iter 30 value 174.883644  
## iter 40 value 159.810218  
## iter 50 value 155.681752  
## iter 60 value 153.116952  
## iter 70 value 151.481778  
## iter 80 value 150.109006  
## iter 90 value 149.827464  
## iter 100 value 149.538662  
## final value 149.538662   
## stopped after 100 iterations  
## # weights: 85  
## initial value 528.497505   
## iter 10 value 208.167888  
## iter 20 value 183.844470  
## iter 30 value 164.543270  
## iter 40 value 160.047480  
## iter 50 value 158.690108  
## iter 60 value 157.907316  
## iter 70 value 155.741829  
## iter 80 value 154.390849  
## iter 90 value 153.370136  
## iter 100 value 148.498616  
## final value 148.498616   
## stopped after 100 iterations  
## # weights: 99  
## initial value 746.174526   
## iter 10 value 216.514925  
## iter 20 value 200.881635  
## iter 30 value 167.506922  
## iter 40 value 160.105797  
## iter 50 value 155.780755  
## iter 60 value 154.102861  
## iter 70 value 153.725251  
## iter 80 value 153.444868  
## iter 90 value 152.958518  
## iter 100 value 151.350185  
## final value 151.350185   
## stopped after 100 iterations  
## # weights: 113  
## initial value 455.802842   
## iter 10 value 212.217617  
## iter 20 value 175.570465  
## iter 30 value 162.568454  
## iter 40 value 158.192015  
## iter 50 value 155.671021  
## iter 60 value 154.048586  
## iter 70 value 151.746141  
## iter 80 value 149.901998  
## iter 90 value 147.961940  
## iter 100 value 147.317782  
## final value 147.317782   
## stopped after 100 iterations  
## # weights: 127  
## initial value 481.153455   
## iter 10 value 213.618547  
## iter 20 value 190.016492  
## iter 30 value 172.108177  
## iter 40 value 162.456997  
## iter 50 value 157.988583  
## iter 60 value 151.135518  
## iter 70 value 146.880218  
## iter 80 value 145.573376  
## iter 90 value 144.659841  
## iter 100 value 144.080503  
## final value 144.080503   
## stopped after 100 iterations  
## # weights: 141  
## initial value 565.123301   
## iter 10 value 217.417396  
## iter 20 value 212.316692  
## iter 30 value 190.017673  
## iter 40 value 164.898061  
## iter 50 value 156.807714  
## iter 60 value 154.523095  
## iter 70 value 153.071045  
## iter 80 value 151.396850  
## iter 90 value 147.075569  
## iter 100 value 145.889038  
## final value 145.889038   
## stopped after 100 iterations  
## # weights: 155  
## initial value 309.079210   
## iter 10 value 212.630629  
## iter 20 value 207.680211  
## iter 30 value 190.166920  
## iter 40 value 166.094393  
## iter 50 value 160.648722  
## iter 60 value 156.090873  
## iter 70 value 151.691587  
## iter 80 value 148.018691  
## iter 90 value 147.278529  
## iter 100 value 145.920351  
## final value 145.920351   
## stopped after 100 iterations  
## # weights: 169  
## initial value 367.198564   
## iter 10 value 214.050404  
## iter 20 value 207.478321  
## iter 30 value 167.425683  
## iter 40 value 159.114811  
## iter 50 value 156.699450  
## iter 60 value 155.057347  
## iter 70 value 152.685469  
## iter 80 value 150.192298  
## iter 90 value 149.311639  
## iter 100 value 148.569195  
## final value 148.569195   
## stopped after 100 iterations  
## # weights: 15  
## initial value 663.022086   
## iter 10 value 218.310959  
## iter 20 value 205.335483  
## iter 30 value 172.476234  
## iter 40 value 170.088397  
## iter 50 value 170.067997  
## final value 170.067875   
## converged  
## # weights: 29  
## initial value 472.031286   
## iter 10 value 201.974056  
## iter 20 value 166.651463  
## iter 30 value 165.583891  
## iter 40 value 165.112778  
## iter 50 value 162.782141  
## final value 162.768989   
## converged  
## # weights: 43  
## initial value 512.078755   
## iter 10 value 210.350389  
## iter 20 value 181.398104  
## iter 30 value 166.522419  
## iter 40 value 165.670681  
## iter 50 value 163.984872  
## iter 60 value 162.776194  
## iter 70 value 162.682744  
## final value 162.610182   
## converged  
## # weights: 57  
## initial value 397.379861   
## iter 10 value 189.906908  
## iter 20 value 168.494035  
## iter 30 value 163.856214  
## iter 40 value 162.987099  
## iter 50 value 162.622623  
## iter 60 value 162.569978  
## iter 70 value 161.877017  
## iter 80 value 160.472660  
## iter 90 value 159.657074  
## iter 100 value 157.892538  
## final value 157.892538   
## stopped after 100 iterations  
## # weights: 71  
## initial value 270.172578   
## iter 10 value 213.883035  
## iter 20 value 180.004975  
## iter 30 value 163.802907  
## iter 40 value 160.555990  
## iter 50 value 159.410036  
## iter 60 value 159.195048  
## iter 70 value 159.026101  
## iter 80 value 158.516743  
## iter 90 value 156.896650  
## iter 100 value 156.026973  
## final value 156.026973   
## stopped after 100 iterations  
## # weights: 85  
## initial value 558.828058   
## iter 10 value 223.267119  
## iter 20 value 192.169589  
## iter 30 value 165.171887  
## iter 40 value 162.763723  
## iter 50 value 162.427206  
## iter 60 value 160.786451  
## iter 70 value 158.366768  
## iter 80 value 156.344585  
## iter 90 value 155.892547  
## iter 100 value 155.386749  
## final value 155.386749   
## stopped after 100 iterations  
## # weights: 99  
## initial value 322.482253   
## iter 10 value 200.589465  
## iter 20 value 168.544689  
## iter 30 value 164.877234  
## iter 40 value 162.691569  
## iter 50 value 162.355440  
## iter 60 value 161.346304  
## iter 70 value 160.308010  
## iter 80 value 158.736373  
## iter 90 value 157.273396  
## iter 100 value 156.974028  
## final value 156.974028   
## stopped after 100 iterations  
## # weights: 113  
## initial value 669.895753   
## iter 10 value 217.225205  
## iter 20 value 202.522110  
## iter 30 value 178.193801  
## iter 40 value 170.081113  
## iter 50 value 160.718489  
## iter 60 value 159.073794  
## iter 70 value 157.999398  
## iter 80 value 157.162150  
## iter 90 value 156.539656  
## iter 100 value 155.852940  
## final value 155.852940   
## stopped after 100 iterations  
## # weights: 127  
## initial value 544.553181   
## iter 10 value 214.956018  
## iter 20 value 190.384502  
## iter 30 value 168.085255  
## iter 40 value 161.258237  
## iter 50 value 159.846768  
## iter 60 value 158.110124  
## iter 70 value 157.092982  
## iter 80 value 156.639406  
## iter 90 value 156.101057  
## iter 100 value 155.801898  
## final value 155.801898   
## stopped after 100 iterations  
## # weights: 141  
## initial value 760.403453   
## iter 10 value 230.969342  
## iter 20 value 171.669462  
## iter 30 value 164.595305  
## iter 40 value 161.655091  
## iter 50 value 159.807897  
## iter 60 value 157.452850  
## iter 70 value 156.533969  
## iter 80 value 156.114275  
## iter 90 value 155.216124  
## iter 100 value 154.006843  
## final value 154.006843   
## stopped after 100 iterations  
## # weights: 155  
## initial value 449.528663   
## iter 10 value 217.504307  
## iter 20 value 210.926895  
## iter 30 value 189.845751  
## iter 40 value 165.515531  
## iter 50 value 161.727991  
## iter 60 value 159.211102  
## iter 70 value 157.756928  
## iter 80 value 155.987550  
## iter 90 value 155.331762  
## iter 100 value 155.067068  
## final value 155.067068   
## stopped after 100 iterations  
## # weights: 169  
## initial value 687.631926   
## iter 10 value 218.136236  
## iter 20 value 202.562424  
## iter 30 value 179.284737  
## iter 40 value 167.259200  
## iter 50 value 161.943465  
## iter 60 value 159.502019  
## iter 70 value 157.288098  
## iter 80 value 156.168480  
## iter 90 value 155.539969  
## iter 100 value 154.779182  
## final value 154.779182   
## stopped after 100 iterations  
## # weights: 15  
## initial value 397.987634   
## iter 10 value 218.599160  
## iter 20 value 198.873955  
## iter 30 value 169.121796  
## iter 40 value 168.696950  
## final value 168.696553   
## converged  
## # weights: 29  
## initial value 691.459815   
## iter 10 value 217.158143  
## iter 20 value 208.579422  
## iter 30 value 174.324649  
## iter 40 value 166.537101  
## iter 50 value 166.348689  
## iter 60 value 166.342518  
## iter 60 value 166.342517  
## iter 60 value 166.342517  
## final value 166.342517   
## converged  
## # weights: 43  
## initial value 919.569895   
## iter 10 value 235.187071  
## iter 20 value 186.727871  
## iter 30 value 169.107994  
## iter 40 value 168.644285  
## iter 50 value 167.161824  
## iter 60 value 166.275024  
## iter 70 value 166.244137  
## final value 166.240523   
## converged  
## # weights: 57  
## initial value 517.669882   
## iter 10 value 228.930053  
## iter 20 value 217.856032  
## iter 30 value 182.793542  
## iter 40 value 171.154885  
## iter 50 value 168.173692  
## iter 60 value 167.059002  
## iter 70 value 166.668283  
## iter 80 value 166.476211  
## iter 90 value 166.475187  
## iter 90 value 166.475186  
## iter 90 value 166.475186  
## final value 166.475186   
## converged  
## # weights: 71  
## initial value 348.293586   
## iter 10 value 221.029209  
## iter 20 value 182.022807  
## iter 30 value 171.539329  
## iter 40 value 166.569011  
## iter 50 value 165.155066  
## iter 60 value 164.679772  
## iter 70 value 164.465462  
## iter 80 value 164.382802  
## iter 90 value 164.374967  
## iter 100 value 164.373496  
## final value 164.373496   
## stopped after 100 iterations  
## # weights: 85  
## initial value 289.671502   
## iter 10 value 215.472947  
## iter 20 value 184.134046  
## iter 30 value 170.077768  
## iter 40 value 166.178624  
## iter 50 value 164.764922  
## iter 60 value 162.908049  
## iter 70 value 162.700517  
## iter 80 value 162.579322  
## iter 90 value 162.463408  
## iter 100 value 162.369354  
## final value 162.369354   
## stopped after 100 iterations  
## # weights: 99  
## initial value 327.064774   
## iter 10 value 214.174349  
## iter 20 value 198.928225  
## iter 30 value 169.533619  
## iter 40 value 165.985038  
## iter 50 value 163.822115  
## iter 60 value 163.049291  
## iter 70 value 162.522419  
## iter 80 value 161.975726  
## iter 90 value 161.753928  
## iter 100 value 161.670143  
## final value 161.670143   
## stopped after 100 iterations  
## # weights: 113  
## initial value 500.523709   
## iter 10 value 209.385045  
## iter 20 value 178.707150  
## iter 30 value 171.881717  
## iter 40 value 169.738146  
## iter 50 value 167.168685  
## iter 60 value 166.766135  
## iter 70 value 166.025718  
## iter 80 value 164.575834  
## iter 90 value 163.091027  
## iter 100 value 162.488170  
## final value 162.488170   
## stopped after 100 iterations  
## # weights: 127  
## initial value 495.504686   
## iter 10 value 223.660894  
## iter 20 value 195.417414  
## iter 30 value 172.811966  
## iter 40 value 167.896690  
## iter 50 value 166.622506  
## iter 60 value 164.341683  
## iter 70 value 163.530123  
## iter 80 value 162.634600  
## iter 90 value 161.319483  
## iter 100 value 160.933615  
## final value 160.933615   
## stopped after 100 iterations  
## # weights: 141  
## initial value 516.414616   
## iter 10 value 214.460223  
## iter 20 value 189.979891  
## iter 30 value 171.704551  
## iter 40 value 166.461005  
## iter 50 value 164.834586  
## iter 60 value 164.229750  
## iter 70 value 163.268908  
## iter 80 value 162.764692  
## iter 90 value 162.417950  
## iter 100 value 161.806041  
## final value 161.806041   
## stopped after 100 iterations  
## # weights: 155  
## initial value 542.052710   
## iter 10 value 207.703966  
## iter 20 value 175.054384  
## iter 30 value 168.437819  
## iter 40 value 167.158946  
## iter 50 value 166.782758  
## iter 60 value 165.494712  
## iter 70 value 164.942585  
## iter 80 value 163.887746  
## iter 90 value 163.205763  
## iter 100 value 162.668881  
## final value 162.668881   
## stopped after 100 iterations  
## # weights: 169  
## initial value 898.425253   
## iter 10 value 213.549467  
## iter 20 value 184.439690  
## iter 30 value 171.386762  
## iter 40 value 166.003007  
## iter 50 value 164.468643  
## iter 60 value 162.949068  
## iter 70 value 161.593442  
## iter 80 value 160.845716  
## iter 90 value 160.475347  
## iter 100 value 160.240504  
## final value 160.240504   
## stopped after 100 iterations  
## # weights: 15  
## initial value 317.502487   
## iter 10 value 218.166040  
## iter 20 value 205.363885  
## iter 30 value 175.329468  
## iter 40 value 171.717321  
## iter 50 value 171.682821  
## final value 171.682771   
## converged  
## # weights: 29  
## initial value 411.671885   
## iter 10 value 218.098213  
## iter 20 value 179.506185  
## iter 30 value 172.117318  
## iter 40 value 171.742286  
## iter 50 value 171.650464  
## iter 60 value 170.431506  
## iter 70 value 169.950122  
## final value 169.949497   
## converged  
## # weights: 43  
## initial value 416.629682   
## iter 10 value 218.191942  
## iter 20 value 194.092611  
## iter 30 value 172.533122  
## iter 40 value 171.458361  
## iter 50 value 170.127170  
## iter 60 value 169.908771  
## iter 70 value 169.618143  
## iter 80 value 169.527700  
## final value 169.527693   
## converged  
## # weights: 57  
## initial value 525.870211   
## iter 10 value 219.387856  
## iter 20 value 213.174784  
## iter 30 value 178.157883  
## iter 40 value 171.585640  
## iter 50 value 170.421403  
## iter 60 value 169.931166  
## iter 70 value 169.672533  
## iter 80 value 168.777073  
## iter 90 value 167.383944  
## iter 100 value 167.249637  
## final value 167.249637   
## stopped after 100 iterations  
## # weights: 71  
## initial value 274.286769   
## iter 10 value 217.318783  
## iter 20 value 176.605145  
## iter 30 value 172.428175  
## iter 40 value 171.308814  
## iter 50 value 169.453849  
## iter 60 value 168.043701  
## iter 70 value 167.797280  
## iter 80 value 167.771054  
## iter 90 value 167.750923  
## iter 100 value 167.749614  
## final value 167.749614   
## stopped after 100 iterations  
## # weights: 85  
## initial value 409.792113   
## iter 10 value 214.051620  
## iter 20 value 199.494924  
## iter 30 value 173.231193  
## iter 40 value 169.531124  
## iter 50 value 169.004912  
## iter 60 value 168.756146  
## iter 70 value 168.611296  
## iter 80 value 168.579583  
## iter 90 value 168.510332  
## iter 100 value 168.509342  
## final value 168.509342   
## stopped after 100 iterations  
## # weights: 99  
## initial value 493.459139   
## iter 10 value 217.273060  
## iter 20 value 183.927477  
## iter 30 value 174.667681  
## iter 40 value 171.008811  
## iter 50 value 169.226134  
## iter 60 value 168.081097  
## iter 70 value 167.397865  
## iter 80 value 166.694492  
## iter 90 value 166.316807  
## iter 100 value 165.981424  
## final value 165.981424   
## stopped after 100 iterations  
## # weights: 113  
## initial value 310.319583   
## iter 10 value 215.865834  
## iter 20 value 196.468328  
## iter 30 value 185.696719  
## iter 40 value 172.470853  
## iter 50 value 169.873351  
## iter 60 value 168.062912  
## iter 70 value 167.719602  
## iter 80 value 167.387741  
## iter 90 value 167.058842  
## iter 100 value 166.788386  
## final value 166.788386   
## stopped after 100 iterations  
## # weights: 127  
## initial value 653.844698   
## iter 10 value 217.890347  
## iter 20 value 197.990981  
## iter 30 value 177.228490  
## iter 40 value 169.823808  
## iter 50 value 168.462877  
## iter 60 value 167.010644  
## iter 70 value 166.516982  
## iter 80 value 166.148237  
## iter 90 value 165.994220  
## iter 100 value 165.755661  
## final value 165.755661   
## stopped after 100 iterations  
## # weights: 141  
## initial value 388.146729   
## iter 10 value 214.808945  
## iter 20 value 208.304420  
## iter 30 value 181.751215  
## iter 40 value 169.320303  
## iter 50 value 167.604849  
## iter 60 value 167.262006  
## iter 70 value 167.208393  
## iter 80 value 167.195393  
## iter 90 value 167.128807  
## iter 100 value 166.674612  
## final value 166.674612   
## stopped after 100 iterations  
## # weights: 155  
## initial value 772.972712   
## iter 10 value 204.689175  
## iter 20 value 173.982523  
## iter 30 value 170.504107  
## iter 40 value 169.764571  
## iter 50 value 169.467165  
## iter 60 value 168.708461  
## iter 70 value 167.642091  
## iter 80 value 166.992227  
## iter 90 value 166.368961  
## iter 100 value 166.070350  
## final value 166.070350   
## stopped after 100 iterations  
## # weights: 169  
## initial value 451.904442   
## iter 10 value 220.165723  
## iter 20 value 196.831865  
## iter 30 value 179.171111  
## iter 40 value 170.631395  
## iter 50 value 169.673237  
## iter 60 value 168.121223  
## iter 70 value 166.583630  
## iter 80 value 165.651567  
## iter 90 value 165.479292  
## iter 100 value 165.426088  
## final value 165.426088   
## stopped after 100 iterations  
## # weights: 15  
## initial value 394.990058   
## iter 10 value 202.323226  
## iter 20 value 162.192172  
## iter 30 value 158.587816  
## iter 40 value 158.024583  
## iter 50 value 157.765589  
## final value 157.765050   
## converged  
## # weights: 29  
## initial value 463.844877   
## iter 10 value 212.485497  
## iter 20 value 178.533968  
## iter 30 value 162.593239  
## iter 40 value 158.105032  
## iter 50 value 157.818233  
## iter 60 value 156.286901  
## iter 70 value 156.017194  
## final value 156.016591   
## converged  
## # weights: 43  
## initial value 319.549790   
## iter 10 value 185.497115  
## iter 20 value 161.641733  
## iter 30 value 152.324980  
## iter 40 value 147.954231  
## iter 50 value 147.610838  
## iter 60 value 146.344175  
## iter 70 value 145.226937  
## iter 80 value 144.836408  
## iter 90 value 144.796371  
## final value 144.796359   
## converged  
## # weights: 57  
## initial value 407.218032   
## iter 10 value 229.061213  
## iter 20 value 217.744343  
## iter 30 value 208.225789  
## iter 40 value 175.288926  
## iter 50 value 158.365070  
## iter 60 value 150.597301  
## iter 70 value 148.576449  
## iter 80 value 143.252257  
## iter 90 value 140.059832  
## iter 100 value 139.275665  
## final value 139.275665   
## stopped after 100 iterations  
## # weights: 71  
## initial value 410.642468   
## iter 10 value 211.670156  
## iter 20 value 174.770434  
## iter 30 value 159.434412  
## iter 40 value 155.871418  
## iter 50 value 153.338224  
## iter 60 value 148.372277  
## iter 70 value 145.222099  
## iter 80 value 143.261230  
## iter 90 value 142.679954  
## iter 100 value 142.389778  
## final value 142.389778   
## stopped after 100 iterations  
## # weights: 85  
## initial value 225.104010   
## iter 10 value 195.261441  
## iter 20 value 167.501396  
## iter 30 value 158.521029  
## iter 40 value 158.222676  
## iter 50 value 158.214125  
## iter 50 value 158.214124  
## iter 50 value 158.214124  
## final value 158.214124   
## converged  
## # weights: 99  
## initial value 494.056687   
## iter 10 value 213.015679  
## iter 20 value 201.077301  
## iter 30 value 171.171510  
## iter 40 value 153.887202  
## iter 50 value 145.272944  
## iter 60 value 143.219001  
## iter 70 value 142.751745  
## iter 80 value 142.385611  
## iter 90 value 141.533274  
## iter 100 value 140.806182  
## final value 140.806182   
## stopped after 100 iterations  
## # weights: 113  
## initial value 405.176539   
## iter 10 value 208.783280  
## iter 20 value 191.897082  
## iter 30 value 167.709060  
## iter 40 value 154.037751  
## iter 50 value 150.075383  
## iter 60 value 145.940704  
## iter 70 value 141.120258  
## iter 80 value 138.778391  
## iter 90 value 135.760927  
## iter 100 value 133.662447  
## final value 133.662447   
## stopped after 100 iterations  
## # weights: 127  
## initial value 263.056535   
## iter 10 value 200.113583  
## iter 20 value 160.451246  
## iter 30 value 156.758100  
## iter 40 value 153.400885  
## iter 50 value 149.317076  
## iter 60 value 146.377330  
## iter 70 value 145.885600  
## iter 80 value 145.525637  
## iter 90 value 145.410641  
## iter 100 value 145.089268  
## final value 145.089268   
## stopped after 100 iterations  
## # weights: 141  
## initial value 662.890220   
## iter 10 value 195.241477  
## iter 20 value 173.212506  
## iter 30 value 157.141978  
## iter 40 value 152.215558  
## iter 50 value 147.638501  
## iter 60 value 144.270583  
## iter 70 value 140.779954  
## iter 80 value 137.983342  
## iter 90 value 133.878185  
## iter 100 value 128.670832  
## final value 128.670832   
## stopped after 100 iterations  
## # weights: 155  
## initial value 247.181872   
## iter 10 value 211.280402  
## iter 20 value 201.731799  
## iter 30 value 162.268814  
## iter 40 value 148.309189  
## iter 50 value 142.272647  
## iter 60 value 139.405173  
## iter 70 value 133.215443  
## iter 80 value 128.685265  
## iter 90 value 126.834710  
## iter 100 value 126.105678  
## final value 126.105678   
## stopped after 100 iterations  
## # weights: 169  
## initial value 813.811994   
## iter 10 value 211.738982  
## iter 20 value 170.665333  
## iter 30 value 159.890650  
## iter 40 value 154.599017  
## iter 50 value 149.725742  
## iter 60 value 147.279501  
## iter 70 value 143.372890  
## iter 80 value 139.339121  
## iter 90 value 131.958327  
## iter 100 value 126.577888  
## final value 126.577888   
## stopped after 100 iterations  
## # weights: 15  
## initial value 375.042359   
## iter 10 value 215.509131  
## iter 20 value 188.309100  
## iter 30 value 165.814383  
## iter 40 value 165.393356  
## final value 165.393180   
## converged  
## # weights: 29  
## initial value 687.747021   
## iter 10 value 218.697427  
## iter 20 value 208.941753  
## iter 30 value 169.799854  
## iter 40 value 162.331069  
## iter 50 value 162.107024  
## iter 60 value 161.776307  
## iter 70 value 160.148645  
## iter 80 value 157.510873  
## iter 90 value 156.855962  
## final value 156.855021   
## converged  
## # weights: 43  
## initial value 259.102460   
## iter 10 value 201.951456  
## iter 20 value 169.061744  
## iter 30 value 161.956449  
## iter 40 value 157.678334  
## iter 50 value 155.066836  
## iter 60 value 152.857859  
## iter 70 value 152.234346  
## iter 80 value 152.167970  
## iter 90 value 152.152436  
## final value 152.152431   
## converged  
## # weights: 57  
## initial value 499.709726   
## iter 10 value 218.421325  
## iter 20 value 209.395240  
## iter 30 value 176.247966  
## iter 40 value 159.908545  
## iter 50 value 156.447592  
## iter 60 value 154.059123  
## iter 70 value 151.412562  
## iter 80 value 150.858160  
## iter 90 value 150.562112  
## iter 100 value 150.307321  
## final value 150.307321   
## stopped after 100 iterations  
## # weights: 71  
## initial value 447.131419   
## iter 10 value 219.677987  
## iter 20 value 198.924263  
## iter 30 value 165.591763  
## iter 40 value 157.869451  
## iter 50 value 155.837744  
## iter 60 value 153.444920  
## iter 70 value 150.628734  
## iter 80 value 150.375838  
## iter 90 value 150.183218  
## iter 100 value 149.757037  
## final value 149.757037   
## stopped after 100 iterations  
## # weights: 85  
## initial value 493.691502   
## iter 10 value 217.326923  
## iter 20 value 200.672346  
## iter 30 value 165.647005  
## iter 40 value 158.092035  
## iter 50 value 153.501022  
## iter 60 value 152.511962  
## iter 70 value 150.367962  
## iter 80 value 148.579870  
## iter 90 value 147.251957  
## iter 100 value 146.380672  
## final value 146.380672   
## stopped after 100 iterations  
## # weights: 99  
## initial value 293.059271   
## iter 10 value 214.747758  
## iter 20 value 187.983002  
## iter 30 value 169.015316  
## iter 40 value 161.567420  
## iter 50 value 159.176145  
## iter 60 value 154.878992  
## iter 70 value 151.424984  
## iter 80 value 150.613898  
## iter 90 value 150.297116  
## iter 100 value 150.178704  
## final value 150.178704   
## stopped after 100 iterations  
## # weights: 113  
## initial value 416.335397   
## iter 10 value 200.388694  
## iter 20 value 166.329850  
## iter 30 value 162.395527  
## iter 40 value 159.176492  
## iter 50 value 156.431375  
## iter 60 value 151.122336  
## iter 70 value 147.657563  
## iter 80 value 145.685248  
## iter 90 value 143.952234  
## iter 100 value 142.820344  
## final value 142.820344   
## stopped after 100 iterations  
## # weights: 127  
## initial value 402.690784   
## iter 10 value 225.107901  
## iter 20 value 210.087541  
## iter 30 value 174.061335  
## iter 40 value 159.012930  
## iter 50 value 156.293797  
## iter 60 value 152.442727  
## iter 70 value 150.714943  
## iter 80 value 148.135876  
## iter 90 value 146.267528  
## iter 100 value 145.270667  
## final value 145.270667   
## stopped after 100 iterations  
## # weights: 141  
## initial value 661.546005   
## iter 10 value 183.340745  
## iter 20 value 165.597089  
## iter 30 value 158.350283  
## iter 40 value 155.561720  
## iter 50 value 154.019261  
## iter 60 value 153.008862  
## iter 70 value 152.624014  
## iter 80 value 151.653859  
## iter 90 value 151.147450  
## iter 100 value 150.182784  
## final value 150.182784   
## stopped after 100 iterations  
## # weights: 155  
## initial value 358.046801   
## iter 10 value 216.910105  
## iter 20 value 191.959121  
## iter 30 value 169.747873  
## iter 40 value 161.102369  
## iter 50 value 156.476779  
## iter 60 value 152.633554  
## iter 70 value 151.987392  
## iter 80 value 149.384052  
## iter 90 value 148.244181  
## iter 100 value 145.653472  
## final value 145.653472   
## stopped after 100 iterations  
## # weights: 169  
## initial value 290.408145   
## iter 10 value 214.270476  
## iter 20 value 189.608641  
## iter 30 value 173.095301  
## iter 40 value 160.681035  
## iter 50 value 155.064559  
## iter 60 value 150.998221  
## iter 70 value 149.165956  
## iter 80 value 145.306167  
## iter 90 value 143.163935  
## iter 100 value 142.119666  
## final value 142.119666   
## stopped after 100 iterations  
## # weights: 15  
## initial value 432.353939   
## iter 10 value 216.759645  
## iter 20 value 205.140730  
## iter 30 value 172.374612  
## iter 40 value 165.503338  
## iter 50 value 165.357355  
## final value 165.357254   
## converged  
## # weights: 29  
## initial value 484.692472   
## iter 10 value 214.894933  
## iter 20 value 193.323648  
## iter 30 value 171.068557  
## iter 40 value 168.992337  
## iter 50 value 168.171853  
## iter 60 value 166.860062  
## iter 70 value 165.435700  
## iter 80 value 163.043052  
## iter 90 value 162.752007  
## iter 100 value 162.591992  
## final value 162.591992   
## stopped after 100 iterations  
## # weights: 43  
## initial value 564.168692   
## iter 10 value 220.814820  
## iter 20 value 190.229032  
## iter 30 value 167.620447  
## iter 40 value 165.061105  
## iter 50 value 162.154666  
## iter 60 value 161.903283  
## iter 70 value 161.898332  
## final value 161.898330   
## converged  
## # weights: 57  
## initial value 406.377587   
## iter 10 value 217.120245  
## iter 20 value 187.895604  
## iter 30 value 163.733588  
## iter 40 value 161.923618  
## iter 50 value 160.689079  
## iter 60 value 160.493355  
## iter 70 value 160.376117  
## iter 80 value 160.367231  
## final value 160.367192   
## converged  
## # weights: 71  
## initial value 242.336713   
## iter 10 value 206.261519  
## iter 20 value 179.387714  
## iter 30 value 166.561189  
## iter 40 value 161.270510  
## iter 50 value 158.705236  
## iter 60 value 156.326893  
## iter 70 value 155.674881  
## iter 80 value 155.442729  
## iter 90 value 155.435104  
## iter 100 value 155.433830  
## final value 155.433830   
## stopped after 100 iterations  
## # weights: 85  
## initial value 465.463346   
## iter 10 value 248.790673  
## iter 20 value 207.726052  
## iter 30 value 178.030522  
## iter 40 value 168.358820  
## iter 50 value 161.922626  
## iter 60 value 159.821996  
## iter 70 value 159.172088  
## iter 80 value 158.811496  
## iter 90 value 158.592175  
## iter 100 value 158.180611  
## final value 158.180611   
## stopped after 100 iterations  
## # weights: 99  
## initial value 651.786121   
## iter 10 value 213.134470  
## iter 20 value 201.457709  
## iter 30 value 173.603710  
## iter 40 value 159.530603  
## iter 50 value 157.237941  
## iter 60 value 156.499185  
## iter 70 value 155.782238  
## iter 80 value 155.306240  
## iter 90 value 155.114177  
## iter 100 value 154.242773  
## final value 154.242773   
## stopped after 100 iterations  
## # weights: 113  
## initial value 390.268880   
## iter 10 value 214.040121  
## iter 20 value 189.790221  
## iter 30 value 167.005387  
## iter 40 value 159.303515  
## iter 50 value 156.885034  
## iter 60 value 155.698624  
## iter 70 value 155.301910  
## iter 80 value 154.510467  
## iter 90 value 154.229938  
## iter 100 value 153.961170  
## final value 153.961170   
## stopped after 100 iterations  
## # weights: 127  
## initial value 430.394155   
## iter 10 value 210.878880  
## iter 20 value 189.796596  
## iter 30 value 171.171167  
## iter 40 value 163.441590  
## iter 50 value 160.386001  
## iter 60 value 157.033113  
## iter 70 value 154.213635  
## iter 80 value 152.652319  
## iter 90 value 152.301533  
## iter 100 value 152.156185  
## final value 152.156185   
## stopped after 100 iterations  
## # weights: 141  
## initial value 1270.433576   
## iter 10 value 277.848176  
## iter 20 value 236.717630  
## iter 30 value 163.629322  
## iter 40 value 159.886113  
## iter 50 value 158.137929  
## iter 60 value 156.654797  
## iter 70 value 155.158467  
## iter 80 value 153.458871  
## iter 90 value 152.698612  
## iter 100 value 152.563656  
## final value 152.563656   
## stopped after 100 iterations  
## # weights: 155  
## initial value 529.272110   
## iter 10 value 214.447920  
## iter 20 value 187.610230  
## iter 30 value 166.757102  
## iter 40 value 163.821910  
## iter 50 value 161.624494  
## iter 60 value 160.436684  
## iter 70 value 157.848618  
## iter 80 value 154.865331  
## iter 90 value 153.920909  
## iter 100 value 153.443624  
## final value 153.443624   
## stopped after 100 iterations  
## # weights: 169  
## initial value 346.069996   
## iter 10 value 211.815327  
## iter 20 value 197.743377  
## iter 30 value 174.121481  
## iter 40 value 165.672151  
## iter 50 value 162.109865  
## iter 60 value 159.624495  
## iter 70 value 156.428972  
## iter 80 value 154.347874  
## iter 90 value 153.296937  
## iter 100 value 152.756429  
## final value 152.756429   
## stopped after 100 iterations  
## # weights: 15  
## initial value 486.735106   
## iter 10 value 218.335021  
## iter 20 value 204.499072  
## iter 30 value 169.802618  
## iter 40 value 168.596316  
## final value 168.593488   
## converged  
## # weights: 29  
## initial value 728.735201   
## iter 10 value 221.265937  
## iter 20 value 214.416264  
## iter 30 value 198.114349  
## iter 40 value 169.675927  
## iter 50 value 166.776201  
## iter 60 value 166.152754  
## iter 70 value 166.044553  
## iter 80 value 166.043664  
## final value 166.043580   
## converged  
## # weights: 43  
## initial value 284.233048   
## iter 10 value 215.351632  
## iter 20 value 212.062985  
## iter 30 value 179.848054  
## iter 40 value 168.310867  
## iter 50 value 166.607864  
## iter 60 value 166.236155  
## iter 70 value 166.212647  
## final value 166.212642   
## converged  
## # weights: 57  
## initial value 450.848236   
## iter 10 value 228.923113  
## iter 20 value 206.759452  
## iter 30 value 173.752158  
## iter 40 value 170.173172  
## iter 50 value 167.591963  
## iter 60 value 165.239337  
## iter 70 value 163.579625  
## iter 80 value 163.205692  
## iter 90 value 163.099456  
## iter 100 value 163.087439  
## final value 163.087439   
## stopped after 100 iterations  
## # weights: 71  
## initial value 484.172045   
## iter 10 value 218.656456  
## iter 20 value 196.943517  
## iter 30 value 173.551162  
## iter 40 value 166.057340  
## iter 50 value 163.865657  
## iter 60 value 163.390591  
## iter 70 value 163.267443  
## iter 80 value 163.186659  
## iter 90 value 163.167238  
## iter 100 value 163.163456  
## final value 163.163456   
## stopped after 100 iterations  
## # weights: 85  
## initial value 277.423048   
## iter 10 value 217.571290  
## iter 20 value 213.177531  
## iter 30 value 192.219949  
## iter 40 value 169.183877  
## iter 50 value 164.613086  
## iter 60 value 163.693272  
## iter 70 value 162.821874  
## iter 80 value 162.299506  
## iter 90 value 162.000398  
## iter 100 value 161.944738  
## final value 161.944738   
## stopped after 100 iterations  
## # weights: 99  
## initial value 500.951924   
## iter 10 value 227.895570  
## iter 20 value 203.123476  
## iter 30 value 181.592232  
## iter 40 value 172.909692  
## iter 50 value 164.206494  
## iter 60 value 163.051078  
## iter 70 value 162.713768  
## iter 80 value 161.534088  
## iter 90 value 160.797723  
## iter 100 value 160.654129  
## final value 160.654129   
## stopped after 100 iterations  
## # weights: 113  
## initial value 822.322830   
## iter 10 value 215.831238  
## iter 20 value 182.926809  
## iter 30 value 168.744050  
## iter 40 value 167.491051  
## iter 50 value 166.760750  
## iter 60 value 164.971840  
## iter 70 value 163.345352  
## iter 80 value 161.750353  
## iter 90 value 161.080222  
## iter 100 value 160.698207  
## final value 160.698207   
## stopped after 100 iterations  
## # weights: 127  
## initial value 404.726994   
## iter 10 value 209.154968  
## iter 20 value 184.215669  
## iter 30 value 169.215910  
## iter 40 value 165.792003  
## iter 50 value 163.513717  
## iter 60 value 163.153729  
## iter 70 value 163.019065  
## iter 80 value 162.943531  
## iter 90 value 162.899439  
## iter 100 value 162.843496  
## final value 162.843496   
## stopped after 100 iterations  
## # weights: 141  
## initial value 684.677563   
## iter 10 value 214.018444  
## iter 20 value 186.151552  
## iter 30 value 170.891370  
## iter 40 value 166.613685  
## iter 50 value 163.722173  
## iter 60 value 162.768139  
## iter 70 value 162.315598  
## iter 80 value 161.742178  
## iter 90 value 161.136253  
## iter 100 value 160.641967  
## final value 160.641967   
## stopped after 100 iterations  
## # weights: 155  
## initial value 331.315655   
## iter 10 value 212.576110  
## iter 20 value 177.756713  
## iter 30 value 168.215854  
## iter 40 value 166.565781  
## iter 50 value 164.983785  
## iter 60 value 164.374165  
## iter 70 value 163.868824  
## iter 80 value 163.008691  
## iter 90 value 162.367572  
## iter 100 value 161.663650  
## final value 161.663650   
## stopped after 100 iterations  
## # weights: 169  
## initial value 258.116884   
## iter 10 value 206.814503  
## iter 20 value 181.402892  
## iter 30 value 168.710803  
## iter 40 value 164.322290  
## iter 50 value 162.221141  
## iter 60 value 161.168255  
## iter 70 value 159.675358  
## iter 80 value 158.941514  
## iter 90 value 158.734020  
## iter 100 value 158.696975  
## final value 158.696975   
## stopped after 100 iterations  
## # weights: 15  
## initial value 425.217004   
## iter 10 value 215.655772  
## iter 20 value 187.891331  
## iter 30 value 171.657881  
## iter 40 value 171.574632  
## iter 40 value 171.574632  
## final value 171.574632   
## converged  
## # weights: 29  
## initial value 406.307277   
## iter 10 value 218.808032  
## iter 20 value 200.564523  
## iter 30 value 173.165915  
## iter 40 value 170.245769  
## iter 50 value 170.194277  
## iter 60 value 169.834454  
## iter 70 value 169.804296  
## final value 169.802549   
## converged  
## # weights: 43  
## initial value 359.066332   
## iter 10 value 219.453495  
## iter 20 value 210.167507  
## iter 30 value 173.555472  
## iter 40 value 170.866548  
## iter 50 value 169.661750  
## iter 60 value 169.576617  
## iter 70 value 169.353721  
## iter 80 value 167.696631  
## iter 90 value 167.501412  
## iter 100 value 167.396662  
## final value 167.396662   
## stopped after 100 iterations  
## # weights: 57  
## initial value 1039.134461   
## iter 10 value 278.982757  
## iter 20 value 228.170870  
## iter 30 value 179.242377  
## iter 40 value 173.760796  
## iter 50 value 169.725705  
## iter 60 value 168.307087  
## iter 70 value 167.328162  
## iter 80 value 166.783336  
## iter 90 value 166.732426  
## iter 100 value 166.684438  
## final value 166.684438   
## stopped after 100 iterations  
## # weights: 71  
## initial value 1180.988604   
## iter 10 value 271.051291  
## iter 20 value 219.311695  
## iter 30 value 197.282000  
## iter 40 value 177.546217  
## iter 50 value 174.233766  
## iter 60 value 173.581067  
## iter 70 value 172.862979  
## iter 80 value 172.852413  
## iter 90 value 172.851723  
## final value 172.851557   
## converged  
## # weights: 85  
## initial value 318.841800   
## iter 10 value 215.581482  
## iter 20 value 190.063481  
## iter 30 value 171.059669  
## iter 40 value 168.498130  
## iter 50 value 166.870782  
## iter 60 value 166.417089  
## iter 70 value 166.231400  
## iter 80 value 166.151856  
## iter 90 value 166.132792  
## iter 100 value 166.092747  
## final value 166.092747   
## stopped after 100 iterations  
## # weights: 99  
## initial value 449.546612   
## iter 10 value 215.762372  
## iter 20 value 184.319250  
## iter 30 value 170.954031  
## iter 40 value 169.538770  
## iter 50 value 168.451497  
## iter 60 value 166.804312  
## iter 70 value 166.041142  
## iter 80 value 165.925716  
## iter 90 value 165.898202  
## iter 100 value 165.891384  
## final value 165.891384   
## stopped after 100 iterations  
## # weights: 113  
## initial value 842.723291   
## iter 10 value 210.011647  
## iter 20 value 178.397499  
## iter 30 value 171.525886  
## iter 40 value 169.457375  
## iter 50 value 167.706308  
## iter 60 value 167.188300  
## iter 70 value 166.503960  
## iter 80 value 165.908072  
## iter 90 value 165.556827  
## iter 100 value 165.406465  
## final value 165.406465   
## stopped after 100 iterations  
## # weights: 127  
## initial value 1154.552761   
## iter 10 value 218.174792  
## iter 20 value 199.105869  
## iter 30 value 180.830265  
## iter 40 value 172.996067  
## iter 50 value 170.399271  
## iter 60 value 167.760911  
## iter 70 value 166.510263  
## iter 80 value 166.244836  
## iter 90 value 166.059798  
## iter 100 value 165.987260  
## final value 165.987260   
## stopped after 100 iterations  
## # weights: 141  
## initial value 276.456361   
## iter 10 value 215.220052  
## iter 20 value 187.526981  
## iter 30 value 172.768678  
## iter 40 value 168.038004  
## iter 50 value 166.406384  
## iter 60 value 165.817348  
## iter 70 value 165.514321  
## iter 80 value 165.255037  
## iter 90 value 165.083336  
## iter 100 value 164.972050  
## final value 164.972050   
## stopped after 100 iterations  
## # weights: 155  
## initial value 397.542699   
## iter 10 value 219.033413  
## iter 20 value 200.929429  
## iter 30 value 173.712376  
## iter 40 value 170.584998  
## iter 50 value 169.523636  
## iter 60 value 168.162307  
## iter 70 value 167.277504  
## iter 80 value 166.740594  
## iter 90 value 166.419111  
## iter 100 value 165.830091  
## final value 165.830091   
## stopped after 100 iterations  
## # weights: 169  
## initial value 573.817864   
## iter 10 value 208.506134  
## iter 20 value 183.851294  
## iter 30 value 173.679464  
## iter 40 value 168.962660  
## iter 50 value 167.121081  
## iter 60 value 166.636251  
## iter 70 value 166.483426  
## iter 80 value 166.071551  
## iter 90 value 165.612028  
## iter 100 value 165.235341  
## final value 165.235341   
## stopped after 100 iterations  
## # weights: 15  
## initial value 580.058885   
## iter 10 value 218.034437  
## iter 20 value 215.631090  
## iter 30 value 186.594193  
## iter 40 value 164.487990  
## iter 50 value 162.809694  
## iter 60 value 162.068522  
## final value 162.065865   
## converged  
## # weights: 29  
## initial value 550.855820   
## iter 10 value 219.478321  
## iter 20 value 214.344462  
## iter 30 value 204.870747  
## iter 40 value 165.955467  
## iter 50 value 156.238923  
## iter 60 value 152.823582  
## iter 70 value 152.286664  
## final value 152.282337   
## converged  
## # weights: 43  
## initial value 410.469278   
## iter 10 value 202.413374  
## iter 20 value 166.819770  
## iter 30 value 162.796446  
## iter 40 value 158.606848  
## iter 50 value 153.611202  
## iter 60 value 153.277018  
## iter 70 value 152.058020  
## iter 80 value 147.570811  
## iter 90 value 146.718606  
## iter 100 value 145.460604  
## final value 145.460604   
## stopped after 100 iterations  
## # weights: 57  
## initial value 956.410049   
## iter 10 value 211.545304  
## iter 20 value 167.355902  
## iter 30 value 156.403492  
## iter 40 value 151.338629  
## iter 50 value 149.056188  
## iter 60 value 148.471286  
## iter 70 value 146.125112  
## iter 80 value 142.711265  
## iter 90 value 141.904567  
## iter 100 value 141.630082  
## final value 141.630082   
## stopped after 100 iterations  
## # weights: 71  
## initial value 704.092564   
## iter 10 value 223.089320  
## iter 20 value 207.231545  
## iter 30 value 169.287979  
## iter 40 value 163.237242  
## iter 50 value 157.369463  
## iter 60 value 151.301429  
## iter 70 value 147.690285  
## iter 80 value 147.065330  
## iter 90 value 146.996468  
## iter 100 value 146.981664  
## final value 146.981664   
## stopped after 100 iterations  
## # weights: 85  
## initial value 281.647878   
## iter 10 value 208.231097  
## iter 20 value 189.279886  
## iter 30 value 168.787985  
## iter 40 value 154.057347  
## iter 50 value 148.955534  
## iter 60 value 144.442306  
## iter 70 value 142.790033  
## iter 80 value 140.558711  
## iter 90 value 137.630268  
## iter 100 value 136.514514  
## final value 136.514514   
## stopped after 100 iterations  
## # weights: 99  
## initial value 506.527771   
## iter 10 value 216.593365  
## iter 20 value 208.064894  
## iter 30 value 171.571977  
## iter 40 value 162.513730  
## iter 50 value 156.005800  
## iter 60 value 145.239055  
## iter 70 value 140.046681  
## iter 80 value 137.690835  
## iter 90 value 132.904341  
## iter 100 value 130.745527  
## final value 130.745527   
## stopped after 100 iterations  
## # weights: 113  
## initial value 665.958159   
## iter 10 value 232.506229  
## iter 20 value 204.953508  
## iter 30 value 175.058323  
## iter 40 value 161.617574  
## iter 50 value 158.994325  
## iter 60 value 156.729883  
## iter 70 value 155.218114  
## iter 80 value 147.365827  
## iter 90 value 141.022250  
## iter 100 value 138.137269  
## final value 138.137269   
## stopped after 100 iterations  
## # weights: 127  
## initial value 342.479973   
## iter 10 value 202.283025  
## iter 20 value 167.346733  
## iter 30 value 163.134948  
## iter 40 value 158.294525  
## iter 50 value 150.815328  
## iter 60 value 146.213311  
## iter 70 value 145.495914  
## iter 80 value 144.005188  
## iter 90 value 141.396555  
## iter 100 value 138.850331  
## final value 138.850331   
## stopped after 100 iterations  
## # weights: 141  
## initial value 464.900338   
## iter 10 value 200.405420  
## iter 20 value 164.397995  
## iter 30 value 153.250486  
## iter 40 value 145.953797  
## iter 50 value 140.017760  
## iter 60 value 133.839101  
## iter 70 value 132.157193  
## iter 80 value 130.052271  
## iter 90 value 127.915909  
## iter 100 value 126.410970  
## final value 126.410970   
## stopped after 100 iterations  
## # weights: 155  
## initial value 383.853588   
## iter 10 value 217.374940  
## iter 20 value 212.021820  
## iter 30 value 174.817908  
## iter 40 value 160.590401  
## iter 50 value 155.899880  
## iter 60 value 149.516755  
## iter 70 value 144.913414  
## iter 80 value 142.663785  
## iter 90 value 140.300717  
## iter 100 value 137.080988  
## final value 137.080988   
## stopped after 100 iterations  
## # weights: 169  
## initial value 324.848814   
## iter 10 value 217.370918  
## iter 20 value 211.905074  
## iter 30 value 193.148232  
## iter 40 value 173.909126  
## iter 50 value 157.688077  
## iter 60 value 148.987704  
## iter 70 value 143.155124  
## iter 80 value 136.810064  
## iter 90 value 127.442796  
## iter 100 value 123.697945  
## final value 123.697945   
## stopped after 100 iterations  
## # weights: 15  
## initial value 352.953851   
## iter 10 value 215.368617  
## iter 20 value 180.559861  
## iter 30 value 166.611358  
## iter 40 value 165.917614  
## iter 50 value 165.911225  
## final value 165.911210   
## converged  
## # weights: 29  
## initial value 375.500395   
## iter 10 value 212.201716  
## iter 20 value 170.756594  
## iter 30 value 166.103842  
## iter 40 value 165.900530  
## iter 50 value 164.764668  
## iter 60 value 161.220156  
## iter 70 value 161.158964  
## final value 161.158674   
## converged  
## # weights: 43  
## initial value 354.640685   
## iter 10 value 212.372093  
## iter 20 value 177.904212  
## iter 30 value 166.119811  
## iter 40 value 162.208841  
## iter 50 value 160.250891  
## iter 60 value 160.195903  
## iter 70 value 160.181179  
## iter 80 value 160.166497  
## iter 90 value 159.800290  
## iter 100 value 158.412922  
## final value 158.412922   
## stopped after 100 iterations  
## # weights: 57  
## initial value 672.715156   
## iter 10 value 225.253752  
## iter 20 value 201.271486  
## iter 30 value 171.159042  
## iter 40 value 166.487116  
## iter 50 value 166.007940  
## iter 60 value 164.418190  
## iter 70 value 162.490274  
## iter 80 value 158.766985  
## iter 90 value 156.464993  
## iter 100 value 155.902721  
## final value 155.902721   
## stopped after 100 iterations  
## # weights: 71  
## initial value 258.020780   
## iter 10 value 217.455333  
## iter 20 value 205.008879  
## iter 30 value 168.516174  
## iter 40 value 163.297592  
## iter 50 value 161.352128  
## iter 60 value 160.219436  
## iter 70 value 158.627318  
## iter 80 value 157.451700  
## iter 90 value 156.840170  
## iter 100 value 155.142419  
## final value 155.142419   
## stopped after 100 iterations  
## # weights: 85  
## initial value 366.975966   
## iter 10 value 218.035803  
## iter 20 value 181.535807  
## iter 30 value 164.708523  
## iter 40 value 161.987755  
## iter 50 value 161.052186  
## iter 60 value 160.899519  
## iter 70 value 159.975217  
## iter 80 value 156.972187  
## iter 90 value 153.899046  
## iter 100 value 150.849122  
## final value 150.849122   
## stopped after 100 iterations  
## # weights: 99  
## initial value 458.445941   
## iter 10 value 224.173965  
## iter 20 value 207.846919  
## iter 30 value 179.909690  
## iter 40 value 167.341562  
## iter 50 value 160.849657  
## iter 60 value 155.802677  
## iter 70 value 152.037616  
## iter 80 value 149.455637  
## iter 90 value 149.053967  
## iter 100 value 148.960488  
## final value 148.960488   
## stopped after 100 iterations  
## # weights: 113  
## initial value 385.687467   
## iter 10 value 215.897660  
## iter 20 value 203.475079  
## iter 30 value 177.339624  
## iter 40 value 168.531667  
## iter 50 value 165.545900  
## iter 60 value 162.620776  
## iter 70 value 160.611791  
## iter 80 value 159.094920  
## iter 90 value 157.230632  
## iter 100 value 155.741802  
## final value 155.741802   
## stopped after 100 iterations  
## # weights: 127  
## initial value 730.884530   
## iter 10 value 213.004314  
## iter 20 value 191.408003  
## iter 30 value 173.613581  
## iter 40 value 164.090164  
## iter 50 value 160.355659  
## iter 60 value 158.609806  
## iter 70 value 154.566195  
## iter 80 value 152.541514  
## iter 90 value 151.327879  
## iter 100 value 150.553540  
## final value 150.553540   
## stopped after 100 iterations  
## # weights: 141  
## initial value 639.664358   
## iter 10 value 210.155383  
## iter 20 value 176.617330  
## iter 30 value 167.048592  
## iter 40 value 159.807531  
## iter 50 value 156.680464  
## iter 60 value 155.730970  
## iter 70 value 154.138074  
## iter 80 value 152.121213  
## iter 90 value 150.339848  
## iter 100 value 148.866740  
## final value 148.866740   
## stopped after 100 iterations  
## # weights: 155  
## initial value 368.467678   
## iter 10 value 211.949289  
## iter 20 value 177.552294  
## iter 30 value 169.643223  
## iter 40 value 162.530376  
## iter 50 value 154.050254  
## iter 60 value 149.994129  
## iter 70 value 146.987462  
## iter 80 value 145.819374  
## iter 90 value 145.053188  
## iter 100 value 144.281749  
## final value 144.281749   
## stopped after 100 iterations  
## # weights: 169  
## initial value 744.378381   
## iter 10 value 214.590391  
## iter 20 value 186.855051  
## iter 30 value 164.993437  
## iter 40 value 160.968910  
## iter 50 value 152.612337  
## iter 60 value 150.570939  
## iter 70 value 149.660919  
## iter 80 value 147.517754  
## iter 90 value 146.272146  
## iter 100 value 145.296483  
## final value 145.296483   
## stopped after 100 iterations  
## # weights: 15  
## initial value 527.114959   
## iter 10 value 218.150238  
## iter 20 value 183.432561  
## iter 30 value 169.477173  
## iter 40 value 169.351509  
## final value 169.349024   
## converged  
## # weights: 29  
## initial value 448.923425   
## iter 10 value 217.678740  
## iter 20 value 204.392762  
## iter 30 value 172.706259  
## iter 40 value 168.721478  
## iter 50 value 167.287904  
## iter 60 value 167.254225  
## final value 167.254220   
## converged  
## # weights: 43  
## initial value 235.898116   
## iter 10 value 211.335052  
## iter 20 value 192.425317  
## iter 30 value 170.894603  
## iter 40 value 168.449088  
## iter 50 value 167.913101  
## iter 60 value 165.717723  
## iter 70 value 164.572327  
## iter 80 value 163.647728  
## iter 90 value 163.261358  
## iter 100 value 163.223579  
## final value 163.223579   
## stopped after 100 iterations  
## # weights: 57  
## initial value 550.454839   
## iter 10 value 228.416874  
## iter 20 value 211.932455  
## iter 30 value 198.363993  
## iter 40 value 171.163856  
## iter 50 value 167.420034  
## iter 60 value 166.187354  
## iter 70 value 165.857298  
## iter 80 value 165.667364  
## iter 90 value 165.564925  
## iter 100 value 163.350902  
## final value 163.350902   
## stopped after 100 iterations  
## # weights: 71  
## initial value 447.186973   
## iter 10 value 216.219948  
## iter 20 value 192.121365  
## iter 30 value 170.493921  
## iter 40 value 166.706042  
## iter 50 value 164.726970  
## iter 60 value 163.428357  
## iter 70 value 162.362297  
## iter 80 value 162.095828  
## iter 90 value 161.994595  
## iter 100 value 161.896320  
## final value 161.896320   
## stopped after 100 iterations  
## # weights: 85  
## initial value 299.552177   
## iter 10 value 213.105237  
## iter 20 value 199.200650  
## iter 30 value 173.023952  
## iter 40 value 163.011254  
## iter 50 value 161.325209  
## iter 60 value 160.686733  
## iter 70 value 160.395990  
## iter 80 value 159.068787  
## iter 90 value 158.968710  
## iter 100 value 158.952311  
## final value 158.952311   
## stopped after 100 iterations  
## # weights: 99  
## initial value 514.519310   
## iter 10 value 215.940705  
## iter 20 value 186.378218  
## iter 30 value 169.409415  
## iter 40 value 164.736420  
## iter 50 value 160.039880  
## iter 60 value 159.467566  
## iter 70 value 159.051071  
## iter 80 value 158.508035  
## iter 90 value 157.436046  
## iter 100 value 156.961344  
## final value 156.961344   
## stopped after 100 iterations  
## # weights: 113  
## initial value 229.262830   
## iter 10 value 213.696769  
## iter 20 value 201.565750  
## iter 30 value 174.885763  
## iter 40 value 165.035854  
## iter 50 value 162.594863  
## iter 60 value 160.302114  
## iter 70 value 159.554740  
## iter 80 value 158.967667  
## iter 90 value 157.699974  
## iter 100 value 156.945479  
## final value 156.945479   
## stopped after 100 iterations  
## # weights: 127  
## initial value 391.898848   
## iter 10 value 216.276774  
## iter 20 value 183.533391  
## iter 30 value 169.417948  
## iter 40 value 165.012067  
## iter 50 value 162.185370  
## iter 60 value 160.237974  
## iter 70 value 159.377216  
## iter 80 value 157.587880  
## iter 90 value 156.942144  
## iter 100 value 156.430429  
## final value 156.430429   
## stopped after 100 iterations  
## # weights: 141  
## initial value 291.750979   
## iter 10 value 193.101228  
## iter 20 value 177.280093  
## iter 30 value 170.596636  
## iter 40 value 164.945268  
## iter 50 value 163.039483  
## iter 60 value 160.680385  
## iter 70 value 159.508118  
## iter 80 value 159.164850  
## iter 90 value 158.621848  
## iter 100 value 157.413799  
## final value 157.413799   
## stopped after 100 iterations  
## # weights: 155  
## initial value 619.218960   
## iter 10 value 214.459807  
## iter 20 value 189.626069  
## iter 30 value 169.758319  
## iter 40 value 166.064602  
## iter 50 value 164.919635  
## iter 60 value 163.410998  
## iter 70 value 160.712555  
## iter 80 value 157.348186  
## iter 90 value 156.509699  
## iter 100 value 156.216279  
## final value 156.216279   
## stopped after 100 iterations  
## # weights: 169  
## initial value 558.848695   
## iter 10 value 216.805161  
## iter 20 value 182.221894  
## iter 30 value 168.755633  
## iter 40 value 165.810730  
## iter 50 value 163.424841  
## iter 60 value 161.175985  
## iter 70 value 159.674255  
## iter 80 value 158.398058  
## iter 90 value 157.358104  
## iter 100 value 156.607627  
## final value 156.607627   
## stopped after 100 iterations  
## # weights: 15  
## initial value 685.316080   
## iter 10 value 220.103512  
## iter 20 value 218.366952  
## iter 30 value 215.549663  
## iter 40 value 177.447939  
## iter 50 value 172.601960  
## final value 172.491473   
## converged  
## # weights: 29  
## initial value 486.945981   
## iter 10 value 219.156895  
## iter 20 value 194.668227  
## iter 30 value 173.919501  
## iter 40 value 172.842755  
## iter 50 value 172.467386  
## iter 60 value 172.211612  
## iter 70 value 170.692199  
## iter 80 value 170.426724  
## final value 170.424162   
## converged  
## # weights: 43  
## initial value 725.862855   
## iter 10 value 221.176201  
## iter 20 value 202.799659  
## iter 30 value 173.553658  
## iter 40 value 170.774992  
## iter 50 value 169.506733  
## iter 60 value 168.603094  
## iter 70 value 167.487816  
## iter 80 value 167.403326  
## final value 167.397383   
## converged  
## # weights: 57  
## initial value 703.619460   
## iter 10 value 233.400803  
## iter 20 value 208.989462  
## iter 30 value 171.446990  
## iter 40 value 169.631394  
## iter 50 value 168.400702  
## iter 60 value 166.505001  
## iter 70 value 165.817883  
## iter 80 value 165.500024  
## iter 90 value 165.186855  
## iter 100 value 165.068916  
## final value 165.068916   
## stopped after 100 iterations  
## # weights: 71  
## initial value 851.642779   
## iter 10 value 255.514391  
## iter 20 value 214.853736  
## iter 30 value 180.938500  
## iter 40 value 169.946332  
## iter 50 value 169.296662  
## iter 60 value 168.972939  
## iter 70 value 167.701522  
## iter 80 value 166.893017  
## iter 90 value 165.654983  
## iter 100 value 164.993591  
## final value 164.993591   
## stopped after 100 iterations  
## # weights: 85  
## initial value 897.089446   
## iter 10 value 232.578942  
## iter 20 value 207.467294  
## iter 30 value 187.243307  
## iter 40 value 171.001371  
## iter 50 value 168.798968  
## iter 60 value 168.588956  
## iter 70 value 167.785083  
## iter 80 value 165.509689  
## iter 90 value 163.480668  
## iter 100 value 163.312694  
## final value 163.312694   
## stopped after 100 iterations  
## # weights: 99  
## initial value 517.028821   
## iter 10 value 216.247409  
## iter 20 value 196.015924  
## iter 30 value 174.479347  
## iter 40 value 170.662400  
## iter 50 value 168.014783  
## iter 60 value 166.250325  
## iter 70 value 165.001818  
## iter 80 value 164.044241  
## iter 90 value 163.889325  
## iter 100 value 163.678453  
## final value 163.678453   
## stopped after 100 iterations  
## # weights: 113  
## initial value 976.252084   
## iter 10 value 228.586982  
## iter 20 value 200.550228  
## iter 30 value 184.150140  
## iter 40 value 172.398810  
## iter 50 value 169.887511  
## iter 60 value 168.543602  
## iter 70 value 166.094329  
## iter 80 value 164.677121  
## iter 90 value 164.355348  
## iter 100 value 164.199992  
## final value 164.199992   
## stopped after 100 iterations  
## # weights: 127  
## initial value 298.346431   
## iter 10 value 217.656892  
## iter 20 value 182.623522  
## iter 30 value 175.273369  
## iter 40 value 172.489721  
## iter 50 value 171.361237  
## iter 60 value 169.883616  
## iter 70 value 169.063941  
## iter 80 value 167.396059  
## iter 90 value 165.864716  
## iter 100 value 165.357091  
## final value 165.357091   
## stopped after 100 iterations  
## # weights: 141  
## initial value 371.297004   
## iter 10 value 214.219759  
## iter 20 value 185.461754  
## iter 30 value 174.901358  
## iter 40 value 170.233053  
## iter 50 value 168.483889  
## iter 60 value 166.995812  
## iter 70 value 166.018171  
## iter 80 value 165.148519  
## iter 90 value 164.698531  
## iter 100 value 164.490628  
## final value 164.490628   
## stopped after 100 iterations  
## # weights: 155  
## initial value 695.507725   
## iter 10 value 219.611917  
## iter 20 value 212.723858  
## iter 30 value 192.932220  
## iter 40 value 176.420318  
## iter 50 value 172.059897  
## iter 60 value 169.151811  
## iter 70 value 167.228242  
## iter 80 value 166.467905  
## iter 90 value 165.462482  
## iter 100 value 164.953800  
## final value 164.953800   
## stopped after 100 iterations  
## # weights: 169  
## initial value 334.857474   
## iter 10 value 218.305422  
## iter 20 value 202.852568  
## iter 30 value 182.313414  
## iter 40 value 171.613499  
## iter 50 value 168.058120  
## iter 60 value 167.172571  
## iter 70 value 165.658762  
## iter 80 value 164.508933  
## iter 90 value 163.806044  
## iter 100 value 163.404032  
## final value 163.404032   
## stopped after 100 iterations  
## # weights: 15  
## initial value 352.958158   
## iter 10 value 218.199274  
## iter 20 value 216.324627  
## iter 30 value 197.648642  
## iter 40 value 175.552165  
## iter 50 value 175.390386  
## final value 175.390342   
## converged  
## # weights: 29  
## initial value 445.715972   
## iter 10 value 216.406436  
## iter 20 value 186.158877  
## iter 30 value 177.282164  
## iter 40 value 176.497332  
## iter 50 value 175.356239  
## iter 60 value 173.598498  
## iter 70 value 173.539874  
## final value 173.537269   
## converged  
## # weights: 43  
## initial value 228.585022   
## iter 10 value 215.409003  
## iter 20 value 184.591377  
## iter 30 value 174.489990  
## iter 40 value 173.852173  
## iter 50 value 173.420665  
## iter 60 value 173.285916  
## iter 70 value 173.231701  
## iter 80 value 172.109223  
## iter 90 value 171.565968  
## final value 171.564549   
## converged  
## # weights: 57  
## initial value 234.483455   
## iter 10 value 205.785865  
## iter 20 value 176.546662  
## iter 30 value 174.644986  
## iter 40 value 174.146625  
## iter 50 value 173.920277  
## iter 60 value 173.317168  
## iter 70 value 171.685993  
## iter 80 value 170.616926  
## iter 90 value 170.246244  
## iter 100 value 170.212580  
## final value 170.212580   
## stopped after 100 iterations  
## # weights: 71  
## initial value 298.481173   
## iter 10 value 215.308785  
## iter 20 value 187.084867  
## iter 30 value 175.110254  
## iter 40 value 171.955811  
## iter 50 value 171.338362  
## iter 60 value 170.124802  
## iter 70 value 169.377155  
## iter 80 value 169.059398  
## iter 90 value 168.976264  
## iter 100 value 168.947574  
## final value 168.947574   
## stopped after 100 iterations  
## # weights: 85  
## initial value 595.114634   
## iter 10 value 208.193297  
## iter 20 value 188.299154  
## iter 30 value 175.686601  
## iter 40 value 173.922416  
## iter 50 value 172.739669  
## iter 60 value 172.370119  
## iter 70 value 172.161379  
## iter 80 value 172.100627  
## iter 90 value 172.098654  
## final value 172.098562   
## converged  
## # weights: 99  
## initial value 245.407287   
## iter 10 value 207.406105  
## iter 20 value 188.426144  
## iter 30 value 174.426904  
## iter 40 value 172.005057  
## iter 50 value 171.434949  
## iter 60 value 170.978756  
## iter 70 value 170.234914  
## iter 80 value 169.957305  
## iter 90 value 169.768890  
## iter 100 value 169.457171  
## final value 169.457171   
## stopped after 100 iterations  
## # weights: 113  
## initial value 296.402219   
## iter 10 value 211.319123  
## iter 20 value 193.996036  
## iter 30 value 176.385947  
## iter 40 value 173.208147  
## iter 50 value 171.763392  
## iter 60 value 170.210440  
## iter 70 value 169.001731  
## iter 80 value 168.564271  
## iter 90 value 168.428567  
## iter 100 value 168.369793  
## final value 168.369793   
## stopped after 100 iterations  
## # weights: 127  
## initial value 310.408648   
## iter 10 value 216.968287  
## iter 20 value 192.430734  
## iter 30 value 177.106335  
## iter 40 value 174.244094  
## iter 50 value 172.478446  
## iter 60 value 171.994062  
## iter 70 value 171.150437  
## iter 80 value 170.332037  
## iter 90 value 169.333953  
## iter 100 value 169.085020  
## final value 169.085020   
## stopped after 100 iterations  
## # weights: 141  
## initial value 305.279224   
## iter 10 value 200.188042  
## iter 20 value 176.710561  
## iter 30 value 174.152656  
## iter 40 value 172.454701  
## iter 50 value 171.564270  
## iter 60 value 170.515923  
## iter 70 value 169.517453  
## iter 80 value 168.564659  
## iter 90 value 168.078024  
## iter 100 value 167.878358  
## final value 167.878358   
## stopped after 100 iterations  
## # weights: 155  
## initial value 230.967128   
## iter 10 value 207.456764  
## iter 20 value 180.821866  
## iter 30 value 175.270743  
## iter 40 value 173.354146  
## iter 50 value 172.360499  
## iter 60 value 170.975714  
## iter 70 value 170.169538  
## iter 80 value 169.627616  
## iter 90 value 169.178781  
## iter 100 value 168.856412  
## final value 168.856412   
## stopped after 100 iterations  
## # weights: 169  
## initial value 751.716854   
## iter 10 value 210.444401  
## iter 20 value 184.880721  
## iter 30 value 175.244394  
## iter 40 value 172.640701  
## iter 50 value 171.335330  
## iter 60 value 170.686466  
## iter 70 value 170.154105  
## iter 80 value 169.396872  
## iter 90 value 169.138972  
## iter 100 value 168.918862  
## final value 168.918862   
## stopped after 100 iterations  
## # weights: 15  
## initial value 319.697083   
## iter 10 value 217.633935  
## iter 20 value 193.596105  
## iter 30 value 166.700132  
## iter 40 value 163.878948  
## iter 50 value 163.729013  
## iter 60 value 163.727999  
## final value 163.727995   
## converged  
## # weights: 29  
## initial value 557.789584   
## iter 10 value 199.699886  
## iter 20 value 169.347568  
## iter 30 value 162.839378  
## iter 40 value 161.560405  
## iter 50 value 159.486635  
## iter 60 value 156.822990  
## iter 70 value 155.491382  
## iter 80 value 155.316541  
## final value 155.308304   
## converged  
## # weights: 43  
## initial value 385.419830   
## iter 10 value 221.242592  
## iter 20 value 214.881892  
## iter 30 value 208.390519  
## iter 40 value 166.771990  
## iter 50 value 164.093630  
## iter 60 value 163.330630  
## iter 70 value 157.414161  
## iter 80 value 154.625745  
## iter 90 value 149.219314  
## iter 100 value 145.729322  
## final value 145.729322   
## stopped after 100 iterations  
## # weights: 57  
## initial value 467.559117   
## iter 10 value 214.990764  
## iter 20 value 187.665114  
## iter 30 value 165.909832  
## iter 40 value 155.697699  
## iter 50 value 153.135901  
## iter 60 value 149.217876  
## iter 70 value 146.281082  
## iter 80 value 144.803678  
## iter 90 value 144.471751  
## iter 100 value 144.279981  
## final value 144.279981   
## stopped after 100 iterations  
## # weights: 71  
## initial value 536.128877   
## iter 10 value 215.226255  
## iter 20 value 188.309127  
## iter 30 value 167.074751  
## iter 40 value 159.229067  
## iter 50 value 156.740566  
## iter 60 value 149.748617  
## iter 70 value 143.712622  
## iter 80 value 139.990101  
## iter 90 value 137.726884  
## iter 100 value 135.985913  
## final value 135.985913   
## stopped after 100 iterations  
## # weights: 85  
## initial value 494.071713   
## iter 10 value 216.333105  
## iter 20 value 189.582344  
## iter 30 value 169.535126  
## iter 40 value 164.220971  
## iter 50 value 156.361434  
## iter 60 value 140.091770  
## iter 70 value 134.916498  
## iter 80 value 134.360491  
## iter 90 value 134.156796  
## iter 100 value 132.417954  
## final value 132.417954   
## stopped after 100 iterations  
## # weights: 99  
## initial value 574.589950   
## iter 10 value 217.357868  
## iter 20 value 174.442097  
## iter 30 value 162.006157  
## iter 40 value 154.620523  
## iter 50 value 152.236636  
## iter 60 value 149.564529  
## iter 70 value 141.474035  
## iter 80 value 138.159783  
## iter 90 value 134.699556  
## iter 100 value 132.466245  
## final value 132.466245   
## stopped after 100 iterations  
## # weights: 113  
## initial value 905.892582   
## iter 10 value 228.920586  
## iter 20 value 180.941214  
## iter 30 value 164.053383  
## iter 40 value 159.193620  
## iter 50 value 153.897499  
## iter 60 value 150.033605  
## iter 70 value 143.316533  
## iter 80 value 140.027030  
## iter 90 value 136.049109  
## iter 100 value 132.851359  
## final value 132.851359   
## stopped after 100 iterations  
## # weights: 127  
## initial value 529.404899   
## iter 10 value 217.298505  
## iter 20 value 191.616003  
## iter 30 value 167.169938  
## iter 40 value 154.285771  
## iter 50 value 146.049026  
## iter 60 value 139.279330  
## iter 70 value 136.121763  
## iter 80 value 134.736532  
## iter 90 value 134.397474  
## iter 100 value 134.156480  
## final value 134.156480   
## stopped after 100 iterations  
## # weights: 141  
## initial value 318.042543   
## iter 10 value 215.492498  
## iter 20 value 197.028174  
## iter 30 value 177.146600  
## iter 40 value 165.224265  
## iter 50 value 155.513462  
## iter 60 value 146.208283  
## iter 70 value 140.595327  
## iter 80 value 135.812602  
## iter 90 value 133.167835  
## iter 100 value 132.154265  
## final value 132.154265   
## stopped after 100 iterations  
## # weights: 155  
## initial value 307.790400   
## iter 10 value 227.216209  
## iter 20 value 210.045403  
## iter 30 value 204.363139  
## iter 40 value 180.845291  
## iter 50 value 162.568914  
## iter 60 value 154.338585  
## iter 70 value 146.967257  
## iter 80 value 140.202609  
## iter 90 value 135.275344  
## iter 100 value 130.612209  
## final value 130.612209   
## stopped after 100 iterations  
## # weights: 169  
## initial value 919.460351   
## iter 10 value 221.198548  
## iter 20 value 203.168289  
## iter 30 value 180.323139  
## iter 40 value 165.363771  
## iter 50 value 158.982673  
## iter 60 value 152.596167  
## iter 70 value 147.345667  
## iter 80 value 142.562361  
## iter 90 value 134.248146  
## iter 100 value 131.809405  
## final value 131.809405   
## stopped after 100 iterations  
## # weights: 15  
## initial value 597.613506   
## iter 10 value 217.641315  
## iter 20 value 203.868944  
## iter 30 value 176.736731  
## iter 40 value 168.027102  
## iter 50 value 167.609032  
## final value 167.607473   
## converged  
## # weights: 29  
## initial value 313.806606   
## iter 10 value 209.204048  
## iter 20 value 181.089863  
## iter 30 value 166.885820  
## iter 40 value 163.970778  
## iter 50 value 162.554763  
## final value 162.485674   
## converged  
## # weights: 43  
## initial value 369.220176   
## iter 10 value 229.952624  
## iter 20 value 203.467327  
## iter 30 value 170.150848  
## iter 40 value 168.078296  
## iter 50 value 167.495443  
## iter 60 value 165.798782  
## iter 70 value 160.397305  
## iter 80 value 159.714446  
## iter 90 value 158.807345  
## iter 100 value 158.793542  
## final value 158.793542   
## stopped after 100 iterations  
## # weights: 57  
## initial value 504.017089   
## iter 10 value 229.167092  
## iter 20 value 186.799010  
## iter 30 value 168.304498  
## iter 40 value 164.093406  
## iter 50 value 163.311926  
## iter 60 value 160.110821  
## iter 70 value 157.782256  
## iter 80 value 155.757342  
## iter 90 value 155.159020  
## iter 100 value 155.007154  
## final value 155.007154   
## stopped after 100 iterations  
## # weights: 71  
## initial value 396.683148   
## iter 10 value 212.885913  
## iter 20 value 175.645210  
## iter 30 value 166.814303  
## iter 40 value 162.590584  
## iter 50 value 159.403840  
## iter 60 value 155.122602  
## iter 70 value 150.580700  
## iter 80 value 149.177856  
## iter 90 value 148.358388  
## iter 100 value 148.350949  
## final value 148.350949   
## stopped after 100 iterations  
## # weights: 85  
## initial value 316.031566   
## iter 10 value 208.079988  
## iter 20 value 167.905536  
## iter 30 value 161.767147  
## iter 40 value 160.204578  
## iter 50 value 158.005039  
## iter 60 value 153.344414  
## iter 70 value 150.607655  
## iter 80 value 149.668539  
## iter 90 value 148.524561  
## iter 100 value 148.412880  
## final value 148.412880   
## stopped after 100 iterations  
## # weights: 99  
## initial value 558.826581   
## iter 10 value 213.561117  
## iter 20 value 185.834592  
## iter 30 value 166.723155  
## iter 40 value 164.852702  
## iter 50 value 164.278796  
## iter 60 value 163.576226  
## iter 70 value 160.407689  
## iter 80 value 158.358581  
## iter 90 value 157.561678  
## iter 100 value 156.371102  
## final value 156.371102   
## stopped after 100 iterations  
## # weights: 113  
## initial value 480.027558   
## iter 10 value 217.575672  
## iter 20 value 201.571635  
## iter 30 value 184.322370  
## iter 40 value 165.231900  
## iter 50 value 161.283763  
## iter 60 value 159.130472  
## iter 70 value 157.732827  
## iter 80 value 153.828888  
## iter 90 value 151.583409  
## iter 100 value 150.965997  
## final value 150.965997   
## stopped after 100 iterations  
## # weights: 127  
## initial value 237.868383   
## iter 10 value 211.988167  
## iter 20 value 174.294405  
## iter 30 value 166.532493  
## iter 40 value 164.498928  
## iter 50 value 160.770582  
## iter 60 value 159.968396  
## iter 70 value 159.781711  
## iter 80 value 159.282886  
## iter 90 value 156.388130  
## iter 100 value 154.233301  
## final value 154.233301   
## stopped after 100 iterations  
## # weights: 141  
## initial value 888.611321   
## iter 10 value 242.823051  
## iter 20 value 200.127211  
## iter 30 value 189.386254  
## iter 40 value 179.774009  
## iter 50 value 167.754975  
## iter 60 value 161.144229  
## iter 70 value 157.846599  
## iter 80 value 156.193004  
## iter 90 value 153.339248  
## iter 100 value 150.962826  
## final value 150.962826   
## stopped after 100 iterations  
## # weights: 155  
## initial value 455.616235   
## iter 10 value 206.004093  
## iter 20 value 184.386398  
## iter 30 value 177.062083  
## iter 40 value 169.708898  
## iter 50 value 163.604906  
## iter 60 value 159.742760  
## iter 70 value 156.388089  
## iter 80 value 154.382329  
## iter 90 value 153.493145  
## iter 100 value 149.403694  
## final value 149.403694   
## stopped after 100 iterations  
## # weights: 169  
## initial value 440.591929   
## iter 10 value 216.669947  
## iter 20 value 185.189049  
## iter 30 value 166.965683  
## iter 40 value 161.652623  
## iter 50 value 158.703035  
## iter 60 value 155.065548  
## iter 70 value 150.504363  
## iter 80 value 147.773974  
## iter 90 value 146.895009  
## iter 100 value 146.227846  
## final value 146.227846   
## stopped after 100 iterations  
## # weights: 15  
## initial value 301.283757   
## iter 10 value 211.221607  
## iter 20 value 176.774453  
## iter 30 value 171.142766  
## iter 40 value 171.089487  
## final value 171.089009   
## converged  
## # weights: 29  
## initial value 429.412595   
## iter 10 value 220.177719  
## iter 20 value 210.090734  
## iter 30 value 182.609775  
## iter 40 value 173.033805  
## iter 50 value 172.298487  
## iter 60 value 171.117080  
## iter 70 value 169.236478  
## iter 80 value 169.128732  
## iter 80 value 169.128730  
## iter 80 value 169.128730  
## final value 169.128730   
## converged  
## # weights: 43  
## initial value 486.422325   
## iter 10 value 221.469095  
## iter 20 value 213.157231  
## iter 30 value 178.376621  
## iter 40 value 170.632642  
## iter 50 value 169.831586  
## iter 60 value 169.315945  
## iter 70 value 168.353331  
## iter 80 value 164.746531  
## iter 90 value 164.334318  
## iter 100 value 164.317003  
## final value 164.317003   
## stopped after 100 iterations  
## # weights: 57  
## initial value 534.299919   
## iter 10 value 191.455385  
## iter 20 value 173.278290  
## iter 30 value 171.098530  
## iter 40 value 166.694582  
## iter 50 value 165.326447  
## iter 60 value 164.369897  
## iter 70 value 163.364725  
## iter 80 value 163.328015  
## iter 90 value 163.324359  
## final value 163.324355   
## converged  
## # weights: 71  
## initial value 335.845152   
## iter 10 value 219.249975  
## iter 20 value 182.860391  
## iter 30 value 173.252549  
## iter 40 value 171.653013  
## iter 50 value 167.721341  
## iter 60 value 166.685554  
## iter 70 value 165.443368  
## iter 80 value 165.228446  
## iter 90 value 165.039533  
## iter 100 value 164.652954  
## final value 164.652954   
## stopped after 100 iterations  
## # weights: 85  
## initial value 247.390597   
## iter 10 value 221.684740  
## iter 20 value 215.162946  
## iter 30 value 188.207628  
## iter 40 value 174.449808  
## iter 50 value 172.368633  
## iter 60 value 170.371625  
## iter 70 value 168.692448  
## iter 80 value 166.230734  
## iter 90 value 163.933389  
## iter 100 value 163.204482  
## final value 163.204482   
## stopped after 100 iterations  
## # weights: 99  
## initial value 349.558640   
## iter 10 value 210.544483  
## iter 20 value 183.905717  
## iter 30 value 172.013032  
## iter 40 value 169.881711  
## iter 50 value 168.698234  
## iter 60 value 167.275922  
## iter 70 value 165.156378  
## iter 80 value 164.329145  
## iter 90 value 164.028938  
## iter 100 value 163.902920  
## final value 163.902920   
## stopped after 100 iterations  
## # weights: 113  
## initial value 338.104570   
## iter 10 value 214.961357  
## iter 20 value 198.825849  
## iter 30 value 175.145197  
## iter 40 value 169.626957  
## iter 50 value 165.244303  
## iter 60 value 162.957065  
## iter 70 value 161.180928  
## iter 80 value 160.555670  
## iter 90 value 159.571439  
## iter 100 value 157.901144  
## final value 157.901144   
## stopped after 100 iterations  
## # weights: 127  
## initial value 360.039551   
## iter 10 value 216.986032  
## iter 20 value 200.424061  
## iter 30 value 175.081117  
## iter 40 value 168.121801  
## iter 50 value 166.126077  
## iter 60 value 164.522041  
## iter 70 value 161.479498  
## iter 80 value 159.912773  
## iter 90 value 159.420651  
## iter 100 value 159.138241  
## final value 159.138241   
## stopped after 100 iterations  
## # weights: 141  
## initial value 470.009487   
## iter 10 value 216.609691  
## iter 20 value 186.068962  
## iter 30 value 170.754618  
## iter 40 value 168.292199  
## iter 50 value 166.341861  
## iter 60 value 163.747411  
## iter 70 value 162.036166  
## iter 80 value 159.684460  
## iter 90 value 158.740177  
## iter 100 value 158.133348  
## final value 158.133348   
## stopped after 100 iterations  
## # weights: 155  
## initial value 911.591489   
## iter 10 value 268.185764  
## iter 20 value 224.743232  
## iter 30 value 212.288710  
## iter 40 value 198.867890  
## iter 50 value 180.478003  
## iter 60 value 166.684999  
## iter 70 value 164.782630  
## iter 80 value 163.835354  
## iter 90 value 161.394288  
## iter 100 value 160.181571  
## final value 160.181571   
## stopped after 100 iterations  
## # weights: 169  
## initial value 325.570860   
## iter 10 value 218.332760  
## iter 20 value 191.335978  
## iter 30 value 175.573984  
## iter 40 value 170.212027  
## iter 50 value 167.808157  
## iter 60 value 165.982027  
## iter 70 value 163.913314  
## iter 80 value 159.743628  
## iter 90 value 158.731880  
## iter 100 value 158.522104  
## final value 158.522104   
## stopped after 100 iterations  
## # weights: 15  
## initial value 423.805520   
## iter 10 value 213.068526  
## iter 20 value 187.448346  
## iter 30 value 174.382210  
## iter 40 value 174.270970  
## final value 174.270958   
## converged  
## # weights: 29  
## initial value 537.892992   
## iter 10 value 217.485039  
## iter 20 value 178.244580  
## iter 30 value 173.531793  
## iter 40 value 173.133764  
## iter 50 value 172.974317  
## final value 172.974162   
## converged  
## # weights: 43  
## initial value 240.772738   
## iter 10 value 218.401557  
## iter 20 value 189.245159  
## iter 30 value 178.374646  
## iter 40 value 175.703961  
## iter 50 value 172.020292  
## iter 60 value 169.776404  
## iter 70 value 169.524490  
## iter 80 value 169.175739  
## iter 90 value 169.156248  
## final value 169.156243   
## converged  
## # weights: 57  
## initial value 421.174279   
## iter 10 value 218.397822  
## iter 20 value 199.123478  
## iter 30 value 174.544056  
## iter 40 value 173.064469  
## iter 50 value 172.378511  
## iter 60 value 172.124775  
## iter 70 value 171.030273  
## iter 80 value 168.695721  
## iter 90 value 167.450292  
## iter 100 value 166.479879  
## final value 166.479879   
## stopped after 100 iterations  
## # weights: 71  
## initial value 290.674378   
## iter 10 value 219.447397  
## iter 20 value 194.812117  
## iter 30 value 173.335761  
## iter 40 value 170.649161  
## iter 50 value 169.736314  
## iter 60 value 169.345765  
## iter 70 value 169.132250  
## iter 80 value 168.156418  
## iter 90 value 167.672855  
## iter 100 value 167.270950  
## final value 167.270950   
## stopped after 100 iterations  
## # weights: 85  
## initial value 374.875700   
## iter 10 value 214.917882  
## iter 20 value 185.500986  
## iter 30 value 172.675730  
## iter 40 value 171.885928  
## iter 50 value 170.791413  
## iter 60 value 169.313532  
## iter 70 value 168.388754  
## iter 80 value 166.758799  
## iter 90 value 166.343300  
## iter 100 value 166.306467  
## final value 166.306467   
## stopped after 100 iterations  
## # weights: 99  
## initial value 312.082964   
## iter 10 value 193.941285  
## iter 20 value 178.297615  
## iter 30 value 174.457365  
## iter 40 value 171.828947  
## iter 50 value 171.328116  
## iter 60 value 171.094800  
## iter 70 value 170.910322  
## iter 80 value 170.881020  
## iter 90 value 170.402402  
## iter 100 value 169.847080  
## final value 169.847080   
## stopped after 100 iterations  
## # weights: 113  
## initial value 355.460094   
## iter 10 value 222.270007  
## iter 20 value 194.715089  
## iter 30 value 176.543883  
## iter 40 value 171.777675  
## iter 50 value 170.537145  
## iter 60 value 169.757951  
## iter 70 value 169.612079  
## iter 80 value 169.591700  
## iter 90 value 169.580271  
## iter 100 value 169.553970  
## final value 169.553970   
## stopped after 100 iterations  
## # weights: 127  
## initial value 228.160129   
## iter 10 value 214.521366  
## iter 20 value 187.139851  
## iter 30 value 174.560793  
## iter 40 value 171.188979  
## iter 50 value 170.017937  
## iter 60 value 169.384961  
## iter 70 value 169.024534  
## iter 80 value 168.218173  
## iter 90 value 167.159860  
## iter 100 value 166.758477  
## final value 166.758477   
## stopped after 100 iterations  
## # weights: 141  
## initial value 317.343643   
## iter 10 value 214.922267  
## iter 20 value 199.571177  
## iter 30 value 175.285147  
## iter 40 value 170.269135  
## iter 50 value 169.175816  
## iter 60 value 167.411089  
## iter 70 value 166.263976  
## iter 80 value 165.398626  
## iter 90 value 165.180610  
## iter 100 value 164.835446  
## final value 164.835446   
## stopped after 100 iterations  
## # weights: 155  
## initial value 271.598943   
## iter 10 value 220.786128  
## iter 20 value 208.774240  
## iter 30 value 180.378160  
## iter 40 value 175.308931  
## iter 50 value 170.345686  
## iter 60 value 168.337936  
## iter 70 value 166.419078  
## iter 80 value 165.502854  
## iter 90 value 164.998235  
## iter 100 value 164.624823  
## final value 164.624823   
## stopped after 100 iterations  
## # weights: 169  
## initial value 768.778381   
## iter 10 value 217.920557  
## iter 20 value 192.830064  
## iter 30 value 179.081117  
## iter 40 value 172.779641  
## iter 50 value 170.160510  
## iter 60 value 168.366472  
## iter 70 value 167.044797  
## iter 80 value 165.713857  
## iter 90 value 164.894232  
## iter 100 value 164.498219  
## final value 164.498219   
## stopped after 100 iterations  
## # weights: 15  
## initial value 480.775031   
## iter 10 value 213.809647  
## iter 20 value 179.981373  
## iter 30 value 177.576394  
## final value 177.203014   
## converged  
## # weights: 29  
## initial value 313.195859   
## iter 10 value 220.877562  
## iter 20 value 201.047549  
## iter 30 value 178.898382  
## iter 40 value 177.303106  
## iter 50 value 175.809729  
## iter 60 value 175.567144  
## final value 175.567012   
## converged  
## # weights: 43  
## initial value 745.629540   
## iter 10 value 243.182334  
## iter 20 value 196.533014  
## iter 30 value 178.646376  
## iter 40 value 176.314515  
## iter 50 value 175.837085  
## iter 60 value 175.253984  
## iter 70 value 174.519517  
## iter 80 value 173.887783  
## iter 90 value 173.381765  
## iter 100 value 173.366816  
## final value 173.366816   
## stopped after 100 iterations  
## # weights: 57  
## initial value 314.541256   
## iter 10 value 218.091316  
## iter 20 value 199.618538  
## iter 30 value 180.786697  
## iter 40 value 175.146771  
## iter 50 value 173.941900  
## iter 60 value 173.778823  
## iter 70 value 173.753373  
## iter 80 value 173.722119  
## iter 90 value 173.615513  
## iter 100 value 172.583132  
## final value 172.583132   
## stopped after 100 iterations  
## # weights: 71  
## initial value 269.372661   
## iter 10 value 206.643756  
## iter 20 value 182.587832  
## iter 30 value 177.188707  
## iter 40 value 175.283722  
## iter 50 value 173.985646  
## iter 60 value 173.225474  
## iter 70 value 172.902115  
## iter 80 value 172.526392  
## iter 90 value 172.190843  
## iter 100 value 171.933883  
## final value 171.933883   
## stopped after 100 iterations  
## # weights: 85  
## initial value 388.541560   
## iter 10 value 232.554690  
## iter 20 value 213.985838  
## iter 30 value 188.294767  
## iter 40 value 175.846317  
## iter 50 value 174.594176  
## iter 60 value 174.130375  
## iter 70 value 173.696895  
## iter 80 value 173.593551  
## iter 90 value 173.487292  
## iter 100 value 173.322499  
## final value 173.322499   
## stopped after 100 iterations  
## # weights: 99  
## initial value 486.379188   
## iter 10 value 216.340531  
## iter 20 value 206.081971  
## iter 30 value 184.644675  
## iter 40 value 176.230901  
## iter 50 value 175.500670  
## iter 60 value 174.883317  
## iter 70 value 173.410816  
## iter 80 value 172.817996  
## iter 90 value 172.428572  
## iter 100 value 172.059209  
## final value 172.059209   
## stopped after 100 iterations  
## # weights: 113  
## initial value 578.496744   
## iter 10 value 221.159071  
## iter 20 value 193.111262  
## iter 30 value 179.768278  
## iter 40 value 177.524919  
## iter 50 value 175.557413  
## iter 60 value 173.805705  
## iter 70 value 173.067850  
## iter 80 value 171.885730  
## iter 90 value 171.295125  
## iter 100 value 170.881082  
## final value 170.881082   
## stopped after 100 iterations  
## # weights: 127  
## initial value 357.457152   
## iter 10 value 218.884802  
## iter 20 value 178.138022  
## iter 30 value 174.601749  
## iter 40 value 173.611123  
## iter 50 value 172.845433  
## iter 60 value 172.307239  
## iter 70 value 172.181648  
## iter 80 value 171.859661  
## iter 90 value 171.174936  
## iter 100 value 170.512090  
## final value 170.512090   
## stopped after 100 iterations  
## # weights: 141  
## initial value 264.682607   
## iter 10 value 215.094600  
## iter 20 value 189.471548  
## iter 30 value 178.435240  
## iter 40 value 173.991266  
## iter 50 value 172.532875  
## iter 60 value 171.781213  
## iter 70 value 170.986295  
## iter 80 value 170.739053  
## iter 90 value 170.558541  
## iter 100 value 170.477277  
## final value 170.477277   
## stopped after 100 iterations  
## # weights: 155  
## initial value 278.811821   
## iter 10 value 217.082710  
## iter 20 value 179.632588  
## iter 30 value 176.404140  
## iter 40 value 174.937666  
## iter 50 value 173.592411  
## iter 60 value 172.488383  
## iter 70 value 172.015476  
## iter 80 value 171.714737  
## iter 90 value 171.395058  
## iter 100 value 171.100649  
## final value 171.100649   
## stopped after 100 iterations  
## # weights: 169  
## initial value 241.945557   
## iter 10 value 219.316772  
## iter 20 value 196.599564  
## iter 30 value 180.833381  
## iter 40 value 175.683135  
## iter 50 value 173.911489  
## iter 60 value 173.287436  
## iter 70 value 172.950911  
## iter 80 value 172.556378  
## iter 90 value 172.082221  
## iter 100 value 170.929261  
## final value 170.929261   
## stopped after 100 iterations  
## # weights: 15  
## initial value 334.204170   
## iter 10 value 210.479091  
## iter 20 value 164.819204  
## iter 30 value 158.896340  
## final value 158.876084   
## converged  
## # weights: 29  
## initial value 272.987579   
## iter 10 value 218.051406  
## iter 20 value 165.101406  
## iter 30 value 159.215226  
## iter 40 value 158.092946  
## iter 50 value 158.068793  
## iter 60 value 158.056191  
## iter 70 value 157.921196  
## iter 80 value 157.836692  
## final value 157.835400   
## converged  
## # weights: 43  
## initial value 404.958202   
## iter 10 value 202.302913  
## iter 20 value 167.611850  
## iter 30 value 159.049326  
## iter 40 value 155.729696  
## iter 50 value 153.267998  
## iter 60 value 151.868096  
## iter 70 value 151.539026  
## iter 80 value 151.341041  
## iter 90 value 150.822698  
## iter 100 value 148.241426  
## final value 148.241426   
## stopped after 100 iterations  
## # weights: 57  
## initial value 809.463081   
## iter 10 value 221.497498  
## iter 20 value 203.946215  
## iter 30 value 159.905624  
## iter 40 value 151.905371  
## iter 50 value 147.032266  
## iter 60 value 142.595506  
## iter 70 value 139.162650  
## iter 80 value 136.339547  
## iter 90 value 136.014881  
## iter 100 value 135.805325  
## final value 135.805325   
## stopped after 100 iterations  
## # weights: 71  
## initial value 229.029279   
## iter 10 value 197.654970  
## iter 20 value 162.339212  
## iter 30 value 156.393069  
## iter 40 value 152.471935  
## iter 50 value 147.364063  
## iter 60 value 138.869638  
## iter 70 value 134.222665  
## iter 80 value 133.227481  
## iter 90 value 133.093978  
## iter 100 value 133.031237  
## final value 133.031237   
## stopped after 100 iterations  
## # weights: 85  
## initial value 268.247894   
## iter 10 value 214.415457  
## iter 20 value 196.408599  
## iter 30 value 163.173552  
## iter 40 value 156.806326  
## iter 50 value 152.198777  
## iter 60 value 145.852904  
## iter 70 value 140.312150  
## iter 80 value 139.271486  
## iter 90 value 137.010546  
## iter 100 value 133.520973  
## final value 133.520973   
## stopped after 100 iterations  
## # weights: 99  
## initial value 500.378981   
## iter 10 value 225.041056  
## iter 20 value 183.118570  
## iter 30 value 164.107676  
## iter 40 value 155.679654  
## iter 50 value 152.431442  
## iter 60 value 148.765355  
## iter 70 value 143.029091  
## iter 80 value 140.237501  
## iter 90 value 135.370830  
## iter 100 value 133.303468  
## final value 133.303468   
## stopped after 100 iterations  
## # weights: 113  
## initial value 436.926993   
## iter 10 value 213.510254  
## iter 20 value 170.733908  
## iter 30 value 158.715403  
## iter 40 value 152.303430  
## iter 50 value 146.275147  
## iter 60 value 142.121804  
## iter 70 value 136.656730  
## iter 80 value 134.354338  
## iter 90 value 131.610999  
## iter 100 value 131.007881  
## final value 131.007881   
## stopped after 100 iterations  
## # weights: 127  
## initial value 227.901566   
## iter 10 value 216.129944  
## iter 20 value 200.887908  
## iter 30 value 162.777735  
## iter 40 value 152.217740  
## iter 50 value 142.329903  
## iter 60 value 137.600042  
## iter 70 value 135.078497  
## iter 80 value 131.359299  
## iter 90 value 129.795363  
## iter 100 value 125.380615  
## final value 125.380615   
## stopped after 100 iterations  
## # weights: 141  
## initial value 334.836950   
## iter 10 value 193.840188  
## iter 20 value 163.791493  
## iter 30 value 150.489371  
## iter 40 value 145.821146  
## iter 50 value 140.658262  
## iter 60 value 137.679975  
## iter 70 value 136.059147  
## iter 80 value 135.092360  
## iter 90 value 134.424043  
## iter 100 value 133.893942  
## final value 133.893942   
## stopped after 100 iterations  
## # weights: 155  
## initial value 430.227699   
## iter 10 value 213.776110  
## iter 20 value 199.830749  
## iter 30 value 161.847143  
## iter 40 value 150.702239  
## iter 50 value 142.824399  
## iter 60 value 139.493108  
## iter 70 value 136.516525  
## iter 80 value 129.941010  
## iter 90 value 125.607446  
## iter 100 value 123.834235  
## final value 123.834235   
## stopped after 100 iterations  
## # weights: 169  
## initial value 302.178025   
## iter 10 value 205.709712  
## iter 20 value 174.977881  
## iter 30 value 156.657142  
## iter 40 value 148.887305  
## iter 50 value 142.621582  
## iter 60 value 134.935153  
## iter 70 value 131.262265  
## iter 80 value 128.223231  
## iter 90 value 127.158844  
## iter 100 value 126.848854  
## final value 126.848854   
## stopped after 100 iterations  
## # weights: 15  
## initial value 491.802101   
## iter 10 value 203.396566  
## iter 20 value 164.359990  
## iter 30 value 161.501858  
## iter 40 value 161.383477  
## final value 161.383230   
## converged  
## # weights: 29  
## initial value 296.092564   
## iter 10 value 216.831522  
## iter 20 value 172.625392  
## iter 30 value 162.593283  
## iter 40 value 160.327651  
## iter 50 value 158.895733  
## iter 60 value 157.333374  
## iter 70 value 156.400227  
## iter 80 value 156.247647  
## iter 90 value 156.243626  
## final value 156.243620   
## converged  
## # weights: 43  
## initial value 570.954051   
## iter 10 value 210.871279  
## iter 20 value 173.668236  
## iter 30 value 161.712592  
## iter 40 value 161.148839  
## iter 50 value 157.735220  
## iter 60 value 155.208367  
## iter 70 value 153.418985  
## iter 80 value 152.974664  
## iter 90 value 152.939007  
## final value 152.938834   
## converged  
## # weights: 57  
## initial value 297.921631   
## iter 10 value 218.144321  
## iter 20 value 189.392296  
## iter 30 value 165.487168  
## iter 40 value 158.736280  
## iter 50 value 153.208939  
## iter 60 value 152.030720  
## iter 70 value 151.945358  
## iter 80 value 151.910151  
## iter 90 value 151.865134  
## final value 151.865130   
## converged  
## # weights: 71  
## initial value 474.258104   
## iter 10 value 211.280559  
## iter 20 value 182.675335  
## iter 30 value 160.313941  
## iter 40 value 153.684323  
## iter 50 value 152.226704  
## iter 60 value 151.430212  
## iter 70 value 148.925274  
## iter 80 value 147.184712  
## iter 90 value 146.627307  
## iter 100 value 146.495768  
## final value 146.495768   
## stopped after 100 iterations  
## # weights: 85  
## initial value 501.934002   
## iter 10 value 215.905072  
## iter 20 value 182.648365  
## iter 30 value 163.226713  
## iter 40 value 157.594672  
## iter 50 value 155.263822  
## iter 60 value 152.361897  
## iter 70 value 150.466305  
## iter 80 value 149.638108  
## iter 90 value 149.100195  
## iter 100 value 148.852836  
## final value 148.852836   
## stopped after 100 iterations  
## # weights: 99  
## initial value 534.617343   
## iter 10 value 241.856572  
## iter 20 value 205.722691  
## iter 30 value 165.896586  
## iter 40 value 159.940437  
## iter 50 value 156.619871  
## iter 60 value 154.554063  
## iter 70 value 151.224950  
## iter 80 value 149.643299  
## iter 90 value 147.700610  
## iter 100 value 146.658731  
## final value 146.658731   
## stopped after 100 iterations  
## # weights: 113  
## initial value 419.343543   
## iter 10 value 217.385087  
## iter 20 value 188.288325  
## iter 30 value 165.628684  
## iter 40 value 156.375553  
## iter 50 value 152.215458  
## iter 60 value 151.124070  
## iter 70 value 149.452566  
## iter 80 value 147.879553  
## iter 90 value 147.064596  
## iter 100 value 145.955549  
## final value 145.955549   
## stopped after 100 iterations  
## # weights: 127  
## initial value 338.056890   
## iter 10 value 210.908221  
## iter 20 value 184.035282  
## iter 30 value 162.606840  
## iter 40 value 158.910046  
## iter 50 value 156.594155  
## iter 60 value 152.774935  
## iter 70 value 150.244992  
## iter 80 value 148.271367  
## iter 90 value 145.598431  
## iter 100 value 143.969258  
## final value 143.969258   
## stopped after 100 iterations  
## # weights: 141  
## initial value 810.588855   
## iter 10 value 217.072872  
## iter 20 value 168.183226  
## iter 30 value 162.706973  
## iter 40 value 159.444427  
## iter 50 value 155.629617  
## iter 60 value 152.427813  
## iter 70 value 148.115461  
## iter 80 value 145.933698  
## iter 90 value 145.156696  
## iter 100 value 144.916018  
## final value 144.916018   
## stopped after 100 iterations  
## # weights: 155  
## initial value 379.140983   
## iter 10 value 214.126961  
## iter 20 value 196.210942  
## iter 30 value 168.672212  
## iter 40 value 155.681411  
## iter 50 value 149.700242  
## iter 60 value 145.992813  
## iter 70 value 145.264643  
## iter 80 value 145.014860  
## iter 90 value 144.844303  
## iter 100 value 144.739492  
## final value 144.739492   
## stopped after 100 iterations  
## # weights: 169  
## initial value 224.951928   
## iter 10 value 214.200315  
## iter 20 value 173.275025  
## iter 30 value 163.725316  
## iter 40 value 161.491067  
## iter 50 value 159.055393  
## iter 60 value 153.942188  
## iter 70 value 149.468194  
## iter 80 value 147.848814  
## iter 90 value 146.707426  
## iter 100 value 146.153662  
## final value 146.153662   
## stopped after 100 iterations  
## # weights: 15  
## initial value 485.130984   
## iter 10 value 218.178453  
## iter 20 value 211.830322  
## iter 30 value 170.919166  
## iter 40 value 169.298943  
## final value 169.284990   
## converged  
## # weights: 29  
## initial value 582.250372   
## iter 10 value 201.773288  
## iter 20 value 166.504892  
## iter 30 value 162.428702  
## iter 40 value 161.909196  
## iter 50 value 161.828424  
## final value 161.828410   
## converged  
## # weights: 43  
## initial value 402.113686   
## iter 10 value 222.929141  
## iter 20 value 210.872408  
## iter 30 value 190.381465  
## iter 40 value 164.858248  
## iter 50 value 161.970169  
## iter 60 value 160.579185  
## iter 70 value 159.546541  
## iter 80 value 159.409788  
## iter 90 value 159.011846  
## iter 100 value 158.944659  
## final value 158.944659   
## stopped after 100 iterations  
## # weights: 57  
## initial value 465.206919   
## iter 10 value 223.353770  
## iter 20 value 184.492138  
## iter 30 value 170.607330  
## iter 40 value 165.067951  
## iter 50 value 164.121616  
## iter 60 value 163.220502  
## iter 70 value 161.714506  
## iter 80 value 159.402874  
## iter 90 value 158.038120  
## iter 100 value 156.428951  
## final value 156.428951   
## stopped after 100 iterations  
## # weights: 71  
## initial value 542.752001   
## iter 10 value 218.301366  
## iter 20 value 193.358781  
## iter 30 value 168.239363  
## iter 40 value 162.350748  
## iter 50 value 161.320424  
## iter 60 value 159.867452  
## iter 70 value 159.040734  
## iter 80 value 158.756511  
## iter 90 value 158.614916  
## iter 100 value 158.448845  
## final value 158.448845   
## stopped after 100 iterations  
## # weights: 85  
## initial value 256.243135   
## iter 10 value 193.730968  
## iter 20 value 169.564514  
## iter 30 value 164.534355  
## iter 40 value 162.819757  
## iter 50 value 159.867328  
## iter 60 value 158.693333  
## iter 70 value 157.996368  
## iter 80 value 156.657899  
## iter 90 value 156.022342  
## iter 100 value 155.414593  
## final value 155.414593   
## stopped after 100 iterations  
## # weights: 99  
## initial value 496.088798   
## iter 10 value 221.649110  
## iter 20 value 197.156044  
## iter 30 value 177.111615  
## iter 40 value 163.229785  
## iter 50 value 162.083844  
## iter 60 value 161.266390  
## iter 70 value 159.196184  
## iter 80 value 158.304908  
## iter 90 value 157.051746  
## iter 100 value 156.069308  
## final value 156.069308   
## stopped after 100 iterations  
## # weights: 113  
## initial value 246.531629   
## iter 10 value 215.274593  
## iter 20 value 179.940328  
## iter 30 value 165.976916  
## iter 40 value 164.040850  
## iter 50 value 162.540870  
## iter 60 value 160.781054  
## iter 70 value 159.497997  
## iter 80 value 157.708016  
## iter 90 value 155.696547  
## iter 100 value 155.145130  
## final value 155.145130   
## stopped after 100 iterations  
## # weights: 127  
## initial value 326.364230   
## iter 10 value 208.881626  
## iter 20 value 176.248555  
## iter 30 value 166.239267  
## iter 40 value 159.496404  
## iter 50 value 158.347083  
## iter 60 value 157.775154  
## iter 70 value 157.453234  
## iter 80 value 156.614927  
## iter 90 value 156.054834  
## iter 100 value 155.151291  
## final value 155.151291   
## stopped after 100 iterations  
## # weights: 141  
## initial value 322.947706   
## iter 10 value 208.745529  
## iter 20 value 196.426531  
## iter 30 value 171.470039  
## iter 40 value 160.314358  
## iter 50 value 158.027793  
## iter 60 value 156.362676  
## iter 70 value 155.420883  
## iter 80 value 155.061473  
## iter 90 value 154.113397  
## iter 100 value 153.703148  
## final value 153.703148   
## stopped after 100 iterations  
## # weights: 155  
## initial value 330.035100   
## iter 10 value 215.376137  
## iter 20 value 177.315092  
## iter 30 value 162.123589  
## iter 40 value 159.012959  
## iter 50 value 158.121085  
## iter 60 value 157.296538  
## iter 70 value 156.077591  
## iter 80 value 155.380379  
## iter 90 value 154.981605  
## iter 100 value 154.831346  
## final value 154.831346   
## stopped after 100 iterations  
## # weights: 169  
## initial value 860.609525   
## iter 10 value 215.810840  
## iter 20 value 201.068363  
## iter 30 value 181.777133  
## iter 40 value 165.106532  
## iter 50 value 160.591264  
## iter 60 value 158.764864  
## iter 70 value 156.987316  
## iter 80 value 156.304266  
## iter 90 value 156.018372  
## iter 100 value 155.484824  
## final value 155.484824   
## stopped after 100 iterations  
## # weights: 15  
## initial value 587.422205   
## iter 10 value 217.844925  
## iter 20 value 183.374062  
## iter 30 value 168.439371  
## iter 40 value 168.356438  
## final value 168.356431   
## converged  
## # weights: 29  
## initial value 455.339651   
## iter 10 value 214.870670  
## iter 20 value 195.858234  
## iter 30 value 171.775858  
## iter 40 value 166.433504  
## iter 50 value 166.028933  
## iter 60 value 165.707227  
## final value 165.701378   
## converged  
## # weights: 43  
## initial value 648.278283   
## iter 10 value 214.890591  
## iter 20 value 198.661765  
## iter 30 value 176.150933  
## iter 40 value 170.162990  
## iter 50 value 166.031484  
## iter 60 value 164.857899  
## iter 70 value 164.229783  
## iter 80 value 163.857717  
## iter 90 value 163.802257  
## final value 163.801064   
## converged  
## # weights: 57  
## initial value 281.619870   
## iter 10 value 216.903970  
## iter 20 value 200.435352  
## iter 30 value 169.169550  
## iter 40 value 167.340215  
## iter 50 value 165.404197  
## iter 60 value 163.815560  
## iter 70 value 163.599740  
## iter 80 value 163.465940  
## iter 90 value 163.296898  
## iter 100 value 162.374988  
## final value 162.374988   
## stopped after 100 iterations  
## # weights: 71  
## initial value 359.493849   
## iter 10 value 241.567600  
## iter 20 value 217.688448  
## iter 30 value 201.528900  
## iter 40 value 169.364593  
## iter 50 value 166.857109  
## iter 60 value 164.556900  
## iter 70 value 163.605457  
## iter 80 value 163.576194  
## iter 90 value 163.538905  
## final value 163.538891   
## converged  
## # weights: 85  
## initial value 424.821373   
## iter 10 value 217.217983  
## iter 20 value 204.505653  
## iter 30 value 174.298730  
## iter 40 value 169.674679  
## iter 50 value 168.769182  
## iter 60 value 167.615480  
## iter 70 value 165.451740  
## iter 80 value 163.392875  
## iter 90 value 162.636580  
## iter 100 value 162.200351  
## final value 162.200351   
## stopped after 100 iterations  
## # weights: 99  
## initial value 443.041101   
## iter 10 value 191.247026  
## iter 20 value 176.002468  
## iter 30 value 166.999586  
## iter 40 value 166.033224  
## iter 50 value 165.493123  
## iter 60 value 165.067526  
## iter 70 value 164.700431  
## iter 80 value 164.117208  
## iter 90 value 163.731784  
## iter 100 value 163.437463  
## final value 163.437463   
## stopped after 100 iterations  
## # weights: 113  
## initial value 756.981090   
## iter 10 value 215.793210  
## iter 20 value 199.076840  
## iter 30 value 181.242318  
## iter 40 value 169.752320  
## iter 50 value 167.162506  
## iter 60 value 164.054282  
## iter 70 value 163.123401  
## iter 80 value 162.649361  
## iter 90 value 161.895375  
## iter 100 value 161.629056  
## final value 161.629056   
## stopped after 100 iterations  
## # weights: 127  
## initial value 1158.877297   
## iter 10 value 375.584766  
## iter 20 value 248.905781  
## iter 30 value 191.454182  
## iter 40 value 172.282297  
## iter 50 value 164.305624  
## iter 60 value 163.357219  
## iter 70 value 162.762835  
## iter 80 value 161.942908  
## iter 90 value 161.237643  
## iter 100 value 160.856827  
## final value 160.856827   
## stopped after 100 iterations  
## # weights: 141  
## initial value 384.276308   
## iter 10 value 219.325122  
## iter 20 value 187.541192  
## iter 30 value 170.772732  
## iter 40 value 167.424895  
## iter 50 value 164.951528  
## iter 60 value 162.955901  
## iter 70 value 162.474426  
## iter 80 value 161.793365  
## iter 90 value 161.417879  
## iter 100 value 160.917911  
## final value 160.917911   
## stopped after 100 iterations  
## # weights: 155  
## initial value 410.913881   
## iter 10 value 223.343951  
## iter 20 value 216.301832  
## iter 30 value 202.997986  
## iter 40 value 172.632066  
## iter 50 value 167.518041  
## iter 60 value 166.058490  
## iter 70 value 164.646696  
## iter 80 value 163.663188  
## iter 90 value 162.792000  
## iter 100 value 162.083559  
## final value 162.083559   
## stopped after 100 iterations  
## # weights: 169  
## initial value 513.752056   
## iter 10 value 216.875864  
## iter 20 value 198.973684  
## iter 30 value 179.778071  
## iter 40 value 167.078417  
## iter 50 value 166.274832  
## iter 60 value 165.306523  
## iter 70 value 163.562258  
## iter 80 value 162.256899  
## iter 90 value 161.688990  
## iter 100 value 161.480239  
## final value 161.480239   
## stopped after 100 iterations  
## # weights: 15  
## initial value 437.320632   
## iter 10 value 202.126483  
## iter 20 value 171.598997  
## iter 30 value 171.423813  
## final value 171.423780   
## converged  
## # weights: 29  
## initial value 481.935571   
## iter 10 value 219.528301  
## iter 20 value 215.836924  
## iter 30 value 196.285918  
## iter 40 value 171.684123  
## iter 50 value 169.528479  
## iter 60 value 169.377771  
## final value 169.375332   
## converged  
## # weights: 43  
## initial value 538.012234   
## iter 10 value 222.671090  
## iter 20 value 189.832802  
## iter 30 value 178.321050  
## iter 40 value 176.637208  
## iter 50 value 173.462959  
## iter 60 value 169.944054  
## iter 70 value 169.487187  
## iter 80 value 168.313655  
## iter 90 value 167.871005  
## iter 100 value 167.671668  
## final value 167.671668   
## stopped after 100 iterations  
## # weights: 57  
## initial value 409.345312   
## iter 10 value 215.071164  
## iter 20 value 196.289884  
## iter 30 value 173.463964  
## iter 40 value 171.576036  
## iter 50 value 170.758800  
## iter 60 value 170.032229  
## iter 70 value 169.053918  
## iter 80 value 168.737379  
## iter 90 value 167.411679  
## iter 100 value 166.900766  
## final value 166.900766   
## stopped after 100 iterations  
## # weights: 71  
## initial value 350.004314   
## iter 10 value 216.535000  
## iter 20 value 199.070264  
## iter 30 value 176.506966  
## iter 40 value 170.342283  
## iter 50 value 169.926901  
## iter 60 value 169.294329  
## iter 70 value 168.054780  
## iter 80 value 167.195057  
## iter 90 value 167.038316  
## iter 100 value 166.979051  
## final value 166.979051   
## stopped after 100 iterations  
## # weights: 85  
## initial value 471.797307   
## iter 10 value 221.651883  
## iter 20 value 194.572649  
## iter 30 value 170.742688  
## iter 40 value 167.857221  
## iter 50 value 167.315350  
## iter 60 value 166.913063  
## iter 70 value 166.509802  
## iter 80 value 166.150897  
## iter 90 value 166.072580  
## iter 100 value 166.044288  
## final value 166.044288   
## stopped after 100 iterations  
## # weights: 99  
## initial value 511.023280   
## iter 10 value 215.121933  
## iter 20 value 205.670235  
## iter 30 value 172.218118  
## iter 40 value 170.020797  
## iter 50 value 169.612190  
## iter 60 value 168.504933  
## iter 70 value 167.114054  
## iter 80 value 166.604380  
## iter 90 value 166.065490  
## iter 100 value 165.777005  
## final value 165.777005   
## stopped after 100 iterations  
## # weights: 113  
## initial value 511.443804   
## iter 10 value 213.837135  
## iter 20 value 191.268868  
## iter 30 value 173.162980  
## iter 40 value 170.823418  
## iter 50 value 168.878610  
## iter 60 value 167.395490  
## iter 70 value 166.300340  
## iter 80 value 165.604210  
## iter 90 value 165.357894  
## iter 100 value 165.268516  
## final value 165.268516   
## stopped after 100 iterations  
## # weights: 127  
## initial value 404.614077   
## iter 10 value 204.512208  
## iter 20 value 173.279647  
## iter 30 value 171.007179  
## iter 40 value 169.302736  
## iter 50 value 167.085072  
## iter 60 value 166.728201  
## iter 70 value 166.544415  
## iter 80 value 166.321371  
## iter 90 value 166.095943  
## iter 100 value 165.983735  
## final value 165.983735   
## stopped after 100 iterations  
## # weights: 141  
## initial value 607.334400   
## iter 10 value 201.491388  
## iter 20 value 176.172025  
## iter 30 value 169.683665  
## iter 40 value 167.534895  
## iter 50 value 166.815541  
## iter 60 value 166.260154  
## iter 70 value 165.917302  
## iter 80 value 165.830569  
## iter 90 value 165.790971  
## iter 100 value 165.748175  
## final value 165.748175   
## stopped after 100 iterations  
## # weights: 155  
## initial value 521.240397   
## iter 10 value 219.181921  
## iter 20 value 211.816376  
## iter 30 value 195.842061  
## iter 40 value 176.905690  
## iter 50 value 168.491810  
## iter 60 value 166.634688  
## iter 70 value 165.945365  
## iter 80 value 165.391776  
## iter 90 value 165.092412  
## iter 100 value 165.013726  
## final value 165.013726   
## stopped after 100 iterations  
## # weights: 169  
## initial value 297.859162   
## iter 10 value 217.146447  
## iter 20 value 209.133264  
## iter 30 value 193.859793  
## iter 40 value 171.638974  
## iter 50 value 168.717675  
## iter 60 value 167.200929  
## iter 70 value 166.101854  
## iter 80 value 165.401024  
## iter 90 value 165.096086  
## iter 100 value 164.899422  
## final value 164.899422   
## stopped after 100 iterations  
## # weights: 15  
## initial value 321.718245   
## iter 10 value 217.167748  
## iter 20 value 188.045235  
## iter 30 value 163.714613  
## iter 40 value 161.043724  
## final value 160.991077   
## converged  
## # weights: 29  
## initial value 625.865782   
## iter 10 value 221.037808  
## iter 20 value 191.058419  
## iter 30 value 163.796141  
## iter 40 value 161.084238  
## iter 50 value 160.855617  
## iter 60 value 154.946321  
## iter 70 value 152.147718  
## iter 80 value 151.954206  
## final value 151.953606   
## converged  
## # weights: 43  
## initial value 372.385527   
## iter 10 value 215.863031  
## iter 20 value 170.695726  
## iter 30 value 162.304323  
## iter 40 value 161.738752  
## iter 50 value 161.402704  
## iter 60 value 161.087416  
## iter 70 value 159.318676  
## iter 80 value 154.514117  
## iter 90 value 150.774053  
## iter 100 value 150.039387  
## final value 150.039387   
## stopped after 100 iterations  
## # weights: 57  
## initial value 500.818540   
## iter 10 value 216.784494  
## iter 20 value 186.944474  
## iter 30 value 162.254884  
## iter 40 value 158.048711  
## iter 50 value 155.615532  
## iter 60 value 151.295753  
## iter 70 value 149.932464  
## iter 80 value 149.520768  
## iter 90 value 149.250143  
## iter 100 value 145.964645  
## final value 145.964645   
## stopped after 100 iterations  
## # weights: 71  
## initial value 573.147356   
## iter 10 value 218.145713  
## iter 20 value 204.879474  
## iter 30 value 180.939485  
## iter 40 value 161.257566  
## iter 50 value 155.168137  
## iter 60 value 150.682760  
## iter 70 value 146.501786  
## iter 80 value 145.541066  
## iter 90 value 145.291544  
## iter 100 value 144.991044  
## final value 144.991044   
## stopped after 100 iterations  
## # weights: 85  
## initial value 218.931022   
## iter 10 value 209.456592  
## iter 20 value 166.162700  
## iter 30 value 159.691929  
## iter 40 value 153.539300  
## iter 50 value 149.576631  
## iter 60 value 147.962530  
## iter 70 value 143.057501  
## iter 80 value 138.072803  
## iter 90 value 135.620611  
## iter 100 value 134.156208  
## final value 134.156208   
## stopped after 100 iterations  
## # weights: 99  
## initial value 219.897560   
## iter 10 value 200.278960  
## iter 20 value 167.454609  
## iter 30 value 161.789670  
## iter 40 value 159.892748  
## iter 50 value 157.912259  
## iter 60 value 157.524898  
## iter 70 value 157.032753  
## iter 80 value 155.717563  
## iter 90 value 154.312514  
## iter 100 value 152.060140  
## final value 152.060140   
## stopped after 100 iterations  
## # weights: 113  
## initial value 365.317599   
## iter 10 value 215.530483  
## iter 20 value 180.131169  
## iter 30 value 165.222432  
## iter 40 value 161.689642  
## iter 50 value 156.318390  
## iter 60 value 152.370256  
## iter 70 value 147.587241  
## iter 80 value 143.345163  
## iter 90 value 141.209301  
## iter 100 value 138.276852  
## final value 138.276852   
## stopped after 100 iterations  
## # weights: 127  
## initial value 256.225123   
## iter 10 value 215.663073  
## iter 20 value 208.678869  
## iter 30 value 188.919326  
## iter 40 value 156.876056  
## iter 50 value 150.415559  
## iter 60 value 147.397753  
## iter 70 value 144.737634  
## iter 80 value 143.408356  
## iter 90 value 141.739360  
## iter 100 value 138.689873  
## final value 138.689873   
## stopped after 100 iterations  
## # weights: 141  
## initial value 315.646366   
## iter 10 value 206.004026  
## iter 20 value 169.250975  
## iter 30 value 158.434369  
## iter 40 value 151.519991  
## iter 50 value 147.636550  
## iter 60 value 142.356912  
## iter 70 value 138.215817  
## iter 80 value 133.086906  
## iter 90 value 128.952060  
## iter 100 value 125.914501  
## final value 125.914501   
## stopped after 100 iterations  
## # weights: 155  
## initial value 1238.832112   
## iter 10 value 218.919606  
## iter 20 value 185.768114  
## iter 30 value 162.897046  
## iter 40 value 161.695681  
## iter 50 value 157.314204  
## iter 60 value 150.500538  
## iter 70 value 145.361800  
## iter 80 value 143.597078  
## iter 90 value 139.122725  
## iter 100 value 134.980067  
## final value 134.980067   
## stopped after 100 iterations  
## # weights: 169  
## initial value 292.855875   
## iter 10 value 210.624858  
## iter 20 value 197.403960  
## iter 30 value 165.373120  
## iter 40 value 155.745544  
## iter 50 value 147.699451  
## iter 60 value 141.640882  
## iter 70 value 133.892445  
## iter 80 value 127.823373  
## iter 90 value 125.478170  
## iter 100 value 124.459764  
## final value 124.459764   
## stopped after 100 iterations  
## # weights: 15  
## initial value 451.492045   
## iter 10 value 217.826977  
## iter 20 value 208.349134  
## iter 30 value 171.273085  
## iter 40 value 168.165985  
## final value 168.146607   
## converged  
## # weights: 29  
## initial value 339.624339   
## iter 10 value 215.480904  
## iter 20 value 176.676384  
## iter 30 value 165.898634  
## iter 40 value 165.294764  
## iter 50 value 164.825057  
## iter 60 value 164.713237  
## iter 70 value 161.933339  
## iter 80 value 159.837885  
## iter 90 value 159.802226  
## final value 159.802216   
## converged  
## # weights: 43  
## initial value 318.658109   
## iter 10 value 213.045110  
## iter 20 value 187.434887  
## iter 30 value 162.744885  
## iter 40 value 160.784956  
## iter 50 value 160.225315  
## iter 60 value 159.744057  
## iter 70 value 157.549859  
## iter 80 value 155.999181  
## iter 90 value 155.670249  
## iter 100 value 155.588488  
## final value 155.588488   
## stopped after 100 iterations  
## # weights: 57  
## initial value 361.838908   
## iter 10 value 216.889220  
## iter 20 value 184.999568  
## iter 30 value 168.736349  
## iter 40 value 159.635916  
## iter 50 value 157.572001  
## iter 60 value 157.092097  
## iter 70 value 156.948905  
## iter 80 value 156.875585  
## final value 156.873262   
## converged  
## # weights: 71  
## initial value 287.288478   
## iter 10 value 216.726021  
## iter 20 value 186.456313  
## iter 30 value 167.260389  
## iter 40 value 164.976098  
## iter 50 value 159.163878  
## iter 60 value 155.495828  
## iter 70 value 154.250954  
## iter 80 value 152.789424  
## iter 90 value 152.400126  
## iter 100 value 152.282665  
## final value 152.282665   
## stopped after 100 iterations  
## # weights: 85  
## initial value 504.127354   
## iter 10 value 215.570712  
## iter 20 value 202.965010  
## iter 30 value 173.319676  
## iter 40 value 163.453023  
## iter 50 value 158.865714  
## iter 60 value 155.811111  
## iter 70 value 152.713127  
## iter 80 value 151.096150  
## iter 90 value 150.743860  
## iter 100 value 150.691804  
## final value 150.691804   
## stopped after 100 iterations  
## # weights: 99  
## initial value 335.501215   
## iter 10 value 213.854722  
## iter 20 value 189.216333  
## iter 30 value 168.469666  
## iter 40 value 160.980670  
## iter 50 value 159.401591  
## iter 60 value 158.361921  
## iter 70 value 156.150709  
## iter 80 value 154.898589  
## iter 90 value 153.552587  
## iter 100 value 153.312045  
## final value 153.312045   
## stopped after 100 iterations  
## # weights: 113  
## initial value 572.018055   
## iter 10 value 287.733183  
## iter 20 value 230.265504  
## iter 30 value 192.142623  
## iter 40 value 167.087068  
## iter 50 value 163.406102  
## iter 60 value 158.533391  
## iter 70 value 155.402634  
## iter 80 value 151.716712  
## iter 90 value 149.841449  
## iter 100 value 148.591890  
## final value 148.591890   
## stopped after 100 iterations  
## # weights: 127  
## initial value 231.920007   
## iter 10 value 213.463993  
## iter 20 value 201.659277  
## iter 30 value 186.284945  
## iter 40 value 165.588907  
## iter 50 value 161.166307  
## iter 60 value 158.282148  
## iter 70 value 155.821197  
## iter 80 value 152.900968  
## iter 90 value 151.661581  
## iter 100 value 150.481413  
## final value 150.481413   
## stopped after 100 iterations  
## # weights: 141  
## initial value 480.739394   
## iter 10 value 216.914667  
## iter 20 value 178.626589  
## iter 30 value 163.706962  
## iter 40 value 160.402625  
## iter 50 value 156.257321  
## iter 60 value 155.062061  
## iter 70 value 152.769435  
## iter 80 value 151.185753  
## iter 90 value 150.706356  
## iter 100 value 150.209291  
## final value 150.209291   
## stopped after 100 iterations  
## # weights: 155  
## initial value 227.022141   
## iter 10 value 216.418704  
## iter 20 value 199.129490  
## iter 30 value 174.725598  
## iter 40 value 163.266870  
## iter 50 value 155.954519  
## iter 60 value 151.204349  
## iter 70 value 149.416794  
## iter 80 value 148.890652  
## iter 90 value 148.707092  
## iter 100 value 148.401070  
## final value 148.401070   
## stopped after 100 iterations  
## # weights: 169  
## initial value 720.415853   
## iter 10 value 215.943295  
## iter 20 value 193.655400  
## iter 30 value 168.668228  
## iter 40 value 163.423471  
## iter 50 value 160.103952  
## iter 60 value 156.949891  
## iter 70 value 153.478591  
## iter 80 value 150.021681  
## iter 90 value 148.674164  
## iter 100 value 147.251020  
## final value 147.251020   
## stopped after 100 iterations  
## # weights: 15  
## initial value 415.785277   
## iter 10 value 217.193536  
## iter 20 value 183.812325  
## iter 30 value 173.361758  
## iter 40 value 172.881616  
## final value 172.880457   
## converged  
## # weights: 29  
## initial value 565.241534   
## iter 10 value 217.670596  
## iter 20 value 192.720020  
## iter 30 value 170.712691  
## iter 40 value 168.357156  
## iter 50 value 165.659935  
## iter 60 value 165.160566  
## final value 165.154220   
## converged  
## # weights: 43  
## initial value 520.199792   
## iter 10 value 214.032876  
## iter 20 value 181.599161  
## iter 30 value 168.548945  
## iter 40 value 167.120737  
## iter 50 value 164.824007  
## iter 60 value 163.789019  
## iter 70 value 162.393307  
## iter 80 value 162.091385  
## iter 90 value 162.082678  
## iter 90 value 162.082677  
## iter 90 value 162.082677  
## final value 162.082677   
## converged  
## # weights: 57  
## initial value 391.007667   
## iter 10 value 212.657565  
## iter 20 value 181.613354  
## iter 30 value 168.585558  
## iter 40 value 166.262433  
## iter 50 value 164.302097  
## iter 60 value 161.103018  
## iter 70 value 160.388784  
## iter 80 value 160.187036  
## iter 90 value 160.173323  
## final value 160.170512   
## converged  
## # weights: 71  
## initial value 371.445447   
## iter 10 value 206.290784  
## iter 20 value 177.943834  
## iter 30 value 168.055763  
## iter 40 value 165.136353  
## iter 50 value 164.569079  
## iter 60 value 163.435432  
## iter 70 value 160.674307  
## iter 80 value 158.523349  
## iter 90 value 157.949393  
## iter 100 value 157.806037  
## final value 157.806037   
## stopped after 100 iterations  
## # weights: 85  
## initial value 377.723713   
## iter 10 value 227.924579  
## iter 20 value 198.379039  
## iter 30 value 183.697471  
## iter 40 value 170.488960  
## iter 50 value 164.942363  
## iter 60 value 163.533788  
## iter 70 value 162.317686  
## iter 80 value 161.444891  
## iter 90 value 161.094956  
## iter 100 value 160.985237  
## final value 160.985237   
## stopped after 100 iterations  
## # weights: 99  
## initial value 584.520304   
## iter 10 value 208.107622  
## iter 20 value 175.275488  
## iter 30 value 170.585808  
## iter 40 value 169.875688  
## iter 50 value 169.384607  
## iter 60 value 169.312450  
## iter 70 value 169.243153  
## iter 80 value 167.143533  
## iter 90 value 164.991190  
## iter 100 value 164.321092  
## final value 164.321092   
## stopped after 100 iterations  
## # weights: 113  
## initial value 532.540272   
## iter 10 value 217.554389  
## iter 20 value 197.503804  
## iter 30 value 178.848740  
## iter 40 value 169.061820  
## iter 50 value 165.418957  
## iter 60 value 163.432137  
## iter 70 value 161.623457  
## iter 80 value 160.149036  
## iter 90 value 158.845931  
## iter 100 value 158.109904  
## final value 158.109904   
## stopped after 100 iterations  
## # weights: 127  
## initial value 749.270582   
## iter 10 value 296.772197  
## iter 20 value 215.589211  
## iter 30 value 206.337523  
## iter 40 value 182.500855  
## iter 50 value 166.891048  
## iter 60 value 163.610160  
## iter 70 value 162.642573  
## iter 80 value 162.121351  
## iter 90 value 161.551910  
## iter 100 value 160.928698  
## final value 160.928698   
## stopped after 100 iterations  
## # weights: 141  
## initial value 616.561702   
## iter 10 value 214.637150  
## iter 20 value 190.071728  
## iter 30 value 173.829401  
## iter 40 value 165.152564  
## iter 50 value 162.805585  
## iter 60 value 161.511234  
## iter 70 value 160.134249  
## iter 80 value 159.454751  
## iter 90 value 159.001479  
## iter 100 value 158.531653  
## final value 158.531653   
## stopped after 100 iterations  
## # weights: 155  
## initial value 326.557477   
## iter 10 value 215.229611  
## iter 20 value 174.966225  
## iter 30 value 168.119484  
## iter 40 value 165.498370  
## iter 50 value 164.265819  
## iter 60 value 161.350671  
## iter 70 value 159.968605  
## iter 80 value 158.855061  
## iter 90 value 157.479222  
## iter 100 value 156.735872  
## final value 156.735872   
## stopped after 100 iterations  
## # weights: 169  
## initial value 946.069051   
## iter 10 value 219.362640  
## iter 20 value 206.096333  
## iter 30 value 172.870635  
## iter 40 value 162.794628  
## iter 50 value 160.915935  
## iter 60 value 159.377030  
## iter 70 value 159.052678  
## iter 80 value 158.774694  
## iter 90 value 158.417000  
## iter 100 value 158.233905  
## final value 158.233905   
## stopped after 100 iterations  
## # weights: 15  
## initial value 482.070809   
## iter 10 value 223.704355  
## iter 20 value 218.123658  
## iter 30 value 212.623116  
## iter 40 value 182.597793  
## iter 50 value 171.667168  
## final value 171.574502   
## converged  
## # weights: 29  
## initial value 313.417718   
## iter 10 value 210.982283  
## iter 20 value 176.066293  
## iter 30 value 172.539111  
## iter 40 value 171.623770  
## iter 50 value 171.507742  
## iter 60 value 169.661962  
## iter 70 value 169.368959  
## final value 169.368319   
## converged  
## # weights: 43  
## initial value 298.676018   
## iter 10 value 214.659127  
## iter 20 value 181.347936  
## iter 30 value 176.419465  
## iter 40 value 171.770486  
## iter 50 value 169.683305  
## iter 60 value 167.841299  
## iter 70 value 167.186991  
## iter 80 value 167.069078  
## iter 90 value 167.008518  
## iter 100 value 167.006320  
## final value 167.006320   
## stopped after 100 iterations  
## # weights: 57  
## initial value 453.711849   
## iter 10 value 221.487159  
## iter 20 value 181.290823  
## iter 30 value 171.304561  
## iter 40 value 169.152323  
## iter 50 value 167.909692  
## iter 60 value 166.685021  
## iter 70 value 165.809857  
## iter 80 value 165.495515  
## iter 90 value 165.198182  
## iter 100 value 165.007539  
## final value 165.007539   
## stopped after 100 iterations  
## # weights: 71  
## initial value 346.197538   
## iter 10 value 229.363948  
## iter 20 value 211.203837  
## iter 30 value 174.920321  
## iter 40 value 168.161444  
## iter 50 value 166.744780  
## iter 60 value 166.124533  
## iter 70 value 165.171708  
## iter 80 value 164.820162  
## iter 90 value 164.760123  
## iter 100 value 164.756988  
## final value 164.756988   
## stopped after 100 iterations  
## # weights: 85  
## initial value 557.680160   
## iter 10 value 206.630625  
## iter 20 value 182.729877  
## iter 30 value 168.602978  
## iter 40 value 166.531379  
## iter 50 value 165.864213  
## iter 60 value 164.571749  
## iter 70 value 164.247228  
## iter 80 value 164.183949  
## iter 90 value 164.170331  
## iter 100 value 164.164081  
## final value 164.164081   
## stopped after 100 iterations  
## # weights: 99  
## initial value 250.020211   
## iter 10 value 215.540299  
## iter 20 value 198.398022  
## iter 30 value 175.908070  
## iter 40 value 171.615368  
## iter 50 value 168.229001  
## iter 60 value 167.346626  
## iter 70 value 166.836767  
## iter 80 value 166.643882  
## iter 90 value 165.962155  
## iter 100 value 165.313322  
## final value 165.313322   
## stopped after 100 iterations  
## # weights: 113  
## initial value 290.503691   
## iter 10 value 214.945685  
## iter 20 value 188.557510  
## iter 30 value 172.746075  
## iter 40 value 169.279176  
## iter 50 value 167.846987  
## iter 60 value 167.127669  
## iter 70 value 166.033892  
## iter 80 value 165.562930  
## iter 90 value 165.391002  
## iter 100 value 165.224784  
## final value 165.224784   
## stopped after 100 iterations  
## # weights: 127  
## initial value 738.329657   
## iter 10 value 215.791959  
## iter 20 value 196.505018  
## iter 30 value 173.258520  
## iter 40 value 168.354109  
## iter 50 value 167.228221  
## iter 60 value 166.519781  
## iter 70 value 165.582794  
## iter 80 value 164.515923  
## iter 90 value 163.781843  
## iter 100 value 163.608676  
## final value 163.608676   
## stopped after 100 iterations  
## # weights: 141  
## initial value 414.952555   
## iter 10 value 217.854749  
## iter 20 value 197.710370  
## iter 30 value 175.558873  
## iter 40 value 170.112920  
## iter 50 value 167.838807  
## iter 60 value 167.007908  
## iter 70 value 166.627341  
## iter 80 value 166.192346  
## iter 90 value 165.442095  
## iter 100 value 164.454947  
## final value 164.454947   
## stopped after 100 iterations  
## # weights: 155  
## initial value 275.091184   
## iter 10 value 217.108134  
## iter 20 value 193.109576  
## iter 30 value 179.042032  
## iter 40 value 169.764116  
## iter 50 value 167.646848  
## iter 60 value 166.792166  
## iter 70 value 165.457591  
## iter 80 value 165.009202  
## iter 90 value 164.792688  
## iter 100 value 164.583962  
## final value 164.583962   
## stopped after 100 iterations  
## # weights: 169  
## initial value 629.954694   
## iter 10 value 224.478553  
## iter 20 value 212.241816  
## iter 30 value 189.360022  
## iter 40 value 171.006371  
## iter 50 value 167.431398  
## iter 60 value 166.350833  
## iter 70 value 165.636846  
## iter 80 value 165.170439  
## iter 90 value 164.781369  
## iter 100 value 164.235026  
## final value 164.235026   
## stopped after 100 iterations  
## # weights: 15  
## initial value 252.191512   
## iter 10 value 212.510999  
## iter 20 value 183.651456  
## iter 30 value 174.672957  
## iter 40 value 174.537815  
## final value 174.537085   
## converged  
## # weights: 29  
## initial value 330.365708   
## iter 10 value 219.259930  
## iter 20 value 204.619472  
## iter 30 value 175.257140  
## iter 40 value 173.286288  
## iter 50 value 172.922197  
## final value 172.921345   
## converged  
## # weights: 43  
## initial value 389.348914   
## iter 10 value 208.604640  
## iter 20 value 179.605978  
## iter 30 value 175.131360  
## iter 40 value 173.164255  
## iter 50 value 172.019919  
## iter 60 value 171.122753  
## iter 70 value 171.039381  
## iter 80 value 170.960337  
## final value 170.959856   
## converged  
## # weights: 57  
## initial value 373.158890   
## iter 10 value 219.107148  
## iter 20 value 207.511479  
## iter 30 value 188.321613  
## iter 40 value 172.597169  
## iter 50 value 171.256724  
## iter 60 value 171.072303  
## iter 70 value 171.012623  
## iter 80 value 170.986174  
## iter 90 value 170.570618  
## iter 100 value 169.377285  
## final value 169.377285   
## stopped after 100 iterations  
## # weights: 71  
## initial value 611.900034   
## iter 10 value 214.760877  
## iter 20 value 180.225678  
## iter 30 value 173.254814  
## iter 40 value 172.760095  
## iter 50 value 172.634112  
## iter 60 value 171.463706  
## iter 70 value 170.887685  
## iter 80 value 170.567086  
## iter 90 value 170.005516  
## iter 100 value 169.374787  
## final value 169.374787   
## stopped after 100 iterations  
## # weights: 85  
## initial value 485.331087   
## iter 10 value 202.423206  
## iter 20 value 178.444817  
## iter 30 value 174.678178  
## iter 40 value 173.424271  
## iter 50 value 172.790992  
## iter 60 value 172.504657  
## iter 70 value 171.527690  
## iter 80 value 170.024652  
## iter 90 value 169.379274  
## iter 100 value 169.015343  
## final value 169.015343   
## stopped after 100 iterations  
## # weights: 99  
## initial value 285.011616   
## iter 10 value 216.959400  
## iter 20 value 206.497014  
## iter 30 value 177.280599  
## iter 40 value 173.814139  
## iter 50 value 173.081033  
## iter 60 value 172.360924  
## iter 70 value 170.097639  
## iter 80 value 169.213879  
## iter 90 value 168.743811  
## iter 100 value 168.554693  
## final value 168.554693   
## stopped after 100 iterations  
## # weights: 113  
## initial value 516.357805   
## iter 10 value 215.571324  
## iter 20 value 187.979879  
## iter 30 value 173.936105  
## iter 40 value 171.612101  
## iter 50 value 171.020416  
## iter 60 value 170.210674  
## iter 70 value 169.310684  
## iter 80 value 169.144136  
## iter 90 value 169.021362  
## iter 100 value 168.809733  
## final value 168.809733   
## stopped after 100 iterations  
## # weights: 127  
## initial value 362.840614   
## iter 10 value 197.675028  
## iter 20 value 184.533255  
## iter 30 value 176.264191  
## iter 40 value 171.961607  
## iter 50 value 171.099908  
## iter 60 value 170.643039  
## iter 70 value 170.088910  
## iter 80 value 169.515179  
## iter 90 value 169.240622  
## iter 100 value 168.913865  
## final value 168.913865   
## stopped after 100 iterations  
## # weights: 141  
## initial value 394.408516   
## iter 10 value 212.696977  
## iter 20 value 198.325740  
## iter 30 value 187.072729  
## iter 40 value 172.952010  
## iter 50 value 171.731194  
## iter 60 value 171.495965  
## iter 70 value 171.334929  
## iter 80 value 171.297017  
## iter 90 value 171.092387  
## iter 100 value 170.605467  
## final value 170.605467   
## stopped after 100 iterations  
## # weights: 155  
## initial value 285.662536   
## iter 10 value 215.519852  
## iter 20 value 192.064477  
## iter 30 value 174.282957  
## iter 40 value 170.521566  
## iter 50 value 169.274234  
## iter 60 value 168.223872  
## iter 70 value 167.890853  
## iter 80 value 167.802554  
## iter 90 value 167.759084  
## iter 100 value 167.714154  
## final value 167.714154   
## stopped after 100 iterations  
## # weights: 169  
## initial value 614.689259   
## iter 10 value 219.102274  
## iter 20 value 211.728389  
## iter 30 value 198.591052  
## iter 40 value 181.357195  
## iter 50 value 171.842061  
## iter 60 value 169.871003  
## iter 70 value 168.977551  
## iter 80 value 168.722444  
## iter 90 value 168.488874  
## iter 100 value 168.318855  
## final value 168.318855   
## stopped after 100 iterations  
## # weights: 15  
## initial value 465.077739   
## iter 10 value 217.194594  
## iter 20 value 183.576046  
## iter 30 value 160.160416  
## iter 40 value 157.083392  
## iter 50 value 157.014324  
## final value 157.012890   
## converged  
## # weights: 29  
## initial value 508.855582   
## iter 10 value 217.289910  
## iter 20 value 208.822647  
## iter 30 value 171.625025  
## iter 40 value 161.521670  
## iter 50 value 159.943551  
## iter 60 value 156.510179  
## iter 70 value 153.574541  
## iter 80 value 153.299355  
## iter 90 value 153.257065  
## final value 153.255897   
## converged  
## # weights: 43  
## initial value 328.576102   
## iter 10 value 213.149532  
## iter 20 value 166.467620  
## iter 30 value 157.110925  
## iter 40 value 154.791138  
## iter 50 value 152.880736  
## iter 60 value 152.613254  
## iter 70 value 152.598022  
## iter 80 value 152.585104  
## final value 152.585077   
## converged  
## # weights: 57  
## initial value 809.511632   
## iter 10 value 226.387705  
## iter 20 value 214.751158  
## iter 30 value 203.482174  
## iter 40 value 166.125549  
## iter 50 value 153.354403  
## iter 60 value 149.719651  
## iter 70 value 145.620752  
## iter 80 value 144.664760  
## iter 90 value 144.074183  
## iter 100 value 143.730949  
## final value 143.730949   
## stopped after 100 iterations  
## # weights: 71  
## initial value 433.316108   
## iter 10 value 217.086873  
## iter 20 value 186.843710  
## iter 30 value 158.831210  
## iter 40 value 154.624927  
## iter 50 value 147.663369  
## iter 60 value 145.990929  
## iter 70 value 142.592326  
## iter 80 value 138.699459  
## iter 90 value 137.076756  
## iter 100 value 136.697954  
## final value 136.697954   
## stopped after 100 iterations  
## # weights: 85  
## initial value 433.305003   
## iter 10 value 216.118477  
## iter 20 value 212.850539  
## iter 30 value 193.747719  
## iter 40 value 156.656667  
## iter 50 value 145.517811  
## iter 60 value 140.704636  
## iter 70 value 137.275359  
## iter 80 value 135.730694  
## iter 90 value 135.134362  
## iter 100 value 134.634581  
## final value 134.634581   
## stopped after 100 iterations  
## # weights: 99  
## initial value 964.453791   
## iter 10 value 195.201340  
## iter 20 value 162.122297  
## iter 30 value 154.838025  
## iter 40 value 149.633401  
## iter 50 value 143.041817  
## iter 60 value 140.447892  
## iter 70 value 137.280977  
## iter 80 value 135.102811  
## iter 90 value 134.243125  
## iter 100 value 133.917007  
## final value 133.917007   
## stopped after 100 iterations  
## # weights: 113  
## initial value 235.409199   
## iter 10 value 195.605311  
## iter 20 value 162.652150  
## iter 30 value 156.514910  
## iter 40 value 151.542635  
## iter 50 value 150.127741  
## iter 60 value 144.744437  
## iter 70 value 138.373001  
## iter 80 value 136.226980  
## iter 90 value 133.896856  
## iter 100 value 132.022538  
## final value 132.022538   
## stopped after 100 iterations  
## # weights: 127  
## initial value 393.042553   
## iter 10 value 213.766234  
## iter 20 value 189.973880  
## iter 30 value 162.467153  
## iter 40 value 153.255693  
## iter 50 value 146.895072  
## iter 60 value 142.076200  
## iter 70 value 138.590173  
## iter 80 value 135.366585  
## iter 90 value 133.679270  
## iter 100 value 132.718067  
## final value 132.718067   
## stopped after 100 iterations  
## # weights: 141  
## initial value 858.056616   
## iter 10 value 215.312721  
## iter 20 value 193.693096  
## iter 30 value 160.906812  
## iter 40 value 155.618753  
## iter 50 value 151.699012  
## iter 60 value 147.808162  
## iter 70 value 144.845077  
## iter 80 value 140.993346  
## iter 90 value 136.356308  
## iter 100 value 133.514633  
## final value 133.514633   
## stopped after 100 iterations  
## # weights: 155  
## initial value 596.827107   
## iter 10 value 203.978266  
## iter 20 value 164.058365  
## iter 30 value 158.602680  
## iter 40 value 155.860555  
## iter 50 value 148.641649  
## iter 60 value 144.291617  
## iter 70 value 142.186312  
## iter 80 value 139.355184  
## iter 90 value 136.019486  
## iter 100 value 132.454253  
## final value 132.454253   
## stopped after 100 iterations  
## # weights: 169  
## initial value 853.086937   
## iter 10 value 202.358913  
## iter 20 value 164.668052  
## iter 30 value 156.660289  
## iter 40 value 148.945164  
## iter 50 value 143.704984  
## iter 60 value 139.630910  
## iter 70 value 134.258967  
## iter 80 value 129.659411  
## iter 90 value 128.545471  
## iter 100 value 127.834344  
## final value 127.834344   
## stopped after 100 iterations  
## # weights: 15  
## initial value 462.070571   
## iter 10 value 217.843702  
## iter 20 value 208.054405  
## iter 30 value 168.512512  
## iter 40 value 161.163006  
## iter 50 value 161.023176  
## final value 161.022829   
## converged  
## # weights: 29  
## initial value 330.019242   
## iter 10 value 215.377099  
## iter 20 value 173.585588  
## iter 30 value 163.188419  
## iter 40 value 162.935122  
## iter 50 value 162.862554  
## final value 162.852735   
## converged  
## # weights: 43  
## initial value 406.877840   
## iter 10 value 215.677653  
## iter 20 value 177.177565  
## iter 30 value 163.363179  
## iter 40 value 160.067758  
## iter 50 value 155.299992  
## iter 60 value 153.968438  
## iter 70 value 153.895400  
## iter 80 value 153.825553  
## iter 90 value 153.481769  
## iter 100 value 153.373474  
## final value 153.373474   
## stopped after 100 iterations  
## # weights: 57  
## initial value 550.327118   
## iter 10 value 221.597662  
## iter 20 value 208.182620  
## iter 30 value 161.856340  
## iter 40 value 156.476353  
## iter 50 value 154.760578  
## iter 60 value 153.123925  
## iter 70 value 151.107853  
## iter 80 value 150.040333  
## iter 90 value 149.068588  
## iter 100 value 147.885854  
## final value 147.885854   
## stopped after 100 iterations  
## # weights: 71  
## initial value 582.676149   
## iter 10 value 227.666931  
## iter 20 value 202.553674  
## iter 30 value 168.381771  
## iter 40 value 161.135032  
## iter 50 value 159.669183  
## iter 60 value 156.869990  
## iter 70 value 153.908104  
## iter 80 value 152.274021  
## iter 90 value 151.200384  
## iter 100 value 150.891419  
## final value 150.891419   
## stopped after 100 iterations  
## # weights: 85  
## initial value 289.177427   
## iter 10 value 210.874170  
## iter 20 value 167.280926  
## iter 30 value 159.949664  
## iter 40 value 155.826794  
## iter 50 value 153.127150  
## iter 60 value 152.649451  
## iter 70 value 152.414315  
## iter 80 value 152.189590  
## iter 90 value 150.576893  
## iter 100 value 148.177906  
## final value 148.177906   
## stopped after 100 iterations  
## # weights: 99  
## initial value 555.431265   
## iter 10 value 211.165402  
## iter 20 value 177.928402  
## iter 30 value 161.293037  
## iter 40 value 155.383840  
## iter 50 value 153.782967  
## iter 60 value 152.969262  
## iter 70 value 151.538928  
## iter 80 value 150.421689  
## iter 90 value 149.443471  
## iter 100 value 147.610027  
## final value 147.610027   
## stopped after 100 iterations  
## # weights: 113  
## initial value 570.874253   
## iter 10 value 212.935369  
## iter 20 value 187.662336  
## iter 30 value 161.750184  
## iter 40 value 154.672557  
## iter 50 value 152.943770  
## iter 60 value 150.875282  
## iter 70 value 148.583187  
## iter 80 value 146.446304  
## iter 90 value 145.050715  
## iter 100 value 144.508370  
## final value 144.508370   
## stopped after 100 iterations  
## # weights: 127  
## initial value 219.521927   
## iter 10 value 193.945040  
## iter 20 value 177.444151  
## iter 30 value 159.859866  
## iter 40 value 155.627679  
## iter 50 value 151.870538  
## iter 60 value 150.480761  
## iter 70 value 148.619982  
## iter 80 value 147.832014  
## iter 90 value 147.613718  
## iter 100 value 146.792438  
## final value 146.792438   
## stopped after 100 iterations  
## # weights: 141  
## initial value 596.729394   
## iter 10 value 212.473275  
## iter 20 value 194.405167  
## iter 30 value 167.071960  
## iter 40 value 156.281710  
## iter 50 value 149.936948  
## iter 60 value 147.578022  
## iter 70 value 146.880030  
## iter 80 value 145.896811  
## iter 90 value 144.817719  
## iter 100 value 144.125854  
## final value 144.125854   
## stopped after 100 iterations  
## # weights: 155  
## initial value 587.774294   
## iter 10 value 216.477346  
## iter 20 value 209.166355  
## iter 30 value 173.557222  
## iter 40 value 158.370169  
## iter 50 value 154.512151  
## iter 60 value 153.671294  
## iter 70 value 149.774852  
## iter 80 value 146.737105  
## iter 90 value 144.186500  
## iter 100 value 143.195746  
## final value 143.195746   
## stopped after 100 iterations  
## # weights: 169  
## initial value 946.735849   
## iter 10 value 209.145370  
## iter 20 value 178.587649  
## iter 30 value 162.389040  
## iter 40 value 155.347410  
## iter 50 value 153.179244  
## iter 60 value 151.561356  
## iter 70 value 149.877684  
## iter 80 value 148.085425  
## iter 90 value 146.732905  
## iter 100 value 145.042251  
## final value 145.042251   
## stopped after 100 iterations  
## # weights: 15  
## initial value 296.523502   
## iter 10 value 217.728435  
## iter 20 value 180.990748  
## iter 30 value 164.702030  
## final value 164.652453   
## converged  
## # weights: 29  
## initial value 463.052162   
## iter 10 value 213.598441  
## iter 20 value 175.889933  
## iter 30 value 164.685212  
## iter 40 value 163.633422  
## iter 50 value 162.353383  
## final value 162.348809   
## converged  
## # weights: 43  
## initial value 552.287228   
## iter 10 value 251.968078  
## iter 20 value 218.462988  
## iter 30 value 197.582753  
## iter 40 value 167.208260  
## iter 50 value 166.639672  
## iter 60 value 166.405071  
## iter 70 value 166.395481  
## final value 166.393187   
## converged  
## # weights: 57  
## initial value 403.487936   
## iter 10 value 218.446224  
## iter 20 value 192.915825  
## iter 30 value 168.926418  
## iter 40 value 166.373398  
## iter 50 value 165.477521  
## iter 60 value 165.292554  
## iter 70 value 164.006161  
## iter 80 value 162.382432  
## iter 90 value 162.328432  
## iter 100 value 162.326429  
## final value 162.326429   
## stopped after 100 iterations  
## # weights: 71  
## initial value 290.860536   
## iter 10 value 176.563660  
## iter 20 value 167.237140  
## iter 30 value 164.718233  
## iter 40 value 163.297265  
## iter 50 value 161.238197  
## iter 60 value 159.374938  
## iter 70 value 158.708074  
## iter 80 value 158.255601  
## iter 90 value 158.115104  
## iter 100 value 157.678340  
## final value 157.678340   
## stopped after 100 iterations  
## # weights: 85  
## initial value 706.105004   
## iter 10 value 269.886187  
## iter 20 value 227.095358  
## iter 30 value 194.785307  
## iter 40 value 171.345101  
## iter 50 value 164.380541  
## iter 60 value 162.953776  
## iter 70 value 161.328720  
## iter 80 value 158.948544  
## iter 90 value 157.658976  
## iter 100 value 156.899840  
## final value 156.899840   
## stopped after 100 iterations  
## # weights: 99  
## initial value 590.370953   
## iter 10 value 215.847761  
## iter 20 value 188.682698  
## iter 30 value 166.299191  
## iter 40 value 164.450319  
## iter 50 value 162.005885  
## iter 60 value 161.060078  
## iter 70 value 160.820291  
## iter 80 value 160.573917  
## iter 90 value 159.082415  
## iter 100 value 156.658238  
## final value 156.658238   
## stopped after 100 iterations  
## # weights: 113  
## initial value 576.191457   
## iter 10 value 214.925073  
## iter 20 value 198.759306  
## iter 30 value 165.962752  
## iter 40 value 161.958026  
## iter 50 value 159.829251  
## iter 60 value 159.164505  
## iter 70 value 157.430331  
## iter 80 value 155.727672  
## iter 90 value 155.169328  
## iter 100 value 154.966466  
## final value 154.966466   
## stopped after 100 iterations  
## # weights: 127  
## initial value 416.194518   
## iter 10 value 216.615177  
## iter 20 value 199.476630  
## iter 30 value 173.101842  
## iter 40 value 163.965785  
## iter 50 value 160.953311  
## iter 60 value 158.722426  
## iter 70 value 156.459085  
## iter 80 value 154.883079  
## iter 90 value 154.533427  
## iter 100 value 154.359542  
## final value 154.359542   
## stopped after 100 iterations  
## # weights: 141  
## initial value 420.208072   
## iter 10 value 219.022664  
## iter 20 value 175.499441  
## iter 30 value 165.193686  
## iter 40 value 161.999067  
## iter 50 value 160.215885  
## iter 60 value 158.538799  
## iter 70 value 157.399599  
## iter 80 value 156.858502  
## iter 90 value 155.849363  
## iter 100 value 155.138786  
## final value 155.138786   
## stopped after 100 iterations  
## # weights: 155  
## initial value 489.631743   
## iter 10 value 215.694337  
## iter 20 value 199.148057  
## iter 30 value 174.476431  
## iter 40 value 162.467246  
## iter 50 value 158.869148  
## iter 60 value 156.812527  
## iter 70 value 155.172573  
## iter 80 value 154.221224  
## iter 90 value 153.657232  
## iter 100 value 153.110748  
## final value 153.110748   
## stopped after 100 iterations  
## # weights: 169  
## initial value 368.045229   
## iter 10 value 212.571138  
## iter 20 value 200.401801  
## iter 30 value 170.579262  
## iter 40 value 162.157093  
## iter 50 value 160.831960  
## iter 60 value 159.052709  
## iter 70 value 158.276165  
## iter 80 value 157.735592  
## iter 90 value 156.821362  
## iter 100 value 155.678341  
## final value 155.678341   
## stopped after 100 iterations  
## # weights: 15  
## initial value 732.745890   
## iter 10 value 220.137659  
## iter 20 value 211.188557  
## iter 30 value 174.077849  
## iter 40 value 167.983019  
## final value 167.977655   
## converged  
## # weights: 29  
## initial value 538.032979   
## iter 10 value 219.330928  
## iter 20 value 210.437684  
## iter 30 value 198.647221  
## iter 40 value 175.058517  
## iter 50 value 166.569567  
## iter 60 value 165.844743  
## iter 70 value 165.711674  
## final value 165.709142   
## converged  
## # weights: 43  
## initial value 625.879973   
## iter 10 value 238.181447  
## iter 20 value 194.642324  
## iter 30 value 171.218127  
## iter 40 value 169.192307  
## iter 50 value 167.946684  
## iter 60 value 166.834869  
## iter 70 value 165.862959  
## iter 80 value 165.523924  
## iter 90 value 165.403974  
## iter 100 value 165.385753  
## final value 165.385753   
## stopped after 100 iterations  
## # weights: 57  
## initial value 379.086571   
## iter 10 value 218.405438  
## iter 20 value 208.106792  
## iter 30 value 186.163447  
## iter 40 value 167.926407  
## iter 50 value 167.151980  
## iter 60 value 165.747547  
## iter 70 value 164.549324  
## iter 80 value 164.202959  
## iter 90 value 164.077205  
## iter 100 value 164.053872  
## final value 164.053872   
## stopped after 100 iterations  
## # weights: 71  
## initial value 425.929926   
## iter 10 value 215.466344  
## iter 20 value 198.041266  
## iter 30 value 172.583210  
## iter 40 value 166.534433  
## iter 50 value 164.443692  
## iter 60 value 163.480047  
## iter 70 value 162.814623  
## iter 80 value 162.496994  
## iter 90 value 162.063468  
## iter 100 value 162.034610  
## final value 162.034610   
## stopped after 100 iterations  
## # weights: 85  
## initial value 387.872825   
## iter 10 value 221.037838  
## iter 20 value 191.776042  
## iter 30 value 170.876631  
## iter 40 value 168.315529  
## iter 50 value 167.473665  
## iter 60 value 166.210431  
## iter 70 value 164.195449  
## iter 80 value 161.953923  
## iter 90 value 161.542620  
## iter 100 value 161.264588  
## final value 161.264588   
## stopped after 100 iterations  
## # weights: 99  
## initial value 304.597097   
## iter 10 value 217.717669  
## iter 20 value 183.813396  
## iter 30 value 169.627250  
## iter 40 value 166.146742  
## iter 50 value 164.924508  
## iter 60 value 163.837370  
## iter 70 value 163.195642  
## iter 80 value 162.228182  
## iter 90 value 161.653652  
## iter 100 value 161.525986  
## final value 161.525986   
## stopped after 100 iterations  
## # weights: 113  
## initial value 224.139168   
## iter 10 value 198.185509  
## iter 20 value 171.614596  
## iter 30 value 167.683020  
## iter 40 value 166.462198  
## iter 50 value 165.516916  
## iter 60 value 163.914492  
## iter 70 value 162.705069  
## iter 80 value 161.741129  
## iter 90 value 161.067030  
## iter 100 value 160.933872  
## final value 160.933872   
## stopped after 100 iterations  
## # weights: 127  
## initial value 913.054905   
## iter 10 value 219.456599  
## iter 20 value 188.358493  
## iter 30 value 174.241127  
## iter 40 value 170.785704  
## iter 50 value 168.733828  
## iter 60 value 166.716994  
## iter 70 value 165.825241  
## iter 80 value 165.079214  
## iter 90 value 164.647437  
## iter 100 value 164.196864  
## final value 164.196864   
## stopped after 100 iterations  
## # weights: 141  
## initial value 1145.187605   
## iter 10 value 217.499021  
## iter 20 value 202.258342  
## iter 30 value 174.910988  
## iter 40 value 168.132199  
## iter 50 value 166.269723  
## iter 60 value 164.939263  
## iter 70 value 163.087221  
## iter 80 value 162.517260  
## iter 90 value 161.828962  
## iter 100 value 161.118448  
## final value 161.118448   
## stopped after 100 iterations  
## # weights: 155  
## initial value 266.669096   
## iter 10 value 202.330394  
## iter 20 value 190.503066  
## iter 30 value 173.466867  
## iter 40 value 168.475659  
## iter 50 value 167.323731  
## iter 60 value 164.872433  
## iter 70 value 163.109626  
## iter 80 value 162.757503  
## iter 90 value 162.141497  
## iter 100 value 161.319862  
## final value 161.319862   
## stopped after 100 iterations  
## # weights: 169  
## initial value 783.761293   
## iter 10 value 220.206510  
## iter 20 value 209.593796  
## iter 30 value 190.950263  
## iter 40 value 171.321007  
## iter 50 value 167.158560  
## iter 60 value 163.830057  
## iter 70 value 162.039926  
## iter 80 value 160.629854  
## iter 90 value 160.262827  
## iter 100 value 159.970484  
## final value 159.970484   
## stopped after 100 iterations  
## # weights: 15  
## initial value 327.798712   
## iter 10 value 214.809109  
## iter 20 value 201.806800  
## iter 30 value 182.504887  
## iter 40 value 171.071630  
## final value 171.045433   
## converged  
## # weights: 29  
## initial value 731.570264   
## iter 10 value 222.155994  
## iter 20 value 187.792941  
## iter 30 value 175.004866  
## iter 40 value 174.783635  
## final value 174.775310   
## converged  
## # weights: 43  
## initial value 325.043068   
## iter 10 value 216.704780  
## iter 20 value 185.729783  
## iter 30 value 170.594178  
## iter 40 value 170.036211  
## iter 50 value 169.783806  
## iter 60 value 169.162434  
## iter 70 value 167.749269  
## iter 80 value 167.460702  
## iter 90 value 167.434570  
## final value 167.434458   
## converged  
## # weights: 57  
## initial value 449.955886   
## iter 10 value 203.957412  
## iter 20 value 177.997002  
## iter 30 value 171.076446  
## iter 40 value 169.413931  
## iter 50 value 168.077337  
## iter 60 value 167.633797  
## iter 70 value 167.358610  
## iter 80 value 167.000613  
## iter 90 value 166.537436  
## iter 100 value 166.414139  
## final value 166.414139   
## stopped after 100 iterations  
## # weights: 71  
## initial value 294.454520   
## iter 10 value 213.574219  
## iter 20 value 196.507795  
## iter 30 value 172.267291  
## iter 40 value 169.984439  
## iter 50 value 169.414830  
## iter 60 value 168.971625  
## iter 70 value 168.901857  
## iter 80 value 168.694463  
## iter 90 value 167.864703  
## iter 100 value 167.294462  
## final value 167.294462   
## stopped after 100 iterations  
## # weights: 85  
## initial value 318.617030   
## iter 10 value 222.088088  
## iter 20 value 181.443103  
## iter 30 value 174.200504  
## iter 40 value 170.946571  
## iter 50 value 169.595571  
## iter 60 value 168.584519  
## iter 70 value 167.702657  
## iter 80 value 167.249680  
## iter 90 value 166.715970  
## iter 100 value 166.436810  
## final value 166.436810   
## stopped after 100 iterations  
## # weights: 99  
## initial value 518.590351   
## iter 10 value 216.492417  
## iter 20 value 194.355016  
## iter 30 value 178.804191  
## iter 40 value 169.403393  
## iter 50 value 168.754770  
## iter 60 value 168.125120  
## iter 70 value 167.342095  
## iter 80 value 166.925410  
## iter 90 value 166.838054  
## iter 100 value 166.737695  
## final value 166.737695   
## stopped after 100 iterations  
## # weights: 113  
## initial value 333.351103   
## iter 10 value 217.958169  
## iter 20 value 198.485105  
## iter 30 value 171.529505  
## iter 40 value 168.047874  
## iter 50 value 166.934040  
## iter 60 value 166.540958  
## iter 70 value 166.232317  
## iter 80 value 166.051575  
## iter 90 value 165.633812  
## iter 100 value 165.385135  
## final value 165.385135   
## stopped after 100 iterations  
## # weights: 127  
## initial value 268.099323   
## iter 10 value 199.302648  
## iter 20 value 182.143893  
## iter 30 value 173.888644  
## iter 40 value 169.001180  
## iter 50 value 167.777876  
## iter 60 value 167.193677  
## iter 70 value 166.342247  
## iter 80 value 166.087826  
## iter 90 value 165.900622  
## iter 100 value 165.608189  
## final value 165.608189   
## stopped after 100 iterations  
## # weights: 141  
## initial value 686.134786   
## iter 10 value 208.845551  
## iter 20 value 190.824462  
## iter 30 value 173.351777  
## iter 40 value 167.255579  
## iter 50 value 166.397115  
## iter 60 value 165.805095  
## iter 70 value 165.475597  
## iter 80 value 165.225004  
## iter 90 value 165.050226  
## iter 100 value 164.986723  
## final value 164.986723   
## stopped after 100 iterations  
## # weights: 155  
## initial value 253.343715   
## iter 10 value 211.915222  
## iter 20 value 180.921052  
## iter 30 value 170.380695  
## iter 40 value 168.605173  
## iter 50 value 167.610466  
## iter 60 value 166.948063  
## iter 70 value 166.198119  
## iter 80 value 165.675713  
## iter 90 value 165.271629  
## iter 100 value 164.841953  
## final value 164.841953   
## stopped after 100 iterations  
## # weights: 169  
## initial value 280.140342   
## iter 10 value 218.152901  
## iter 20 value 213.928078  
## iter 30 value 205.300831  
## iter 40 value 179.520259  
## iter 50 value 171.315937  
## iter 60 value 168.207111  
## iter 70 value 167.204781  
## iter 80 value 166.632468  
## iter 90 value 166.065007  
## iter 100 value 165.510572  
## final value 165.510572   
## stopped after 100 iterations  
## # weights: 113  
## initial value 416.774311   
## iter 10 value 242.890946  
## iter 20 value 233.909872  
## iter 30 value 201.489637  
## iter 40 value 186.586405  
## iter 50 value 179.900965  
## iter 60 value 178.557108  
## iter 70 value 176.898784  
## iter 80 value 173.627574  
## iter 90 value 173.222854  
## iter 100 value 173.023400  
## final value 173.023400   
## stopped after 100 iterations

nnetrun

## Neural Network   
##   
## 675 samples  
## 8 predictor  
## 2 classes: 'completedparole', 'violatedparole'   
##   
## No pre-processing  
## Resampling: Cross-Validated (10 fold)   
## Summary of sample sizes: 608, 607, 609, 607, 607, 607, ...   
## Resampling results across tuning parameters:  
##   
## size decay Accuracy Kappa   
## 1 0.1 0.8860996 0.2753963  
## 1 0.2 0.8846064 0.2319070  
## 1 0.3 0.8845844 0.2253438  
## 1 0.4 0.8816206 0.1482602  
## 1 0.5 0.8875023 0.1391544  
## 2 0.1 0.8846297 0.2694282  
## 2 0.2 0.8846070 0.2608178  
## 2 0.3 0.8830028 0.2431773  
## 2 0.4 0.8934306 0.2779410  
## 2 0.5 0.8800835 0.1208822  
## 3 0.1 0.8681186 0.1459753  
## 3 0.2 0.8755826 0.1845101  
## 3 0.3 0.8741340 0.1649251  
## 3 0.4 0.8801055 0.2168256  
## 3 0.5 0.8889736 0.2200998  
## 4 0.1 0.8859439 0.3533178  
## 4 0.2 0.8741127 0.2168751  
## 4 0.3 0.8815761 0.2380312  
## 4 0.4 0.8875030 0.2591706  
## 4 0.5 0.8815096 0.1925124  
## 5 0.1 0.8830021 0.3006922  
## 5 0.2 0.8815980 0.2820099  
## 5 0.3 0.8889736 0.2694574  
## 5 0.4 0.8785238 0.1680444  
## 5 0.5 0.8830247 0.2222113  
## 6 0.1 0.8814437 0.3444250  
## 6 0.2 0.8815315 0.2853840  
## 6 0.3 0.8844507 0.2308458  
## 6 0.4 0.8859878 0.2547509  
## 6 0.5 0.8904887 0.2505255  
## 7 0.1 0.8726182 0.2714744  
## 7 0.2 0.8861441 0.2815389  
## 7 0.3 0.8875476 0.2729190  
## 7 0.4 0.8800835 0.1814272  
## 7 0.5 0.8844727 0.1920932  
## 8 0.1 0.8726415 0.2541996  
## 8 0.2 0.8830241 0.2587072  
## 8 0.3 0.8963485 0.3442124  
## 8 0.4 0.8844507 0.2248290  
## 8 0.5 0.8859433 0.2167586  
## 9 0.1 0.8695227 0.2237128  
## 9 0.2 0.8875249 0.2483789  
## 9 0.3 0.8859433 0.2578335  
## 9 0.4 0.8844062 0.2255860  
## 9 0.5 0.8888845 0.2697893  
## 10 0.1 0.8784560 0.2997999  
## 10 0.2 0.8785019 0.2079413  
## 10 0.3 0.8859878 0.2973794  
## 10 0.4 0.8859433 0.2361274  
## 10 0.5 0.8858987 0.2210937  
## 11 0.1 0.8814424 0.3401194  
## 11 0.2 0.8829795 0.2924382  
## 11 0.3 0.8785684 0.2038563  
## 11 0.4 0.8859433 0.2042523  
## 11 0.5 0.8874584 0.2413304  
## 12 0.1 0.8814650 0.3571157  
## 12 0.2 0.8828245 0.2942325  
## 12 0.3 0.8920265 0.3503324  
## 12 0.4 0.8875030 0.2473338  
## 12 0.5 0.8844281 0.2198215  
##   
## Accuracy was used to select the optimal model using the largest value.  
## The final values used for the model were size = 8 and decay = 0.3.

# The final values used for selecting the optimal model were size = 8 and decay = 0.3. With an accuracy of 0.8963 and Kappa 0.3442. this accuracy falls between our two initial model run.

# Task 5

# Prediction on training set

predtrain = predict(nnetrun, traindata)  
#Confusion Matrix  
confusionMatrix(predtrain, traindata$violator, positive = "completedparole")

## Confusion Matrix and Statistics  
##   
## Reference  
## Prediction completedparole violatedparole  
## completedparole 413 32  
## violatedparole 5 23  
##   
## Accuracy : 0.9218   
## 95% CI : (0.8938, 0.9443)  
## No Information Rate : 0.8837   
## P-Value [Acc > NIR] : 0.004326   
##   
## Kappa : 0.5163   
##   
## Mcnemar's Test P-Value : 1.917e-05   
##   
## Sensitivity : 0.9880   
## Specificity : 0.4182   
## Pos Pred Value : 0.9281   
## Neg Pred Value : 0.8214   
## Prevalence : 0.8837   
## Detection Rate : 0.8732   
## Detection Prevalence : 0.9408   
## Balanced Accuracy : 0.7031   
##   
## 'Positive' Class : completedparole   
##

# The analysis produced a suggested accuracy of 92%. This is just a 2% differentials compared to the 90% suggested in the intitial model.

# Task 6

# This task involves the process of developing predictions on testing set using model from task 2

predtest = predict(nnetFit, testdata)  
#Confusion Matrix  
confusionMatrix(predtest, testdata$violator, positive = "completedparole")

## Confusion Matrix and Statistics  
##   
## Reference  
## Prediction completedparole violatedparole  
## completedparole 176 10  
## violatedparole 3 13  
##   
## Accuracy : 0.9356   
## 95% CI : (0.8925, 0.9653)  
## No Information Rate : 0.8861   
## P-Value [Acc > NIR] : 0.01292   
##   
## Kappa : 0.6323   
##   
## Mcnemar's Test P-Value : 0.09609   
##   
## Sensitivity : 0.9832   
## Specificity : 0.5652   
## Pos Pred Value : 0.9462   
## Neg Pred Value : 0.8125   
## Prevalence : 0.8861   
## Detection Rate : 0.8713   
## Detection Prevalence : 0.9208   
## Balanced Accuracy : 0.7742   
##   
## 'Positive' Class : completedparole   
##

# Well, I would posit that, given the results output, the accuracy for the testing data satisfies the reasonable range criteria; especially when compared with other models.

# Task 7

task7\_test = predict(nnetrun, testdata)  
#Confusion Matrix  
confusionMatrix(task7\_test, testdata$violator, positive = "completedparole")

## Confusion Matrix and Statistics  
##   
## Reference  
## Prediction completedparole violatedparole  
## completedparole 177 16  
## violatedparole 2 7  
##   
## Accuracy : 0.9109   
## 95% CI : (0.8628, 0.9463)  
## No Information Rate : 0.8861   
## P-Value [Acc > NIR] : 0.159196   
##   
## Kappa : 0.399   
##   
## Mcnemar's Test P-Value : 0.002183   
##   
## Sensitivity : 0.9888   
## Specificity : 0.3043   
## Pos Pred Value : 0.9171   
## Neg Pred Value : 0.7778   
## Prevalence : 0.8861   
## Detection Rate : 0.8762   
## Detection Prevalence : 0.9554   
## Balanced Accuracy : 0.6466   
##   
## 'Positive' Class : completedparole   
##

# As previous task, I would posit that, given the results output, the accuracy for the testing data satisfies the reasonable range criteria; especially when compared with other models.

# Task 8

# Comments

control = trainControl(  
 method = "cv",  
 number = 5, #to save time, we'll use 5 fold cross-validation rather than 10  
 savePredictions = "final",  
 index = createResample(traindata$violator, 10),  
 classProbs = TRUE, #instructs caret to calculate probabilities (rather than providing final classifications)  
 summaryFunction = twoClassSummary #enables calculation of AUC  
 )

method\_list <- c("rf", "glm", "gbm")  
  
  
set.seed(111)  
mod1 <- caretList(violator ~ ., data = traindata, trControl = control, methodList = method\_list, metric = "ROC")

## Iter TrainDeviance ValidDeviance StepSize Improve  
## 1 0.7308 nan 0.1000 0.0196  
## 2 0.7057 nan 0.1000 0.0131  
## 3 0.6884 nan 0.1000 0.0085  
## 4 0.6722 nan 0.1000 0.0081  
## 5 0.6622 nan 0.1000 0.0035  
## 6 0.6542 nan 0.1000 0.0036  
## 7 0.6449 nan 0.1000 0.0016  
## 8 0.6352 nan 0.1000 0.0030  
## 9 0.6285 nan 0.1000 0.0020  
## 10 0.6216 nan 0.1000 0.0024  
## 20 0.5695 nan 0.1000 0.0027  
## 40 0.5058 nan 0.1000 -0.0003  
## 60 0.4704 nan 0.1000 -0.0004  
## 80 0.4442 nan 0.1000 0.0011  
## 100 0.4237 nan 0.1000 -0.0018  
## 120 0.4117 nan 0.1000 -0.0010  
## 140 0.3990 nan 0.1000 -0.0004  
## 150 0.3950 nan 0.1000 -0.0018  
##   
## Iter TrainDeviance ValidDeviance StepSize Improve  
## 1 0.6950 nan 0.1000 0.0192  
## 2 0.6600 nan 0.1000 0.0193  
## 3 0.6191 nan 0.1000 0.0167  
## 4 0.5874 nan 0.1000 0.0135  
## 5 0.5739 nan 0.1000 0.0060  
## 6 0.5628 nan 0.1000 0.0025  
## 7 0.5565 nan 0.1000 0.0025  
## 8 0.5379 nan 0.1000 0.0084  
## 9 0.5241 nan 0.1000 0.0069  
## 10 0.5119 nan 0.1000 0.0049  
## 20 0.4477 nan 0.1000 0.0023  
## 40 0.3860 nan 0.1000 0.0007  
## 60 0.3514 nan 0.1000 -0.0008  
## 80 0.3214 nan 0.1000 0.0001  
## 100 0.2944 nan 0.1000 -0.0000  
## 120 0.2645 nan 0.1000 -0.0003  
## 140 0.2457 nan 0.1000 -0.0006  
## 150 0.2383 nan 0.1000 -0.0008  
##   
## Iter TrainDeviance ValidDeviance StepSize Improve  
## 1 0.7056 nan 0.1000 0.0268  
## 2 0.6581 nan 0.1000 0.0206  
## 3 0.6151 nan 0.1000 0.0188  
## 4 0.5927 nan 0.1000 0.0118  
## 5 0.5746 nan 0.1000 0.0040  
## 6 0.5574 nan 0.1000 0.0035  
## 7 0.5308 nan 0.1000 0.0111  
## 8 0.5125 nan 0.1000 0.0080  
## 9 0.5046 nan 0.1000 0.0025  
## 10 0.4970 nan 0.1000 0.0004  
## 20 0.4211 nan 0.1000 -0.0004  
## 40 0.3504 nan 0.1000 -0.0006  
## 60 0.2885 nan 0.1000 -0.0004  
## 80 0.2505 nan 0.1000 -0.0009  
## 100 0.2165 nan 0.1000 0.0007  
## 120 0.1907 nan 0.1000 -0.0000  
## 140 0.1722 nan 0.1000 -0.0004  
## 150 0.1631 nan 0.1000 -0.0019  
##   
## Iter TrainDeviance ValidDeviance StepSize Improve  
## 1 0.6965 nan 0.1000 0.0256  
## 2 0.6665 nan 0.1000 0.0156  
## 3 0.6516 nan 0.1000 0.0064  
## 4 0.6326 nan 0.1000 0.0099  
## 5 0.6135 nan 0.1000 0.0062  
## 6 0.6033 nan 0.1000 0.0058  
## 7 0.5897 nan 0.1000 0.0041  
## 8 0.5816 nan 0.1000 0.0039  
## 9 0.5758 nan 0.1000 0.0024  
## 10 0.5696 nan 0.1000 0.0016  
## 20 0.5253 nan 0.1000 0.0010  
## 40 0.4811 nan 0.1000 -0.0002  
## 60 0.4472 nan 0.1000 -0.0006  
## 80 0.4312 nan 0.1000 -0.0014  
## 100 0.4185 nan 0.1000 -0.0010  
## 120 0.3980 nan 0.1000 -0.0005  
## 140 0.3796 nan 0.1000 -0.0004  
## 150 0.3734 nan 0.1000 -0.0006  
##   
## Iter TrainDeviance ValidDeviance StepSize Improve  
## 1 0.6899 nan 0.1000 0.0357  
## 2 0.6478 nan 0.1000 0.0178  
## 3 0.6244 nan 0.1000 0.0130  
## 4 0.6043 nan 0.1000 0.0092  
## 5 0.5840 nan 0.1000 0.0079  
## 6 0.5612 nan 0.1000 0.0109  
## 7 0.5549 nan 0.1000 0.0007  
## 8 0.5462 nan 0.1000 0.0043  
## 9 0.5373 nan 0.1000 0.0041  
## 10 0.5220 nan 0.1000 0.0059  
## 20 0.4504 nan 0.1000 0.0019  
## 40 0.3966 nan 0.1000 -0.0005  
## 60 0.3482 nan 0.1000 0.0001  
## 80 0.3124 nan 0.1000 0.0010  
## 100 0.2832 nan 0.1000 -0.0008  
## 120 0.2588 nan 0.1000 -0.0009  
## 140 0.2426 nan 0.1000 -0.0008  
## 150 0.2342 nan 0.1000 -0.0002  
##   
## Iter TrainDeviance ValidDeviance StepSize Improve  
## 1 0.6794 nan 0.1000 0.0295  
## 2 0.6384 nan 0.1000 0.0180  
## 3 0.6117 nan 0.1000 0.0121  
## 4 0.5905 nan 0.1000 0.0093  
## 5 0.5718 nan 0.1000 0.0072  
## 6 0.5591 nan 0.1000 0.0054  
## 7 0.5459 nan 0.1000 0.0038  
## 8 0.5353 nan 0.1000 0.0040  
## 9 0.5263 nan 0.1000 0.0032  
## 10 0.5168 nan 0.1000 0.0048  
## 20 0.4293 nan 0.1000 0.0017  
## 40 0.3450 nan 0.1000 -0.0014  
## 60 0.2885 nan 0.1000 -0.0010  
## 80 0.2499 nan 0.1000 -0.0015  
## 100 0.2139 nan 0.1000 -0.0009  
## 120 0.1900 nan 0.1000 0.0002  
## 140 0.1682 nan 0.1000 -0.0010  
## 150 0.1584 nan 0.1000 -0.0008  
##   
## Iter TrainDeviance ValidDeviance StepSize Improve  
## 1 0.6552 nan 0.1000 0.0162  
## 2 0.6318 nan 0.1000 0.0101  
## 3 0.6184 nan 0.1000 0.0067  
## 4 0.6144 nan 0.1000 -0.0002  
## 5 0.6031 nan 0.1000 0.0056  
## 6 0.5936 nan 0.1000 0.0039  
## 7 0.5878 nan 0.1000 0.0029  
## 8 0.5815 nan 0.1000 0.0019  
## 9 0.5774 nan 0.1000 0.0020  
## 10 0.5724 nan 0.1000 0.0007  
## 20 0.5490 nan 0.1000 -0.0015  
## 40 0.5092 nan 0.1000 -0.0016  
## 60 0.4915 nan 0.1000 -0.0010  
## 80 0.4740 nan 0.1000 -0.0013  
## 100 0.4607 nan 0.1000 -0.0000  
## 120 0.4476 nan 0.1000 -0.0010  
## 140 0.4383 nan 0.1000 -0.0012  
## 150 0.4343 nan 0.1000 -0.0014  
##   
## Iter TrainDeviance ValidDeviance StepSize Improve  
## 1 0.6573 nan 0.1000 0.0188  
## 2 0.6357 nan 0.1000 0.0101  
## 3 0.6200 nan 0.1000 0.0056  
## 4 0.6099 nan 0.1000 0.0006  
## 5 0.5949 nan 0.1000 0.0048  
## 6 0.5824 nan 0.1000 0.0061  
## 7 0.5690 nan 0.1000 0.0028  
## 8 0.5609 nan 0.1000 0.0027  
## 9 0.5536 nan 0.1000 0.0018  
## 10 0.5468 nan 0.1000 0.0002  
## 20 0.4912 nan 0.1000 -0.0003  
## 40 0.4434 nan 0.1000 -0.0012  
## 60 0.4074 nan 0.1000 -0.0013  
## 80 0.3844 nan 0.1000 -0.0022  
## 100 0.3578 nan 0.1000 -0.0001  
## 120 0.3349 nan 0.1000 -0.0018  
## 140 0.3170 nan 0.1000 -0.0014  
## 150 0.3093 nan 0.1000 -0.0009  
##   
## Iter TrainDeviance ValidDeviance StepSize Improve  
## 1 0.6470 nan 0.1000 0.0186  
## 2 0.6187 nan 0.1000 0.0063  
## 3 0.5990 nan 0.1000 0.0105  
## 4 0.5786 nan 0.1000 0.0082  
## 5 0.5677 nan 0.1000 0.0045  
## 6 0.5575 nan 0.1000 0.0037  
## 7 0.5439 nan 0.1000 0.0065  
## 8 0.5355 nan 0.1000 -0.0001  
## 9 0.5271 nan 0.1000 0.0004  
## 10 0.5208 nan 0.1000 -0.0012  
## 20 0.4718 nan 0.1000 -0.0016  
## 40 0.4002 nan 0.1000 -0.0019  
## 60 0.3473 nan 0.1000 -0.0021  
## 80 0.3096 nan 0.1000 -0.0017  
## 100 0.2770 nan 0.1000 -0.0007  
## 120 0.2468 nan 0.1000 -0.0009  
## 140 0.2255 nan 0.1000 -0.0015  
## 150 0.2149 nan 0.1000 -0.0010  
##   
## Iter TrainDeviance ValidDeviance StepSize Improve  
## 1 0.7033 nan 0.1000 0.0142  
## 2 0.6861 nan 0.1000 0.0077  
## 3 0.6748 nan 0.1000 0.0024  
## 4 0.6589 nan 0.1000 0.0070  
## 5 0.6448 nan 0.1000 0.0063  
## 6 0.6394 nan 0.1000 0.0007  
## 7 0.6320 nan 0.1000 0.0037  
## 8 0.6208 nan 0.1000 0.0055  
## 9 0.6116 nan 0.1000 0.0048  
## 10 0.6072 nan 0.1000 0.0023  
## 20 0.5709 nan 0.1000 0.0027  
## 40 0.5248 nan 0.1000 0.0007  
## 60 0.4911 nan 0.1000 0.0001  
## 80 0.4723 nan 0.1000 -0.0010  
## 100 0.4530 nan 0.1000 0.0004  
## 120 0.4360 nan 0.1000 0.0003  
## 140 0.4291 nan 0.1000 -0.0008  
## 150 0.4221 nan 0.1000 -0.0007  
##   
## Iter TrainDeviance ValidDeviance StepSize Improve  
## 1 0.7036 nan 0.1000 0.0089  
## 2 0.6686 nan 0.1000 0.0162  
## 3 0.6442 nan 0.1000 0.0100  
## 4 0.6220 nan 0.1000 0.0039  
## 5 0.6095 nan 0.1000 0.0025  
## 6 0.5984 nan 0.1000 0.0062  
## 7 0.5884 nan 0.1000 0.0045  
## 8 0.5698 nan 0.1000 0.0092  
## 9 0.5553 nan 0.1000 0.0068  
## 10 0.5434 nan 0.1000 0.0044  
## 20 0.4904 nan 0.1000 0.0002  
## 40 0.4267 nan 0.1000 -0.0000  
## 60 0.3909 nan 0.1000 -0.0014  
## 80 0.3607 nan 0.1000 -0.0024  
## 100 0.3385 nan 0.1000 0.0001  
## 120 0.3181 nan 0.1000 -0.0005  
## 140 0.2977 nan 0.1000 -0.0012  
## 150 0.2904 nan 0.1000 -0.0011  
##   
## Iter TrainDeviance ValidDeviance StepSize Improve  
## 1 0.6765 nan 0.1000 0.0219  
## 2 0.6471 nan 0.1000 0.0079  
## 3 0.6255 nan 0.1000 0.0091  
## 4 0.5991 nan 0.1000 0.0116  
## 5 0.5844 nan 0.1000 0.0007  
## 6 0.5708 nan 0.1000 0.0061  
## 7 0.5528 nan 0.1000 0.0078  
## 8 0.5409 nan 0.1000 0.0027  
## 9 0.5321 nan 0.1000 0.0003  
## 10 0.5264 nan 0.1000 0.0008  
## 20 0.4667 nan 0.1000 0.0028  
## 40 0.3774 nan 0.1000 -0.0003  
## 60 0.3234 nan 0.1000 -0.0023  
## 80 0.2872 nan 0.1000 -0.0012  
## 100 0.2579 nan 0.1000 -0.0009  
## 120 0.2321 nan 0.1000 -0.0015  
## 140 0.2046 nan 0.1000 -0.0005  
## 150 0.1965 nan 0.1000 -0.0009  
##   
## Iter TrainDeviance ValidDeviance StepSize Improve  
## 1 0.6542 nan 0.1000 0.0242  
## 2 0.6244 nan 0.1000 0.0171  
## 3 0.6077 nan 0.1000 0.0103  
## 4 0.5889 nan 0.1000 0.0083  
## 5 0.5759 nan 0.1000 0.0066  
## 6 0.5650 nan 0.1000 0.0040  
## 7 0.5569 nan 0.1000 0.0041  
## 8 0.5497 nan 0.1000 0.0022  
## 9 0.5460 nan 0.1000 0.0014  
## 10 0.5407 nan 0.1000 0.0018  
## 20 0.5132 nan 0.1000 -0.0003  
## 40 0.4864 nan 0.1000 -0.0005  
## 60 0.4654 nan 0.1000 -0.0009  
## 80 0.4507 nan 0.1000 -0.0009  
## 100 0.4299 nan 0.1000 -0.0005  
## 120 0.4160 nan 0.1000 -0.0002  
## 140 0.4043 nan 0.1000 -0.0004  
## 150 0.3973 nan 0.1000 0.0004  
##   
## Iter TrainDeviance ValidDeviance StepSize Improve  
## 1 0.6531 nan 0.1000 0.0244  
## 2 0.6216 nan 0.1000 0.0198  
## 3 0.5903 nan 0.1000 0.0122  
## 4 0.5773 nan 0.1000 0.0057  
## 5 0.5610 nan 0.1000 0.0043  
## 6 0.5513 nan 0.1000 0.0047  
## 7 0.5408 nan 0.1000 0.0046  
## 8 0.5339 nan 0.1000 0.0016  
## 9 0.5245 nan 0.1000 0.0040  
## 10 0.5206 nan 0.1000 0.0014  
## 20 0.4796 nan 0.1000 -0.0004  
## 40 0.4312 nan 0.1000 -0.0008  
## 60 0.3867 nan 0.1000 -0.0006  
## 80 0.3561 nan 0.1000 -0.0009  
## 100 0.3247 nan 0.1000 -0.0009  
## 120 0.3066 nan 0.1000 -0.0006  
## 140 0.2826 nan 0.1000 -0.0005  
## 150 0.2761 nan 0.1000 -0.0007  
##   
## Iter TrainDeviance ValidDeviance StepSize Improve  
## 1 0.6522 nan 0.1000 0.0202  
## 2 0.6069 nan 0.1000 0.0105  
## 3 0.5883 nan 0.1000 0.0092  
## 4 0.5698 nan 0.1000 0.0051  
## 5 0.5512 nan 0.1000 0.0049  
## 6 0.5397 nan 0.1000 0.0034  
## 7 0.5279 nan 0.1000 0.0039  
## 8 0.5160 nan 0.1000 0.0028  
## 9 0.5087 nan 0.1000 0.0014  
## 10 0.5056 nan 0.1000 -0.0009  
## 20 0.4438 nan 0.1000 0.0009  
## 40 0.3751 nan 0.1000 -0.0014  
## 60 0.3241 nan 0.1000 -0.0009  
## 80 0.2825 nan 0.1000 0.0005  
## 100 0.2493 nan 0.1000 -0.0007  
## 120 0.2140 nan 0.1000 -0.0018  
## 140 0.1871 nan 0.1000 -0.0008  
## 150 0.1775 nan 0.1000 -0.0009  
##   
## Iter TrainDeviance ValidDeviance StepSize Improve  
## 1 0.6099 nan 0.1000 0.0147  
## 2 0.5850 nan 0.1000 0.0114  
## 3 0.5676 nan 0.1000 0.0070  
## 4 0.5596 nan 0.1000 0.0028  
## 5 0.5503 nan 0.1000 0.0024  
## 6 0.5407 nan 0.1000 0.0040  
## 7 0.5340 nan 0.1000 0.0023  
## 8 0.5283 nan 0.1000 0.0025  
## 9 0.5218 nan 0.1000 0.0028  
## 10 0.5193 nan 0.1000 0.0008  
## 20 0.4899 nan 0.1000 -0.0009  
## 40 0.4401 nan 0.1000 -0.0006  
## 60 0.4076 nan 0.1000 -0.0005  
## 80 0.3892 nan 0.1000 0.0000  
## 100 0.3686 nan 0.1000 -0.0000  
## 120 0.3504 nan 0.1000 -0.0004  
## 140 0.3370 nan 0.1000 -0.0004  
## 150 0.3318 nan 0.1000 -0.0009  
##   
## Iter TrainDeviance ValidDeviance StepSize Improve  
## 1 0.6060 nan 0.1000 0.0258  
## 2 0.5630 nan 0.1000 0.0215  
## 3 0.5488 nan 0.1000 0.0070  
## 4 0.5342 nan 0.1000 0.0054  
## 5 0.5215 nan 0.1000 0.0056  
## 6 0.5136 nan 0.1000 0.0017  
## 7 0.4953 nan 0.1000 0.0085  
## 8 0.4863 nan 0.1000 0.0035  
## 9 0.4777 nan 0.1000 0.0030  
## 10 0.4716 nan 0.1000 0.0009  
## 20 0.4123 nan 0.1000 0.0025  
## 40 0.3482 nan 0.1000 -0.0004  
## 60 0.3093 nan 0.1000 0.0005  
## 80 0.2801 nan 0.1000 -0.0031  
## 100 0.2482 nan 0.1000 -0.0013  
## 120 0.2294 nan 0.1000 -0.0003  
## 140 0.2099 nan 0.1000 -0.0012  
## 150 0.2014 nan 0.1000 -0.0003  
##   
## Iter TrainDeviance ValidDeviance StepSize Improve  
## 1 0.5870 nan 0.1000 0.0149  
## 2 0.5633 nan 0.1000 0.0092  
## 3 0.5294 nan 0.1000 0.0179  
## 4 0.5139 nan 0.1000 0.0032  
## 5 0.4958 nan 0.1000 0.0057  
## 6 0.4826 nan 0.1000 0.0044  
## 7 0.4701 nan 0.1000 0.0066  
## 8 0.4652 nan 0.1000 0.0001  
## 9 0.4521 nan 0.1000 0.0027  
## 10 0.4435 nan 0.1000 0.0023  
## 20 0.3715 nan 0.1000 0.0009  
## 40 0.2910 nan 0.1000 -0.0008  
## 60 0.2436 nan 0.1000 -0.0005  
## 80 0.2095 nan 0.1000 -0.0008  
## 100 0.1805 nan 0.1000 -0.0010  
## 120 0.1625 nan 0.1000 -0.0008  
## 140 0.1431 nan 0.1000 -0.0005  
## 150 0.1339 nan 0.1000 -0.0013  
##   
## Iter TrainDeviance ValidDeviance StepSize Improve  
## 1 0.7445 nan 0.1000 0.0215  
## 2 0.7091 nan 0.1000 0.0137  
## 3 0.6911 nan 0.1000 0.0096  
## 4 0.6692 nan 0.1000 0.0093  
## 5 0.6592 nan 0.1000 0.0055  
## 6 0.6500 nan 0.1000 0.0048  
## 7 0.6404 nan 0.1000 0.0032  
## 8 0.6342 nan 0.1000 0.0029  
## 9 0.6305 nan 0.1000 0.0021  
## 10 0.6253 nan 0.1000 0.0017  
## 20 0.5982 nan 0.1000 0.0006  
## 40 0.5587 nan 0.1000 0.0007  
## 60 0.5302 nan 0.1000 0.0000  
## 80 0.5096 nan 0.1000 -0.0024  
## 100 0.4942 nan 0.1000 -0.0010  
## 120 0.4777 nan 0.1000 -0.0003  
## 140 0.4645 nan 0.1000 -0.0008  
## 150 0.4593 nan 0.1000 -0.0009  
##   
## Iter TrainDeviance ValidDeviance StepSize Improve  
## 1 0.7272 nan 0.1000 0.0160  
## 2 0.6996 nan 0.1000 0.0141  
## 3 0.6803 nan 0.1000 0.0098  
## 4 0.6602 nan 0.1000 0.0096  
## 5 0.6460 nan 0.1000 0.0066  
## 6 0.6364 nan 0.1000 0.0058  
## 7 0.6247 nan 0.1000 0.0044  
## 8 0.6158 nan 0.1000 0.0020  
## 9 0.6082 nan 0.1000 0.0022  
## 10 0.6019 nan 0.1000 0.0035  
## 20 0.5407 nan 0.1000 0.0010  
## 40 0.4771 nan 0.1000 -0.0020  
## 60 0.4356 nan 0.1000 -0.0010  
## 80 0.3998 nan 0.1000 -0.0009  
## 100 0.3660 nan 0.1000 -0.0010  
## 120 0.3395 nan 0.1000 -0.0001  
## 140 0.3189 nan 0.1000 -0.0015  
## 150 0.3088 nan 0.1000 -0.0003  
##   
## Iter TrainDeviance ValidDeviance StepSize Improve  
## 1 0.7161 nan 0.1000 0.0297  
## 2 0.6864 nan 0.1000 0.0153  
## 3 0.6612 nan 0.1000 0.0094  
## 4 0.6428 nan 0.1000 0.0065  
## 5 0.6241 nan 0.1000 0.0050  
## 6 0.6139 nan 0.1000 0.0046  
## 7 0.6048 nan 0.1000 0.0023  
## 8 0.5981 nan 0.1000 0.0014  
## 9 0.5894 nan 0.1000 0.0028  
## 10 0.5851 nan 0.1000 -0.0013  
## 20 0.5192 nan 0.1000 -0.0003  
## 40 0.4307 nan 0.1000 -0.0011  
## 60 0.3724 nan 0.1000 -0.0002  
## 80 0.3303 nan 0.1000 -0.0003  
## 100 0.2941 nan 0.1000 -0.0013  
## 120 0.2661 nan 0.1000 -0.0008  
## 140 0.2400 nan 0.1000 -0.0019  
## 150 0.2309 nan 0.1000 0.0002  
##   
## Iter TrainDeviance ValidDeviance StepSize Improve  
## 1 0.7432 nan 0.1000 0.0185  
## 2 0.7107 nan 0.1000 0.0129  
## 3 0.6966 nan 0.1000 0.0084  
## 4 0.6824 nan 0.1000 0.0056  
## 5 0.6734 nan 0.1000 0.0051  
## 6 0.6655 nan 0.1000 0.0040  
## 7 0.6596 nan 0.1000 0.0026  
## 8 0.6525 nan 0.1000 0.0031  
## 9 0.6472 nan 0.1000 0.0017  
## 10 0.6417 nan 0.1000 0.0012  
## 20 0.6154 nan 0.1000 0.0000  
## 40 0.5691 nan 0.1000 -0.0014  
## 60 0.5383 nan 0.1000 -0.0003  
## 80 0.5108 nan 0.1000 0.0001  
## 100 0.4947 nan 0.1000 -0.0001  
## 120 0.4723 nan 0.1000 -0.0009  
## 140 0.4555 nan 0.1000 0.0001  
## 150 0.4470 nan 0.1000 -0.0007  
##   
## Iter TrainDeviance ValidDeviance StepSize Improve  
## 1 0.7293 nan 0.1000 0.0132  
## 2 0.6971 nan 0.1000 0.0074  
## 3 0.6756 nan 0.1000 0.0063  
## 4 0.6518 nan 0.1000 0.0082  
## 5 0.6383 nan 0.1000 0.0047  
## 6 0.6278 nan 0.1000 0.0042  
## 7 0.6188 nan 0.1000 0.0033  
## 8 0.6061 nan 0.1000 0.0043  
## 9 0.5997 nan 0.1000 0.0018  
## 10 0.5907 nan 0.1000 -0.0011  
## 20 0.5379 nan 0.1000 0.0004  
## 40 0.4669 nan 0.1000 0.0006  
## 60 0.4111 nan 0.1000 0.0004  
## 80 0.3774 nan 0.1000 -0.0004  
## 100 0.3481 nan 0.1000 -0.0005  
## 120 0.3193 nan 0.1000 -0.0002  
## 140 0.2969 nan 0.1000 -0.0001  
## 150 0.2812 nan 0.1000 -0.0008  
##   
## Iter TrainDeviance ValidDeviance StepSize Improve  
## 1 0.7235 nan 0.1000 0.0186  
## 2 0.6919 nan 0.1000 0.0143  
## 3 0.6781 nan 0.1000 0.0027  
## 4 0.6525 nan 0.1000 0.0055  
## 5 0.6356 nan 0.1000 0.0069  
## 6 0.6227 nan 0.1000 0.0038  
## 7 0.6124 nan 0.1000 0.0043  
## 8 0.6002 nan 0.1000 0.0023  
## 9 0.5906 nan 0.1000 -0.0002  
## 10 0.5838 nan 0.1000 -0.0004  
## 20 0.5116 nan 0.1000 0.0024  
## 40 0.4127 nan 0.1000 -0.0001  
## 60 0.3415 nan 0.1000 -0.0005  
## 80 0.2971 nan 0.1000 -0.0016  
## 100 0.2585 nan 0.1000 -0.0007  
## 120 0.2286 nan 0.1000 -0.0001  
## 140 0.2053 nan 0.1000 -0.0002  
## 150 0.1943 nan 0.1000 -0.0019  
##   
## Iter TrainDeviance ValidDeviance StepSize Improve  
## 1 0.6505 nan 0.1000 0.0088  
## 2 0.6318 nan 0.1000 0.0067  
## 3 0.6156 nan 0.1000 0.0063  
## 4 0.6057 nan 0.1000 0.0044  
## 5 0.6000 nan 0.1000 0.0021  
## 6 0.5954 nan 0.1000 0.0026  
## 7 0.5948 nan 0.1000 -0.0020  
## 8 0.5882 nan 0.1000 0.0025  
## 9 0.5843 nan 0.1000 0.0017  
## 10 0.5795 nan 0.1000 0.0023  
## 20 0.5494 nan 0.1000 -0.0003  
## 40 0.5107 nan 0.1000 -0.0003  
## 60 0.4794 nan 0.1000 -0.0006  
## 80 0.4572 nan 0.1000 -0.0002  
## 100 0.4377 nan 0.1000 -0.0010  
## 120 0.4203 nan 0.1000 -0.0019  
## 140 0.4056 nan 0.1000 -0.0007  
## 150 0.3977 nan 0.1000 -0.0005  
##   
## Iter TrainDeviance ValidDeviance StepSize Improve  
## 1 0.6515 nan 0.1000 0.0138  
## 2 0.6324 nan 0.1000 0.0115  
## 3 0.6149 nan 0.1000 0.0069  
## 4 0.6025 nan 0.1000 0.0064  
## 5 0.5934 nan 0.1000 0.0017  
## 6 0.5833 nan 0.1000 0.0038  
## 7 0.5762 nan 0.1000 0.0026  
## 8 0.5679 nan 0.1000 0.0031  
## 9 0.5602 nan 0.1000 0.0025  
## 10 0.5544 nan 0.1000 0.0023  
## 20 0.4998 nan 0.1000 -0.0013  
## 40 0.4209 nan 0.1000 -0.0008  
## 60 0.3757 nan 0.1000 -0.0016  
## 80 0.3406 nan 0.1000 -0.0014  
## 100 0.3105 nan 0.1000 -0.0010  
## 120 0.2852 nan 0.1000 -0.0007  
## 140 0.2606 nan 0.1000 -0.0014  
## 150 0.2499 nan 0.1000 -0.0000  
##   
## Iter TrainDeviance ValidDeviance StepSize Improve  
## 1 0.6427 nan 0.1000 0.0159  
## 2 0.6326 nan 0.1000 0.0021  
## 3 0.6040 nan 0.1000 0.0096  
## 4 0.5789 nan 0.1000 0.0069  
## 5 0.5664 nan 0.1000 0.0017  
## 6 0.5566 nan 0.1000 0.0019  
## 7 0.5454 nan 0.1000 0.0027  
## 8 0.5360 nan 0.1000 0.0037  
## 9 0.5244 nan 0.1000 -0.0003  
## 10 0.5141 nan 0.1000 0.0010  
## 20 0.4308 nan 0.1000 0.0014  
## 40 0.3380 nan 0.1000 0.0004  
## 60 0.2817 nan 0.1000 -0.0001  
## 80 0.2347 nan 0.1000 -0.0016  
## 100 0.2017 nan 0.1000 -0.0008  
## 120 0.1820 nan 0.1000 -0.0007  
## 140 0.1620 nan 0.1000 -0.0004  
## 150 0.1527 nan 0.1000 -0.0001  
##   
## Iter TrainDeviance ValidDeviance StepSize Improve  
## 1 0.6293 nan 0.1000 0.0183  
## 2 0.5994 nan 0.1000 0.0143  
## 3 0.5783 nan 0.1000 0.0106  
## 4 0.5612 nan 0.1000 0.0066  
## 5 0.5496 nan 0.1000 0.0045  
## 6 0.5383 nan 0.1000 0.0046  
## 7 0.5318 nan 0.1000 0.0030  
## 8 0.5234 nan 0.1000 0.0036  
## 9 0.5177 nan 0.1000 0.0014  
## 10 0.5116 nan 0.1000 0.0027  
## 20 0.4717 nan 0.1000 0.0013  
## 40 0.4313 nan 0.1000 -0.0005  
## 60 0.4096 nan 0.1000 -0.0005  
## 80 0.3902 nan 0.1000 -0.0017  
## 100 0.3775 nan 0.1000 -0.0006  
## 120 0.3653 nan 0.1000 -0.0014  
## 140 0.3568 nan 0.1000 -0.0011  
## 150 0.3533 nan 0.1000 -0.0014  
##   
## Iter TrainDeviance ValidDeviance StepSize Improve  
## 1 0.6119 nan 0.1000 0.0230  
## 2 0.5761 nan 0.1000 0.0126  
## 3 0.5509 nan 0.1000 0.0082  
## 4 0.5321 nan 0.1000 0.0077  
## 5 0.5224 nan 0.1000 0.0037  
## 6 0.5095 nan 0.1000 0.0038  
## 7 0.5006 nan 0.1000 0.0029  
## 8 0.4915 nan 0.1000 0.0019  
## 9 0.4853 nan 0.1000 0.0018  
## 10 0.4750 nan 0.1000 0.0032  
## 20 0.4188 nan 0.1000 0.0015  
## 40 0.3611 nan 0.1000 0.0006  
## 60 0.3248 nan 0.1000 -0.0003  
## 80 0.2928 nan 0.1000 -0.0007  
## 100 0.2699 nan 0.1000 -0.0003  
## 120 0.2490 nan 0.1000 -0.0005  
## 140 0.2269 nan 0.1000 -0.0010  
## 150 0.2193 nan 0.1000 -0.0002  
##   
## Iter TrainDeviance ValidDeviance StepSize Improve  
## 1 0.5964 nan 0.1000 0.0299  
## 2 0.5664 nan 0.1000 0.0149  
## 3 0.5406 nan 0.1000 0.0069  
## 4 0.5177 nan 0.1000 0.0079  
## 5 0.4998 nan 0.1000 0.0049  
## 6 0.4864 nan 0.1000 0.0038  
## 7 0.4754 nan 0.1000 0.0034  
## 8 0.4657 nan 0.1000 0.0032  
## 9 0.4573 nan 0.1000 0.0021  
## 10 0.4540 nan 0.1000 -0.0011  
## 20 0.3847 nan 0.1000 0.0026  
## 40 0.3090 nan 0.1000 -0.0012  
## 60 0.2587 nan 0.1000 -0.0005  
## 80 0.2268 nan 0.1000 -0.0005  
## 100 0.1978 nan 0.1000 -0.0005  
## 120 0.1725 nan 0.1000 -0.0008  
## 140 0.1526 nan 0.1000 -0.0001  
## 150 0.1428 nan 0.1000 -0.0004  
##   
## Iter TrainDeviance ValidDeviance StepSize Improve  
## 1 0.6831 nan 0.1000 0.0198  
## 2 0.6595 nan 0.1000 0.0109  
## 3 0.6491 nan 0.1000 0.0041  
## 4 0.6267 nan 0.1000 0.0030  
## 5 0.6154 nan 0.1000 0.0043  
## 6 0.6107 nan 0.1000 -0.0019  
## 7 0.6026 nan 0.1000 0.0021  
## 8 0.5878 nan 0.1000 0.0078  
## 9 0.5813 nan 0.1000 0.0027  
## 10 0.5675 nan 0.1000 0.0059  
## 20 0.5257 nan 0.1000 -0.0020  
## 40 0.4823 nan 0.1000 -0.0012  
## 50 0.4704 nan 0.1000 -0.0027

tuneList=list( rf = caretModelSpec(method="ranger", tuneLength=6), rpart = caretModelSpec(method="rpart", tuneLength=6), nn = caretModelSpec(method="nnet", tuneLength=6, trace=TRUE))

modelCor(resamples(mod1))

## rf glm gbm  
## rf 1.0000000 0.7929209 0.7319018  
## glm 0.7929209 1.0000000 0.4612575  
## gbm 0.7319018 0.4612575 1.0000000

# A close observation reveals that the presence of a high correlation. Howerev, the correlation between glm and gbm is smaller, less than 50%.

ensemble = caretEnsemble(  
 mod1,   
 metric="ROC",  
 trControl=trainControl(  
 method = "cv", #cross-validation during ensembling  
 number= 5, #number of folds  
 summaryFunction=twoClassSummary,  
 classProbs=TRUE  
 ))

summary(ensemble)

## The following models were ensembled: rf, glm, gbm   
## They were weighted:   
## 2.731 -5.4616 -1.9598 1.8052  
## The resulting ROC is: 0.8229  
## The fit for each individual model on the ROC is:   
## method ROC ROCSD  
## rf 0.8236266 0.05098246  
## glm 0.8108334 0.05359995  
## gbm 0.7872397 0.04090415

# The output shows an ROC of 0.83. This is superior to the ROC for glm, gbm, and rf

# Building the Ensemble

#training set  
predensemble = predict(ensemble, traindata, type = "raw")  
confusionMatrix(predensemble,traindata$violator)

## Confusion Matrix and Statistics  
##   
## Reference  
## Prediction completedparole violatedparole  
## completedparole 417 30  
## violatedparole 1 25  
##   
## Accuracy : 0.9345   
## 95% CI : (0.9083, 0.955)  
## No Information Rate : 0.8837   
## P-Value [Acc > NIR] : 0.0001528   
##   
## Kappa : 0.5864   
##   
## Mcnemar's Test P-Value : 4.932e-07   
##   
## Sensitivity : 0.9976   
## Specificity : 0.4545   
## Pos Pred Value : 0.9329   
## Neg Pred Value : 0.9615   
## Prevalence : 0.8837   
## Detection Rate : 0.8816   
## Detection Prevalence : 0.9450   
## Balanced Accuracy : 0.7261   
##   
## 'Positive' Class : completedparole  
##

#testing set  
predensembletest2 = predict(ensemble, testdata, type = "raw")  
confusionMatrix(predensembletest2,testdata$violator)

## Confusion Matrix and Statistics  
##   
## Reference  
## Prediction completedparole violatedparole  
## completedparole 177 20  
## violatedparole 2 3  
##   
## Accuracy : 0.8911   
## 95% CI : (0.8398, 0.9305)  
## No Information Rate : 0.8861   
## P-Value [Acc > NIR] : 0.4672071   
##   
## Kappa : 0.181   
##   
## Mcnemar's Test P-Value : 0.0002896   
##   
## Sensitivity : 0.9888   
## Specificity : 0.1304   
## Pos Pred Value : 0.8985   
## Neg Pred Value : 0.6000   
## Prevalence : 0.8861   
## Detection Rate : 0.8762   
## Detection Prevalence : 0.9752   
## Balanced Accuracy : 0.5596   
##   
## 'Positive' Class : completedparole   
##

# There is only a 1.8% differentials between the accuracy on the training set and accuracy on the testing set; with the former showing a 91.8% accuracy while the latter produces a 90% accuracy.

stack = caretStack(  
mod1, #use the list of models already specified  
 method ="glm", #stack models linearly  
 metric ="ROC", #maximize AUC  
 trControl = trainControl(  
 method = "cv", #k-fold cross-validation  
 number = 5, #5 folds  
 savePredictions = "final",  
 classProbs = TRUE, #save probabilities  
 summaryFunction = twoClassSummary #calculate AUC values  
 )  
)  
  
print(stack)

## A glm ensemble of 3 base models: rf, glm, gbm  
##   
## Ensemble results:  
## Generalized Linear Model   
##   
## 1778 samples  
## 3 predictor  
## 2 classes: 'completedparole', 'violatedparole'   
##   
## No pre-processing  
## Resampling: Cross-Validated (5 fold)   
## Summary of sample sizes: 1422, 1422, 1423, 1423, 1422   
## Resampling results:  
##   
## ROC Sens Spec   
## 0.8266078 0.9752381 0.1528049

#training set  
predstack = predict(stack, traindata, type = "raw")  
confusionMatrix(predstack,traindata$violator)

## Confusion Matrix and Statistics  
##   
## Reference  
## Prediction completedparole violatedparole  
## completedparole 417 30  
## violatedparole 1 25  
##   
## Accuracy : 0.9345   
## 95% CI : (0.9083, 0.955)  
## No Information Rate : 0.8837   
## P-Value [Acc > NIR] : 0.0001528   
##   
## Kappa : 0.5864   
##   
## Mcnemar's Test P-Value : 4.932e-07   
##   
## Sensitivity : 0.9976   
## Specificity : 0.4545   
## Pos Pred Value : 0.9329   
## Neg Pred Value : 0.9615   
## Prevalence : 0.8837   
## Detection Rate : 0.8816   
## Detection Prevalence : 0.9450   
## Balanced Accuracy : 0.7261   
##   
## 'Positive' Class : completedparole  
##

#testing set  
predstacktest = predict(stack, testdata, type = "raw")  
confusionMatrix(predstacktest,testdata$violator)

## Confusion Matrix and Statistics  
##   
## Reference  
## Prediction completedparole violatedparole  
## completedparole 177 20  
## violatedparole 2 3  
##   
## Accuracy : 0.8911   
## 95% CI : (0.8398, 0.9305)  
## No Information Rate : 0.8861   
## P-Value [Acc > NIR] : 0.4672071   
##   
## Kappa : 0.181   
##   
## Mcnemar's Test P-Value : 0.0002896   
##   
## Sensitivity : 0.9888   
## Specificity : 0.1304   
## Pos Pred Value : 0.8985   
## Neg Pred Value : 0.6000   
## Prevalence : 0.8861   
## Detection Rate : 0.8762   
## Detection Prevalence : 0.9752   
## Balanced Accuracy : 0.5596   
##   
## 'Positive' Class : completedparole   
##