Climate change earth surface temperature data by Major City

David Jimeno

5/12/2019

Climate change earth surface temperature data by Major City

Introduction

Our analysis focuses on the Climate Change: Earth Surface Temperature Data specifically focused on major cities, which is a temperature reports database, in which each Major City is identified by its latitude and longitude, its temperature on a specific date and its average temperature uncertainty.

The total dimension of the database is composed of **239177 observations of 7 variables.**

The objective of the project is to create two Machine learning algorithm:

- First maximize the accuracy predicting the continent and using for each city its Latitude, year, year average temperature, year average uncertainty, difference between land averag es temperature for periods from 1961 to 1990 and the last five complete years 2008 to 2012 (diffs)

- Second using dimension reduction predicting continent Africa from the Others.

A study is carried out for each of the variables and their behavior over time, to observe how climate change is affecting land temperatures.

The document is structured as follows:

- Preprocessing, exploration and visualization of the database.

-Application of methods and analysis.

-Results.

-Conclusions.

Preprocessing, exploration and database visualization.

Our analysis have started with a preprocessing in which two fundamental variables the year and the continent have been incorporated, this has allowed us to work with Global mean land preindustrial temperatures difference, continent temperature evolution, difference of the average temperatures in intervals of years(diffs).

Although the first records of the database are from **1743**, we observed that

it won't be until year **1890** when all cities temperatures records were introduced so this factor will limit our study.

```
#Kaggle.com dataset.Download the dataset from the following link:
#https://www.kaggle.com/berkeleyearth/climate-change-earth-surface-temperature-data/download/eMOxChhsTA

# Note: this process could take a couple of minutes
if(!require(tidyverse)) install.packages("tidyverse", repos = "http://cran.us.r-project.org")
if(!require(caret)) install.packages("caret", repos = "http://cran.us.r-project.org")
if(!require(data.table)) install.packages("data.table", repos = "http://cran.us.r-project.org")
if(!require(countrycode)) install.packages("countrycode", repos = "http://cran.us.r-project.org")
```

```
if(!require(Rborist)) install.packages("Rborist", repos = "http://cran.us.r-project.org")
if(!require(randomForest)) install.packages("randomForest", repos = "http://cran.us.r-project.org")
if(!require(RColorBrewer)) install.packages("RColorBrewer", repos = "http://cran.us.r-project.org")
url <- "https://github.com/djinasarre/climate_change/raw/master/GlobalLandTemperaturesByMajorCity.csv"
tmp_filename <- tempfile()
download.file(url, tmp_filename)
cl_change <- read_csv(tmp_filename)
file.remove(tmp_filename)
```

```
## [1] TRUE
```

```
# This is the structure of cl_change data
str(cl_change)
```

```
## Classes 'spec_tbl_df', 'tbl_df', 'tbl' and 'data.frame': 239177 obs. of  7 variables:
##  $ dt                          : Date, format: "1849-01-01" "1849-02-01" ...
##  $ AverageTemperature          : num  26.7 27.4 28.1 26.1 25.4 ...
##  $ AverageTemperatureUncertainty: num  1.44 1.36 1.61 1.39 1.2 ...
##  $ City                        : chr  "Abidjan" "Abidjan" "Abidjan" "Abidjan" ...
##  $ Country                     : chr  "Côte D'Ivoire" "Côte D'Ivoire" "Côte D'Ivoire" "Côte D'Ivoire
##  $ Latitude                    : chr  "5.63N" "5.63N" "5.63N" "5.63N" ...
##  $ Longitude                   : chr  "3.23W" "3.23W" "3.23W" "3.23W" ...
##  - attr(*, "spec")=
##   .. cols(
##   ..   dt = col_date(format = ""),
##   ..   AverageTemperature = col_double(),
##   ..   AverageTemperatureUncertainty = col_double(),
##   ..   City = col_character(),
##   ..   Country = col_character(),
##   ..   Latitude = col_character(),
##   ..   Longitude = col_character()
##   .. )
```

```
#We can see the number of unique countries, cities and dates are
#in our dataset:

distinct <- cl_change %>%
  summarize(n_City = n_distinct(City),
            n_Country = n_distinct(Country),
            n_dt=n_distinct(dt))
distinct
```

```
## # A tibble: 1 x 3
##   n_City n_Country  n_dt
##    <int>     <int> <int>
## 1    100        49  3239
```

```
# 100 cities, 49 countries and 3239 dates.
```

```
#we will insert a new column for the continent each country belongs
#We create the data frame

cl_change <- as.data.frame(cl_change)
cl_change$continent <- countrycode(sourcevar = cl_change[, "Country"],
                                    origin = "country.name",
                                    destination = "continent")
# we use mutate to create columns of years and months to work in a easier way.

cl_change <-mutate (cl_change, year= year(dt), month = month(dt))



cl_changeavg<- cl_change%>% group_by(City,year,continent,Latitude,Country)%>%
  summarise(average= mean(AverageTemperature), averageUncertainty=mean(AverageTemperatureUncertainty))
cl_changeavg<- na.omit(cl_changeavg)
cl_change<- na.omit(cl_change)
```
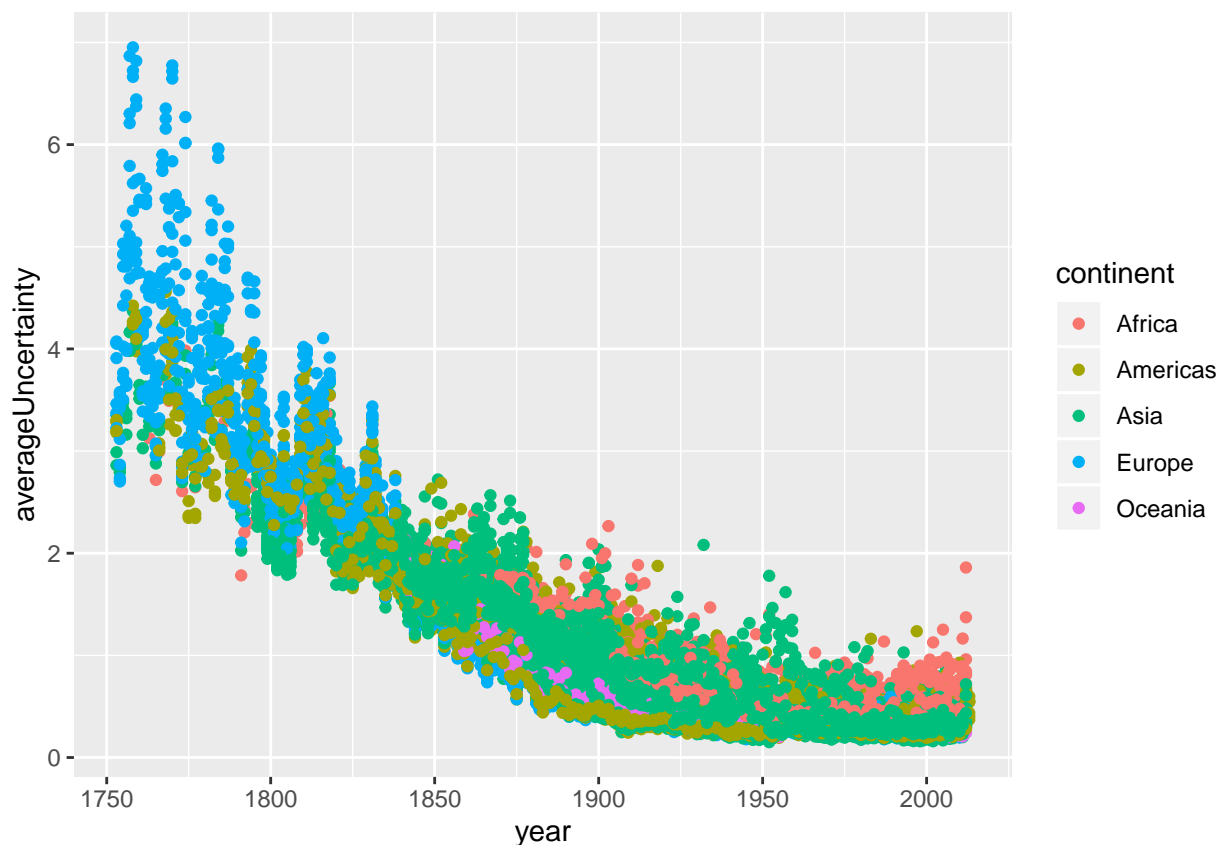
As we see in these two plots below, European continent temperatures were the first to be taken and with a very high degree of uncertainty, it will not be until approximately 1890 when we see temperatures taking in all the cities under study with average Uncertainty lowest than 2.
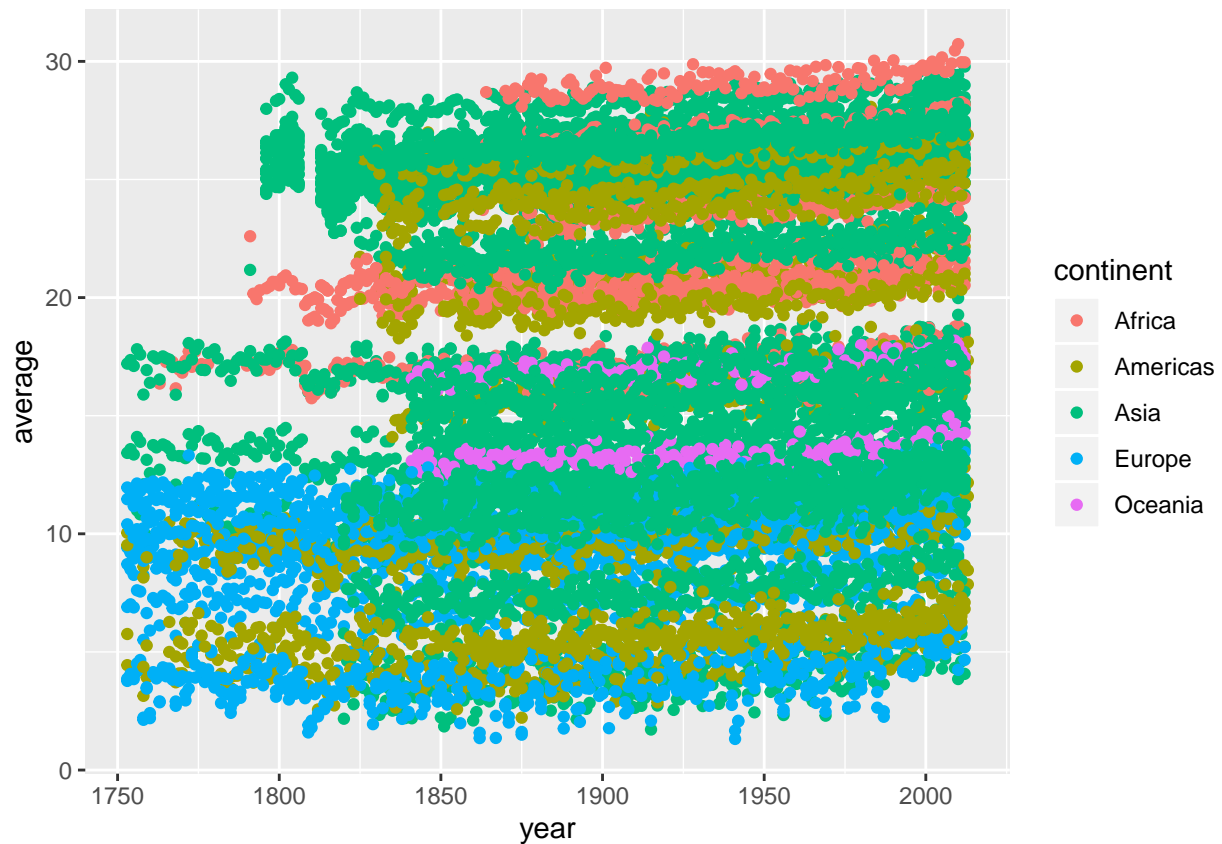
```
cl_changeavg%>% ggplot(aes(year, averageUncertainty, color = continent)) +  geom_point()
```

```
cl_changeavg%>% ggplot(aes(year, average, color = continent)) + geom_point()
```


If we plot the mean Average temperature for each year since 1753 we obseve a step up as we incorporate cities.

We reduce the period observed to the period from 1890 when they incorporate measurements of all the cities under study.

```
avg_ev <- cl_change %>%
  group_by(year) %>% filter( year>=1890 & year<=2013 )%>%
  summarize(average= mean(AverageTemperature, na.rm = TRUE))%>%
  qplot(year, average, data = .)+ xlim(1890, 2013)+ylim(17,21)+
  geom_point() +
  geom_line()+
  geom_smooth(method="lm")
avg_ev
```
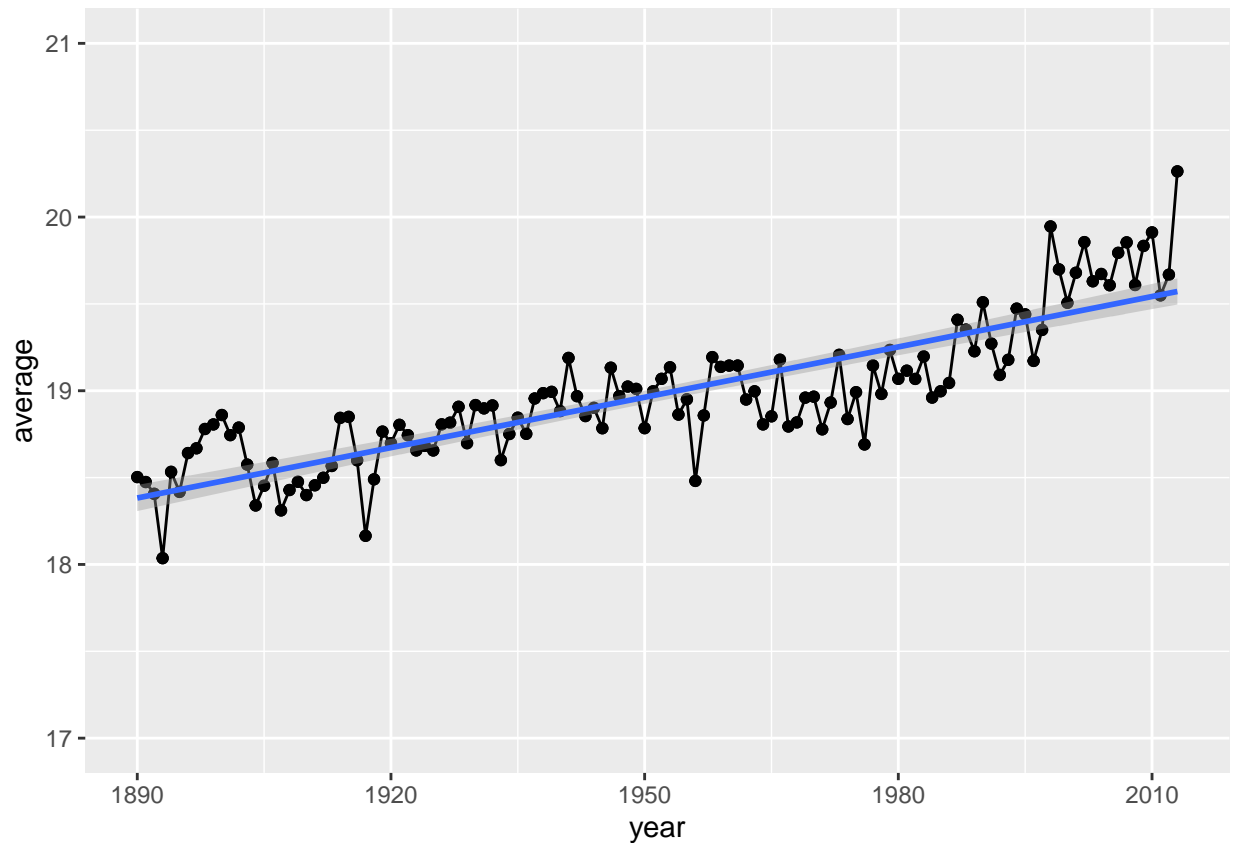
We see that the evolution of mean land average temperatures has increased.

We want to plot the global mean land temperature difference from preindustrial years (1890-1900) in ºC

```
avg_evo1 <- cl_change %>% filter(year >= 1890)%>%
  group_by(year) %>%
  summarize(average= mean(AverageTemperature, na.rm = TRUE))

preindustrial<- cl_change%>% filter(year >= 1890& year <= 1900)%>% group_by(year)%>%summarise(average18
preindustrial <- mean(preindustrial$average1890_1900)


avg_evo2 <- avg_evo1 %>%
  group_by(year) %>%filter(year>=1890&year<=2012)%>%
  mutate (gmtd = average-preindustrial)%>%
  qplot(year, gmtd, data = .)+
  xlim(1890, 2012)+ylim(-1,1.5)+
  geom_line()+
  geom_point() +
  geom_smooth(method="lm")+
  ylab("Global mean land temperature peindustrial difference ")
avg_evo2
```
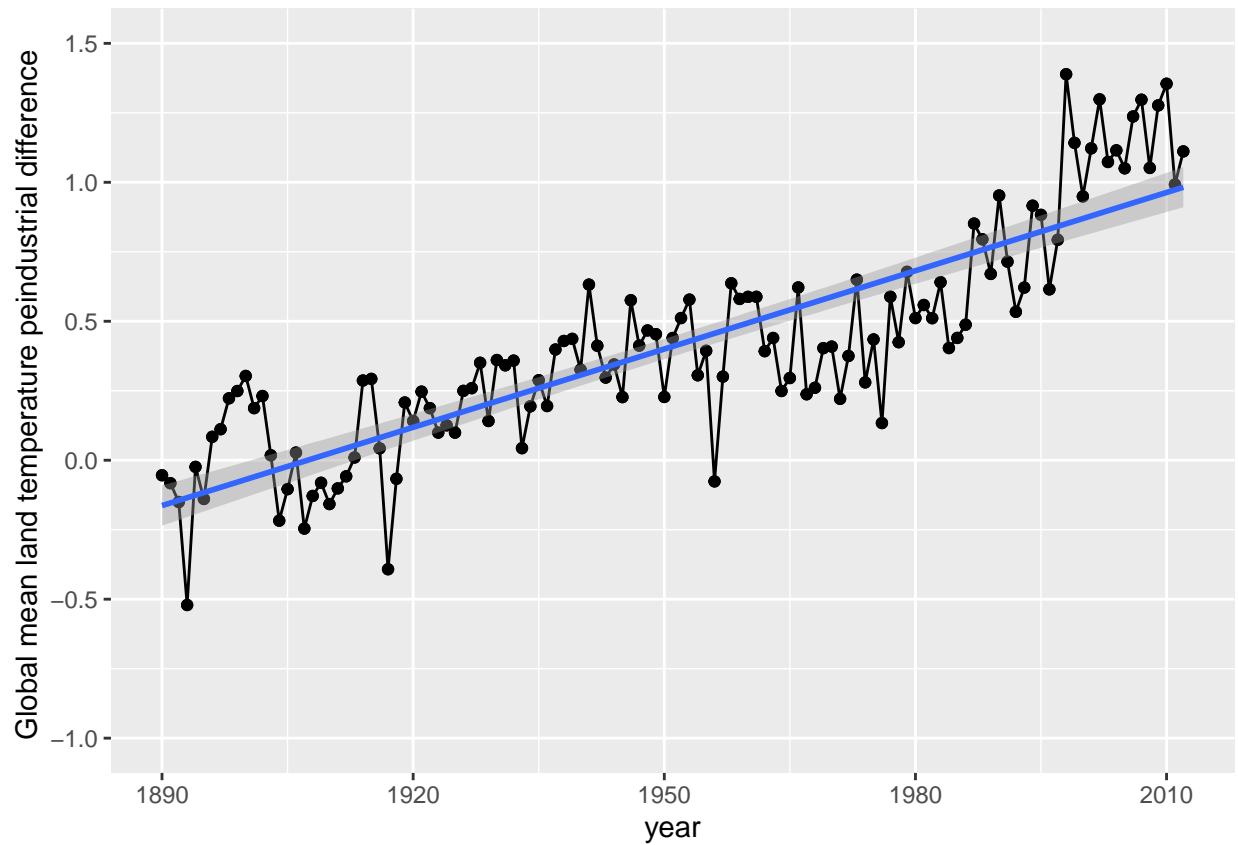
We see from the graphic that difference evolution has increased since preindustrial period.

```r
cl_change <- filter(cl_change, year >= 1900 & year<=2012)


uncertainty_evo <- cl_change %>%
  group_by(year) %>%
  summarize(averageuncertainty = mean(AverageTemperatureUncertainty ))%>%
  qplot(year, averageuncertainty, data = .)+ xlim(1900, 2012)+ylim(0.25,0.85)+
  geom_point() +
  geom_line()+
  geom_smooth(method="lm")
uncertainty_evo
```
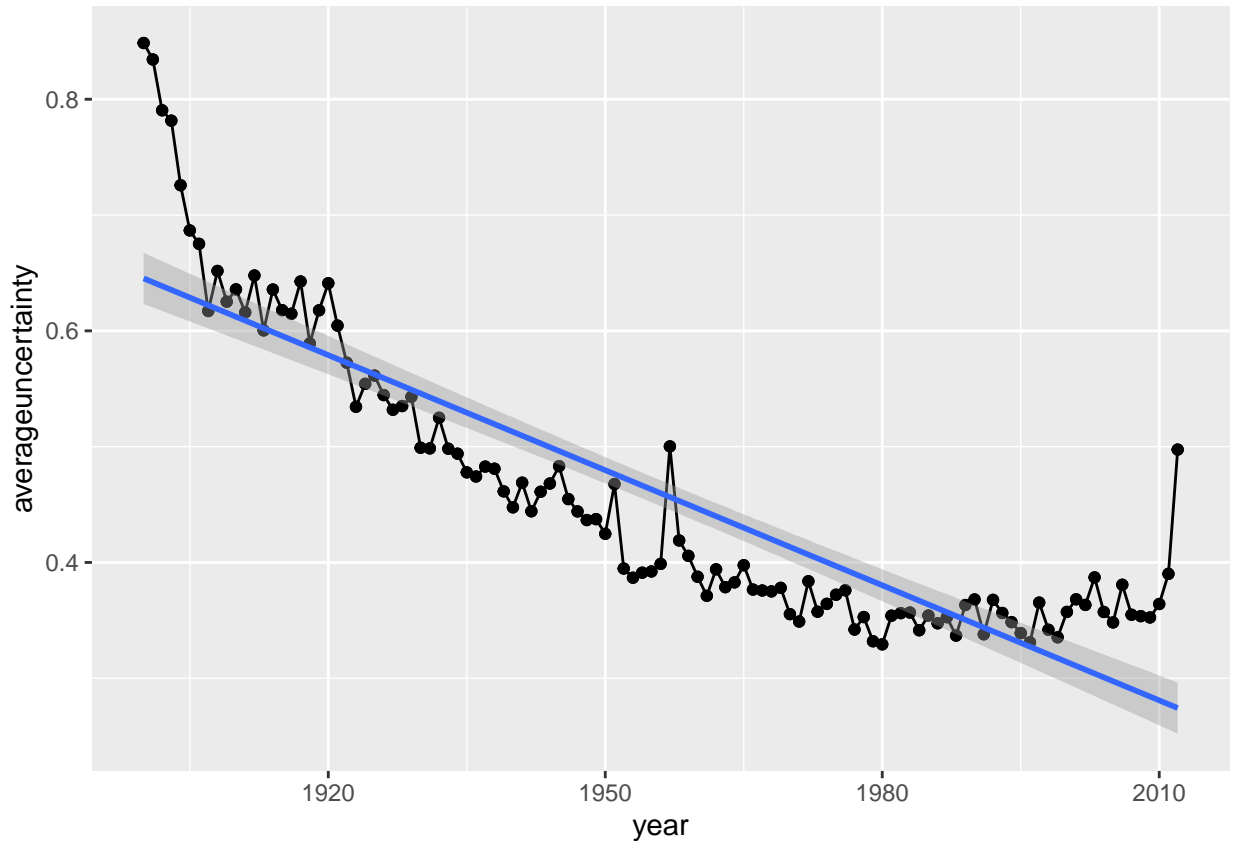
We also observe that the uncertainty taking temperatures has been reduced considerably over time.

Let's take a look at data that may be interesting:

We look for highest and lowest historical average land temperatures for each City since 1900

```
low_temperatures <- cl_change %>% filter(AverageTemperature <= -22.285)%>%
  select(dt, City, Country, AverageTemperature)
arrange(low_temperatures, AverageTemperature)
```

```
##             dt      City Country AverageTemperature
## 1  1922-01-01    Harbin   China           -26.772
## 2  1915-01-01    Harbin   China           -25.494
## 3  1977-01-01    Harbin   China           -23.922
## 4  2001-01-01    Harbin   China           -23.495
## 5  1922-01-01 Changchun   China           -23.272
## 6  1931-01-01    Harbin   China           -22.929
## 7  1919-01-01    Harbin   China           -22.752
## 8  1970-01-01    Harbin   China           -22.492
## 9  1908-01-01    Harbin   China           -22.490
## 10 1936-01-01    Harbin   China           -22.285
```

```
high_temperatures <- cl_change %>% filter(AverageTemperature >= 37.371)%>%
  select(dt, City, Country, AverageTemperature)
arrange(high_temperatures, -AverageTemperature)
```

```
##            dt    City        Country AverageTemperature
## 1  2000-07-01 Baghdad           Iraq             38.283
## 2  2010-08-01 Baghdad           Iraq             37.899
## 3  2010-07-01 Baghdad           Iraq             37.870
## 4  2012-07-01  Riyadh Saudi Arabia             37.859
## 5  1998-08-01  Riyadh Saudi Arabia             37.755
## 6  2000-07-01  Riyadh Saudi Arabia             37.732
## 7  2010-07-01  Riyadh Saudi Arabia             37.603
## 8  2010-08-01  Riyadh Saudi Arabia             37.551
## 9  2000-08-01  Riyadh Saudi Arabia             37.456
## 10 2012-07-01 Baghdad           Iraq             37.371
```

Lets look to Average Temperature histograms and Average land temperature uncertity differences between the mean of period 1961-1990 and year 2012

```
qplot(AverageTemperature,na.rm = TRUE, geom = "histogram", binwidth = 5,
      data = cl_change, color = I("black"))
```
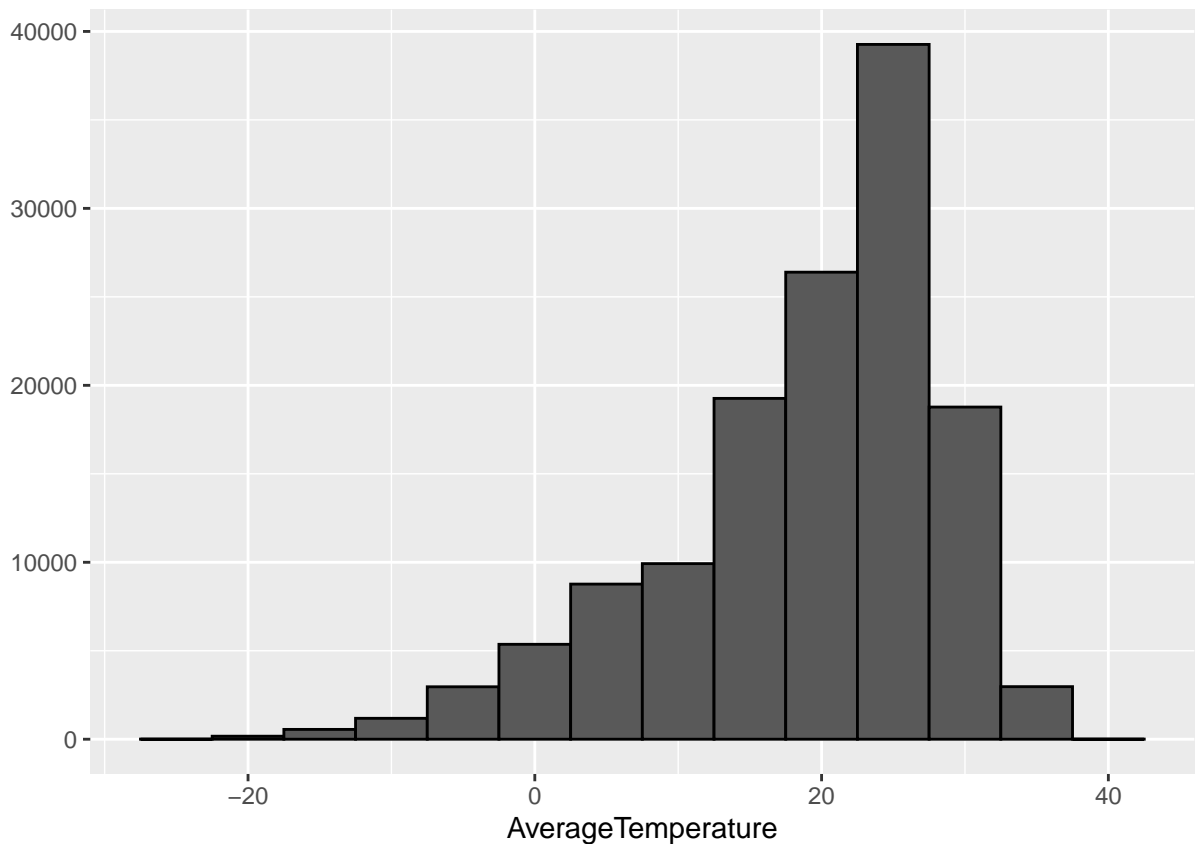
```
qplot(AverageTemperatureUncertainty,na.rm = TRUE, geom = "histogram",
      binwidth = 0.1, data = cl_change, color = I("black"))+xlim(0,2.2)
```
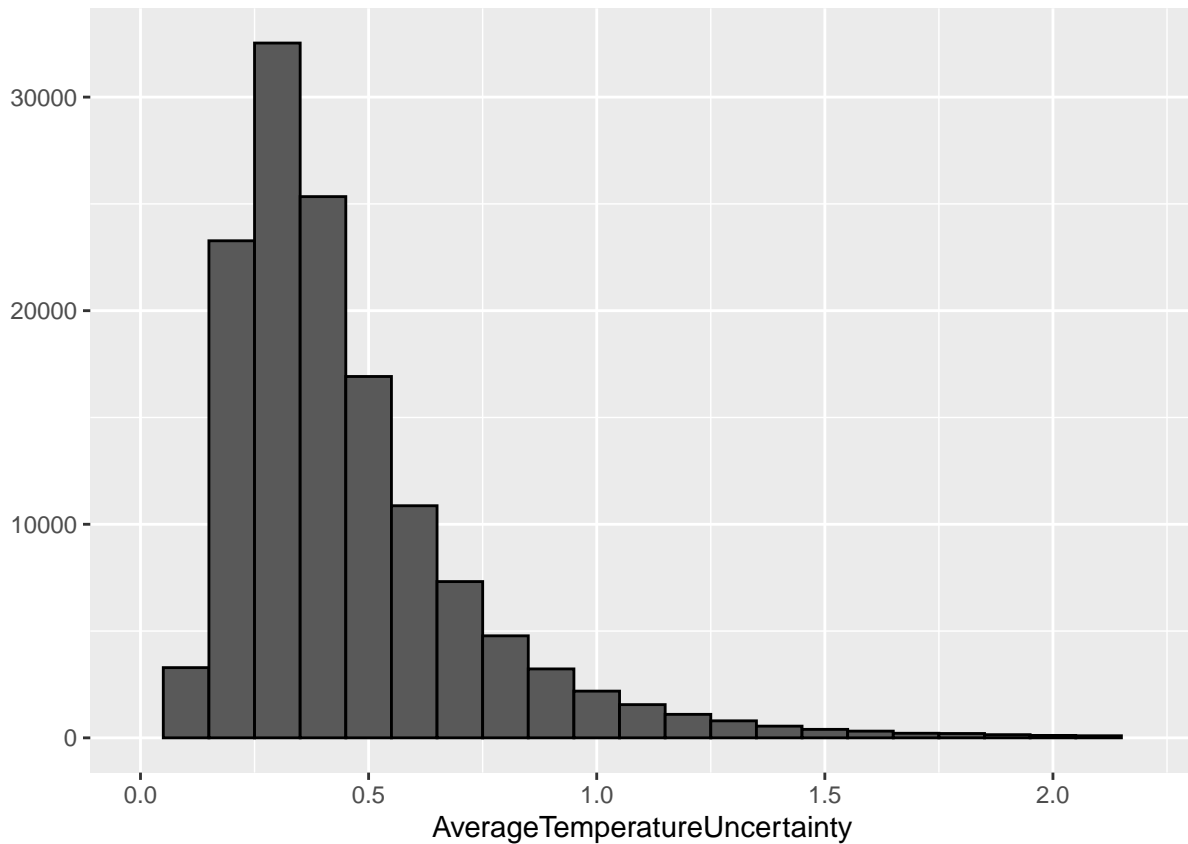


```
alpha <- cl_change%>%filter(year>=1961&year<=1990)%>%
  summarize(average = mean(AverageTemperature),
            standard_deviation = sd(AverageTemperature), median(AverageTemperature))
alpha
```

```
##    average standard_deviation median(AverageTemperature)
## 1 19.04054           9.636613                     21.371
```

```
omega <- cl_change%>%filter(year==2012)%>%
  summarize(average = mean(AverageTemperature),
            standard_deviation = sd(AverageTemperature), median(AverageTemperature))
omega
```

```
##    average standard_deviation median(AverageTemperature)
## 1 19.66824           9.843163                    22.1365
```

```
dif<-omega-alpha
dif[,1]
```

```
## [1] 0.6277014
```

average year temperatures difference is 0.63 ºC

```
high_temperatures_year <- cl_change %>%
  group_by(year) %>%
  summarize(average= mean(AverageTemperature ))
high_temperatures_year <- arrange(high_temperatures_year, -average)  %>% print(n=10)
```

```
## # A tibble: 113 x 2
##     year average
##    <int>   <dbl>
##  1  1998    19.9
##  2  2010    19.9
##  3  2002    19.9
##  4  2007    19.9
##  5  2009    19.8
##  6  2006    19.8
##  7  1999    19.7
##  8  2001    19.7
##  9  2004    19.7
## 10  2012    19.7
## # ... with 103 more rows
```

We see in the last 14 years until 2012 the 10 highest land average temperatures per year have
been reached.

Let's see how the Mediterranean countries and no mediterranean have evolved over this period
of time.

```
cl_changem <- cl_change %>%  mutate (group = case_when(
  Country %in% c("Spain", "France", "Monaco", "Italy", "Slovenia",
                "Croatia", "Bosnia and Herzegovina", "Montenegro",
                "Albania", "Greece", "Turkey", "Syria", "Lebanon",
              "Israel", "Egypt", "Libya", "Tunisia", "Algeria", "Morocco") ~ "mediterranean",
  Country != "mediterranean" ~ "others"))
cl_changem %>%  group_by(year,group)%>%
  summarise(average=mean(AverageTemperature)) %>%
  ggplot(aes(year, average, col = group)) +
  geom_line()
```
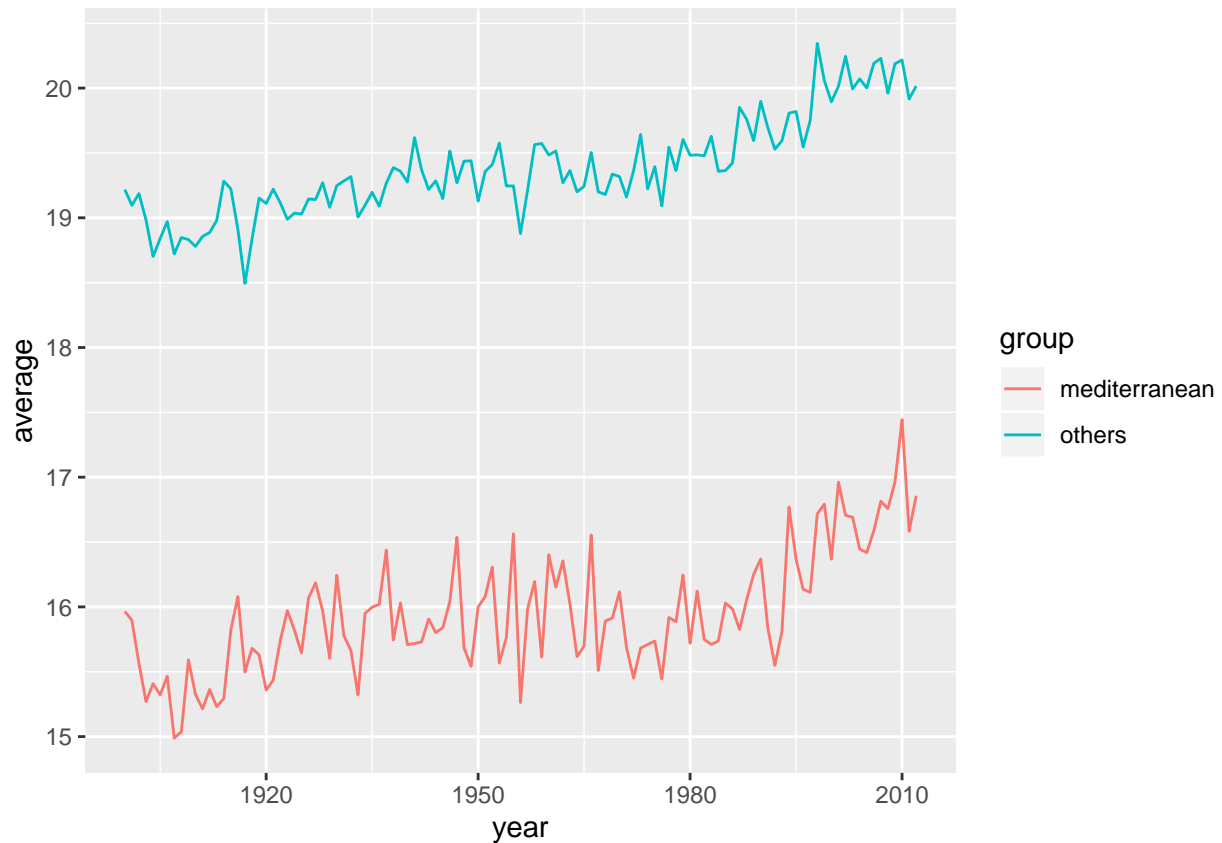
We observe the same trend of temperature increase, more evident in the Mediterranean countries.

Lets group by continent and look the evolution over years.

```
cl_change2<- cl_change %>%
  group_by(year,continent) %>%
  summarise(Average=mean(AverageTemperature),
            Uncertainty=mean(AverageTemperatureUncertainty))

c<-cl_change2 %>% filter( year>=1900)%>% group_by(year,continent ) %>%
  ggplot(aes(year,Average, col = continent, na.rm=TRUE)) +
  geom_line()+
  geom_point() +
  geom_smooth(method="lm")
c
```
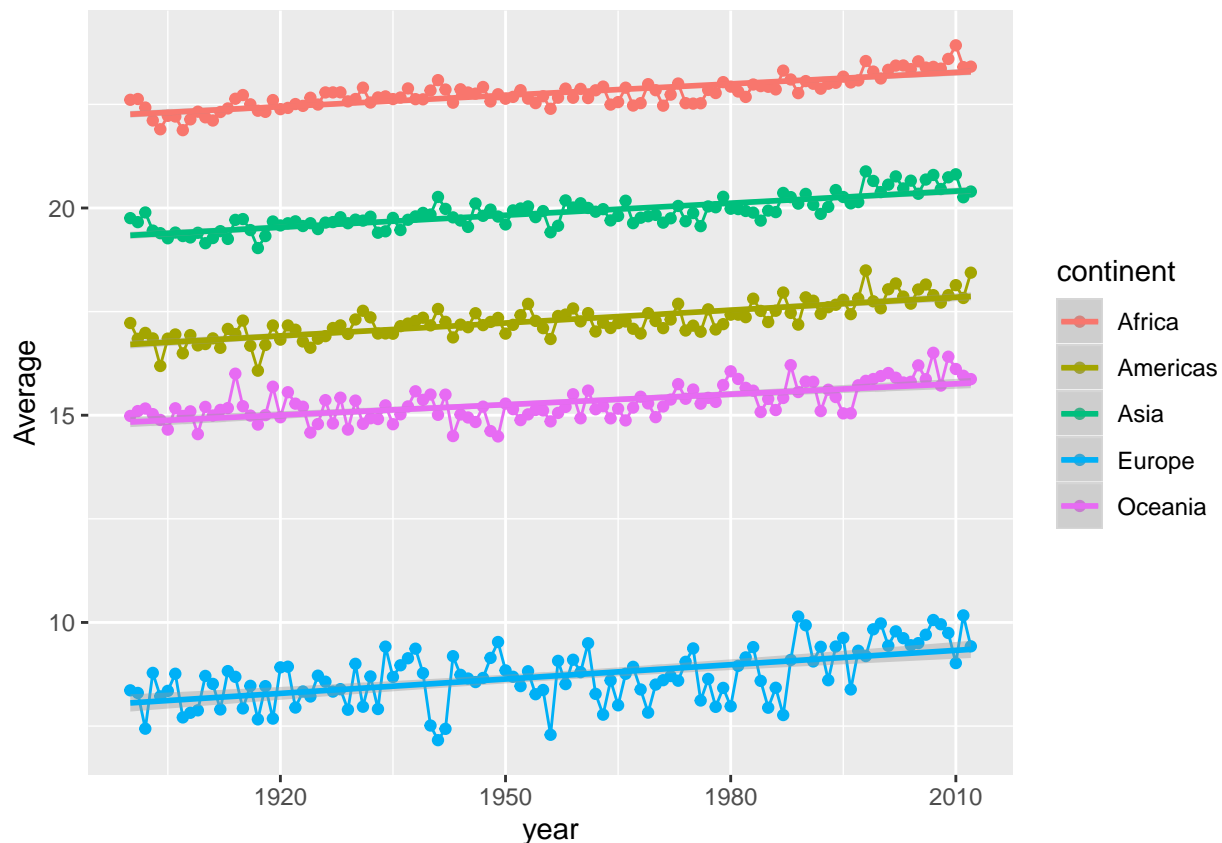
Now we will take the averages temperature for periods from 1900 to 1950 and the averages temperature for periods from 1961 to 1990 and the last five full years 2008 to 2012.

```
cl_average0050 <- cl_change%>% filter(year >= 1900& year <= 1950)%>%
  group_by(City)%>%
  summarise(average0050=mean(AverageTemperature))

cl_averages <- cl_change%>%group_by(City)%>%
  summarise(averages=mean(AverageTemperature))

tab <- left_join(cl_average0050, cl_averages, by = "City")

table <- left_join(tab, cl_change, by = "City")

table <- select(table, -dt, -AverageTemperature,-AverageTemperatureUncertainty,
                -month,-year)


cl_changeZ1<- table %>%
  group_by(City,Country,Latitude,Longitude, continent) %>%
  summarise(Average0050=mean(average0050) )
```

```
cl_average6190 <- cl_change%>% filter(year >= 1961& year <= 1990)%>%
  group_by(City)%>%
  summarise(average6190=mean(AverageTemperature))

cl_average0812 <- cl_change%>%
  filter(year >= 2008& year <= 2012) %>%
  group_by(City)%>%summarise(average0812=mean(AverageTemperature))

tab <- left_join(cl_average6190, cl_average0812, by = "City")

table <- left_join(tab, cl_change, by = "City")

table <- select(table, -dt, -AverageTemperature,-AverageTemperatureUncertainty, -month,-year)


cl_changeZ<- table %>%
  group_by(City,Country,Latitude,Longitude, continent) %>%
  summarise(Average6190=mean(average6190), Average0812=mean(average0812) )

cl_changeZ$diffs<-cl_changeZ$Average0812-cl_changeZ$Average6190
```

Lets look at the most affected cities by climate change and which cities are affected less.

```
maxdiff <- cl_changeZ %>% filter(diffs > 1.16)%>%
select(City, Country, Latitude, Longitude, continent, Average6190, Average0812,  diffs)
arrange(maxdiff, -diffs)
```

```
## # A tibble: 8 x 8
## # Groups:   City, Country, Latitude, Longitude [8]
##   City    Country Latitude Longitude continent Average6190 Average0812 diffs
##   <chr>   <chr>   <chr>    <chr>     <chr>            <dbl>       <dbl> <dbl>
## 1 Moscow  Russia  55.45N   36.85E    Europe            4.40        5.91  1.52
## 2 Kiev    Ukraine 50.63N   31.69E    Europe            7.37        8.81  1.44
## 3 Montr~  Canada  45.81N   72.69W    Americas          4.95        6.32  1.37
## 4 Baghd~  Iraq    32.95N   45.00E    Asia             23.0        24.2   1.29
## 5 Mashh~  Iran    36.17N   59.67E    Asia             12.9        14.1   1.22
## 6 Riyadh  Saudi ~ 24.92N   46.11E    Asia             25.5        26.7   1.22
## 7 Cairo   Egypt   29.74N   31.38E    Africa           21.5        22.7   1.19
## 8 Gizeh   Egypt   29.74N   31.38E    Africa           21.5        22.7   1.19
```

```
mindiff <- cl_changeZ %>% filter(diffs < 0.386)%>%
  select(City, Country, Latitude, Longitude, Average6190, Average0812,  diffs)
arrange(mindiff, diffs)
```

```
## # A tibble: 10 x 7
## # Groups:   City, Country, Latitude, Longitude [10]
##    City       Country     Latitude Longitude Average6190 Average0812  diffs
##    <chr>      <chr>       <chr>    <chr>            <dbl>       <dbl> <dbl>
##  1 Guangzhou  China       23.31N   112.72E          21.9        22.0 0.0783
##  2 Manila     Philippines 15.27N   120.83E          26.8        27.1 0.250
```

```
##  3 Cape Town South Africa 32.95S    18.19E          16.4         16.7 0.325
##  4 Lima       Peru        12.05S    77.26W          16.9         17.3 0.336
##  5 Surabaya   Indonesia    7.23S    112.70E         27.1         27.4 0.337
##  6 Harare     Zimbabwe    18.48S    30.42E          20.4         20.7 0.357
##  7 Dhaka      Bangladesh  23.31N    90.00E          25.9         26.3 0.367
##  8 Bogotá     Colombia     4.02N    74.73W          20.3         20.7 0.384
##  9 Durban     South Africa 29.74S   31.38E          20.6         21.0 0.386
## 10 Chongqing  China       29.74N    107.08E         17.0         17.4 0.386
```

Let's see the difference between periods by continents and countries.

```
cl_changeZ%>% ggplot(aes(x = fct_reorder(continent,diffs) , y =diffs)) +
  geom_boxplot(col=(c("black","red","yellow","green","blue"))) +
  theme(axis.text.x = element_text(angle = 90, hjust = 1)) +
  xlab("")
```
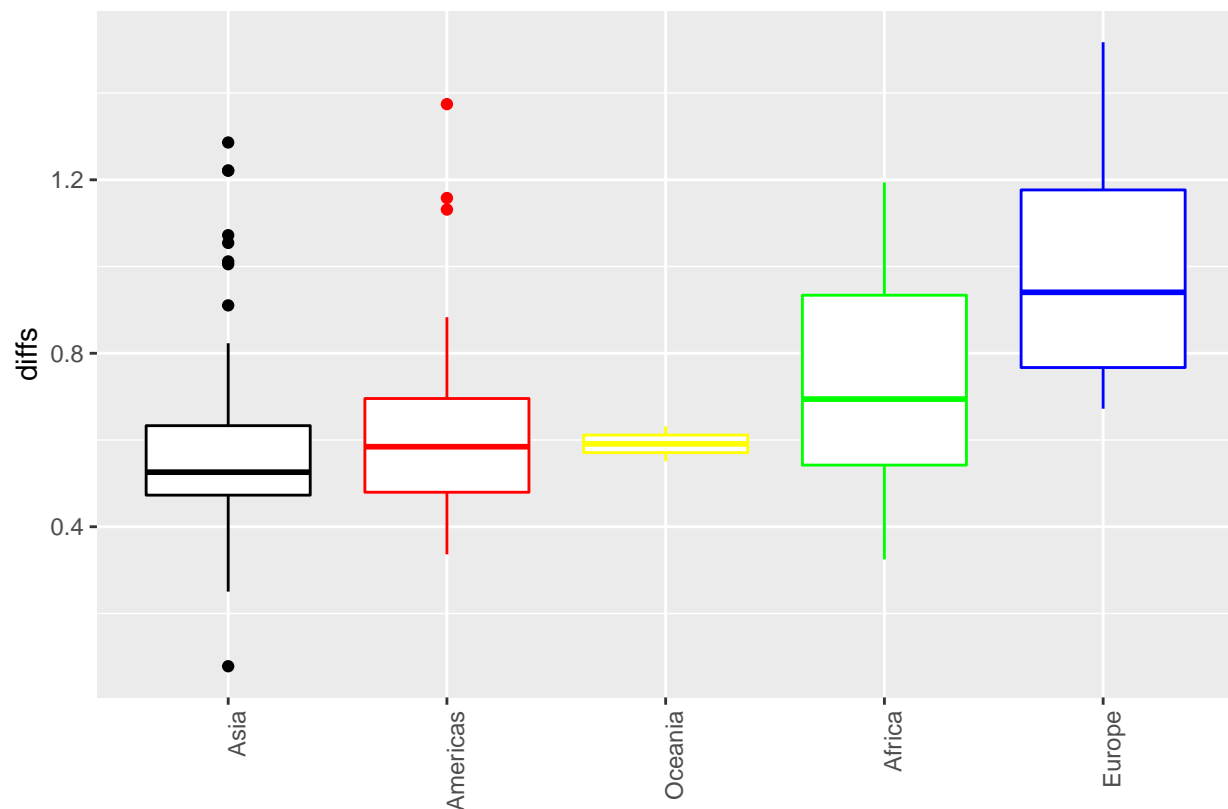

Between periods we see that Europe is the continent and Russia and Ukraine the countries that have biggest differences.

```
cl_changeZ%>%ungroup(Country)%>%
  ggplot(aes(x = fct_reorder(Country,diffs) , y = diffs)) +
  geom_boxplot()+
```

```
theme(axis.text.x = element_text(angle = 90, hjust = 1)) +
xlab("")
```
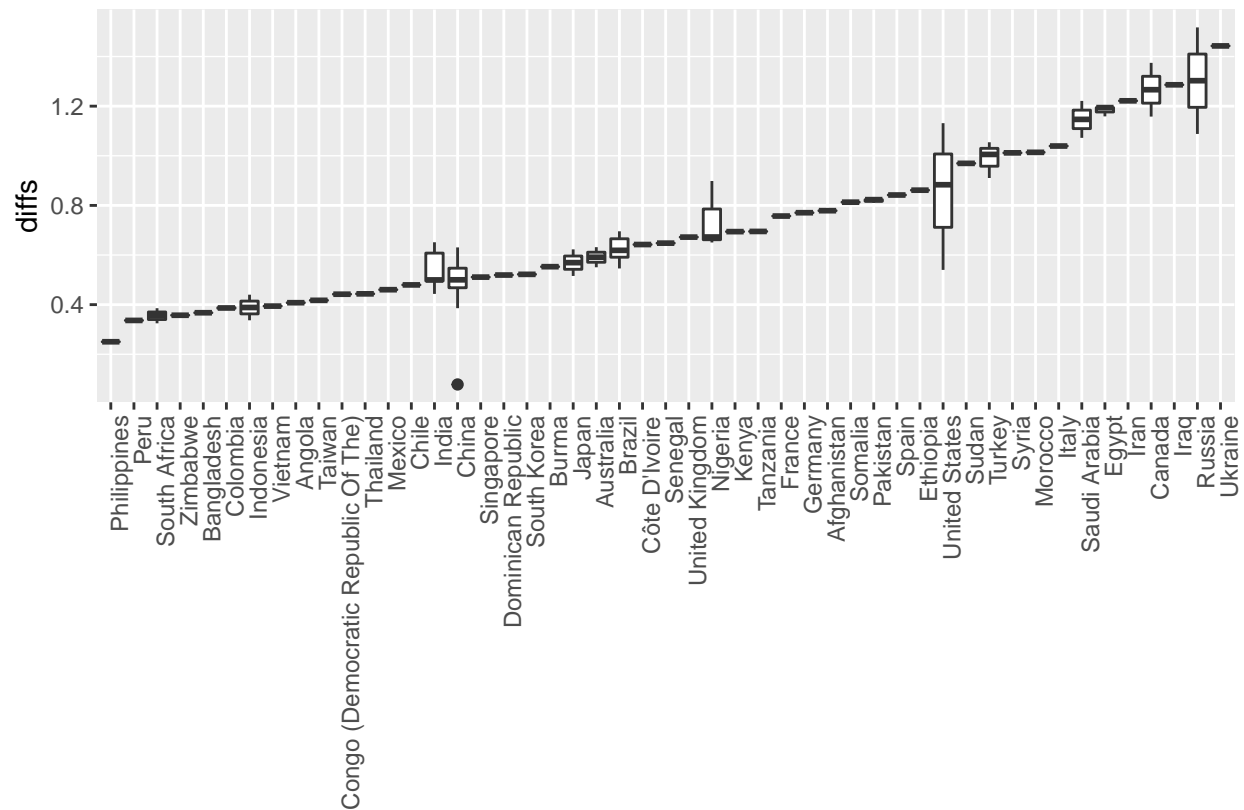

We convert Latitude into a numerical variable

```
Latitude <- as.character(cl_changeavg$Latitude)

cl_changeavg$Latitude <-case_when(
  str_sub(Latitude, -1, -1) == "N" ~ as.numeric(str_sub(Latitude, 1, nchar(Latitude) - 1)),
  str_sub(Latitude, -1, -1) == "S" ~ -as.numeric(str_sub(Latitude, 1, nchar(Latitude) - 1)),
  TRUE ~ NA_real_
)

cl_changeZ<- cl_changeZ%>%ungroup(cl_changeZ)%>%select("City","diffs")
cl_changeavg<- as.data.frame (cl_changeavg)
cl_changeavg <- left_join(cl_changeavg, cl_changeZ, by = "City")

cl_changeZ1<- cl_changeZ1%>%ungroup(cl_changeZ1)%>%select("City","Average0050")
cl_changeavg<- as.data.frame (cl_changeavg)
cl_changeavg <- left_join(cl_changeavg, cl_changeZ1, by = "City")
cl_changeavg<-cl_changeavg%>%mutate(diffs0050=average-Average0050)
```

We tile the countries with colors representing difference between mean temperature 1900-1950 and each year temperature.

```
cl_changeavg %>% ggplot(aes(year, Country, fill = diffs0050)) +
  geom_tile(color = "grey50") +
  scale_x_continuous(expand=c(0,0)) +
  scale_fill_gradientn(colors = brewer.pal(9, "RdYlBu")) +
  geom_vline(xintercept=1890, col = "blue") +
  theme_minimal() +
  theme(panel.grid = element_blank(), legend.position="bottom",
        text = element_text(size = 8)) +
  ylab("") + xlab("")
```
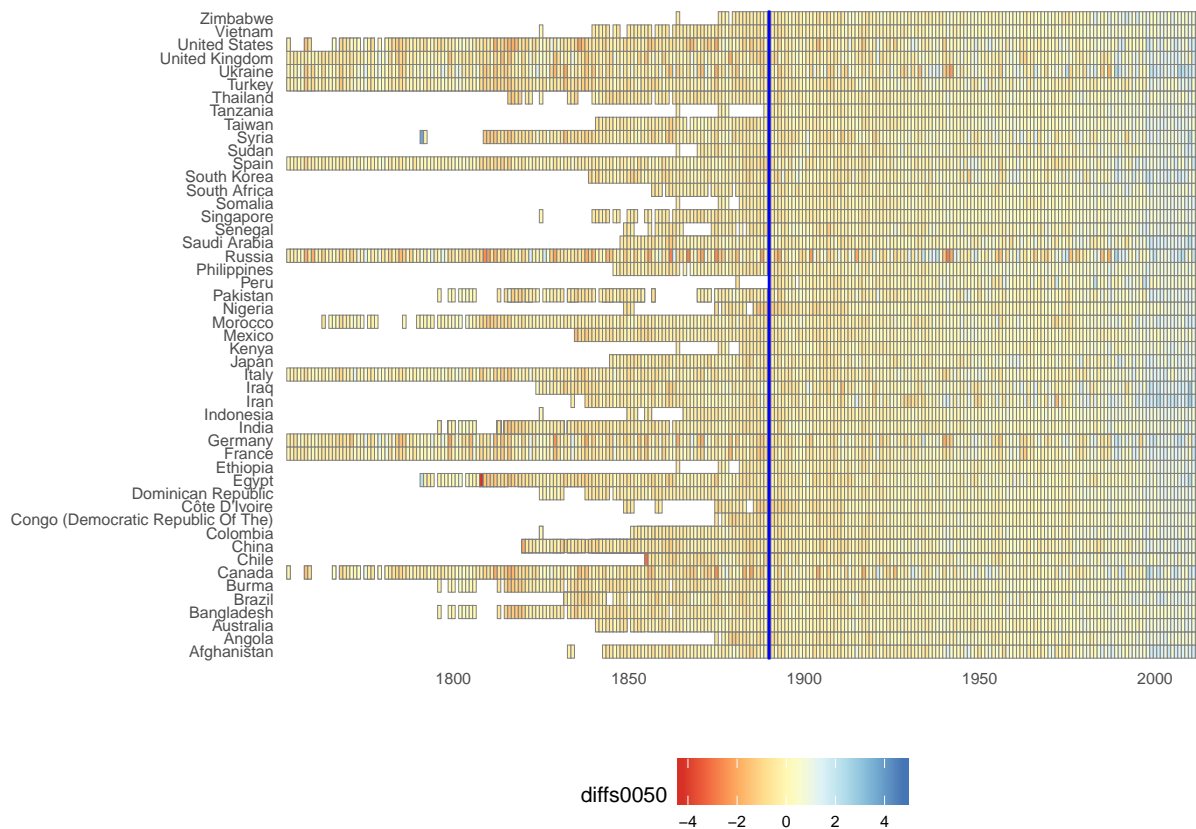

We clearly see that the rise in temperatures is a widespread occurrence in all countries.

```
cl_changes<-cl_changeavg%>%select("continent", "Latitude",
"year", "average", "averageUncertainty","diffs")
```

Application of methods and analysis.

Our algorithm is decided based on the accuracy on a test set.

We want to see how to differentiate Continents predicted with the year, difference between land averages temperature for periods from 1961 to 1990 and the last five complete years 2008 to 2012 (diffs), cities year mean temperature (average), Latitude and cities year mean average temperature Uncertainty (averageUncertainty). We will use knn method and Rborist. Afterwards we will apply dimension reduction and we will use an ensemble to achieve maximum accuracy to distinguish Class Africa the hardest to detect from others.

We create a partition of training and test sets.

```
y <- cl_changes$continent
set.seed(26, sample.kind="Rounding")
test_index <- createDataPartition(y, times = 1, p = 0.8, list = FALSE)
train_set <- cl_changes %>% slice(test_index)
test_set<- cl_changes %>% slice(-test_index)
```

We change vectors train_set_images and test_set_images classes as matrix:

Image Data is transformed to matrix because they are easier indexable.

```
train_set_images<- train_set[,2:6]
test_set_images <- test_set[,2:6]

train_set_images <- as.matrix(train_set[, 2:dim(train_set)[2]])
test_set_images <- as.matrix(test_set[, 2:dim(test_set)[2]])
```

The dataset includes two components, a train set and a test set:

Each of these components includes now a matrix with 5 features in the columns:

```
names(train_set)
```

```
## [1] "continent"         "Latitude"          "year"
## [4] "average"           "averageUncertainty" "diffs"
```

```
dim(train_set_images)
```

```
## [1] 14865     5
```

```
class(train_set_images)
```

```
## [1] "matrix"
```

```
#and change vectors train_set$continent and test_set$continent classes:
class(train_set$continent)
```

```
## [1] "character"
```

```
train_set$continent <- type.convert(train_set$continent)
class(train_set$continent)
```

```
## [1] "factor"
```

```
class(test_set$continent)
```

```
## [1] "character"
```

```
test_set$continent <- type.convert(test_set$continent)
class(test_set$continent)
```

```
## [1] "factor"
```

```
table(train_set$continent)
```

```
##
##   Africa Americas     Asia   Europe  Oceania
##     2361     2496     8071     1664      273
```

We create simple machine learning algorithms using fewer features trying PCA and explore the variance of the PCs.

```
col_means <- colMeans(test_set_images)
```

Our predictors here have five dimensions, lets look to the correlation:

```
cor(train_set_images)
```

```
##                        Latitude       year    average averageUncertainty
## Latitude              1.0000000 -0.2093357 -0.5286066          0.2134105
## year                 -0.2093357  1.0000000  0.1997151         -0.8537508
## average              -0.5286066  0.1997151  1.0000000         -0.2201635
## averageUncertainty    0.2134105 -0.8537508 -0.2201635          1.0000000
## diffs                 0.4618338 -0.1703160 -0.3600150          0.1963368
##                           diffs
## Latitude              0.4618338
## year                 -0.1703160
## average              -0.3600150
## averageUncertainty    0.1963368
## diffs                 1.0000000
```

```
pca <- prcomp(train_set_images)
pc <- 1:ncol(test_set_images)
qplot(pc, pca$sdev)
```
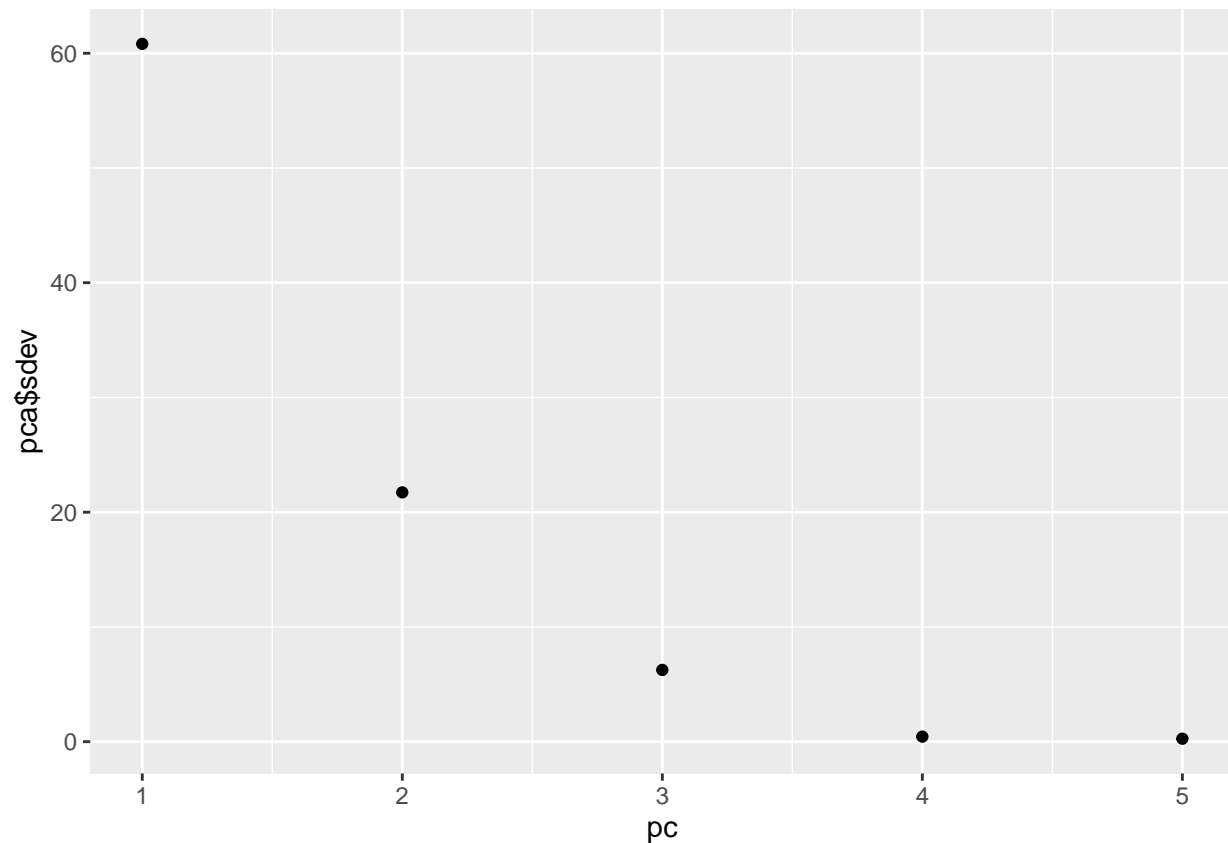


```
summary(pca)$importance[,1:5]
```

```
##                            PC1       PC2      PC3       PC4       PC5
## Standard deviation     60.81559 21.72836 6.255657 0.4405204 0.260376
## Proportion of Variance  0.87850  0.11214 0.009300 0.0000500 0.000020
## Cumulative Proportion   0.87850  0.99064 0.999940 0.9999800 1.000000
```

First PCs explain a large percent of the variability.

We plot first two PCs and give us information about the class.

```
data.frame(PC1 = pca$x[,1], PC2 = pca$x[,2],
           continent=factor(train_set$continent)) %>%
  sample_n(4000) %>%
  ggplot(aes(PC1, PC2, fill=continent))+
  geom_point(cex=3, pch=21)
```
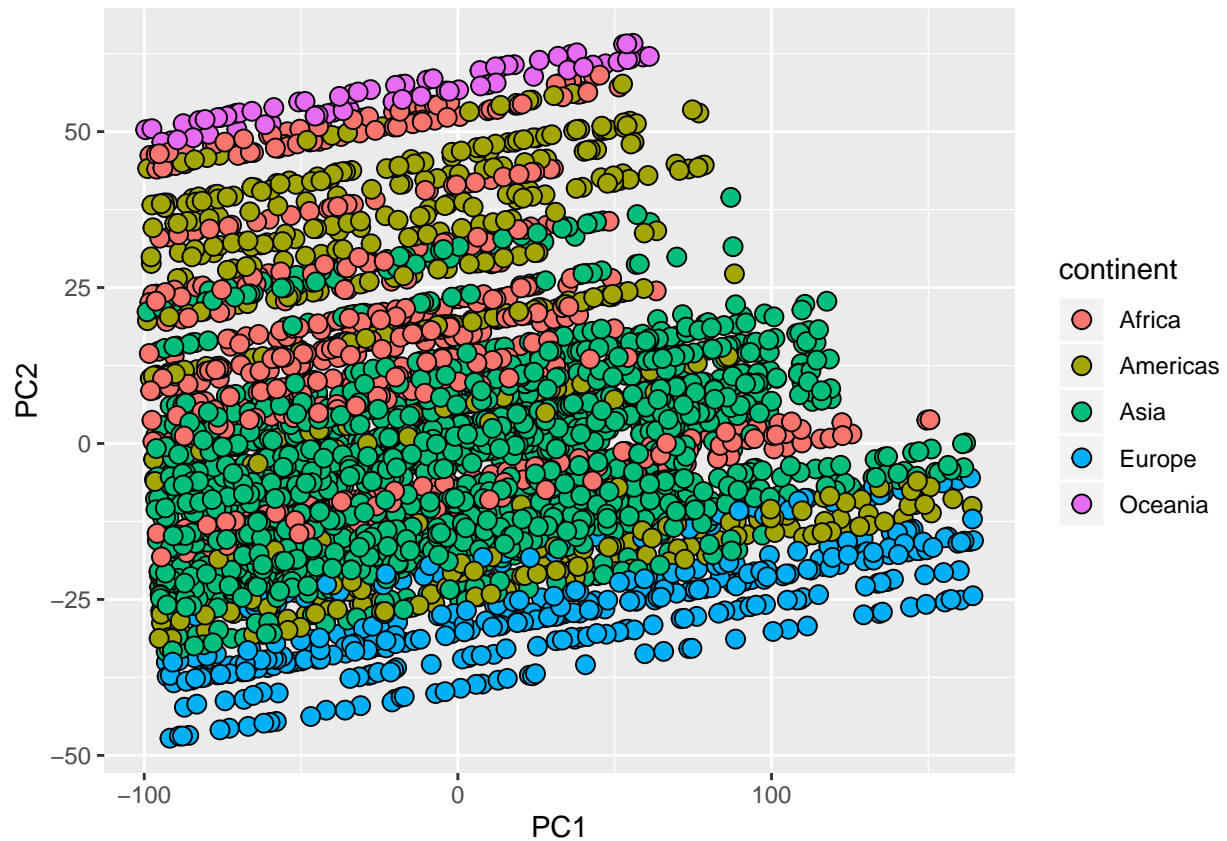
We try 2 dimensions since this explains about 99% of the data

```r
library(caret)
k <- 2
x_train1 <- pca$x[,1:k]
y1 <- factor(train_set$continent)
fit <- knn3(x_train1, y1)
```

transform the test set

```r
test_set_images <- as.matrix(test_set[, 2:dim(test_set)[2]])
x_test1 <- sweep(test_set_images, 2, col_means) %*% pca$rotation
x_test1 <- x_test1[,1:k]
```

And we predict:

```r
 y_hat1 <- predict(fit, x_test1, type = "class")
confusionMatrix(y_hat1, factor(test_set$continent))$overall["Accuracy"]
```

```
##   Accuracy
## 0.7152086
```

```
# And give us an accuracy of 0.72.
```

We will sample 8000 random rows from the training set and 800 random rows from the test set:

```
set.seed(27, sample.kind="Rounding")
index <- sample(nrow(train_set_images ), 8000)
x <- train_set_images[index,]
y <- factor(train_set$continent[index])

index <- sample(nrow(test_set_images ), 800)
x_test <- test_set_images[index,]
y_test <- factor(test_set$continent[index])
```

Now we are ready to fit some models. Before we start, we need to add column names to the feature matrices as these are required by caret:

```
col_index <- 1:ncol(x)
colnames(x) <- 1:ncol(train_set_images)
colnames(x_test) <- colnames(train_set_images)
```

First.

We start with kNN. The first step is to optimize for k. To compute a distance between each observation in the test set and each observation in the training set we will therefore use k-fold cross validation to improve speed.

```
control <- trainControl(method = "cv", number = 10, p = .9)
train_knn <- train(x[ ,col_index], y,
                   method = "knn",
                   tuneGrid = data.frame(k = seq(9,71,2)),
                   trControl = control)
```

```
ggplot(train_knn, highlight = TRUE)
```
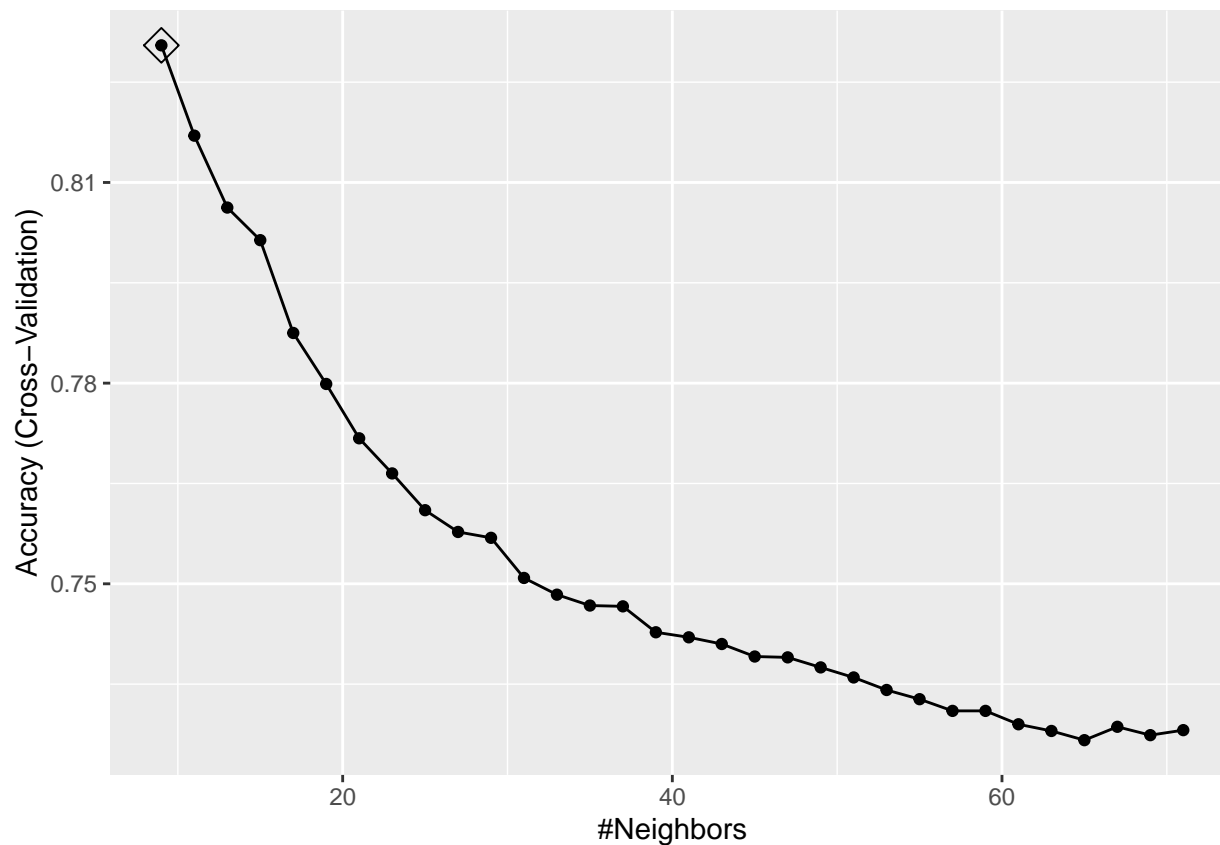
```
train_knn$bestTune #the parameter k=9 maximized the accuracy
```

```
##   k
## 1 9
```

```
train_knn$finalModel #the best performing model
```

```
## 9-nearest neighbor model
## Training set outcome distribution:
##
##   Africa Americas     Asia   Europe  Oceania
##     1290     1349     4347      882      132
```

We see the standard deviation bars obtained from the cross validation samples:

```
train_knn$results %>%
  ggplot(aes(x = k, y = Accuracy)) +
  geom_line() +
  geom_point() +
  geom_errorbar(aes(x = k,
                    ymin = Accuracy - AccuracySD,
                    ymax = Accuracy + AccuracySD))
```
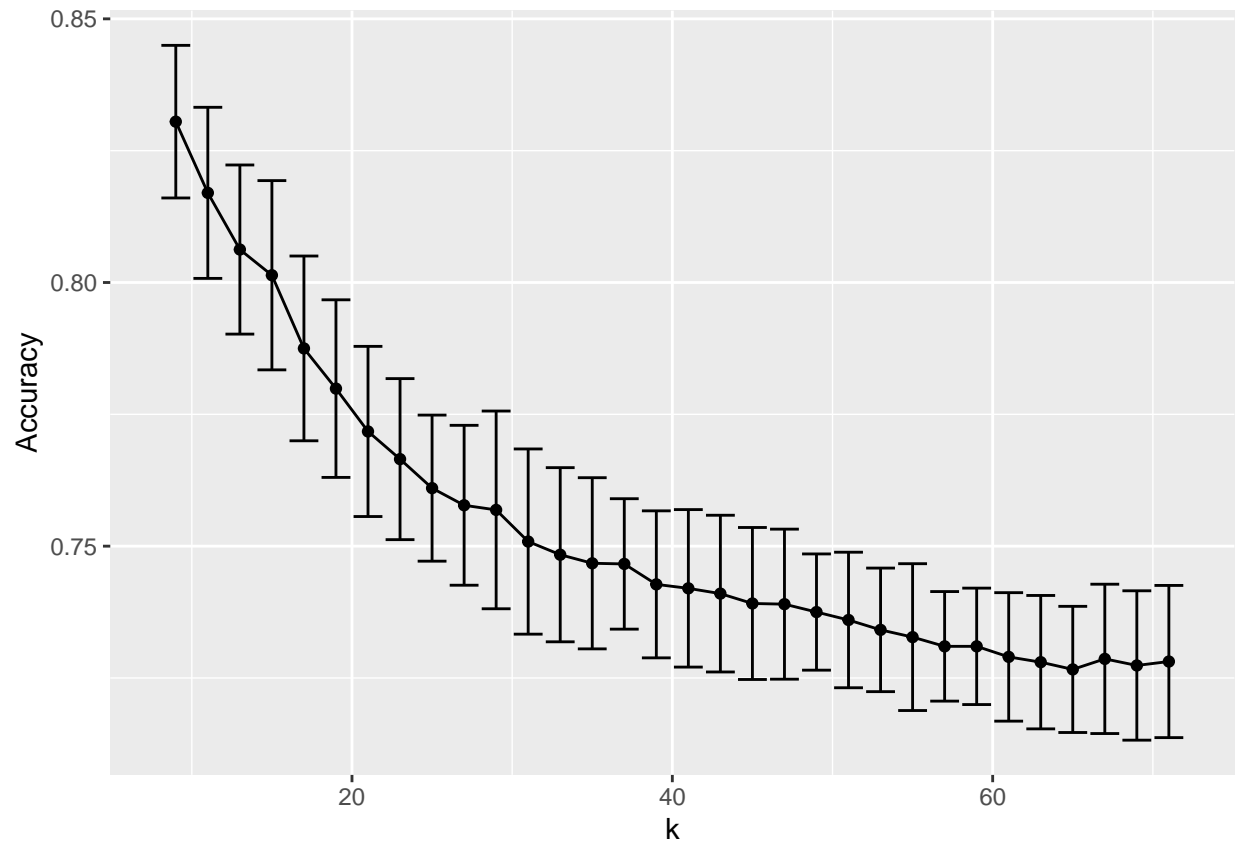
Now that we optimize our algorithm, we can fit it to the entire dataset:

```
fit_knn <- knn3(x[, col_index], y,  k = train_knn$bestTune)
y_hat_knn <- predict(fit_knn, x_test[, col_index], type="class")
cm <- confusionMatrix(y_hat_knn, factor(y_test))
cm$overall["Accuracy"]
```

```
## Accuracy
##  0.85125
```

```
cm$byClass[,1:2]
```

```
##                  Sensitivity Specificity
## Class: Africa      0.6690141   0.9696049
## Class: Americas    0.7163121   0.9742033
## Class: Asia        0.9373550   0.8130081
## Class: Europe      0.9459459   0.9862259
## Class: Oceania     0.9166667   0.9961929
```

We now achieve an accuracy of about 0.85125. From the specificity and sensitivity, we also see that Class Africa are the hardest to detect and the most commonly incorrectly predicted is Asia.

Now we try to increase accuracy with random forest algorithm, using Rborist method. This will take 15 minutes approximately.Be patient!

```r
#This will take 15 minutes approximately. Be patient!

set.seed(3, sample.kind = "Rounding")
dat <- data.frame(x = x, y = y)
fit <- train(y ~ ., method = "Rborist",
             tuneGrid = data.frame(predFixed = 1,
                                   minNode = seq(25, 100, 25)),
             data = dat)
```

```r
ggplot(fit)
```
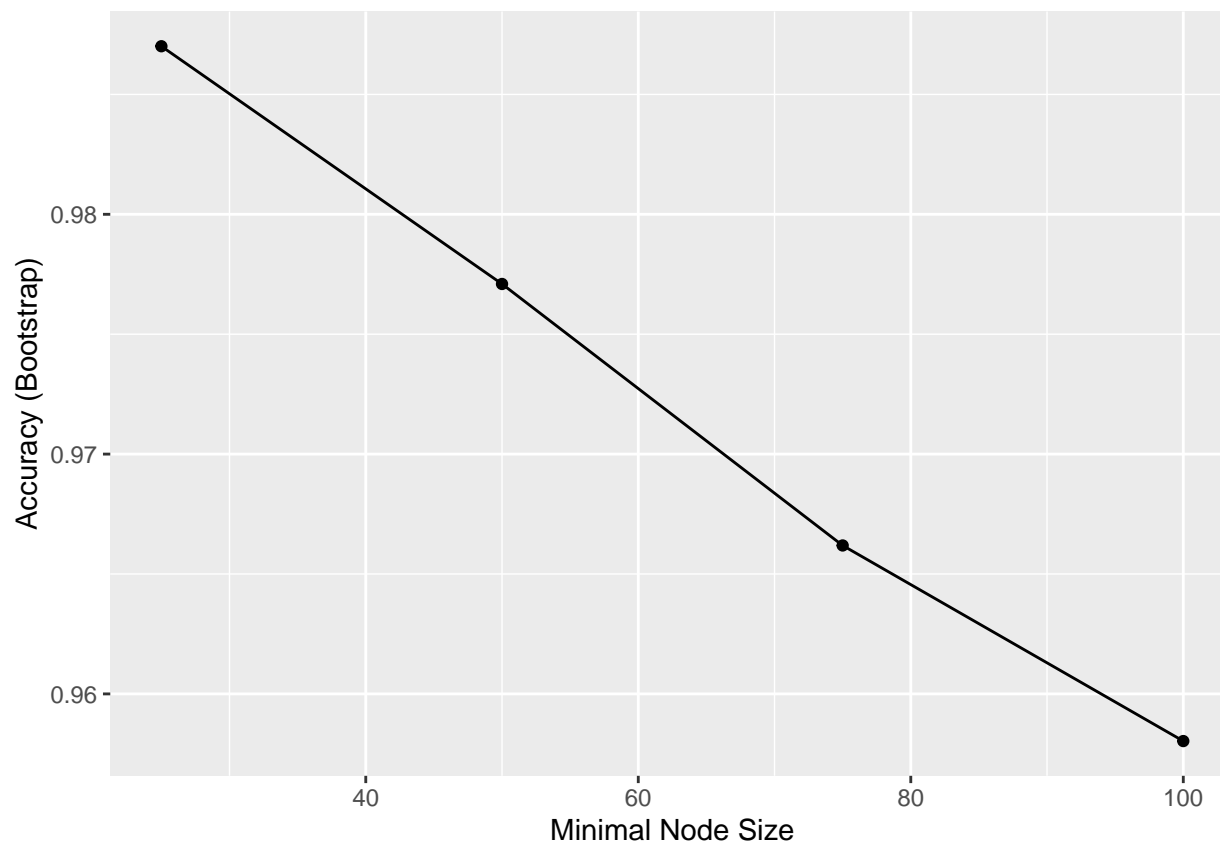

The value that maximizes the Accuracy(Boostrap) is minNode 25

```r
control <- trainControl(method="cv", number = 5, p = 0.8)
grid <- expand.grid(minNode = 25 , predFixed = c(1,2,3,4,5))
```

```
train_rf <-  train(x[, col_index],
                   y,
                   method = "Rborist",
                   nTree = 50,
                   trControl = control,
                   tuneGrid = grid,
                   nSamp = 1250)
```

```
ggplot(train_rf)
```
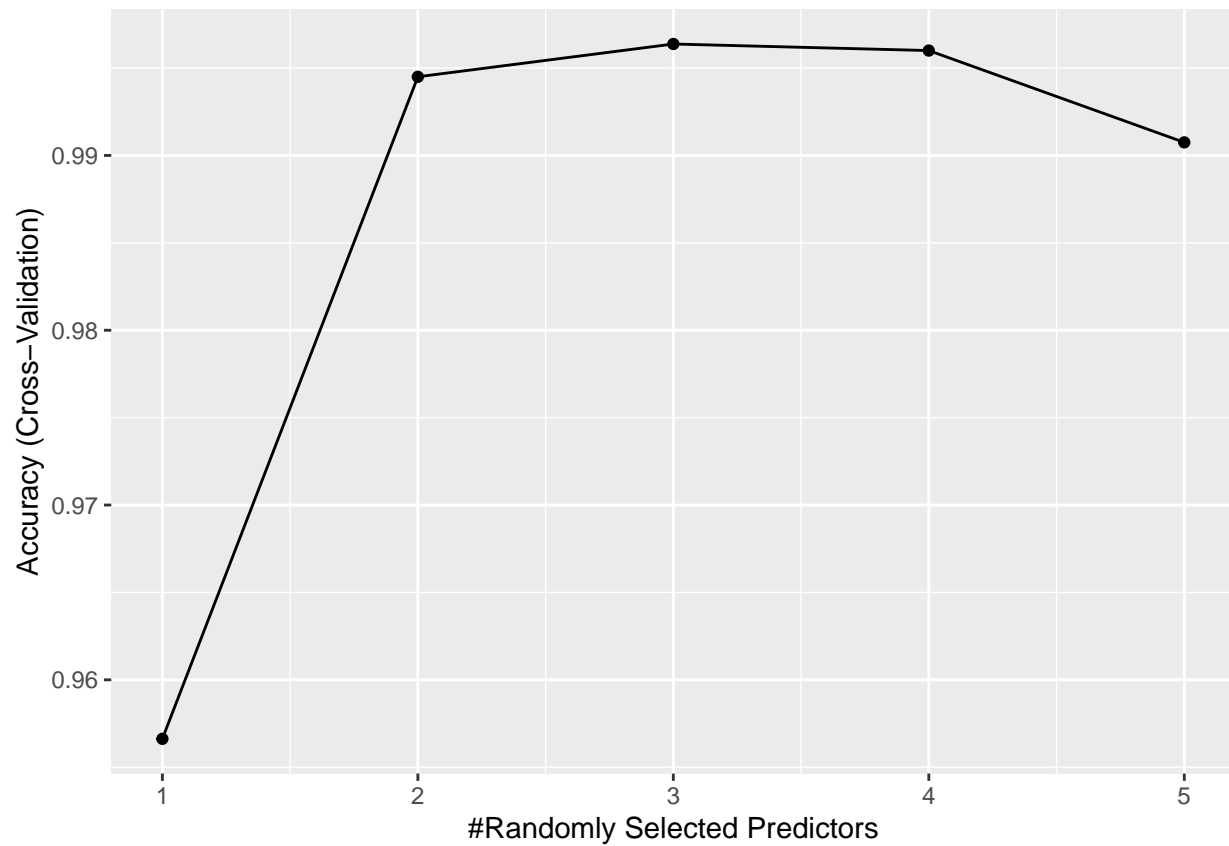


```
train_rf$bestTune
```

```
##   predFixed minNode
## 3         3      25
```

We have optimized our tree, we are going to fit our final model:

```
fit_rf <- Rborist(x[, col_index], y,
                  nTree = 1000,
                  minNode = train_rf$bestTune$minNode,
                  predFixed = train_rf$bestTune$predFixed)
```

```
y_hat_rf <- factor(levels(y)[predict(fit_rf, x_test[ ,col_index])$yPred])
cm <- confusionMatrix(y_hat_rf, y_test)
cm$overall["Accuracy"]
```

```
## Accuracy
##  0.99875
```

Our final model give us an Accuracy of **0.99875.**

Finally I want to computes the importance of each feature, we applied to an object using "randomForest".

```
rf <- randomForest(x, y,  ntree = 1000, minNode = train_rf$bestTune$minNode,
                   predFixed = train_rf$bestTune$predFixed)
imp <- importance(rf)
imp
```

```
##    MeanDecreaseGini
## 1        2502.02351
## 2          50.70975
## 3         931.08592
## 4          99.62316
## 5        1520.29449
```

We can see which features are most being used:

Second.

We want to see now how to differentiate Class Africa and Others we will use dimension reduction.

```
y1<-as.data.frame(y1)
y2<-train_set%>%  mutate (continent = case_when(continent %in% c ("Americas","Asia","Europe","Oceania")
x_train1<-as.data.frame(x_train1)
x_train1<-x_train1%>%mutate(y=y2$continent)
y3<-test_set %>%  mutate (continent = case_when(continent %in% c("Africa")~ "Africa",continent!= "Africa
x_test1<-as.data.frame(x_test1)
x_test1<-x_test1%>%mutate(y=y3$continent)
```

We load the data and show a plot of the predictors with outcome represented with color.

```
x_test1%>% ggplot(aes(PC1, PC2, color = y)) +  geom_point()
```
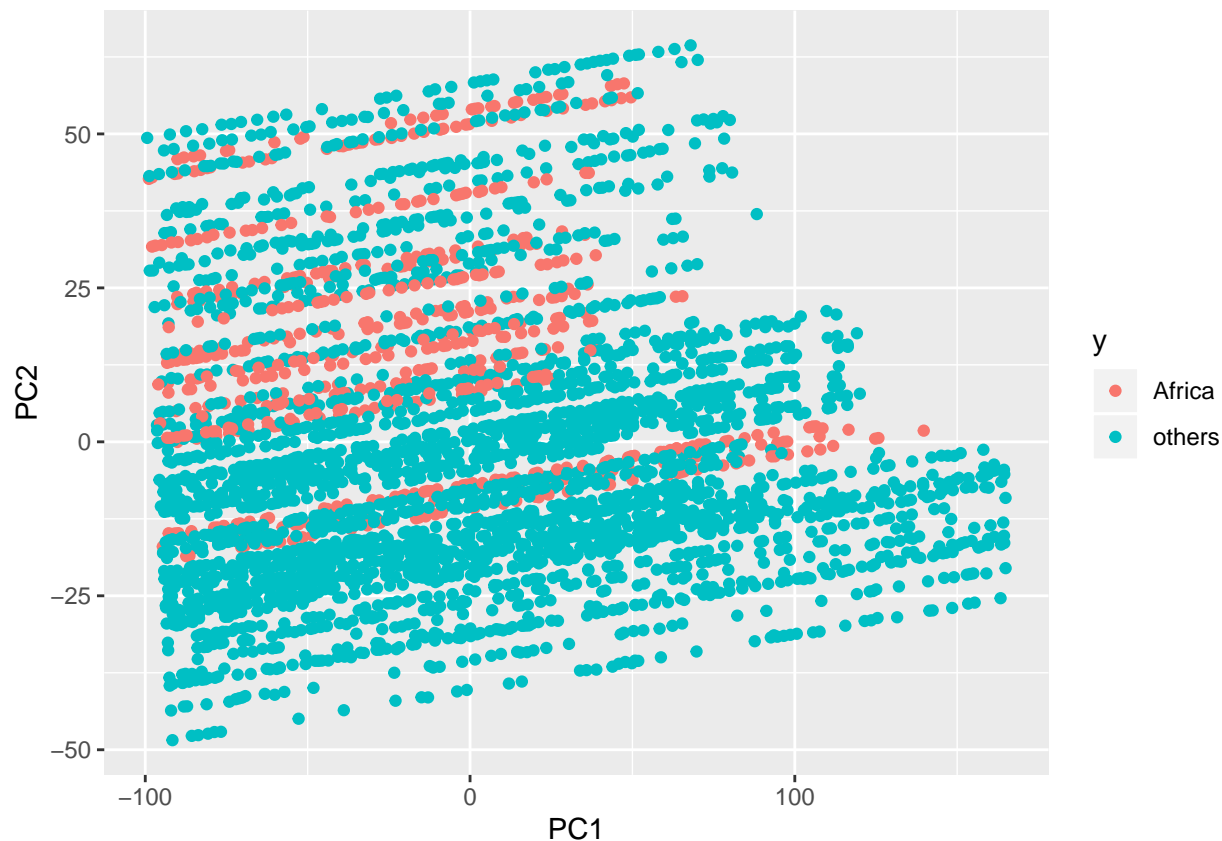
Because we want this example to run on a small laptop, we will consider a subset of the dataset. We will sample 1000 random rows from the training set and 100 random rows from the test set.

```
set.seed(6, sample.kind="Rounding")
index <- sample(nrow(x_train1[,1:2]), 1000)
x <- x_train1[,1:2][index,]
y <- factor(x_train1$y[index])
x_train<-x%>%mutate(y=y)
index <- sample(nrow(x_test1[,1:2]), 100)
x_test <- x_test1[,1:2][index,]
y_test <- factor(x_test1$y[index])
x_test<-x_test%>%mutate(y=y_test)

#We need to install some packages.
if(!require(gam)) install.packages("gam", repos = "http://cran.us.r-project.org")
if(!require(splines)) install.packages("splines", repos = "http://cran.us.r-project.org")
if(!require(foreach)) install.packages("foreach", repos = "http://cran.us.r-project.org")
if(!require(mgcv)) install.packages("mgcv", repos = "http://cran.us.r-project.org")
if(!require(nlme)) install.packages("nlme", repos = "http://cran.us.r-project.org")
```

We use the training set to build a model with several of the models available from the caret package. We will test out all of the following models. This process will take about 15 minutes. Keep in mind that probably get some warnings.Be patient!

```
#This process will take about 15 minutes. Be patient!
#Keep in mind that probably get some warnings.
models <- c("glm", "lda",  "naive_bayes",  "svmLinear", "gamboost",
            "gamLoess", "qda", "knn", "kknn", "loclda", "gam","rf",
            "ranger",  "wsrf", "Rborist", "avNNet", "mlp", "monmlp",
            "adaboost", "gbm","svmRadial", "svmRadialCost", "svmRadialSigma")
fits <- lapply(models, function(model){
  print(model)
  train(y ~ ., method = model, data = x_train)
})
```

```
## [1] "glm"
## [1] "lda"
## [1] "naive_bayes"
## [1] "svmLinear"
## [1] "gamboost"
## [1] "gamLoess"
## [1] "qda"
## [1] "knn"
## [1] "kknn"
## [1] "loclda"
## [1] "gam"
## [1] "rf"
## note: only 1 unique complexity parameters in default grid. Truncating the grid to 1 .
##
## [1] "ranger"
## note: only 1 unique complexity parameters in default grid. Truncating the grid to 1 .
##
## [1] "wsrf"
## note: only 1 unique complexity parameters in default grid. Truncating the grid to 1 .
##
## [1] "Rborist"
## note: only 1 unique complexity parameters in default grid. Truncating the grid to 1 .
##
## [1] "avNNet"
## Fitting Repeat 1
##
## # weights:  7
## initial  value 487.097494
## final  value 346.000000
## converged
## Fitting Repeat 2
##
## # weights:  7
## initial  value 563.390331
## final  value 346.000000
## converged
## Fitting Repeat 3
##
```

29

```
## # weights:  7
## initial   value 634.535445
## final   value 346.000000
## converged
## Fitting Repeat 4
##
## # weights:  7
## initial   value 538.813324
## final   value 346.000000
## converged
## Fitting Repeat 5
##
## # weights:  7
## initial   value 641.031113
## final   value 346.000000
## converged
## Fitting Repeat 1
##
## # weights:  17
## initial   value 513.810438
## final   value 346.000000
## converged
## Fitting Repeat 2
##
## # weights:  17
## initial   value 475.965139
## final   value 346.000000
## converged
## Fitting Repeat 3
##
## # weights:  17
## initial   value 448.797561
## final   value 346.000000
## converged
## Fitting Repeat 4
##
## # weights:  17
## initial   value 709.397686
## final   value 346.000000
## converged
## Fitting Repeat 5
##
## # weights:  17
## initial   value 335.864052
## iter  10 value 261.479300
## iter  20 value 246.914149
## iter  30 value 243.671913
## iter  40 value 243.368443
## iter  50 value 243.105947
## iter  60 value 241.197026
## iter  70 value 239.941217
## iter  80 value 239.710832
## iter  90 value 239.585321
## iter 100 value 239.567580
```

```
## final   value 239.567580
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:   27
## initial   value 632.269941
## final   value 346.000000
## converged
## Fitting Repeat 2
##
## # weights:   27
## initial   value 808.657899
## final   value 346.000000
## converged
## Fitting Repeat 3
##
## # weights:   27
## initial   value 678.582336
## final   value 346.000000
## converged
## Fitting Repeat 4
##
## # weights:   27
## initial   value 464.617579
## final   value 346.000000
## converged
## Fitting Repeat 5
##
## # weights:   27
## initial   value 705.463978
## final   value 346.000000
## converged
## Fitting Repeat 1
##
## # weights:   7
## initial   value 665.074672
## iter   10 value 312.018388
## iter   20 value 280.269575
## iter   30 value 268.826348
## iter   40 value 260.225061
## iter   50 value 256.133656
## final   value 256.121085
## converged
## Fitting Repeat 2
##
## # weights:   7
## initial   value 565.194915
## iter   10 value 306.918036
## iter   20 value 258.031665
## final   value 256.121100
## converged
## Fitting Repeat 3
##
## # weights:   7
```

```
## initial  value 443.100577
## iter  10 value 280.376950
## iter  20 value 270.254694
## iter  30 value 259.211835
## iter  40 value 257.635126
## final  value 257.634632
## converged
## Fitting Repeat 4
##
## # weights:  7
## initial  value 654.055298
## iter  10 value 300.838034
## iter  20 value 259.909686
## iter  30 value 256.124725
## final  value 256.121085
## converged
## Fitting Repeat 5
##
## # weights:  7
## initial  value 564.621463
## iter  10 value 277.974994
## iter  20 value 258.698107
## iter  30 value 256.126869
## final  value 256.121085
## converged
## Fitting Repeat 1
##
## # weights:  17
## initial  value 618.739010
## iter  10 value 322.190510
## iter  20 value 260.276354
## iter  30 value 253.621536
## iter  40 value 253.504312
## iter  40 value 253.504311
## final  value 253.504311
## converged
## Fitting Repeat 2
##
## # weights:  17
## initial  value 562.758803
## iter  10 value 325.579490
## iter  20 value 256.864751
## iter  30 value 249.101056
## iter  40 value 248.016433
## final  value 247.941379
## converged
## Fitting Repeat 3
##
## # weights:  17
## initial  value 453.746100
## iter  10 value 318.521858
## iter  20 value 272.083873
## iter  30 value 254.650709
## iter  40 value 252.887686
```

```
## iter   50 value 251.153209
## iter   60 value 249.172320
## iter   70 value 248.220617
## final   value 248.217636
## converged
## Fitting Repeat 4
##
## # weights:  17
## initial  value 496.396209
## iter   10 value 313.934680
## iter   20 value 304.038687
## iter   30 value 283.990596
## iter   40 value 256.387520
## iter   50 value 252.440889
## iter   60 value 248.777287
## iter   70 value 248.239311
## final   value 248.223324
## converged
## Fitting Repeat 5
##
## # weights:  17
## initial  value 704.787792
## iter   10 value 322.528435
## iter   20 value 283.259845
## iter   30 value 260.501572
## iter   40 value 254.296079
## iter   50 value 254.225195
## final   value 254.224798
## converged
## Fitting Repeat 1
##
## # weights:  27
## initial  value 568.892470
## iter   10 value 301.897037
## iter   20 value 257.000579
## iter   30 value 247.667175
## iter   40 value 245.524271
## iter   50 value 244.776852
## iter   60 value 244.524522
## final   value 244.524458
## converged
## Fitting Repeat 2
##
## # weights:  27
## initial  value 578.725417
## iter   10 value 328.154904
## iter   20 value 285.893013
## iter   30 value 260.215266
## iter   40 value 251.453394
## iter   50 value 249.088289
## iter   60 value 248.893881
## iter   70 value 248.874774
## iter   80 value 248.871088
## iter   90 value 248.865655
```

```
## final   value 248.865639
## converged
## Fitting Repeat 3
##
## # weights:  27
## initial   value 529.296683
## iter   10 value 323.107007
## iter   20 value 298.371073
## iter   30 value 275.902473
## iter   40 value 253.284182
## iter   50 value 247.592106
## iter   60 value 246.162586
## iter   70 value 246.153314
## iter   70 value 246.153311
## iter   70 value 246.153311
## final   value 246.153311
## converged
## Fitting Repeat 4
##
## # weights:  27
## initial   value 486.059797
## iter   10 value 320.513845
## iter   20 value 281.835764
## iter   30 value 260.368255
## iter   40 value 251.991445
## iter   50 value 246.877663
## iter   60 value 245.009458
## iter   70 value 244.589389
## iter   80 value 244.544644
## final   value 244.544463
## converged
## Fitting Repeat 5
##
## # weights:  27
## initial   value 404.234148
## iter   10 value 313.845437
## iter   20 value 288.962240
## iter   30 value 269.077912
## iter   40 value 250.347883
## iter   50 value 246.869318
## iter   60 value 244.624055
## iter   70 value 244.382822
## final   value 244.382325
## converged
## Fitting Repeat 1
##
## # weights:  7
## initial   value 525.510994
## iter   10 value 346.268882
## iter   20 value 346.031040
## iter   30 value 346.029333
## iter   40 value 346.027198
## iter   50 value 346.024415
## iter   60 value 346.020571
```

```
## iter  70 value 346.014801
## iter  80 value 346.004905
## iter  90 value 345.983127
## iter 100 value 345.887492
## final   value 345.887492
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  7
## initial   value 753.249189
## iter  10 value 346.670230
## iter  20 value 345.985427
## iter  30 value 345.956494
## iter  40 value 345.835244
## iter  50 value 318.379449
## iter  60 value 316.229495
## iter  70 value 300.186924
## iter  80 value 284.900125
## iter  90 value 283.079449
## iter 100 value 278.749615
## final   value 278.749615
## stopped after 100 iterations
## Fitting Repeat 3
##
## # weights:  7
## initial   value 626.503877
## iter  10 value 346.348279
## iter  20 value 319.078103
## iter  30 value 310.629673
## iter  40 value 306.580903
## iter  50 value 303.859429
## iter  60 value 301.786076
## iter  70 value 300.909706
## iter  80 value 300.309393
## iter  90 value 300.063251
## iter 100 value 300.055144
## final   value 300.055144
## stopped after 100 iterations
## Fitting Repeat 4
##
## # weights:  7
## initial   value 495.570976
## iter  10 value 346.241663
## iter  20 value 346.090261
## iter  30 value 346.089184
## iter  40 value 346.088025
## iter  50 value 346.086773
## iter  60 value 346.085387
## iter  70 value 346.083805
## iter  80 value 346.081947
## iter  90 value 346.079718
## iter 100 value 346.076938
## final   value 346.076938
## stopped after 100 iterations
```

```
## Fitting Repeat 5
##
## # weights:  7
## initial  value 603.515656
## iter  10 value 346.383274
## iter  20 value 346.001697
## iter  30 value 345.986775
## iter  40 value 337.798525
## iter  50 value 302.879252
## iter  60 value 300.413605
## iter  70 value 300.332891
## iter  80 value 300.299892
## iter  90 value 296.372387
## iter 100 value 258.059442
## final  value 258.059442
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  17
## initial  value 550.866628
## iter  10 value 346.390594
## iter  20 value 344.874369
## iter  30 value 313.060748
## iter  40 value 307.656429
## iter  50 value 297.727014
## iter  60 value 295.855998
## iter  70 value 295.254938
## iter  80 value 295.189532
## iter  90 value 295.170069
## iter 100 value 295.160008
## final  value 295.160008
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  17
## initial  value 738.892175
## iter  10 value 346.530526
## iter  20 value 261.194604
## iter  30 value 252.017667
## iter  40 value 246.690956
## iter  50 value 245.810197
## iter  60 value 245.687086
## iter  70 value 245.320905
## iter  80 value 245.056971
## iter  90 value 244.846945
## iter 100 value 244.833393
## final  value 244.833393
## stopped after 100 iterations
## Fitting Repeat 3
##
## # weights:  17
## initial  value 436.667944
## iter  10 value 346.256544
## iter  20 value 304.723219
```

```
## iter   30 value 299.439584
## iter   40 value 298.757360
## iter   50 value 298.558844
## iter   60 value 298.511135
## iter   70 value 298.464566
## iter   80 value 298.076385
## iter   90 value 273.180500
## iter  100 value 254.601263
## final  value 254.601263
## stopped after 100 iterations
## Fitting Repeat 4
## 
## # weights:  17
## initial  value 566.849610
## iter   10 value 346.435945
## iter   20 value 315.201038
## iter   30 value 269.939063
## iter   40 value 257.718887
## iter   50 value 253.771703
## iter   60 value 248.692963
## iter   70 value 247.966569
## iter   80 value 247.789857
## iter   90 value 247.675330
## iter  100 value 247.539254
## final  value 247.539254
## stopped after 100 iterations
## Fitting Repeat 5
## 
## # weights:  17
## initial  value 430.245897
## iter   10 value 346.352103
## iter   20 value 318.379722
## iter   30 value 318.221533
## iter   40 value 318.166127
## iter   50 value 318.107546
## iter   60 value 317.594409
## iter   70 value 316.910865
## iter   80 value 311.977802
## iter   90 value 311.715156
## iter  100 value 311.490275
## final  value 311.490275
## stopped after 100 iterations
## Fitting Repeat 1
## 
## # weights:  27
## initial  value 663.131040
## iter   10 value 346.707412
## iter   20 value 344.741606
## iter   30 value 310.177641
## iter   40 value 305.710388
## iter   50 value 303.199730
## iter   60 value 301.394361
## iter   70 value 280.125116
## iter   80 value 256.724041
```

```
## iter  90 value 253.554349
## iter 100 value 252.388258
## final   value 252.388258
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  27
## initial   value 390.210648
## iter  10 value 345.730897
## iter  20 value 305.123487
## iter  30 value 297.000829
## iter  40 value 293.754695
## iter  50 value 293.212135
## iter  60 value 293.024372
## iter  70 value 292.998564
## iter  80 value 292.980568
## iter  90 value 292.940607
## iter 100 value 292.907207
## final   value 292.907207
## stopped after 100 iterations
## Fitting Repeat 3
##
## # weights:  27
## initial   value 771.347034
## iter  10 value 347.017796
## iter  20 value 288.459144
## iter  30 value 256.774633
## iter  40 value 248.201820
## iter  50 value 239.819905
## iter  60 value 238.076496
## iter  70 value 236.366120
## iter  80 value 234.555491
## iter  90 value 234.435874
## iter 100 value 234.412668
## final   value 234.412668
## stopped after 100 iterations
## Fitting Repeat 4
##
## # weights:  27
## initial   value 839.502619
## iter  10 value 346.389634
## iter  20 value 318.665392
## iter  30 value 313.425710
## iter  40 value 306.982202
## iter  50 value 278.056252
## iter  60 value 258.218835
## iter  70 value 255.680414
## iter  80 value 254.778118
## iter  90 value 253.837793
## iter 100 value 252.674965
## final   value 252.674965
## stopped after 100 iterations
## Fitting Repeat 5
##
```

```
## # weights:  27
## initial  value 891.840820
## iter  10 value 346.711591
## iter  20 value 284.729900
## iter  30 value 255.100641
## iter  40 value 240.630729
## iter  50 value 235.073600
## iter  60 value 233.765116
## iter  70 value 233.439743
## iter  80 value 233.167672
## iter  90 value 232.871233
## iter 100 value 232.800432
## final  value 232.800432
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  7
## initial  value 760.952100
## final  value 338.000000
## converged
## Fitting Repeat 2
##
## # weights:  7
## initial  value 731.330196
## final  value 338.000000
## converged
## Fitting Repeat 3
##
## # weights:  7
## initial  value 585.840007
## final  value 338.000000
## converged
## Fitting Repeat 4
##
## # weights:  7
## initial  value 402.595078
## final  value 338.000000
## converged
## Fitting Repeat 5
##
## # weights:  7
## initial  value 575.465828
## final  value 338.000000
## converged
## Fitting Repeat 1
##
## # weights:  17
## initial  value 423.329249
## final  value 338.000000
## converged
## Fitting Repeat 2
##
## # weights:  17
## initial  value 475.709802
```

```
## final   value 338.000000
## converged
## Fitting Repeat 3
##
## # weights:   17
## initial   value 447.986090
## final   value 338.000000
## converged
## Fitting Repeat 4
##
## # weights:   17
## initial   value 810.877791
## final   value 338.000000
## converged
## Fitting Repeat 5
##
## # weights:   17
## initial   value 639.894303
## final   value 338.000000
## converged
## Fitting Repeat 1
##
## # weights:   27
## initial   value 522.643713
## final   value 338.000000
## converged
## Fitting Repeat 2
##
## # weights:   27
## initial   value 693.762832
## final   value 338.000000
## converged
## Fitting Repeat 3
##
## # weights:   27
## initial   value 582.785465
## final   value 338.000000
## converged
## Fitting Repeat 4
##
## # weights:   27
## initial   value 651.563529
## final   value 338.000000
## converged
## Fitting Repeat 5
##
## # weights:   27
## initial   value 347.102639
## final   value 338.000000
## converged
## Fitting Repeat 1
##
## # weights:   7
## initial   value 574.180588
```

```
## iter   10 value 256.730993
## iter   20 value 246.783107
## iter   30 value 235.094592
## final   value 235.081428
## converged
## Fitting Repeat 2
## 
## # weights:  7
## initial   value 474.504980
## iter   10 value 253.463994
## iter   20 value 242.443545
## iter   30 value 235.081525
## final   value 235.081428
## converged
## Fitting Repeat 3
## 
## # weights:  7
## initial   value 430.269890
## iter   10 value 303.545301
## iter   20 value 257.436343
## iter   30 value 240.873532
## iter   40 value 235.081849
## final   value 235.081428
## converged
## Fitting Repeat 4
## 
## # weights:  7
## initial   value 336.800422
## iter   10 value 276.558111
## iter   20 value 268.578080
## iter   30 value 251.511909
## iter   40 value 236.534072
## final   value 236.372131
## converged
## Fitting Repeat 5
## 
## # weights:  7
## initial   value 422.470366
## iter   10 value 261.796424
## iter   20 value 251.231510
## iter   30 value 239.092643
## iter   40 value 235.116465
## final   value 235.081428
## converged
## Fitting Repeat 1
## 
## # weights:  17
## initial   value 343.037483
## iter   10 value 249.570104
## iter   20 value 235.989072
## iter   30 value 231.608692
## iter   40 value 231.586401
## iter   50 value 231.578410
## final   value 231.578319
```

```
## converged
## Fitting Repeat 2
##
## # weights:  17
## initial  value 503.661360
## iter  10 value 297.747985
## iter  20 value 236.111814
## iter  30 value 226.862102
## iter  40 value 226.644373
## final  value 226.643951
## converged
## Fitting Repeat 3
##
## # weights:  17
## initial  value 537.295475
## iter  10 value 279.120739
## iter  20 value 240.627853
## iter  30 value 232.544217
## iter  40 value 228.429007
## iter  50 value 228.332501
## iter  50 value 228.332501
## iter  50 value 228.332501
## final  value 228.332501
## converged
## Fitting Repeat 4
##
## # weights:  17
## initial  value 353.885283
## iter  10 value 302.325005
## iter  20 value 284.223301
## iter  30 value 236.651678
## iter  40 value 230.556297
## iter  50 value 229.989988
## iter  60 value 229.977234
## iter  70 value 229.748844
## iter  80 value 229.670827
## final  value 229.670824
## converged
## Fitting Repeat 5
##
## # weights:  17
## initial  value 507.329760
## iter  10 value 292.930341
## iter  20 value 241.468377
## iter  30 value 232.744885
## iter  40 value 229.102846
## iter  50 value 228.687203
## iter  60 value 228.328554
## iter  70 value 228.208451
## final  value 228.205313
## converged
## Fitting Repeat 1
##
## # weights:  27
```

```
## initial  value 527.995243
## iter  10 value 316.874143
## iter  20 value 285.238542
## iter  30 value 243.019728
## iter  40 value 225.454554
## iter  50 value 223.397142
## iter  60 value 223.121386
## final  value 223.121141
## converged
## Fitting Repeat 2
##
## # weights:  27
## initial  value 744.666464
## iter  10 value 311.041085
## iter  20 value 273.434020
## iter  30 value 234.947502
## iter  40 value 230.088247
## iter  50 value 225.955832
## iter  60 value 224.462720
## iter  70 value 224.351784
## iter  80 value 224.309572
## final  value 224.309530
## converged
## Fitting Repeat 3
##
## # weights:  27
## initial  value 774.018749
## iter  10 value 324.168077
## iter  20 value 260.374352
## iter  30 value 229.848454
## iter  40 value 226.246282
## iter  50 value 225.851185
## iter  60 value 225.230218
## iter  70 value 225.144966
## iter  80 value 225.128115
## final  value 225.128093
## converged
## Fitting Repeat 4
##
## # weights:  27
## initial  value 684.696944
## iter  10 value 336.718618
## iter  20 value 292.395710
## iter  30 value 251.604965
## iter  40 value 238.468786
## iter  50 value 232.240687
## iter  60 value 229.012396
## iter  70 value 226.251486
## iter  80 value 225.959924
## iter  90 value 225.615025
## final  value 225.567698
## converged
## Fitting Repeat 5
##
```

```
## # weights:  27
## initial  value 767.308953
## iter  10 value 321.573207
## iter  20 value 256.214800
## iter  30 value 238.806874
## iter  40 value 229.971509
## iter  50 value 227.473091
## iter  60 value 227.220851
## iter  70 value 224.651887
## iter  80 value 222.639585
## iter  90 value 221.961652
## final  value 221.946102
## converged
## Fitting Repeat 1
##
## # weights:  7
## initial  value 414.620545
## iter  10 value 338.160777
## iter  20 value 337.978125
## iter  30 value 296.580980
## iter  40 value 293.146971
## iter  50 value 289.472368
## iter  60 value 285.104142
## iter  70 value 241.875932
## iter  80 value 232.334125
## iter  90 value 232.221964
## final  value 232.219278
## converged
## Fitting Repeat 2
##
## # weights:  7
## initial  value 407.301841
## iter  10 value 338.186173
## iter  20 value 338.043098
## iter  30 value 338.042630
## iter  40 value 338.042143
## iter  50 value 338.041633
## iter  60 value 338.041098
## iter  70 value 338.040533
## iter  80 value 338.039935
## iter  90 value 338.039297
## iter 100 value 338.038613
## final  value 338.038613
## stopped after 100 iterations
## Fitting Repeat 3
##
## # weights:  7
## initial  value 390.057563
## iter  10 value 338.002493
## iter  20 value 328.289803
## iter  30 value 295.026145
## iter  40 value 294.044890
## iter  50 value 292.877552
## iter  60 value 292.705731
```

```
## iter  70 value 292.689628
## iter  80 value 254.271589
## iter  90 value 247.232244
## iter 100 value 247.174428
## final   value 247.174428
## stopped after 100 iterations
## Fitting Repeat 4
##
## # weights:  7
## initial  value 382.277781
## iter  10 value 338.133725
## iter  20 value 337.884420
## iter  30 value 321.424711
## iter  40 value 299.284630
## iter  50 value 291.250371
## iter  60 value 290.998332
## iter  70 value 290.653005
## iter  80 value 290.622169
## iter  90 value 250.977892
## iter 100 value 247.238946
## final   value 247.238946
## stopped after 100 iterations
## Fitting Repeat 5
##
## # weights:  7
## initial  value 393.516938
## iter  10 value 338.150561
## iter  20 value 338.083546
## iter  30 value 338.082117
## iter  40 value 338.080500
## iter  50 value 338.078616
## iter  60 value 338.076351
## iter  70 value 338.073527
## iter  80 value 338.069833
## iter  90 value 338.064676
## iter 100 value 338.056765
## final   value 338.056765
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  17
## initial  value 774.679212
## iter  10 value 338.733176
## iter  20 value 338.007630
## iter  30 value 318.817003
## iter  40 value 283.336456
## iter  50 value 231.226284
## iter  60 value 228.744199
## iter  70 value 224.530218
## iter  80 value 223.753825
## iter  90 value 222.709387
## iter 100 value 222.585672
## final   value 222.585672
## stopped after 100 iterations
```

```
## Fitting Repeat 2
##
## # weights:  17
## initial   value 624.762541
## iter   10 value 338.535259
## iter   20 value 337.940157
## iter   30 value 336.506405
## iter   40 value 320.579190
## iter   50 value 319.887067
## iter   60 value 297.632497
## iter   70 value 296.250807
## iter   80 value 295.931031
## iter   90 value 295.922301
## iter 100 value 295.902253
## final   value 295.902253
## stopped after 100 iterations
## Fitting Repeat 3
##
## # weights:  17
## initial   value 472.220345
## iter   10 value 338.410161
## iter   20 value 338.024969
## iter   30 value 338.024488
## iter   40 value 337.974060
## iter   50 value 337.923412
## iter   60 value 331.486885
## iter   70 value 297.623316
## iter   80 value 285.233466
## iter   90 value 281.070619
## iter 100 value 279.942789
## final   value 279.942789
## stopped after 100 iterations
## Fitting Repeat 4
##
## # weights:  17
## initial   value 405.263235
## iter   10 value 338.281628
## iter   20 value 337.677320
## iter   30 value 315.607742
## iter   40 value 301.277307
## iter   50 value 295.652796
## iter   60 value 288.104346
## iter   70 value 263.299384
## iter   80 value 236.091470
## iter   90 value 229.964655
## iter 100 value 229.383747
## final   value 229.383747
## stopped after 100 iterations
## Fitting Repeat 5
##
## # weights:  17
## initial   value 467.722308
## iter   10 value 338.400370
## iter   20 value 296.457869
```

```
## iter   30 value 288.663249
## iter   40 value 252.764449
## iter   50 value 237.345692
## iter   60 value 234.789849
## iter   70 value 232.756461
## iter   80 value 232.738374
## iter   90 value 232.711655
## iter  100 value 232.628489
## final   value 232.628489
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  27
## initial   value 499.162251
## iter   10 value 338.565949
## iter   20 value 307.834709
## iter   30 value 288.747249
## iter   40 value 285.997246
## iter   50 value 243.175738
## iter   60 value 232.294189
## iter   70 value 231.094662
## iter   80 value 229.692979
## iter   90 value 228.650590
## iter  100 value 228.425122
## final   value 228.425122
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  27
## initial   value 701.457752
## iter   10 value 338.907137
## iter   20 value 338.004756
## iter   30 value 337.927918
## iter   40 value 287.311639
## iter   50 value 236.028788
## iter   60 value 228.220571
## iter   70 value 227.132135
## iter   80 value 225.451062
## iter   90 value 224.115596
## iter  100 value 223.691886
## final   value 223.691886
## stopped after 100 iterations
## Fitting Repeat 3
##
## # weights:  27
## initial   value 598.051514
## iter   10 value 338.575966
## iter   20 value 338.039737
## iter   30 value 337.967845
## iter   40 value 311.788865
## iter   50 value 293.656902
## iter   60 value 288.716901
## iter   70 value 287.646114
## iter   80 value 286.783022
```

```
## iter  90 value 283.084993
## iter 100 value 281.070975
## final  value 281.070975
## stopped after 100 iterations
## Fitting Repeat 4
##
## # weights:  27
## initial  value 566.675611
## iter  10 value 338.651035
## iter  20 value 338.025720
## iter  30 value 337.999190
## iter  40 value 337.980484
## iter  50 value 337.928617
## iter  60 value 337.133104
## iter  70 value 329.612276
## iter  80 value 321.871851
## iter  90 value 292.394062
## iter 100 value 282.201997
## final  value 282.201997
## stopped after 100 iterations
## Fitting Repeat 5
##
## # weights:  27
## initial  value 710.407862
## iter  10 value 338.663484
## iter  20 value 338.006180
## iter  30 value 307.631591
## iter  40 value 274.427927
## iter  50 value 261.767142
## iter  60 value 257.392273
## iter  70 value 252.089991
## iter  80 value 249.846938
## iter  90 value 248.239866
## iter 100 value 247.746507
## final  value 247.746507
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  7
## initial  value 499.983076
## final  value 348.000000
## converged
## Fitting Repeat 2
##
## # weights:  7
## initial  value 418.129170
## final  value 348.000000
## converged
## Fitting Repeat 3
##
## # weights:  7
## initial  value 421.740090
## final  value 348.000000
## converged
```

```
## Fitting Repeat 4
##
## # weights:  7
## initial   value 498.148464
## final   value 348.000000
## converged
## Fitting Repeat 5
##
## # weights:  7
## initial   value 416.079495
## final   value 348.000000
## converged
## Fitting Repeat 1
##
## # weights:  17
## initial   value 474.825577
## final   value 348.000000
## converged
## Fitting Repeat 2
##
## # weights:  17
## initial   value 575.475827
## final   value 348.000000
## converged
## Fitting Repeat 3
##
## # weights:  17
## initial   value 498.933458
## final   value 348.000000
## converged
## Fitting Repeat 4
##
## # weights:  17
## initial   value 636.112157
## final   value 348.000000
## converged
## Fitting Repeat 5
##
## # weights:  17
## initial   value 747.748888
## final   value 348.000000
## converged
## Fitting Repeat 1
##
## # weights:  27
## initial   value 672.000127
## final   value 348.000000
## converged
## Fitting Repeat 2
##
## # weights:  27
## initial   value 461.523903
## final   value 348.000000
## converged
```

```
## Fitting Repeat 3
##
## # weights:  27
## initial  value 435.479189
## final  value 348.000000
## converged
## Fitting Repeat 4
##
## # weights:  27
## initial  value 338.074413
## iter  10 value 258.858078
## iter  20 value 241.501098
## iter  30 value 229.216056
## iter  40 value 217.621378
## iter  50 value 203.913800
## iter  60 value 185.631153
## iter  70 value 182.773892
## iter  80 value 180.900579
## iter  90 value 179.908170
## iter 100 value 179.818783
## final  value 179.818783
## stopped after 100 iterations
## Fitting Repeat 5
##
## # weights:  27
## initial  value 649.466687
## final  value 348.000000
## converged
## Fitting Repeat 1
##
## # weights:  7
## initial  value 520.277742
## iter  10 value 304.486548
## iter  20 value 261.376914
## iter  30 value 252.927838
## iter  40 value 252.856738
## final  value 252.856468
## converged
## Fitting Repeat 2
##
## # weights:  7
## initial  value 450.792948
## iter  10 value 289.276801
## iter  20 value 255.742037
## iter  30 value 254.178507
## iter  30 value 254.178507
## iter  30 value 254.178507
## final  value 254.178507
## converged
## Fitting Repeat 3
##
## # weights:  7
## initial  value 399.074614
## iter  10 value 272.696468
```

```
## iter   20 value 258.321801
## iter   30 value 252.949920
## iter   40 value 252.856630
## final    value 252.856468
## converged
## Fitting Repeat 4
##
## # weights:   7
## initial   value 634.226074
## iter   10 value 286.823813
## iter   20 value 262.193265
## iter   30 value 253.302845
## iter   40 value 252.859941
## final    value 252.856468
## converged
## Fitting Repeat 5
##
## # weights:   7
## initial   value 755.036129
## iter   10 value 277.181038
## iter   20 value 261.242839
## iter   30 value 253.603900
## iter   40 value 252.859250
## final    value 252.856468
## converged
## Fitting Repeat 1
##
## # weights:   17
## initial   value 776.415340
## iter   10 value 285.003232
## iter   20 value 258.936164
## iter   30 value 249.423892
## iter   40 value 244.170787
## iter   50 value 242.095415
## iter   60 value 241.930976
## iter   70 value 241.859763
## final    value 241.851686
## converged
## Fitting Repeat 2
##
## # weights:   17
## initial   value 501.898482
## iter   10 value 310.992323
## iter   20 value 265.091338
## iter   30 value 253.634724
## iter   40 value 247.266224
## iter   50 value 244.294552
## iter   60 value 244.155318
## final    value 244.155271
## converged
## Fitting Repeat 3
##
## # weights:   17
## initial   value 745.170690
```

```
## iter   10 value 356.483355
## iter   20 value 307.539314
## iter   30 value 279.686297
## iter   40 value 247.922805
## iter   50 value 244.257183
## iter   60 value 244.112691
## iter   70 value 244.112098
## final   value 244.112075
## converged
## Fitting Repeat 4
## 
## # weights:  17
## initial   value 606.004825
## iter   10 value 294.794666
## iter   20 value 247.193660
## iter   30 value 242.090907
## iter   40 value 242.017829
## iter   50 value 241.964767
## iter   60 value 241.851688
## iter   60 value 241.851686
## iter   60 value 241.851686
## final   value 241.851686
## converged
## Fitting Repeat 5
## 
## # weights:  17
## initial   value 545.290055
## iter   10 value 304.689681
## iter   20 value 263.756145
## iter   30 value 254.742312
## iter   40 value 252.352630
## iter   50 value 252.310352
## iter   50 value 252.310352
## iter   50 value 252.310352
## final   value 252.310352
## converged
## Fitting Repeat 1
## 
## # weights:  27
## initial   value 400.653287
## iter   10 value 316.623364
## iter   20 value 266.074141
## iter   30 value 249.346967
## iter   40 value 242.634269
## iter   50 value 241.116632
## iter   60 value 240.126513
## iter   70 value 236.804628
## iter   80 value 234.291169
## iter   90 value 234.197455
## final   value 234.197285
## converged
## Fitting Repeat 2
## 
## # weights:  27
```

```
## initial  value 469.427096
## iter  10 value 312.804611
## iter  20 value 270.573033
## iter  30 value 247.467603
## iter  40 value 243.387694
## iter  50 value 242.682042
## iter  60 value 242.103467
## iter  70 value 241.630595
## iter  80 value 239.799621
## iter  90 value 239.680891
## final  value 239.680523
## converged
## Fitting Repeat 3
##
## # weights:  27
## initial  value 548.868483
## iter  10 value 305.397439
## iter  20 value 261.706486
## iter  30 value 246.233694
## iter  40 value 240.812126
## iter  50 value 237.538588
## iter  60 value 234.943028
## iter  70 value 234.774150
## iter  80 value 234.740782
## iter  90 value 234.720209
## iter  90 value 234.720207
## iter  90 value 234.720207
## final  value 234.720207
## converged
## Fitting Repeat 4
##
## # weights:  27
## initial  value 480.088084
## iter  10 value 305.430521
## iter  20 value 253.107422
## iter  30 value 244.882683
## iter  40 value 242.473531
## iter  50 value 240.889581
## iter  60 value 239.220150
## iter  70 value 236.839913
## iter  80 value 235.475210
## iter  90 value 234.145125
## iter 100 value 234.067756
## final  value 234.067756
## stopped after 100 iterations
## Fitting Repeat 5
##
## # weights:  27
## initial  value 560.459020
## iter  10 value 307.391737
## iter  20 value 279.605923
## iter  30 value 259.785574
## iter  40 value 251.550756
## iter  50 value 247.419933
```

```
## iter   60 value 242.431651
## iter   70 value 239.513329
## iter   80 value 239.422591
## final   value 239.422086
## converged
## Fitting Repeat 1
##
## # weights:  7
## initial   value 721.135167
## iter   10 value 348.539174
## iter   20 value 348.027464
## iter   30 value 348.026749
## iter   40 value 348.025989
## iter   50 value 348.025141
## iter   60 value 348.024181
## iter   70 value 348.023108
## iter   80 value 342.117259
## iter   90 value 309.140871
## iter  100 value 273.754964
## final   value 273.754964
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  7
## initial   value 523.669111
## iter   10 value 348.300173
## iter   20 value 307.424258
## iter   30 value 300.508863
## iter   40 value 299.895727
## iter   50 value 294.978315
## iter   60 value 256.687130
## iter   70 value 252.082039
## iter   80 value 251.723134
## final   value 251.722249
## converged
## Fitting Repeat 3
##
## # weights:  7
## initial   value 734.530064
## iter   10 value 348.471560
## iter   20 value 348.026013
## iter   30 value 348.025595
## iter   40 value 348.025157
## iter   50 value 348.024697
## iter   60 value 348.024213
## iter   70 value 348.023699
## iter   80 value 348.023154
## iter   90 value 348.022569
## iter  100 value 348.021859
## final   value 348.021859
## stopped after 100 iterations
## Fitting Repeat 4
##
## # weights:  7
```

```
## initial  value 496.989910
## iter  10 value 348.294810
## iter  20 value 348.100634
## iter  30 value 348.097760
## iter  40 value 348.094051
## iter  50 value 348.088953
## iter  60 value 348.081275
## iter  70 value 348.067911
## iter  80 value 348.037403
## iter  90 value 347.888771
## iter 100 value 312.960653
## final  value 312.960653
## stopped after 100 iterations
## Fitting Repeat 5
##
## # weights:  7
## initial  value 671.172170
## iter  10 value 348.439298
## iter  20 value 347.991884
## iter  30 value 347.983266
## iter  40 value 347.968725
## iter  50 value 347.936932
## iter  60 value 347.791379
## iter  70 value 315.235889
## iter  80 value 299.881108
## iter  90 value 299.769876
## iter 100 value 275.960133
## final  value 275.960133
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  17
## initial  value 445.417166
## iter  10 value 348.367648
## iter  20 value 341.143388
## iter  30 value 304.822475
## iter  40 value 302.376697
## iter  50 value 301.599760
## iter  60 value 300.837379
## iter  70 value 299.251118
## iter  80 value 298.842260
## iter  90 value 298.748040
## iter 100 value 298.744679
## final  value 298.744679
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  17
## initial  value 650.277502
## iter  10 value 348.578074
## iter  20 value 343.991484
## iter  30 value 296.787834
## iter  40 value 288.743521
## iter  50 value 245.229982
```

```
## iter  60 value 239.857828
## iter  70 value 239.632748
## iter  80 value 239.625320
## iter  90 value 239.621293
## iter 100 value 239.588294
## final  value 239.588294
## stopped after 100 iterations
## Fitting Repeat 3
##
## # weights:  17
## initial  value 382.276038
## iter  10 value 348.410685
## iter  20 value 348.120555
## iter  30 value 348.077253
## iter  40 value 320.758071
## iter  50 value 309.140186
## iter  60 value 302.718554
## iter  70 value 277.924506
## iter  80 value 274.861077
## iter  90 value 267.977237
## iter 100 value 263.749639
## final  value 263.749639
## stopped after 100 iterations
## Fitting Repeat 4
##
## # weights:  17
## initial  value 405.489321
## iter  10 value 348.220391
## iter  20 value 347.224991
## iter  30 value 293.788034
## iter  40 value 271.279635
## iter  50 value 268.947393
## iter  60 value 262.164758
## iter  70 value 258.300436
## iter  80 value 257.446474
## iter  90 value 252.615271
## iter 100 value 249.404995
## final  value 249.404995
## stopped after 100 iterations
## Fitting Repeat 5
##
## # weights:  17
## initial  value 473.488138
## iter  10 value 348.240699
## iter  20 value 303.498675
## iter  30 value 290.585135
## iter  40 value 257.928362
## iter  50 value 256.193828
## iter  60 value 256.005261
## iter  70 value 255.957865
## iter  80 value 255.915357
## iter  90 value 255.501223
## iter 100 value 253.195889
## final  value 253.195889
```

```
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  27
## initial  value 663.127427
## iter  10 value 348.564361
## iter  20 value 347.259345
## iter  30 value 307.117930
## iter  40 value 305.300814
## iter  50 value 263.124440
## iter  60 value 253.294058
## iter  70 value 243.155921
## iter  80 value 241.551115
## iter  90 value 239.002996
## iter 100 value 238.822660
## final  value 238.822660
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  27
## initial  value 523.972600
## iter  10 value 348.544396
## iter  20 value 347.981241
## iter  30 value 310.547781
## iter  40 value 303.020054
## iter  50 value 298.677194
## iter  60 value 297.216418
## iter  70 value 294.061813
## iter  80 value 292.005945
## iter  90 value 290.589565
## iter 100 value 290.223145
## final  value 290.223145
## stopped after 100 iterations
## Fitting Repeat 3
##
## # weights:  27
## initial  value 581.478670
## iter  10 value 348.539555
## iter  20 value 328.058070
## iter  30 value 316.395112
## iter  40 value 297.786445
## iter  50 value 293.752121
## iter  60 value 292.573464
## iter  70 value 290.944639
## iter  80 value 290.796009
## iter  90 value 290.785410
## iter 100 value 290.773044
## final  value 290.773044
## stopped after 100 iterations
## Fitting Repeat 4
##
## # weights:  27
## initial  value 530.807942
## iter  10 value 348.366471
```

```
## iter  20 value 347.626657
## iter  30 value 306.583552
## iter  40 value 299.366362
## iter  50 value 296.845293
## iter  60 value 296.373233
## iter  70 value 295.148095
## iter  80 value 273.182009
## iter  90 value 265.832502
## iter 100 value 255.541443
## final  value 255.541443
## stopped after 100 iterations
## Fitting Repeat 5
##
## # weights:  27
## initial  value 515.176429
## iter  10 value 348.439666
## iter  20 value 339.945996
## iter  30 value 271.175973
## iter  40 value 256.043838
## iter  50 value 243.512137
## iter  60 value 238.931208
## iter  70 value 234.494733
## iter  80 value 233.327229
## iter  90 value 233.313170
## iter 100 value 233.274476
## final  value 233.274476
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  7
## initial  value 602.281007
## final  value 352.000000
## converged
## Fitting Repeat 2
##
## # weights:  7
## initial  value 556.059160
## final  value 352.000000
## converged
## Fitting Repeat 3
##
## # weights:  7
## initial  value 693.204096
## final  value 352.000000
## converged
## Fitting Repeat 4
##
## # weights:  7
## initial  value 547.125616
## final  value 352.000000
## converged
## Fitting Repeat 5
##
## # weights:  7
```

```
## initial  value 552.011670
## final  value 352.000000
## converged
## Fitting Repeat 1
##
## # weights:  17
## initial  value 567.683978
## final  value 352.000000
## converged
## Fitting Repeat 2
##
## # weights:  17
## initial  value 662.834510
## final  value 352.000000
## converged
## Fitting Repeat 3
##
## # weights:  17
## initial  value 562.645634
## final  value 352.000000
## converged
## Fitting Repeat 4
##
## # weights:  17
## initial  value 965.101175
## final  value 352.000000
## converged
## Fitting Repeat 5
##
## # weights:  17
## initial  value 519.455712
## final  value 352.000000
## converged
## Fitting Repeat 1
##
## # weights:  27
## initial  value 743.571513
## final  value 352.000000
## converged
## Fitting Repeat 2
##
## # weights:  27
## initial  value 694.567482
## final  value 352.000000
## converged
## Fitting Repeat 3
##
## # weights:  27
## initial  value 585.287486
## final  value 352.000000
## converged
## Fitting Repeat 4
##
## # weights:  27
```

```
## initial  value 556.972162
## final  value 352.000000
## converged
## Fitting Repeat 5
##
## # weights:  27
## initial  value 454.201679
## final  value 352.000000
## converged
## Fitting Repeat 1
##
## # weights:  7
## initial  value 474.271198
## iter  10 value 285.039747
## iter  20 value 282.485167
## final  value 282.482614
## converged
## Fitting Repeat 2
##
## # weights:  7
## initial  value 506.282493
## iter  10 value 280.413314
## iter  20 value 263.542213
## iter  30 value 258.439003
## iter  40 value 257.649191
## iter  40 value 257.649191
## final  value 257.649191
## converged
## Fitting Repeat 3
##
## # weights:  7
## initial  value 539.267012
## iter  10 value 286.092106
## iter  20 value 282.482690
## final  value 282.482613
## converged
## Fitting Repeat 4
##
## # weights:  7
## initial  value 497.684973
## iter  10 value 313.433679
## iter  20 value 263.937961
## iter  30 value 257.721411
## iter  40 value 257.649205
## final  value 257.649190
## converged
## Fitting Repeat 5
##
## # weights:  7
## initial  value 579.230108
## iter  10 value 288.785616
## iter  20 value 282.482813
## final  value 282.482613
## converged
```

```
## Fitting Repeat 1
##
## # weights:  17
## initial   value 944.497840
## iter   10 value 268.857000
## iter   20 value 255.845232
## iter   30 value 251.194798
## iter   40 value 248.373746
## iter   50 value 246.326500
## iter   60 value 245.585011
## iter   70 value 244.656037
## final   value 244.654390
## converged
## Fitting Repeat 2
##
## # weights:  17
## initial   value 394.800199
## iter   10 value 308.111510
## iter   20 value 259.710568
## iter   30 value 249.690040
## iter   40 value 248.384757
## iter   50 value 247.903869
## iter   60 value 247.863069
## final   value 247.863060
## converged
## Fitting Repeat 3
##
## # weights:  17
## initial   value 496.193352
## iter   10 value 318.436664
## iter   20 value 283.742892
## iter   30 value 274.958735
## iter   40 value 264.002101
## iter   50 value 248.033131
## iter   60 value 246.115443
## iter   70 value 245.144310
## final   value 245.113308
## converged
## Fitting Repeat 4
##
## # weights:  17
## initial   value 469.504901
## iter   10 value 313.675578
## iter   20 value 256.691246
## iter   30 value 250.234008
## iter   40 value 248.949949
## final   value 248.925966
## converged
## Fitting Repeat 5
##
## # weights:  17
## initial   value 450.918782
## iter   10 value 310.660016
## iter   20 value 264.148322
```

```
## iter  30 value 251.167753
## iter  40 value 249.169113
## iter  50 value 249.125583
## iter  60 value 248.828713
## iter  70 value 245.398274
## iter  80 value 245.341493
## final   value 245.341073
## converged
## Fitting Repeat 1
##
## # weights:  27
## initial  value 671.889681
## iter  10 value 348.844634
## iter  20 value 256.931761
## iter  30 value 247.644387
## iter  40 value 243.906049
## iter  50 value 243.319843
## final   value 243.319180
## converged
## Fitting Repeat 2
##
## # weights:  27
## initial  value 389.637634
## iter  10 value 310.898289
## iter  20 value 297.534755
## iter  30 value 251.420017
## iter  40 value 244.053977
## iter  50 value 242.574046
## iter  60 value 242.254802
## iter  70 value 241.339034
## iter  80 value 241.254391
## iter  90 value 241.126583
## iter 100 value 241.042963
## final   value 241.042963
## stopped after 100 iterations
## Fitting Repeat 3
##
## # weights:  27
## initial  value 620.241811
## iter  10 value 311.441964
## iter  20 value 257.001768
## iter  30 value 247.858902
## iter  40 value 244.738987
## iter  50 value 242.825602
## iter  60 value 242.251693
## iter  70 value 242.198033
## iter  70 value 242.198033
## iter  70 value 242.198033
## final   value 242.198033
## converged
## Fitting Repeat 4
##
## # weights:  27
## initial  value 641.754330
```

```
## iter  10 value 274.114895
## iter  20 value 254.136092
## iter  30 value 246.013410
## iter  40 value 245.074905
## iter  50 value 243.489326
## iter  60 value 239.772120
## iter  70 value 231.372440
## iter  80 value 220.369806
## iter  90 value 214.972475
## iter 100 value 214.656756
## final  value 214.656756
## stopped after 100 iterations
## Fitting Repeat 5
##
## # weights:  27
## initial  value 572.530699
## iter  10 value 333.279741
## iter  20 value 271.372108
## iter  30 value 255.055253
## iter  40 value 248.385538
## iter  50 value 246.546561
## iter  60 value 246.245566
## iter  70 value 245.039814
## iter  80 value 243.673104
## iter  90 value 243.379131
## final  value 243.379109
## converged
## Fitting Repeat 1
##
## # weights:  7
## initial  value 346.731279
## iter  10 value 280.524183
## iter  20 value 276.993460
## iter  30 value 270.167800
## iter  40 value 264.417262
## iter  50 value 260.479557
## iter  60 value 258.365764
## iter  70 value 258.289411
## final  value 258.160694
## converged
## Fitting Repeat 2
##
## # weights:  7
## initial  value 550.773837
## iter  10 value 352.316751
## iter  20 value 332.358076
## iter  30 value 307.445268
## iter  40 value 305.451608
## iter  50 value 304.047573
## final  value 304.001496
## converged
## Fitting Repeat 3
##
## # weights:  7
```

```
## initial  value 418.184562
## iter  10 value 352.149811
## iter  20 value 352.035088
## iter  30 value 352.034739
## iter  40 value 352.034378
## iter  50 value 352.034004
## iter  60 value 352.033616
## iter  70 value 352.033212
## iter  80 value 352.032790
## iter  90 value 352.032348
## iter 100 value 352.031883
## final  value 352.031883
## stopped after 100 iterations
## Fitting Repeat 4
##
## # weights:  7
## initial  value 782.137156
## iter  10 value 352.511255
## iter  20 value 352.033183
## iter  30 value 352.032964
## iter  40 value 352.032742
## iter  50 value 352.032519
## iter  60 value 352.032293
## iter  70 value 352.032065
## iter  80 value 352.031834
## iter  90 value 352.031601
## iter 100 value 352.031364
## final  value 352.031364
## stopped after 100 iterations
## Fitting Repeat 5
##
## # weights:  7
## initial  value 795.468532
## iter  10 value 352.520105
## iter  20 value 352.012502
## iter  30 value 351.808841
## iter  40 value 316.223743
## iter  50 value 309.246204
## iter  60 value 304.832481
## iter  70 value 273.260914
## iter  80 value 262.591193
## iter  90 value 258.329169
## iter 100 value 255.986224
## final  value 255.986224
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  17
## initial  value 759.745045
## iter  10 value 352.850444
## iter  20 value 352.033510
## iter  30 value 313.358145
## iter  40 value 310.615931
## iter  50 value 295.586042
```

```
## iter  60 value 281.223043
## iter  70 value 266.872728
## iter  80 value 266.548859
## iter  90 value 266.390245
## iter 100 value 266.373217
## final   value 266.373217
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  17
## initial   value 460.229644
## iter  10 value 352.292731
## iter  20 value 352.039323
## iter  30 value 324.330163
## iter  40 value 310.616930
## iter  50 value 299.617169
## iter  60 value 298.195368
## iter  70 value 295.930089
## iter  80 value 294.982723
## iter  90 value 294.157873
## iter 100 value 294.111059
## final   value 294.111059
## stopped after 100 iterations
## Fitting Repeat 3
##
## # weights:  17
## initial   value 465.477437
## iter  10 value 352.383618
## iter  20 value 351.861263
## iter  30 value 309.928658
## iter  40 value 296.683104
## iter  50 value 254.687467
## iter  60 value 251.608156
## iter  70 value 250.528646
## iter  80 value 249.695038
## iter  90 value 241.665172
## iter 100 value 241.329711
## final   value 241.329711
## stopped after 100 iterations
## Fitting Repeat 4
##
## # weights:  17
## initial   value 777.665748
## iter  10 value 352.612307
## iter  20 value 352.028254
## iter  30 value 321.503688
## iter  40 value 320.354177
## iter  50 value 312.114962
## iter  60 value 310.890083
## iter  70 value 308.124877
## iter  80 value 296.561686
## iter  90 value 269.292926
## iter 100 value 268.914892
## final   value 268.914892
```

```
## stopped after 100 iterations
## Fitting Repeat 5
##
## # weights:  17
## initial   value 548.906066
## iter  10 value 351.524500
## iter  20 value 321.521011
## iter  30 value 309.892111
## iter  40 value 306.390032
## iter  50 value 305.473996
## iter  60 value 304.216968
## iter  70 value 304.202977
## iter  80 value 303.997722
## iter  90 value 303.965461
## iter 100 value 303.920694
## final   value 303.920694
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  27
## initial   value 595.658910
## iter  10 value 352.482708
## iter  20 value 352.000265
## iter  30 value 333.542133
## iter  40 value 310.421694
## iter  50 value 308.790482
## iter  60 value 302.898442
## iter  70 value 263.338396
## iter  80 value 257.716227
## iter  90 value 252.341419
## iter 100 value 250.430214
## final   value 250.430214
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  27
## initial   value 707.614662
## iter  10 value 352.798872
## iter  20 value 352.009586
## iter  30 value 330.591935
## iter  40 value 308.896230
## iter  50 value 300.109166
## iter  60 value 296.497626
## iter  70 value 295.768811
## iter  80 value 249.842955
## iter  90 value 247.449893
## iter 100 value 239.167106
## final   value 239.167106
## stopped after 100 iterations
## Fitting Repeat 3
##
## # weights:  27
## initial   value 429.387478
## iter  10 value 352.494477
```

```
## iter  20 value 318.001028
## iter  30 value 289.097188
## iter  40 value 285.072395
## iter  50 value 268.525561
## iter  60 value 259.236821
## iter  70 value 255.055385
## iter  80 value 247.788467
## iter  90 value 245.580699
## iter 100 value 245.306367
## final  value 245.306367
## stopped after 100 iterations
## Fitting Repeat 4
##
## # weights:  27
## initial  value 384.806662
## iter  10 value 352.242432
## iter  20 value 351.495612
## iter  30 value 310.925363
## iter  40 value 310.330847
## iter  50 value 309.345804
## iter  60 value 308.919625
## iter  70 value 306.248797
## iter  80 value 305.340283
## iter  90 value 305.072885
## iter 100 value 304.900502
## final  value 304.900502
## stopped after 100 iterations
## Fitting Repeat 5
##
## # weights:  27
## initial  value 509.595016
## iter  10 value 352.481717
## iter  20 value 320.279407
## iter  30 value 278.582237
## iter  40 value 266.904984
## iter  50 value 265.295331
## iter  60 value 264.400062
## iter  70 value 262.949049
## iter  80 value 262.399418
## iter  90 value 262.316562
## iter 100 value 261.983008
## final  value 261.983008
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  7
## initial  value 524.981980
## final  value 318.000000
## converged
## Fitting Repeat 2
##
## # weights:  7
## initial  value 512.436308
## final  value 318.000000
```

```
## converged
## Fitting Repeat 3
##
## # weights:  7
## initial  value 628.059197
## final  value 318.000000
## converged
## Fitting Repeat 4
##
## # weights:  7
## initial  value 542.772832
## final  value 318.000000
## converged
## Fitting Repeat 5
##
## # weights:  7
## initial  value 445.970756
## final  value 318.000000
## converged
## Fitting Repeat 1
##
## # weights:  17
## initial  value 351.921762
## final  value 318.000000
## converged
## Fitting Repeat 2
##
## # weights:  17
## initial  value 421.441261
## final  value 318.000000
## converged
## Fitting Repeat 3
##
## # weights:  17
## initial  value 631.862251
## final  value 318.000000
## converged
## Fitting Repeat 4
##
## # weights:  17
## initial  value 415.487117
## final  value 318.000000
## converged
## Fitting Repeat 5
##
## # weights:  17
## initial  value 589.819059
## final  value 318.000000
## converged
## Fitting Repeat 1
##
## # weights:  27
## initial  value 285.732854
## iter  10 value 235.256823
```

```
## iter  20 value 225.650225
## iter  30 value 218.891359
## iter  40 value 199.289706
## iter  50 value 197.739601
## iter  60 value 197.500011
## iter  70 value 197.478011
## iter  80 value 197.424360
## iter  90 value 197.400326
## iter 100 value 197.391173
## final  value 197.391173
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  27
## initial  value 503.057475
## final  value 318.000000
## converged
## Fitting Repeat 3
##
## # weights:  27
## initial  value 471.641720
## final  value 318.000000
## converged
## Fitting Repeat 4
##
## # weights:  27
## initial  value 510.431631
## final  value 318.000000
## converged
## Fitting Repeat 5
##
## # weights:  27
## initial  value 479.946195
## final  value 318.000000
## converged
## Fitting Repeat 1
##
## # weights:  7
## initial  value 399.980032
## iter  10 value 267.479663
## iter  20 value 251.291974
## iter  30 value 248.317524
## iter  40 value 248.291669
## iter  50 value 245.666490
## iter  60 value 239.177329
## final  value 238.893782
## converged
## Fitting Repeat 2
##
## # weights:  7
## initial  value 416.488639
## iter  10 value 303.771628
## iter  20 value 284.540641
## iter  30 value 248.555290
```

```
## iter  40 value 245.148681
## final  value 244.942277
## converged
## Fitting Repeat 3
##
## # weights:  7
## initial  value 557.239494
## iter  10 value 267.295857
## iter  20 value 248.419536
## iter  30 value 247.768637
## iter  40 value 243.639373
## iter  50 value 238.897896
## final  value 238.893779
## converged
## Fitting Repeat 4
##
## # weights:  7
## initial  value 525.287409
## iter  10 value 292.489355
## iter  20 value 252.382345
## iter  30 value 243.776022
## final  value 243.769341
## converged
## Fitting Repeat 5
##
## # weights:  7
## initial  value 508.708344
## iter  10 value 270.545179
## iter  20 value 253.525992
## iter  30 value 243.930324
## iter  40 value 243.769406
## final  value 243.769343
## converged
## Fitting Repeat 1
##
## # weights:  17
## initial  value 603.004017
## iter  10 value 297.500506
## iter  20 value 292.408432
## iter  30 value 263.475890
## iter  40 value 245.524665
## iter  50 value 236.806857
## iter  60 value 231.159511
## iter  70 value 230.552561
## iter  80 value 230.544874
## iter  90 value 229.427838
## iter 100 value 228.063329
## final  value 228.063329
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  17
## initial  value 392.018966
## iter  10 value 285.011968
```

```
## iter   20 value 235.029564
## iter   30 value 229.766703
## iter   40 value 225.439525
## iter   50 value 223.029272
## iter   60 value 220.303221
## iter   70 value 220.017856
## final   value 220.017825
## converged
## Fitting Repeat 3
##
## # weights:  17
## initial   value 377.257810
## iter   10 value 269.617805
## iter   20 value 238.852019
## iter   30 value 234.914711
## iter   40 value 233.344940
## final   value 233.268786
## converged
## Fitting Repeat 4
##
## # weights:  17
## initial   value 416.136238
## iter   10 value 285.829729
## iter   20 value 246.798837
## iter   30 value 234.995083
## iter   40 value 230.858158
## iter   50 value 230.377753
## iter   60 value 230.367452
## final   value 230.367219
## converged
## Fitting Repeat 5
##
## # weights:  17
## initial   value 532.093515
## iter   10 value 283.027265
## iter   20 value 233.376944
## iter   30 value 229.634050
## iter   40 value 228.928374
## final   value 228.921116
## converged
## Fitting Repeat 1
##
## # weights:  27
## initial   value 427.937239
## iter   10 value 282.552891
## iter   20 value 245.189926
## iter   30 value 236.173098
## iter   40 value 228.005059
## iter   50 value 226.325821
## iter   60 value 225.418716
## iter   70 value 224.534571
## iter   80 value 224.490209
## final   value 224.490146
## converged
```

```
## Fitting Repeat 2
##
## # weights:  27
## initial   value 704.919700
## iter   10 value 315.040850
## iter   20 value 258.576960
## iter   30 value 236.685520
## iter   40 value 231.544388
## iter   50 value 228.767500
## iter   60 value 228.726757
## iter   60 value 228.726755
## iter   60 value 228.726755
## final   value 228.726755
## converged
## Fitting Repeat 3
##
## # weights:  27
## initial   value 302.469619
## iter   10 value 239.888468
## iter   20 value 231.504945
## iter   30 value 229.449393
## iter   40 value 228.573505
## iter   50 value 226.887701
## iter   60 value 221.607904
## iter   70 value 219.500403
## iter   80 value 216.273795
## iter   90 value 201.904990
## iter  100 value 201.699615
## final   value 201.699615
## stopped after 100 iterations
## Fitting Repeat 4
##
## # weights:  27
## initial   value 646.220675
## iter   10 value 296.450326
## iter   20 value 268.697810
## iter   30 value 240.103699
## iter   40 value 232.431837
## iter   50 value 229.291993
## iter   60 value 227.893319
## iter   70 value 227.193814
## iter   80 value 224.368917
## iter   90 value 220.084982
## iter  100 value 218.841600
## final   value 218.841600
## stopped after 100 iterations
## Fitting Repeat 5
##
## # weights:  27
## initial   value 530.875346
## iter   10 value 299.303953
## iter   20 value 258.334196
## iter   30 value 243.457206
## iter   40 value 240.605211
```

```
## iter   50 value 231.256683
## iter   60 value 227.923391
## iter   70 value 227.719350
## iter   80 value 227.079650
## iter   90 value 226.412549
## final   value 226.411284
## converged
## Fitting Repeat 1
##
## # weights:  7
## initial   value 499.902265
## iter   10 value 318.267789
## iter   20 value 297.821132
## iter   30 value 288.218792
## iter   40 value 284.412606
## iter   50 value 282.295734
## iter   60 value 282.050350
## iter   70 value 282.045511
## iter   80 value 246.339465
## iter   90 value 245.960219
## final   value 245.959904
## converged
## Fitting Repeat 2
##
## # weights:  7
## initial   value 721.038374
## iter   10 value 318.535480
## iter   20 value 318.034232
## iter   30 value 308.538382
## iter   40 value 250.519112
## iter   50 value 246.388855
## iter   60 value 246.173051
## iter   70 value 245.943061
## iter   70 value 245.943061
## iter   70 value 245.943061
## final   value 245.943061
## converged
## Fitting Repeat 3
##
## # weights:  7
## initial   value 618.152755
## iter   10 value 318.306298
## iter   20 value 318.062566
## iter   30 value 318.059876
## iter   40 value 318.056423
## iter   50 value 318.051759
## iter   60 value 318.044836
## iter   70 value 318.033058
## iter   80 value 318.007660
## iter   90 value 317.908462
## iter  100 value 290.106730
## final   value 290.106730
## stopped after 100 iterations
## Fitting Repeat 4
```

```
##
## # weights:  7
## initial   value 603.828036
## iter  10 value 318.377599
## iter  20 value 317.977943
## iter  30 value 317.916059
## iter  40 value 313.956862
## iter  50 value 281.345590
## iter  60 value 277.180424
## iter  70 value 275.021319
## iter  80 value 274.968857
## iter  90 value 245.050130
## iter 100 value 231.991313
## final   value 231.991313
## stopped after 100 iterations
## Fitting Repeat 5
##
## # weights:  7
## initial   value 502.345570
## iter  10 value 318.300593
## iter  20 value 318.019962
## iter  30 value 318.018939
## iter  40 value 318.017835
## iter  50 value 318.016590
## iter  60 value 318.015143
## iter  70 value 318.013420
## iter  80 value 318.011293
## iter  90 value 318.008316
## iter 100 value 318.003403
## final   value 318.003403
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  17
## initial   value 395.681130
## iter  10 value 318.202495
## iter  20 value 302.206013
## iter  30 value 280.176505
## iter  40 value 272.309482
## iter  50 value 270.865169
## iter  60 value 270.537107
## iter  70 value 267.114999
## iter  80 value 233.604513
## iter  90 value 233.051784
## iter 100 value 223.993599
## final   value 223.993599
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  17
## initial   value 611.135111
## iter  10 value 318.388537
## iter  20 value 299.560256
## iter  30 value 286.790907
```

```
## iter   40 value 286.104577
## iter   50 value 283.342680
## iter   60 value 282.848602
## iter   70 value 282.734102
## iter   80 value 282.705605
## iter   90 value 282.701920
## iter  100 value 261.423340
## final   value 261.423340
## stopped after 100 iterations
## Fitting Repeat 3
##
## # weights:  17
## initial   value 569.786908
## iter   10 value 318.399602
## iter   20 value 310.144845
## iter   30 value 276.652817
## iter   40 value 270.257792
## iter   50 value 268.106110
## iter   60 value 268.038014
## iter   70 value 267.855358
## iter   80 value 267.838074
## iter   90 value 267.801156
## iter  100 value 267.760825
## final   value 267.760825
## stopped after 100 iterations
## Fitting Repeat 4
##
## # weights:  17
## initial   value 641.904534
## iter   10 value 318.638261
## iter   20 value 318.008515
## iter   30 value 318.000246
## iter   40 value 316.694216
## iter   50 value 287.542154
## iter   60 value 284.232774
## iter   70 value 279.810161
## iter   80 value 276.871025
## iter   90 value 274.273247
## iter  100 value 272.451809
## final   value 272.451809
## stopped after 100 iterations
## Fitting Repeat 5
##
## # weights:  17
## initial   value 692.971876
## iter   10 value 318.449976
## iter   20 value 317.934908
## iter   30 value 316.904360
## iter   40 value 284.258492
## iter   50 value 277.118936
## iter   60 value 271.306039
## iter   70 value 266.819941
## iter   80 value 265.485866
## iter   90 value 264.619567
```

```
## iter 100 value 263.174803
## final  value 263.174803
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  27
## initial  value 360.410272
## iter  10 value 318.214762
## iter  20 value 255.758941
## iter  30 value 239.615488
## iter  40 value 226.210851
## iter  50 value 221.677413
## iter  60 value 219.811300
## iter  70 value 219.661907
## iter  80 value 219.646966
## iter  90 value 219.563393
## iter 100 value 219.396621
## final  value 219.396621
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  27
## initial  value 570.948865
## iter  10 value 318.459848
## iter  20 value 317.663064
## iter  30 value 292.445935
## iter  40 value 276.972356
## iter  50 value 273.239570
## iter  60 value 271.840795
## iter  70 value 270.626960
## iter  80 value 270.313937
## iter  90 value 269.931066
## iter 100 value 267.768077
## final  value 267.768077
## stopped after 100 iterations
## Fitting Repeat 3
##
## # weights:  27
## initial  value 560.109410
## iter  10 value 318.550912
## iter  20 value 317.896389
## iter  30 value 313.103006
## iter  40 value 311.362052
## iter  50 value 290.705446
## iter  60 value 275.191082
## iter  70 value 269.282130
## iter  80 value 266.873368
## iter  90 value 264.893151
## iter 100 value 264.826883
## final  value 264.826883
## stopped after 100 iterations
## Fitting Repeat 4
##
## # weights:  27
```

```
## initial  value 444.608475
## iter  10 value 318.439549
## iter  20 value 287.628683
## iter  30 value 249.291291
## iter  40 value 228.376837
## iter  50 value 215.594060
## iter  60 value 212.789260
## iter  70 value 210.275496
## iter  80 value 209.754368
## iter  90 value 209.706852
## iter 100 value 209.673421
## final  value 209.673421
## stopped after 100 iterations
## Fitting Repeat 5
##
## # weights:  27
## initial  value 495.511564
## iter  10 value 318.574793
## iter  20 value 317.982218
## iter  30 value 308.701081
## iter  40 value 284.351976
## iter  50 value 264.212159
## iter  60 value 257.116972
## iter  70 value 250.234900
## iter  80 value 243.190652
## iter  90 value 238.537948
## iter 100 value 237.700344
## final  value 237.700344
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  7
## initial  value 459.645156
## final  value 326.000000
## converged
## Fitting Repeat 2
##
## # weights:  7
## initial  value 490.706614
## final  value 326.000000
## converged
## Fitting Repeat 3
##
## # weights:  7
## initial  value 460.411442
## final  value 326.000000
## converged
## Fitting Repeat 4
##
## # weights:  7
## initial  value 630.813518
## final  value 326.000000
## converged
## Fitting Repeat 5
```

```
##
## # weights:  7
## initial  value 598.320446
## final  value 326.000000
## converged
## Fitting Repeat 1
##
## # weights:  17
## initial  value 515.203984
## final  value 326.000000
## converged
## Fitting Repeat 2
##
## # weights:  17
## initial  value 391.338725
## final  value 326.000000
## converged
## Fitting Repeat 3
##
## # weights:  17
## initial  value 531.194633
## final  value 326.000000
## converged
## Fitting Repeat 4
##
## # weights:  17
## initial  value 1008.811449
## final  value 326.000000
## converged
## Fitting Repeat 5
##
## # weights:  17
## initial  value 323.512699
## iter  10 value 276.109837
## iter  20 value 255.698713
## iter  30 value 254.646640
## iter  40 value 253.880921
## iter  50 value 252.257472
## iter  60 value 249.941575
## iter  70 value 249.392198
## iter  80 value 249.349059
## iter  90 value 249.283074
## iter 100 value 249.264512
## final  value 249.264512
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  27
## initial  value 784.739369
## final  value 326.000000
## converged
## Fitting Repeat 2
##
## # weights:  27
```

```
## initial  value 754.096235
## final  value 326.000000
## converged
## Fitting Repeat 3
##
## # weights:  27
## initial  value 608.986585
## final  value 326.000000
## converged
## Fitting Repeat 4
##
## # weights:  27
## initial  value 372.775275
## iter  10 value 301.998386
## iter  20 value 301.903907
## iter  30 value 301.379018
## iter  40 value 301.284234
## iter  50 value 300.411169
## final  value 300.332698
## converged
## Fitting Repeat 5
##
## # weights:  27
## initial  value 306.180512
## iter  10 value 278.645410
## iter  20 value 242.883450
## iter  30 value 229.906401
## iter  40 value 227.161801
## iter  50 value 224.728265
## iter  60 value 220.839356
## iter  70 value 219.505781
## iter  80 value 218.513438
## iter  90 value 218.390444
## final  value 218.377688
## converged
## Fitting Repeat 1
##
## # weights:  7
## initial  value 499.478011
## iter  10 value 262.522249
## iter  20 value 258.338049
## iter  30 value 258.278123
## iter  30 value 258.278123
## iter  30 value 258.278123
## final  value 258.278123
## converged
## Fitting Repeat 2
##
## # weights:  7
## initial  value 495.935490
## iter  10 value 262.397818
## iter  20 value 255.775603
## final  value 255.774667
## converged
```

```
## Fitting Repeat 3
##
## # weights:  7
## initial   value 740.986738
## iter  10 value 297.360324
## iter  20 value 254.626826
## iter  30 value 247.867568
## iter  40 value 243.971664
## iter  50 value 242.779452
## iter  60 value 242.059674
## iter  60 value 242.059672
## iter  60 value 242.059672
## final   value 242.059672
## converged
## Fitting Repeat 4
##
## # weights:  7
## initial   value 441.676666
## iter  10 value 289.324394
## iter  20 value 261.032918
## iter  30 value 243.249833
## final   value 243.241279
## converged
## Fitting Repeat 5
##
## # weights:  7
## initial   value 653.673946
## iter  10 value 267.760525
## iter  20 value 248.035326
## final   value 247.880819
## converged
## Fitting Repeat 1
##
## # weights:  17
## initial   value 421.352270
## iter  10 value 288.172501
## iter  20 value 259.703235
## iter  30 value 239.069513
## iter  40 value 229.013716
## iter  50 value 228.397531
## iter  60 value 228.137013
## iter  70 value 228.132752
## final   value 228.132121
## converged
## Fitting Repeat 2
##
## # weights:  17
## initial   value 641.217727
## iter  10 value 280.589214
## iter  20 value 259.179520
## iter  30 value 249.956358
## iter  40 value 233.181152
## iter  50 value 232.130642
## iter  60 value 231.842297
```

```
## iter  70 value 231.794196
## final  value 231.794064
## converged
## Fitting Repeat 3
##
## # weights:  17
## initial  value 346.170081
## iter  10 value 260.932172
## iter  20 value 242.525094
## iter  30 value 237.136447
## iter  40 value 235.564892
## iter  50 value 233.857138
## iter  60 value 230.643743
## iter  70 value 230.099326
## final  value 230.099289
## converged
## Fitting Repeat 4
##
## # weights:  17
## initial  value 542.943995
## iter  10 value 330.014694
## iter  20 value 293.269752
## iter  30 value 248.383619
## iter  40 value 232.700737
## iter  50 value 229.355461
## iter  60 value 229.110327
## iter  70 value 227.340828
## iter  80 value 226.566808
## final  value 226.566018
## converged
## Fitting Repeat 5
##
## # weights:  17
## initial  value 300.633149
## iter  10 value 239.934317
## iter  20 value 231.382918
## iter  30 value 228.886128
## iter  40 value 228.673483
## iter  50 value 228.636577
## iter  60 value 228.636202
## iter  60 value 228.636201
## iter  60 value 228.636201
## final  value 228.636201
## converged
## Fitting Repeat 1
##
## # weights:  27
## initial  value 483.228911
## iter  10 value 287.881390
## iter  20 value 239.373946
## iter  30 value 228.939808
## iter  40 value 217.679313
## iter  50 value 210.433131
## iter  60 value 205.816132
```

```
## iter  70 value 205.461745
## iter  80 value 205.366206
## iter  90 value 203.716747
## iter 100 value 202.956608
## final   value 202.956608
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  27
## initial  value 298.681784
## iter  10 value 236.221003
## iter  20 value 227.676212
## iter  30 value 225.472193
## iter  40 value 225.242215
## iter  50 value 224.923301
## iter  60 value 224.227362
## iter  70 value 224.132266
## iter  80 value 224.056732
## final   value 224.050687
## converged
## Fitting Repeat 3
##
## # weights:  27
## initial  value 416.371523
## iter  10 value 315.147801
## iter  20 value 279.763568
## iter  30 value 237.264494
## iter  40 value 228.099597
## iter  50 value 227.370310
## iter  60 value 227.297799
## final   value 227.297787
## converged
## Fitting Repeat 4
##
## # weights:  27
## initial  value 384.376350
## iter  10 value 291.713368
## iter  20 value 264.459184
## iter  30 value 236.349085
## iter  40 value 230.232148
## iter  50 value 228.632824
## iter  60 value 228.552258
## iter  70 value 228.355608
## iter  80 value 228.309710
## iter  90 value 227.346680
## iter 100 value 225.325412
## final   value 225.325412
## stopped after 100 iterations
## Fitting Repeat 5
##
## # weights:  27
## initial  value 564.703051
## iter  10 value 303.648131
## iter  20 value 265.334780
```

```
## iter   30 value 243.622630
## iter   40 value 232.317263
## iter   50 value 227.249858
## iter   60 value 227.011323
## iter   70 value 226.948407
## iter   80 value 226.923898
## iter   90 value 226.862191
## iter  100 value 226.303869
## final   value 226.303869
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  7
## initial   value 625.114150
## iter   10 value 326.361773
## iter   20 value 294.289920
## iter   30 value 287.633186
## iter   40 value 281.628171
## iter   50 value 250.532587
## iter   60 value 250.090123
## iter   70 value 249.833875
## iter   80 value 249.806320
## iter   90 value 249.782265
## iter  100 value 249.767191
## final   value 249.767191
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  7
## initial   value 621.149639
## iter   10 value 326.439409
## iter   20 value 320.162541
## iter   30 value 289.862472
## iter   40 value 258.796171
## iter   50 value 255.445288
## iter   60 value 254.967714
## iter   70 value 252.224896
## iter   80 value 250.373855
## iter   90 value 250.357751
## final   value 250.305721
## converged
## Fitting Repeat 3
##
## # weights:  7
## initial   value 610.189266
## iter   10 value 326.355367
## iter   20 value 325.996984
## iter   30 value 325.981216
## iter   40 value 325.940004
## iter   50 value 325.587169
## iter   60 value 297.779691
## iter   70 value 287.854468
## iter   80 value 287.452390
## iter   90 value 287.394086
```

```
## iter 100 value 283.403364
## final  value 283.403364
## stopped after 100 iterations
## Fitting Repeat 4
##
## # weights:  7
## initial  value 577.031993
## iter  10 value 326.313231
## iter  20 value 320.117395
## iter  30 value 296.328503
## iter  40 value 296.243178
## iter  50 value 296.218886
## iter  60 value 296.201652
## iter  70 value 296.178672
## iter  80 value 296.172145
## iter  90 value 296.169692
## iter 100 value 296.154173
## final  value 296.154173
## stopped after 100 iterations
## Fitting Repeat 5
##
## # weights:  7
## initial  value 483.742763
## iter  10 value 326.281623
## iter  20 value 326.026390
## iter  30 value 295.744057
## iter  40 value 260.439772
## iter  50 value 258.466761
## iter  60 value 256.432409
## iter  70 value 256.187109
## iter  80 value 256.133254
## iter  90 value 256.086030
## final  value 256.085454
## converged
## Fitting Repeat 1
##
## # weights:  17
## initial  value 367.276968
## iter  10 value 326.193510
## iter  20 value 286.956835
## iter  30 value 278.582239
## iter  40 value 277.723771
## iter  50 value 277.566685
## iter  60 value 237.784113
## iter  70 value 234.856696
## iter  80 value 234.121915
## iter  90 value 232.405177
## iter 100 value 231.488842
## final  value 231.488842
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  17
## initial  value 428.141453
```

```
## iter  10 value 326.354149
## iter  20 value 325.901878
## iter  30 value 319.128659
## iter  40 value 294.246902
## iter  50 value 291.210517
## iter  60 value 284.017969
## iter  70 value 267.203813
## iter  80 value 234.051013
## iter  90 value 226.036040
## iter 100 value 221.692820
## final  value 221.692820
## stopped after 100 iterations
## Fitting Repeat 3
##
## # weights:  17
## initial  value 511.969994
## iter  10 value 326.594801
## iter  20 value 295.991293
## iter  30 value 251.792754
## iter  40 value 227.521878
## iter  50 value 225.709962
## iter  60 value 224.609334
## iter  70 value 224.548447
## iter  80 value 224.360744
## iter  90 value 224.346820
## final  value 224.333902
## converged
## Fitting Repeat 4
##
## # weights:  17
## initial  value 485.030322
## iter  10 value 326.128895
## iter  20 value 290.427324
## iter  30 value 282.725243
## iter  40 value 281.017499
## iter  50 value 280.466698
## iter  60 value 280.392793
## iter  70 value 279.966404
## iter  80 value 278.247774
## iter  90 value 278.232384
## iter 100 value 278.172824
## final  value 278.172824
## stopped after 100 iterations
## Fitting Repeat 5
##
## # weights:  17
## initial  value 437.983530
## iter  10 value 326.338231
## iter  20 value 325.963019
## iter  30 value 325.569148
## iter  40 value 298.950756
## iter  50 value 280.893311
## iter  60 value 278.652022
## iter  70 value 278.294982
```

```
## iter  80 value 277.548326
## iter  90 value 277.496633
## iter 100 value 277.323200
## final   value 277.323200
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  27
## initial   value 562.657773
## iter  10 value 326.659722
## iter  20 value 325.346038
## iter  30 value 285.855657
## iter  40 value 282.559229
## iter  50 value 275.896169
## iter  60 value 275.405357
## iter  70 value 274.963841
## iter  80 value 252.301519
## iter  90 value 238.609444
## iter 100 value 231.302698
## final   value 231.302698
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  27
## initial   value 823.292641
## iter  10 value 326.964320
## iter  20 value 326.013632
## iter  30 value 325.606004
## iter  40 value 270.483436
## iter  50 value 253.780774
## iter  60 value 245.438778
## iter  70 value 241.897900
## iter  80 value 235.962413
## iter  90 value 234.819582
## iter 100 value 232.202802
## final   value 232.202802
## stopped after 100 iterations
## Fitting Repeat 3
##
## # weights:  27
## initial   value 603.492922
## iter  10 value 325.883623
## iter  20 value 296.569047
## iter  30 value 289.567150
## iter  40 value 287.702801
## iter  50 value 286.486482
## iter  60 value 285.944659
## iter  70 value 285.867536
## iter  80 value 285.533814
## iter  90 value 285.032282
## iter 100 value 284.858184
## final   value 284.858184
## stopped after 100 iterations
## Fitting Repeat 4
```

```
##
## # weights:  27
## initial   value 685.830861
## iter   10 value 326.465229
## iter   20 value 326.031635
## iter   30 value 284.797024
## iter   40 value 278.316320
## iter   50 value 276.542584
## iter   60 value 275.866509
## iter   70 value 275.713350
## iter   80 value 275.482958
## iter   90 value 275.358393
## iter 100 value 275.351313
## final   value 275.351313
## stopped after 100 iterations
## Fitting Repeat 5
##
## # weights:  27
## initial   value 298.396989
## iter   10 value 235.232380
## iter   20 value 223.195972
## iter   30 value 218.951534
## iter   40 value 217.398376
## iter   50 value 217.264125
## iter   60 value 217.205692
## iter   70 value 217.192472
## iter   80 value 217.172462
## iter   90 value 217.120609
## iter 100 value 217.093517
## final   value 217.093517
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  7
## initial   value 455.228692
## final   value 328.000000
## converged
## Fitting Repeat 2
##
## # weights:  7
## initial   value 449.726513
## final   value 328.000000
## converged
## Fitting Repeat 3
##
## # weights:  7
## initial   value 560.210116
## final   value 328.000000
## converged
## Fitting Repeat 4
##
## # weights:  7
## initial   value 543.751958
## final   value 328.000000
```

```
## converged
## Fitting Repeat 5
##
## # weights:  7
## initial   value 714.802042
## final   value 328.000000
## converged
## Fitting Repeat 1
##
## # weights:  17
## initial   value 500.598660
## final   value 328.000000
## converged
## Fitting Repeat 2
##
## # weights:  17
## initial   value 504.748314
## final   value 328.000000
## converged
## Fitting Repeat 3
##
## # weights:  17
## initial   value 726.534439
## final   value 328.000000
## converged
## Fitting Repeat 4
##
## # weights:  17
## initial   value 535.609700
## final   value 328.000000
## converged
## Fitting Repeat 5
##
## # weights:  17
## initial   value 730.561762
## final   value 328.000000
## converged
## Fitting Repeat 1
##
## # weights:  27
## initial   value 382.724972
## final   value 313.714285
## converged
## Fitting Repeat 2
##
## # weights:  27
## initial   value 658.950189
## final   value 328.000000
## converged
## Fitting Repeat 3
##
## # weights:  27
## initial   value 470.108327
## final   value 328.000000
```

```
## converged
## Fitting Repeat 4
##
## # weights:  27
## initial  value 537.745267
## final  value 328.000000
## converged
## Fitting Repeat 5
##
## # weights:  27
## initial  value 624.113801
## final  value 328.000000
## converged
## Fitting Repeat 1
##
## # weights:  7
## initial  value 475.052219
## iter  10 value 250.643781
## iter  20 value 243.379073
## iter  30 value 240.253351
## iter  40 value 237.782922
## final  value 237.501378
## converged
## Fitting Repeat 2
##
## # weights:  7
## initial  value 453.284327
## iter  10 value 289.540541
## iter  20 value 250.686529
## iter  30 value 238.010497
## final  value 237.501378
## converged
## Fitting Repeat 3
##
## # weights:  7
## initial  value 714.701544
## iter  10 value 288.190896
## iter  20 value 243.368021
## iter  30 value 240.237706
## iter  40 value 237.502450
## final  value 237.501402
## converged
## Fitting Repeat 4
##
## # weights:  7
## initial  value 546.040804
## iter  10 value 256.301660
## iter  20 value 245.344733
## iter  30 value 244.018569
## iter  40 value 240.174396
## iter  50 value 237.503504
## final  value 237.501378
## converged
## Fitting Repeat 5
```

```
##
## # weights:  7
## initial   value 643.232838
## iter   10 value 316.337896
## iter   20 value 293.067068
## iter   30 value 242.481807
## iter   40 value 240.228945
## iter   50 value 237.522826
## final   value 237.501378
## converged
## Fitting Repeat 1
##
## # weights:  17
## initial   value 636.815481
## iter   10 value 291.783455
## iter   20 value 241.797639
## iter   30 value 228.321856
## iter   40 value 227.265965
## iter   50 value 227.249509
## final   value 227.246985
## converged
## Fitting Repeat 2
##
## # weights:  17
## initial   value 606.389950
## iter   10 value 292.131105
## iter   20 value 244.159462
## iter   30 value 235.111019
## iter   40 value 233.334809
## iter   50 value 233.207376
## final   value 233.207368
## converged
## Fitting Repeat 3
##
## # weights:  17
## initial   value 602.584168
## iter   10 value 287.370883
## iter   20 value 248.594180
## iter   30 value 243.792054
## iter   40 value 240.077297
## iter   50 value 234.451983
## iter   60 value 226.638191
## iter   70 value 226.497202
## final   value 226.483837
## converged
## Fitting Repeat 4
##
## # weights:  17
## initial   value 481.744640
## iter   10 value 243.559511
## iter   20 value 230.891759
## iter   30 value 227.934323
## iter   40 value 226.617304
## final   value 226.595477
```

```
## converged
## Fitting Repeat 5
##
## # weights:  17
## initial  value 536.157789
## iter  10 value 263.840379
## iter  20 value 243.346497
## iter  30 value 238.373477
## iter  40 value 233.562053
## iter  50 value 228.714379
## iter  60 value 228.462066
## iter  70 value 227.267443
## iter  80 value 226.359899
## iter  90 value 226.298432
## final  value 226.298390
## converged
## Fitting Repeat 1
##
## # weights:  27
## initial  value 530.160075
## iter  10 value 269.891387
## iter  20 value 237.668922
## iter  30 value 227.784360
## iter  40 value 225.275468
## iter  50 value 224.935772
## iter  60 value 223.368138
## iter  70 value 215.160643
## iter  80 value 215.036781
## iter  90 value 215.031873
## final  value 215.031432
## converged
## Fitting Repeat 2
##
## # weights:  27
## initial  value 619.646916
## iter  10 value 298.538353
## iter  20 value 282.866179
## iter  30 value 247.801338
## iter  40 value 226.160919
## iter  50 value 220.888307
## iter  60 value 220.490124
## iter  70 value 220.456257
## final  value 220.456091
## converged
## Fitting Repeat 3
##
## # weights:  27
## initial  value 330.046438
## iter  10 value 235.049145
## iter  20 value 225.758596
## iter  30 value 224.394303
## iter  40 value 224.383215
## iter  50 value 224.383089
## final  value 224.383085
```

```
## converged
## Fitting Repeat 4
##
## # weights:  27
## initial  value 411.168429
## iter  10 value 269.055267
## iter  20 value 235.079150
## iter  30 value 226.478085
## iter  40 value 221.685673
## iter  50 value 221.133702
## iter  60 value 219.400003
## iter  70 value 218.907784
## iter  80 value 218.897759
## iter  90 value 218.897403
## final  value 218.897370
## converged
## Fitting Repeat 5
##
## # weights:  27
## initial  value 435.478145
## iter  10 value 294.256604
## iter  20 value 240.665602
## iter  30 value 227.914274
## iter  40 value 225.531955
## iter  50 value 220.608912
## iter  60 value 215.491593
## iter  70 value 215.115511
## final  value 215.115472
## converged
## Fitting Repeat 1
##
## # weights:  7
## initial  value 534.634276
## iter  10 value 328.293281
## iter  20 value 328.061780
## iter  30 value 328.060139
## iter  40 value 328.058216
## iter  50 value 328.055870
## iter  60 value 328.052888
## iter  70 value 328.048899
## iter  80 value 328.043170
## iter  90 value 328.034024
## iter 100 value 328.016580
## final  value 328.016580
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  7
## initial  value 484.548751
## iter  10 value 328.285147
## iter  20 value 328.041768
## iter  30 value 328.041287
## iter  40 value 328.040779
## iter  50 value 328.040241
```

```
## iter   60 value 328.039668
## iter   70 value 328.039053
## iter   80 value 328.038389
## iter   90 value 328.037665
## iter  100 value 328.036866
## final   value 328.036866
## stopped after 100 iterations
## Fitting Repeat 3
##
## # weights:  7
## initial   value 630.196486
## iter   10 value 328.411460
## iter   20 value 273.971019
## iter   30 value 246.251964
## iter   40 value 244.010903
## iter   50 value 243.563255
## final   value 243.558245
## converged
## Fitting Repeat 4
##
## # weights:  7
## initial   value 524.554400
## iter   10 value 328.294003
## iter   20 value 292.552499
## iter   30 value 287.280273
## iter   40 value 247.037655
## iter   50 value 245.930907
## iter   60 value 245.905904
## iter   70 value 245.880707
## iter   80 value 245.835049
## iter   90 value 245.818837
## iter  100 value 245.788370
## final   value 245.788370
## stopped after 100 iterations
## Fitting Repeat 5
##
## # weights:  7
## initial   value 808.297109
## iter   10 value 328.542066
## iter   20 value 328.036032
## iter   30 value 328.035840
## iter   40 value 328.035647
## iter   50 value 328.035454
## iter   60 value 328.035259
## iter   70 value 328.035064
## iter   80 value 328.034868
## iter   90 value 328.034671
## iter  100 value 328.034474
## final   value 328.034474
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  17
## initial   value 641.296546
```

```
## iter  10 value 328.760643
## iter  20 value 327.912511
## iter  30 value 326.808381
## iter  40 value 304.908728
## iter  50 value 293.050278
## iter  60 value 292.278609
## iter  70 value 288.962272
## iter  80 value 288.711291
## iter  90 value 286.935934
## iter 100 value 286.320336
## final  value 286.320336
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  17
## initial  value 569.121429
## iter  10 value 328.513130
## iter  20 value 327.989248
## iter  30 value 327.920788
## iter  40 value 287.007001
## iter  50 value 281.162951
## iter  60 value 279.752388
## iter  70 value 278.926197
## iter  80 value 227.626280
## iter  90 value 226.109732
## iter 100 value 225.831690
## final  value 225.831690
## stopped after 100 iterations
## Fitting Repeat 3
##
## # weights:  17
## initial  value 313.731062
## iter  10 value 277.866799
## iter  20 value 251.135085
## iter  30 value 231.441758
## iter  40 value 228.567076
## iter  50 value 226.853072
## iter  60 value 224.048142
## iter  70 value 222.972683
## iter  80 value 220.395560
## iter  90 value 219.822295
## iter 100 value 219.699688
## final  value 219.699688
## stopped after 100 iterations
## Fitting Repeat 4
##
## # weights:  17
## initial  value 670.752093
## iter  10 value 328.583017
## iter  20 value 320.409598
## iter  30 value 265.535956
## iter  40 value 245.449591
## iter  50 value 244.367662
## iter  60 value 241.720473
```

```
## iter  70 value 241.626386
## iter  80 value 241.548652
## iter  90 value 241.546716
## iter 100 value 241.545723
## final   value 241.545723
## stopped after 100 iterations
## Fitting Repeat 5
##
## # weights:  17
## initial   value 551.908146
## iter  10 value 328.387008
## iter  20 value 327.848520
## iter  30 value 281.611203
## iter  40 value 276.941991
## iter  50 value 275.552124
## iter  60 value 275.321604
## iter  70 value 275.201220
## iter  80 value 275.171696
## iter  90 value 275.145478
## iter 100 value 275.100981
## final   value 275.100981
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  27
## initial   value 751.885696
## iter  10 value 328.908923
## iter  20 value 328.009685
## iter  30 value 269.840553
## iter  40 value 241.489633
## iter  50 value 233.327062
## iter  60 value 227.604155
## iter  70 value 225.205484
## iter  80 value 224.654108
## iter  90 value 222.389120
## iter 100 value 221.344742
## final   value 221.344742
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  27
## initial   value 574.980627
## iter  10 value 328.640142
## iter  20 value 314.027294
## iter  30 value 281.549173
## iter  40 value 252.124067
## iter  50 value 243.947301
## iter  60 value 241.165395
## iter  70 value 240.657511
## iter  80 value 240.246564
## iter  90 value 239.985420
## iter 100 value 239.921038
## final   value 239.921038
## stopped after 100 iterations
```

```
## Fitting Repeat 3
##
## # weights:  27
## initial  value 601.157078
## iter  10 value 328.671103
## iter  20 value 324.385286
## iter  30 value 282.668809
## iter  40 value 254.569000
## iter  50 value 229.809390
## iter  60 value 225.657129
## iter  70 value 224.118260
## iter  80 value 224.024452
## iter  90 value 223.922242
## iter 100 value 223.904821
## final  value 223.904821
## stopped after 100 iterations
## Fitting Repeat 4
##
## # weights:  27
## initial  value 644.154160
## iter  10 value 328.701523
## iter  20 value 300.590063
## iter  30 value 281.394192
## iter  40 value 276.332457
## iter  50 value 275.367413
## iter  60 value 274.952308
## iter  70 value 274.606335
## iter  80 value 274.279252
## iter  90 value 274.151126
## iter 100 value 274.122242
## final  value 274.122242
## stopped after 100 iterations
## Fitting Repeat 5
##
## # weights:  27
## initial  value 635.173915
## iter  10 value 328.921107
## iter  20 value 327.917496
## iter  30 value 276.511622
## iter  40 value 233.111642
## iter  50 value 225.232643
## iter  60 value 221.143279
## iter  70 value 220.971858
## iter  80 value 220.752222
## iter  90 value 220.728353
## iter 100 value 220.697700
## final  value 220.697700
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  7
## initial  value 396.950176
## final  value 304.000000
## converged
```

```
## Fitting Repeat 2
##
## # weights:  7
## initial   value 653.403822
## final   value 304.000000
## converged
## Fitting Repeat 3
##
## # weights:  7
## initial   value 604.268568
## final   value 304.000000
## converged
## Fitting Repeat 4
##
## # weights:  7
## initial   value 508.025557
## final   value 304.000000
## converged
## Fitting Repeat 5
##
## # weights:  7
## initial   value 423.289516
## final   value 304.000000
## converged
## Fitting Repeat 1
##
## # weights:  17
## initial   value 587.331585
## final   value 304.000000
## converged
## Fitting Repeat 2
##
## # weights:  17
## initial   value 499.630711
## final   value 304.000000
## converged
## Fitting Repeat 3
##
## # weights:  17
## initial   value 748.816849
## final   value 304.000000
## converged
## Fitting Repeat 4
##
## # weights:  17
## initial   value 458.599673
## final   value 304.000000
## converged
## Fitting Repeat 5
##
## # weights:  17
## initial   value 433.670863
## final   value 304.000000
## converged
```

```
## Fitting Repeat 1
##
## # weights:  27
## initial   value 697.727832
## final   value 304.000000
## converged
## Fitting Repeat 2
##
## # weights:  27
## initial   value 305.484230
## final   value 304.000000
## converged
## Fitting Repeat 3
##
## # weights:  27
## initial   value 426.655251
## final   value 304.000000
## converged
## Fitting Repeat 4
##
## # weights:  27
## initial   value 819.812183
## final   value 304.000000
## converged
## Fitting Repeat 5
##
## # weights:  27
## initial   value 363.225550
## final   value 304.000000
## converged
## Fitting Repeat 1
##
## # weights:  7
## initial   value 510.565642
## iter   10 value 250.546107
## iter   20 value 240.677457
## iter   30 value 238.746976
## iter   40 value 230.456315
## iter   50 value 229.042852
## iter   50 value 229.042851
## iter   50 value 229.042851
## final   value 229.042851
## converged
## Fitting Repeat 2
##
## # weights:  7
## initial   value 476.937766
## iter   10 value 260.762788
## iter   20 value 231.719233
## iter   30 value 229.042938
## final   value 229.042856
## converged
## Fitting Repeat 3
##
```

```
## # weights:  7
## initial   value 416.293625
## iter   10 value 255.047394
## iter   20 value 248.266735
## final   value 248.266189
## converged
## Fitting Repeat 4
##
## # weights:  7
## initial   value 622.984201
## iter   10 value 308.644604
## iter   20 value 248.318932
## iter   30 value 233.032630
## iter   40 value 229.414436
## iter   50 value 229.042870
## final   value 229.042853
## converged
## Fitting Repeat 5
##
## # weights:  7
## initial   value 623.078568
## iter   10 value 261.380674
## iter   20 value 253.166440
## iter   30 value 244.133920
## iter   40 value 234.892106
## iter   50 value 230.761076
## final   value 230.259936
## converged
## Fitting Repeat 1
##
## # weights:  17
## initial   value 496.625634
## iter   10 value 264.059297
## iter   20 value 228.867857
## iter   30 value 220.346752
## iter   40 value 218.065270
## iter   50 value 217.354684
## iter   60 value 217.296323
## final   value 217.296234
## converged
## Fitting Repeat 2
##
## # weights:  17
## initial   value 473.466565
## iter   10 value 278.105393
## iter   20 value 247.541614
## iter   30 value 228.356312
## iter   40 value 221.863586
## iter   50 value 220.493515
## final   value 220.489983
## converged
## Fitting Repeat 3
##
## # weights:  17
```

```
## initial  value 747.881372
## iter  10 value 282.874511
## iter  20 value 244.046683
## iter  30 value 233.868123
## iter  40 value 228.868941
## iter  50 value 223.822611
## iter  60 value 221.245538
## iter  70 value 219.849699
## iter  80 value 217.415988
## iter  90 value 217.200872
## final  value 217.200821
## converged
## Fitting Repeat 4
##
## # weights:  17
## initial  value 482.475325
## iter  10 value 281.541978
## iter  20 value 234.903776
## iter  30 value 223.181151
## iter  40 value 219.849803
## iter  50 value 219.810150
## final  value 219.809662
## converged
## Fitting Repeat 5
##
## # weights:  17
## initial  value 533.061041
## iter  10 value 260.042869
## iter  20 value 231.227631
## iter  30 value 218.871965
## iter  40 value 217.438940
## final  value 217.343288
## converged
## Fitting Repeat 1
##
## # weights:  27
## initial  value 443.404954
## iter  10 value 280.997099
## iter  20 value 230.428436
## iter  30 value 218.853346
## iter  40 value 213.459597
## iter  50 value 206.171961
## iter  60 value 200.176567
## iter  70 value 197.463496
## iter  80 value 197.172634
## iter  90 value 196.770117
## iter 100 value 196.574281
## final  value 196.574281
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  27
## initial  value 528.597249
## iter  10 value 309.137025
```

```
## iter  20 value 274.337198
## iter  30 value 229.407021
## iter  40 value 223.558635
## iter  50 value 217.784673
## iter  60 value 216.606855
## iter  70 value 215.909522
## iter  80 value 215.023566
## iter  90 value 214.869237
## final   value 214.869233
## converged
## Fitting Repeat 3
##
## # weights:  27
## initial  value 514.946005
## iter  10 value 305.727994
## iter  20 value 256.926148
## iter  30 value 237.498502
## iter  40 value 226.206474
## iter  50 value 223.045151
## iter  60 value 221.481571
## iter  70 value 221.126033
## iter  80 value 219.613749
## iter  90 value 217.553034
## iter 100 value 213.931861
## final   value 213.931861
## stopped after 100 iterations
## Fitting Repeat 4
##
## # weights:  27
## initial  value 939.752032
## iter  10 value 293.144701
## iter  20 value 244.686957
## iter  30 value 226.252349
## iter  40 value 217.338714
## iter  50 value 215.988383
## iter  60 value 215.967418
## iter  70 value 215.966111
## final   value 215.966068
## converged
## Fitting Repeat 5
##
## # weights:  27
## initial  value 323.966824
## iter  10 value 268.779472
## iter  20 value 237.577097
## iter  30 value 221.360430
## iter  40 value 215.911220
## iter  50 value 215.237161
## iter  60 value 215.173867
## iter  70 value 215.166893
## iter  80 value 215.159026
## final   value 215.158882
## converged
## Fitting Repeat 1
```

```
##
## # weights:  7
## initial   value 565.473385
## iter   10 value 304.354728
## iter   20 value 291.173755
## iter   30 value 254.510006
## iter   40 value 246.495102
## iter   50 value 243.206680
## iter   60 value 242.993771
## iter   70 value 242.898454
## iter   80 value 242.882119
## final   value 242.881876
## converged
## Fitting Repeat 2
##
## # weights:  7
## initial   value 380.749055
## iter   10 value 304.166683
## iter   20 value 304.005910
## iter   30 value 304.002603
## iter   40 value 303.998014
## iter   50 value 303.991090
## iter   60 value 303.979157
## iter   70 value 303.952891
## iter   80 value 303.843645
## iter   90 value 284.476502
## iter  100 value 276.682157
## final   value 276.682157
## stopped after 100 iterations
## Fitting Repeat 3
##
## # weights:  7
## initial   value 562.476456
## iter   10 value 304.394952
## iter   20 value 304.009639
## iter   30 value 304.000567
## iter   40 value 303.983113
## iter   50 value 303.934235
## iter   60 value 303.209237
## iter   70 value 273.004340
## iter   80 value 270.816497
## iter   90 value 270.796216
## iter  100 value 270.733974
## final   value 270.733974
## stopped after 100 iterations
## Fitting Repeat 4
##
## # weights:  7
## initial   value 645.637139
## iter   10 value 304.457872
## iter   20 value 304.010074
## iter   30 value 304.006756
## iter   40 value 304.001486
## iter   50 value 275.657715
```

```
## iter  60 value 272.052789
## iter  70 value 267.685242
## iter  80 value 265.539544
## iter  90 value 223.487562
## iter 100 value 222.031766
## final  value 222.031766
## stopped after 100 iterations
## Fitting Repeat 5
##
## # weights:  7
## initial  value 716.026163
## iter  10 value 304.524366
## iter  20 value 303.998985
## iter  30 value 303.994246
## iter  40 value 303.987807
## iter  50 value 303.978158
## iter  60 value 303.961450
## iter  70 value 303.922717
## iter  80 value 303.685079
## iter  90 value 289.914687
## iter 100 value 280.452147
## final  value 280.452147
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  17
## initial  value 412.787505
## iter  10 value 304.298860
## iter  20 value 294.977851
## iter  30 value 271.328529
## iter  40 value 237.845146
## iter  50 value 225.324353
## iter  60 value 220.895405
## iter  70 value 218.332992
## iter  80 value 214.891372
## iter  90 value 214.329638
## iter 100 value 214.283836
## final  value 214.283836
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  17
## initial  value 575.218875
## iter  10 value 304.378650
## iter  20 value 304.063407
## iter  30 value 304.052166
## iter  40 value 304.028675
## iter  50 value 303.944725
## iter  60 value 277.853025
## iter  70 value 268.738764
## iter  80 value 264.338717
## iter  90 value 259.141182
## iter 100 value 256.901123
## final  value 256.901123
```

```
## stopped after 100 iterations
## Fitting Repeat 3
##
## # weights:  17
## initial   value 677.743922
## iter  10 value 305.174475
## iter  20 value 303.796895
## iter  30 value 269.678875
## iter  40 value 264.411795
## iter  50 value 263.924823
## iter  60 value 263.917580
## iter  70 value 263.898374
## iter  80 value 261.598662
## iter  90 value 228.676445
## iter 100 value 226.859047
## final  value 226.859047
## stopped after 100 iterations
## Fitting Repeat 4
##
## # weights:  17
## initial   value 567.730709
## iter  10 value 304.520514
## iter  20 value 247.379707
## iter  30 value 241.898523
## iter  40 value 237.891853
## iter  50 value 235.325716
## iter  60 value 234.056035
## iter  70 value 233.752979
## iter  80 value 233.518686
## iter  90 value 233.423924
## iter 100 value 233.394392
## final  value 233.394392
## stopped after 100 iterations
## Fitting Repeat 5
##
## # weights:  17
## initial   value 316.737674
## iter  10 value 303.256571
## iter  20 value 273.484197
## iter  30 value 271.042134
## iter  40 value 270.546725
## iter  50 value 268.748058
## iter  60 value 237.688781
## iter  70 value 236.118367
## iter  80 value 234.126747
## iter  90 value 234.074368
## iter 100 value 233.842552
## final  value 233.842552
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  27
## initial   value 554.853847
## iter  10 value 304.646433
```

```
## iter   20 value 283.245742
## iter   30 value 269.156689
## iter   40 value 265.821573
## iter   50 value 249.683176
## iter   60 value 233.690664
## iter   70 value 223.738791
## iter   80 value 221.235375
## iter   90 value 215.149103
## iter 100 value 213.411778
## final   value 213.411778
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  27
## initial   value 458.592431
## iter   10 value 304.659349
## iter   20 value 304.017290
## iter   30 value 303.519623
## iter   40 value 275.949363
## iter   50 value 270.518320
## iter   60 value 267.480484
## iter   70 value 266.176488
## iter   80 value 227.852086
## iter   90 value 227.208321
## iter 100 value 226.949182
## final   value 226.949182
## stopped after 100 iterations
## Fitting Repeat 3
##
## # weights:  27
## initial   value 723.174190
## iter   10 value 304.901253
## iter   20 value 304.013250
## iter   30 value 304.001353
## iter   40 value 269.305689
## iter   50 value 266.152907
## iter   60 value 232.377558
## iter   70 value 227.896181
## iter   80 value 219.729330
## iter   90 value 216.867315
## iter 100 value 214.707402
## final   value 214.707402
## stopped after 100 iterations
## Fitting Repeat 4
##
## # weights:  27
## initial   value 504.434943
## iter   10 value 304.622153
## iter   20 value 304.021586
## iter   30 value 281.312900
## iter   40 value 271.124969
## iter   50 value 266.227546
## iter   60 value 264.921025
## iter   70 value 234.384407
```

```
## iter   80 value 229.658428
## iter   90 value 224.370584
## iter 100 value 220.391441
## final   value 220.391441
## stopped after 100 iterations
## Fitting Repeat 5
##
## # weights:   27
## initial   value 704.038114
## iter   10 value 304.645567
## iter   20 value 302.211038
## iter   30 value 274.118368
## iter   40 value 246.274503
## iter   50 value 243.614467
## iter   60 value 241.076330
## iter   70 value 239.198353
## iter   80 value 237.346722
## iter   90 value 234.118019
## iter 100 value 233.829234
## final   value 233.829234
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:   7
## initial   value 566.785185
## final   value 326.000000
## converged
## Fitting Repeat 2
##
## # weights:   7
## initial   value 639.507161
## final   value 326.000000
## converged
## Fitting Repeat 3
##
## # weights:   7
## initial   value 741.052425
## final   value 326.000000
## converged
## Fitting Repeat 4
##
## # weights:   7
## initial   value 553.465566
## final   value 326.000000
## converged
## Fitting Repeat 5
##
## # weights:   7
## initial   value 479.556285
## final   value 326.000000
## converged
## Fitting Repeat 1
##
## # weights:   17
```

```
## initial  value 583.553663
## final  value 326.000000
## converged
## Fitting Repeat 2
##
## # weights:  17
## initial  value 629.822203
## final  value 326.000000
## converged
## Fitting Repeat 3
##
## # weights:  17
## initial  value 567.071046
## final  value 326.000000
## converged
## Fitting Repeat 4
##
## # weights:  17
## initial  value 676.606217
## final  value 326.000000
## converged
## Fitting Repeat 5
##
## # weights:  17
## initial  value 492.510275
## final  value 326.000000
## converged
## Fitting Repeat 1
##
## # weights:  27
## initial  value 415.891564
## final  value 326.000000
## converged
## Fitting Repeat 2
##
## # weights:  27
## initial  value 482.645351
## final  value 326.000000
## converged
## Fitting Repeat 3
##
## # weights:  27
## initial  value 599.018872
## final  value 326.000000
## converged
## Fitting Repeat 4
##
## # weights:  27
## initial  value 450.663506
## final  value 326.000000
## converged
## Fitting Repeat 5
##
## # weights:  27
```

```
## initial  value 638.556095
## final  value 326.000000
## converged
## Fitting Repeat 1
##
## # weights:  7
## initial  value 746.655114
## iter  10 value 287.433720
## iter  20 value 257.807532
## iter  30 value 248.845759
## final  value 248.409364
## converged
## Fitting Repeat 2
##
## # weights:  7
## initial  value 573.596178
## iter  10 value 289.961074
## iter  20 value 246.536613
## iter  30 value 246.522722
## iter  30 value 246.522722
## iter  30 value 246.522722
## final  value 246.522722
## converged
## Fitting Repeat 3
##
## # weights:  7
## initial  value 337.673139
## iter  10 value 284.877377
## iter  20 value 245.739370
## iter  30 value 235.436861
## final  value 235.421000
## converged
## Fitting Repeat 4
##
## # weights:  7
## initial  value 594.309122
## iter  10 value 299.604416
## iter  20 value 272.644537
## iter  30 value 268.876292
## iter  40 value 247.834379
## iter  50 value 247.747224
## final  value 247.746774
## converged
## Fitting Repeat 5
##
## # weights:  7
## initial  value 740.715546
## iter  10 value 309.453749
## iter  20 value 249.650881
## iter  30 value 249.552877
## final  value 249.552846
## converged
## Fitting Repeat 1
##
```

```
## # weights:   17
## initial   value 533.960369
## iter   10 value 298.084613
## iter   20 value 247.000500
## iter   30 value 236.702864
## iter   40 value 236.523202
## final   value 236.522344
## converged
## Fitting Repeat 2
##
## # weights:   17
## initial   value 596.965745
## iter   10 value 267.962726
## iter   20 value 237.676900
## iter   30 value 231.402996
## iter   40 value 229.552731
## final   value 229.547692
## converged
## Fitting Repeat 3
##
## # weights:   17
## initial   value 540.385797
## iter   10 value 316.000784
## iter   20 value 280.800581
## iter   30 value 258.640765
## iter   40 value 253.830961
## iter   50 value 253.495082
## final   value 252.896390
## converged
## Fitting Repeat 4
##
## # weights:   17
## initial   value 645.928634
## iter   10 value 293.689200
## iter   20 value 266.344972
## iter   30 value 235.604946
## iter   40 value 232.832742
## iter   50 value 232.719273
## iter   60 value 232.387694
## iter   70 value 231.699422
## iter   80 value 231.572589
## final   value 231.571536
## converged
## Fitting Repeat 5
##
## # weights:   17
## initial   value 607.531719
## iter   10 value 292.722530
## iter   20 value 256.189851
## iter   30 value 241.339134
## iter   40 value 241.172021
## final   value 241.172010
## converged
## Fitting Repeat 1
```

```
##
## # weights:  27
## initial   value 601.008733
## iter  10 value 303.722388
## iter  20 value 256.405978
## iter  30 value 241.617449
## iter  40 value 236.552732
## iter  50 value 236.006535
## iter  60 value 235.633507
## iter  70 value 231.902959
## iter  80 value 229.483526
## iter  90 value 229.331053
## iter 100 value 229.223948
## final   value 229.223948
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  27
## initial   value 586.634890
## iter  10 value 288.725905
## iter  20 value 254.983289
## iter  30 value 237.512137
## iter  40 value 231.300610
## iter  50 value 230.550247
## iter  60 value 225.330145
## iter  70 value 225.142158
## iter  80 value 225.087214
## iter  90 value 225.008986
## final   value 225.008363
## converged
## Fitting Repeat 3
##
## # weights:  27
## initial   value 660.587823
## iter  10 value 304.667885
## iter  20 value 286.341747
## iter  30 value 260.627049
## iter  40 value 238.704361
## iter  50 value 233.947488
## iter  60 value 229.600296
## iter  70 value 226.659234
## iter  80 value 226.381369
## final   value 226.381203
## converged
## Fitting Repeat 4
##
## # weights:  27
## initial   value 521.426638
## iter  10 value 264.511239
## iter  20 value 243.463579
## iter  30 value 233.624487
## iter  40 value 229.199600
## iter  50 value 227.782559
## iter  60 value 227.286255
```

```
## final   value 227.284857
## converged
## Fitting Repeat 5
##
## # weights:  27
## initial   value 794.350088
## iter   10 value 296.370316
## iter   20 value 258.188368
## iter   30 value 249.266269
## iter   40 value 238.587021
## iter   50 value 227.924294
## iter   60 value 224.876939
## iter   70 value 224.685776
## iter   80 value 224.222335
## iter   90 value 223.861689
## final   value 223.860693
## converged
## Fitting Repeat 1
##
## # weights:  7
## initial   value 655.845216
## iter   10 value 326.379847
## iter   20 value 290.460335
## iter   30 value 286.081021
## iter   40 value 285.933622
## iter   50 value 285.825473
## iter   60 value 248.023324
## iter   70 value 245.898858
## final   value 245.812346
## converged
## Fitting Repeat 2
##
## # weights:  7
## initial   value 541.570576
## iter   10 value 326.327756
## iter   20 value 326.038428
## iter   30 value 326.036342
## iter   40 value 326.033704
## iter   50 value 326.030218
## iter   60 value 326.025315
## iter   70 value 326.017771
## iter   80 value 326.004362
## iter   90 value 325.972997
## iter  100 value 325.810863
## final   value 325.810863
## stopped after 100 iterations
## Fitting Repeat 3
##
## # weights:  7
## initial   value 591.677960
## iter   10 value 326.432575
## iter   20 value 326.016578
## iter   30 value 294.191504
## iter   40 value 260.530549
```

111

```
## iter  50 value 257.412209
## iter  60 value 257.087402
## iter  70 value 257.028468
## iter  80 value 256.871511
## final   value 256.869148
## converged
## Fitting Repeat 4
##
## # weights:  7
## initial   value 411.133761
## iter  10 value 326.193772
## iter  20 value 326.044785
## iter  30 value 326.044283
## iter  40 value 326.043755
## iter  50 value 326.043195
## iter  60 value 326.042600
## iter  70 value 326.041962
## iter  80 value 326.041274
## iter  90 value 326.040526
## iter 100 value 326.039653
## final   value 326.039653
## stopped after 100 iterations
## Fitting Repeat 5
##
## # weights:  7
## initial   value 499.871830
## iter  10 value 326.259630
## iter  20 value 325.808380
## iter  30 value 291.074579
## iter  40 value 288.390627
## iter  50 value 288.380013
## iter  60 value 271.972210
## iter  70 value 249.591779
## iter  80 value 248.851369
## iter  90 value 247.813749
## iter 100 value 245.693460
## final   value 245.693460
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  17
## initial   value 512.272169
## iter  10 value 326.469075
## iter  20 value 325.597441
## iter  30 value 268.697853
## iter  40 value 243.363147
## iter  50 value 237.105975
## iter  60 value 230.083966
## iter  70 value 227.896600
## iter  80 value 227.785069
## iter  90 value 227.762902
## iter 100 value 227.605908
## final   value 227.605908
## stopped after 100 iterations
```

```
## Fitting Repeat 2
##
## # weights:  17
## initial  value 591.332819
## iter  10 value 326.640614
## iter  20 value 326.007432
## iter  30 value 326.005300
## iter  40 value 326.002420
## iter  50 value 290.575402
## iter  60 value 237.032562
## iter  70 value 231.821169
## iter  80 value 228.959355
## iter  90 value 227.871765
## iter 100 value 227.682061
## final  value 227.682061
## stopped after 100 iterations
## Fitting Repeat 3
##
## # weights:  17
## initial  value 511.423226
## iter  10 value 326.459894
## iter  20 value 326.004913
## iter  30 value 325.983965
## iter  40 value 325.955955
## iter  50 value 299.305708
## iter  60 value 283.841374
## iter  70 value 276.586885
## iter  80 value 238.892243
## iter  90 value 228.894720
## iter 100 value 226.801997
## final  value 226.801997
## stopped after 100 iterations
## Fitting Repeat 4
##
## # weights:  17
## initial  value 746.742865
## iter  10 value 326.701383
## iter  20 value 319.320561
## iter  30 value 257.404022
## iter  40 value 233.910341
## iter  50 value 226.464055
## iter  60 value 223.464435
## iter  70 value 222.905172
## iter  80 value 222.503573
## iter  90 value 222.042120
## iter 100 value 221.928892
## final  value 221.928892
## stopped after 100 iterations
## Fitting Repeat 5
##
## # weights:  17
## initial  value 777.536828
## iter  10 value 326.575028
## iter  20 value 326.032104
```

```
## iter  30 value 326.020567
## iter  40 value 325.943021
## iter  50 value 317.866114
## iter  60 value 293.706687
## iter  70 value 283.279543
## iter  80 value 277.769571
## iter  90 value 275.400901
## iter 100 value 242.436769
## final  value 242.436769
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  27
## initial  value 633.312816
## iter  10 value 326.738453
## iter  20 value 300.557368
## iter  30 value 269.043985
## iter  40 value 239.335272
## iter  50 value 230.846152
## iter  60 value 222.063820
## iter  70 value 219.907858
## iter  80 value 217.681768
## iter  90 value 217.552827
## iter 100 value 217.462253
## final  value 217.462253
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  27
## initial  value 732.323946
## iter  10 value 326.716146
## iter  20 value 325.954028
## iter  30 value 325.262774
## iter  40 value 271.652421
## iter  50 value 255.184055
## iter  60 value 231.624483
## iter  70 value 220.682063
## iter  80 value 217.395813
## iter  90 value 217.087242
## iter 100 value 216.730844
## final  value 216.730844
## stopped after 100 iterations
## Fitting Repeat 3
##
## # weights:  27
## initial  value 716.017702
## iter  10 value 327.223284
## iter  20 value 322.994129
## iter  30 value 308.576854
## iter  40 value 277.477912
## iter  50 value 259.935375
## iter  60 value 238.939814
## iter  70 value 228.479359
## iter  80 value 226.707431
```

```
## iter  90 value 226.356165
## iter 100 value 226.266370
## final   value 226.266370
## stopped after 100 iterations
## Fitting Repeat 4
##
## # weights:  27
## initial  value 524.307179
## iter  10 value 326.885137
## iter  20 value 326.020928
## iter  30 value 326.006248
## iter  40 value 325.991632
## iter  50 value 325.955488
## iter  60 value 325.699521
## iter  70 value 283.863495
## iter  80 value 256.771215
## iter  90 value 238.758800
## iter 100 value 232.398607
## final   value 232.398607
## stopped after 100 iterations
## Fitting Repeat 5
##
## # weights:  27
## initial  value 630.670223
## iter  10 value 327.064655
## iter  20 value 325.982538
## iter  30 value 307.034471
## iter  40 value 281.114414
## iter  50 value 249.300112
## iter  60 value 233.907727
## iter  70 value 227.875756
## iter  80 value 224.813240
## iter  90 value 223.255869
## iter 100 value 222.948683
## final   value 222.948683
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  7
## initial  value 683.223631
## final   value 324.000000
## converged
## Fitting Repeat 2
##
## # weights:  7
## initial  value 668.450928
## final   value 324.000000
## converged
## Fitting Repeat 3
##
## # weights:  7
## initial  value 350.501652
## final   value 324.000000
## converged
```

```
## Fitting Repeat 4
##
## # weights:  7
## initial   value 550.809988
## final   value 324.000000
## converged
## Fitting Repeat 5
##
## # weights:  7
## initial   value 415.828829
## final   value 324.000000
## converged
## Fitting Repeat 1
##
## # weights:  17
## initial   value 575.212250
## final   value 324.000000
## converged
## Fitting Repeat 2
##
## # weights:  17
## initial   value 690.069770
## final   value 324.000000
## converged
## Fitting Repeat 3
##
## # weights:  17
## initial   value 499.081573
## final   value 324.000000
## converged
## Fitting Repeat 4
##
## # weights:  17
## initial   value 500.115918
## final   value 324.000000
## converged
## Fitting Repeat 5
##
## # weights:  17
## initial   value 721.982407
## final   value 324.000000
## converged
## Fitting Repeat 1
##
## # weights:  27
## initial   value 770.608339
## final   value 324.000000
## converged
## Fitting Repeat 2
##
## # weights:  27
## initial   value 550.566395
## final   value 324.000000
## converged
```

```
## Fitting Repeat 3
##
## # weights:  27
## initial  value 892.600326
## final  value 324.000000
## converged
## Fitting Repeat 4
##
## # weights:  27
## initial  value 539.817176
## final  value 324.000000
## converged
## Fitting Repeat 5
##
## # weights:  27
## initial  value 415.896088
## final  value 324.000000
## converged
## Fitting Repeat 1
##
## # weights:  7
## initial  value 416.437835
## iter  10 value 301.506479
## iter  20 value 247.919227
## iter  30 value 241.050378
## final  value 240.797716
## converged
## Fitting Repeat 2
##
## # weights:  7
## initial  value 655.639385
## iter  10 value 289.064233
## iter  20 value 269.553240
## final  value 269.491021
## converged
## Fitting Repeat 3
##
## # weights:  7
## initial  value 555.299627
## iter  10 value 308.710375
## iter  20 value 273.355935
## iter  30 value 251.661754
## iter  40 value 247.988540
## final  value 247.988518
## converged
## Fitting Repeat 4
##
## # weights:  7
## initial  value 545.455960
## iter  10 value 305.237256
## iter  20 value 265.147869
## iter  30 value 247.206782
## iter  40 value 246.872867
## final  value 246.872836
```

```
## converged
## Fitting Repeat 5
##
## # weights:  7
## initial  value 482.064786
## iter  10 value 283.785619
## iter  20 value 251.163627
## iter  30 value 240.943386
## final  value 240.797716
## converged
## Fitting Repeat 1
##
## # weights:  17
## initial  value 575.142231
## iter  10 value 306.253266
## iter  20 value 257.816257
## iter  30 value 240.437719
## iter  40 value 237.195356
## iter  50 value 236.685623
## iter  60 value 236.540903
## final  value 236.532577
## converged
## Fitting Repeat 2
##
## # weights:  17
## initial  value 412.576364
## iter  10 value 291.589452
## iter  20 value 255.092030
## iter  30 value 246.253914
## iter  40 value 238.055144
## iter  50 value 235.253541
## final  value 235.228501
## converged
## Fitting Repeat 3
##
## # weights:  17
## initial  value 566.499809
## iter  10 value 304.547672
## iter  20 value 255.636989
## iter  30 value 246.828984
## iter  40 value 245.502914
## iter  50 value 245.176858
## final  value 245.175946
## converged
## Fitting Repeat 4
##
## # weights:  17
## initial  value 652.678252
## iter  10 value 297.564253
## iter  20 value 258.108930
## iter  30 value 237.867780
## iter  40 value 232.688573
## iter  50 value 227.770221
## iter  60 value 227.258570
```

```
## iter   70 value 227.224762
## iter   80 value 227.201438
## final   value 227.165979
## converged
## Fitting Repeat 5
##
## # weights:   17
## initial   value 495.580443
## iter   10 value 297.192545
## iter   20 value 267.094553
## iter   30 value 238.353299
## iter   40 value 235.155289
## iter   50 value 235.091501
## iter   60 value 235.090612
## final   value 235.090606
## converged
## Fitting Repeat 1
##
## # weights:   27
## initial   value 630.721248
## iter   10 value 296.464853
## iter   20 value 258.975710
## iter   30 value 241.262700
## iter   40 value 233.746917
## iter   50 value 233.135093
## iter   60 value 229.061897
## iter   70 value 224.193207
## iter   80 value 223.771238
## iter   90 value 223.703427
## final   value 223.702442
## converged
## Fitting Repeat 2
##
## # weights:   27
## initial   value 605.111200
## iter   10 value 309.975548
## iter   20 value 254.228597
## iter   30 value 242.293559
## iter   40 value 232.485116
## iter   50 value 229.158628
## iter   60 value 226.541352
## iter   70 value 224.169067
## final   value 224.157360
## converged
## Fitting Repeat 3
##
## # weights:   27
## initial   value 473.154566
## iter   10 value 309.480543
## iter   20 value 245.626485
## iter   30 value 235.645603
## iter   40 value 233.459267
## iter   50 value 231.617339
## iter   60 value 228.287868
```

```
## iter  70 value 225.779941
## iter  80 value 225.249602
## iter  90 value 225.242628
## final   value 225.242613
## converged
## Fitting Repeat 4
##
## # weights:  27
## initial   value 767.216188
## iter  10 value 335.150048
## iter  20 value 296.602331
## iter  30 value 244.075679
## iter  40 value 234.270483
## iter  50 value 232.284331
## iter  60 value 231.338583
## final   value 231.337273
## converged
## Fitting Repeat 5
##
## # weights:  27
## initial   value 375.428034
## iter  10 value 296.704065
## iter  20 value 275.696357
## iter  30 value 250.935615
## iter  40 value 237.472777
## iter  50 value 231.041086
## iter  60 value 226.214690
## iter  70 value 224.675159
## iter  80 value 223.500001
## iter  90 value 223.494808
## iter  90 value 223.494806
## iter  90 value 223.494806
## final   value 223.494806
## converged
## Fitting Repeat 1
##
## # weights:  7
## initial   value 639.224640
## iter  10 value 324.468185
## iter  20 value 323.981695
## iter  30 value 323.965520
## iter  40 value 323.929577
## iter  50 value 323.741506
## iter  60 value 288.316195
## iter  70 value 285.032576
## iter  80 value 250.045854
## iter  90 value 244.546937
## iter 100 value 244.457822
## final   value 244.457822
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  7
## initial   value 376.597034
```

```
## iter  10 value 324.192782
## iter  20 value 323.838153
## iter  30 value 300.442714
## iter  40 value 296.296819
## iter  50 value 272.975350
## iter  60 value 270.718927
## iter  70 value 265.819332
## iter  80 value 265.441467
## iter  90 value 265.353461
## iter 100 value 265.336383
## final  value 265.336383
## stopped after 100 iterations
## Fitting Repeat 3
##
## # weights:  7
## initial  value 537.839311
## iter  10 value 324.281621
## iter  20 value 323.983334
## iter  30 value 323.911189
## iter  40 value 297.612918
## iter  50 value 284.653092
## iter  60 value 284.559156
## iter  70 value 284.074396
## iter  80 value 282.831006
## iter  90 value 278.718126
## iter 100 value 278.649859
## final  value 278.649859
## stopped after 100 iterations
## Fitting Repeat 4
##
## # weights:  7
## initial  value 437.837569
## iter  10 value 324.223644
## iter  20 value 324.024402
## iter  30 value 290.516008
## iter  40 value 290.166076
## iter  50 value 290.100322
## iter  60 value 256.097274
## iter  70 value 255.928681
## iter  80 value 255.910673
## iter  90 value 255.899682
## final  value 255.899669
## converged
## Fitting Repeat 5
##
## # weights:  7
## initial  value 480.447230
## iter  10 value 324.262245
## iter  20 value 250.041780
## iter  30 value 245.133794
## iter  40 value 244.643232
## iter  50 value 244.460918
## final  value 244.460852
## converged
```

```
## Fitting Repeat 1
##
## # weights:  17
## initial   value 542.187322
## iter  10 value 324.382433
## iter  20 value 324.078248
## iter  30 value 288.886580
## iter  40 value 280.835607
## iter  50 value 279.489269
## iter  60 value 278.225656
## iter  70 value 278.005120
## iter  80 value 277.990491
## iter  90 value 277.987951
## iter 100 value 277.977497
## final  value 277.977497
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  17
## initial   value 408.242280
## iter  10 value 324.138110
## iter  20 value 309.412157
## iter  30 value 282.284559
## iter  40 value 278.794089
## iter  50 value 278.219490
## iter  60 value 242.644541
## iter  70 value 233.302307
## iter  80 value 233.167668
## iter  90 value 232.190446
## iter 100 value 232.067581
## final  value 232.067581
## stopped after 100 iterations
## Fitting Repeat 3
##
## # weights:  17
## initial   value 635.886358
## iter  10 value 324.563004
## iter  20 value 323.976590
## iter  30 value 297.129157
## iter  40 value 283.192765
## iter  50 value 279.409261
## iter  60 value 277.921343
## iter  70 value 241.460348
## iter  80 value 231.700407
## iter  90 value 230.051416
## iter 100 value 229.487202
## final  value 229.487202
## stopped after 100 iterations
## Fitting Repeat 4
##
## # weights:  17
## initial   value 579.969764
## iter  10 value 324.648429
## iter  20 value 323.034179
```

```
## iter   30 value 309.671210
## iter   40 value 298.509374
## iter   50 value 243.023202
## iter   60 value 236.526147
## iter   70 value 234.738161
## iter   80 value 233.185631
## iter   90 value 227.806741
## iter  100 value 224.543940
## final   value 224.543940
## stopped after 100 iterations
## Fitting Repeat 5
##
## # weights:  17
## initial   value 477.101899
## iter   10 value 324.566993
## iter   20 value 324.084895
## iter   30 value 324.083888
## iter   40 value 324.082761
## iter   50 value 324.081544
## iter   60 value 324.080180
## iter   70 value 324.078623
## iter   80 value 324.076804
## iter   90 value 324.074618
## iter  100 value 324.071907
## final   value 324.071907
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  27
## initial   value 442.541655
## iter   10 value 324.576155
## iter   20 value 285.542355
## iter   30 value 271.084816
## iter   40 value 268.934284
## iter   50 value 266.189196
## iter   60 value 263.798726
## iter   70 value 253.538365
## iter   80 value 252.728618
## iter   90 value 244.946147
## iter  100 value 240.330249
## final   value 240.330249
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  27
## initial   value 561.240364
## iter   10 value 324.583605
## iter   20 value 323.924536
## iter   30 value 316.011682
## iter   40 value 309.647332
## iter   50 value 308.640026
## iter   60 value 282.865677
## iter   70 value 277.349367
## iter   80 value 271.073924
```

```
## iter  90 value 266.209160
## iter 100 value 265.872616
## final   value 265.872616
## stopped after 100 iterations
## Fitting Repeat 3
##
## # weights:  27
## initial   value 450.128613
## iter  10 value 324.263265
## iter  20 value 306.271651
## iter  30 value 294.993489
## iter  40 value 288.344245
## iter  50 value 286.745363
## iter  60 value 285.689811
## iter  70 value 284.687040
## iter  80 value 284.239245
## iter  90 value 283.956738
## iter 100 value 283.892500
## final   value 283.892500
## stopped after 100 iterations
## Fitting Repeat 4
##
## # weights:  27
## initial   value 479.979396
## iter  10 value 324.447420
## iter  20 value 323.780979
## iter  30 value 316.183410
## iter  40 value 297.752129
## iter  50 value 294.573182
## iter  60 value 294.088369
## iter  70 value 291.662527
## iter  80 value 272.677257
## iter  90 value 271.946793
## iter 100 value 270.701143
## final   value 270.701143
## stopped after 100 iterations
## Fitting Repeat 5
##
## # weights:  27
## initial   value 442.444715
## iter  10 value 324.281936
## iter  20 value 322.767417
## iter  30 value 303.486833
## iter  40 value 294.967985
## iter  50 value 285.083569
## iter  60 value 281.905785
## iter  70 value 281.511979
## iter  80 value 281.417442
## iter  90 value 281.284047
## iter 100 value 281.221947
## final   value 281.221947
## stopped after 100 iterations
## Fitting Repeat 1
##
```

```
## # weights:  7
## initial   value 590.936112
## final   value 378.000000
## converged
## Fitting Repeat 2
##
## # weights:  7
## initial   value 718.806484
## final   value 378.000000
## converged
## Fitting Repeat 3
##
## # weights:  7
## initial   value 527.966405
## final   value 378.000000
## converged
## Fitting Repeat 4
##
## # weights:  7
## initial   value 580.243126
## final   value 378.000000
## converged
## Fitting Repeat 5
##
## # weights:  7
## initial   value 502.564839
## final   value 378.000000
## converged
## Fitting Repeat 1
##
## # weights:  17
## initial   value 616.421345
## final   value 378.000000
## converged
## Fitting Repeat 2
##
## # weights:  17
## initial   value 388.440604
## final   value 378.000000
## converged
## Fitting Repeat 3
##
## # weights:  17
## initial   value 632.713698
## final   value 378.000000
## converged
## Fitting Repeat 4
##
## # weights:  17
## initial   value 589.591502
## final   value 378.000000
## converged
## Fitting Repeat 5
##
```

```
## # weights:  17
## initial   value 468.656026
## final   value 378.000000
## converged
## Fitting Repeat 1
##
## # weights:  27
## initial   value 408.515246
## final   value 378.000000
## converged
## Fitting Repeat 2
##
## # weights:  27
## initial   value 586.148260
## final   value 378.000000
## converged
## Fitting Repeat 3
##
## # weights:  27
## initial   value 627.700024
## final   value 378.000000
## converged
## Fitting Repeat 4
##
## # weights:  27
## initial   value 456.065990
## final   value 378.000000
## converged
## Fitting Repeat 5
##
## # weights:  27
## initial   value 352.161136
## iter  10 value 262.294574
## iter  20 value 250.702369
## iter  30 value 243.641157
## iter  40 value 242.938475
## iter  50 value 240.863370
## iter  60 value 240.653050
## iter  70 value 240.531952
## iter  80 value 240.523572
## iter  90 value 240.494440
## iter 100 value 240.412612
## final   value 240.412612
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  7
## initial   value 448.303120
## iter  10 value 328.495161
## iter  20 value 280.159440
## iter  30 value 263.832790
## final   value 263.811966
## converged
## Fitting Repeat 2
```

```
##
## # weights:  7
## initial   value 498.711296
## iter   10 value 300.693624
## iter   20 value 269.814896
## iter   30 value 266.270542
## iter   40 value 262.735124
## final   value 262.732272
## converged
## Fitting Repeat 3
##
## # weights:  7
## initial   value 449.145302
## iter   10 value 312.012230
## iter   20 value 284.693539
## iter   30 value 265.297946
## iter   40 value 263.816137
## final   value 263.811965
## converged
## Fitting Repeat 4
##
## # weights:  7
## initial   value 351.424193
## iter   10 value 276.394866
## iter   20 value 275.595220
## iter   30 value 267.939127
## iter   40 value 267.124649
## iter   50 value 264.146250
## final   value 263.811969
## converged
## Fitting Repeat 5
##
## # weights:  7
## initial   value 663.411589
## iter   10 value 345.262989
## iter   20 value 321.505250
## iter   30 value 268.844711
## iter   40 value 263.868301
## final   value 263.811965
## converged
## Fitting Repeat 1
##
## # weights:  17
## initial   value 550.725305
## iter   10 value 325.176074
## iter   20 value 281.994087
## iter   30 value 252.877407
## iter   40 value 251.146377
## final   value 251.144419
## converged
## Fitting Repeat 2
##
## # weights:  17
## initial   value 467.065482
```

```
## iter  10 value 334.662249
## iter  20 value 265.985115
## iter  30 value 252.691337
## iter  40 value 252.302275
## final   value 252.287713
## converged
## Fitting Repeat 3
##
## # weights:  17
## initial   value 788.795140
## iter  10 value 367.790392
## iter  20 value 291.058767
## iter  30 value 273.828012
## iter  40 value 263.472306
## iter  50 value 256.112707
## iter  60 value 252.095899
## final   value 252.087381
## converged
## Fitting Repeat 4
##
## # weights:  17
## initial   value 489.317051
## iter  10 value 341.255109
## iter  20 value 286.162844
## iter  30 value 262.473725
## iter  40 value 259.791511
## iter  50 value 259.279389
## final   value 259.273059
## converged
## Fitting Repeat 5
##
## # weights:  17
## initial   value 730.550404
## iter  10 value 321.934311
## iter  20 value 296.314379
## iter  30 value 260.435961
## iter  40 value 254.585443
## iter  50 value 249.468782
## iter  60 value 248.077379
## iter  70 value 247.292136
## iter  80 value 247.166103
## final   value 247.144064
## converged
## Fitting Repeat 1
##
## # weights:  27
## initial   value 461.149555
## iter  10 value 329.847296
## iter  20 value 283.811118
## iter  30 value 255.670670
## iter  40 value 247.421158
## iter  50 value 242.789129
## iter  60 value 232.434242
## iter  70 value 218.071937
```

```
## iter  80 value 216.207992
## iter  90 value 215.625853
## iter 100 value 215.531666
## final   value 215.531666
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  27
## initial   value 476.399264
## iter  10 value 317.005581
## iter  20 value 270.257783
## iter  30 value 257.605433
## iter  40 value 252.015215
## iter  50 value 245.708753
## iter  60 value 235.628234
## iter  70 value 231.650104
## iter  80 value 224.963518
## iter  90 value 217.116848
## iter 100 value 215.229334
## final   value 215.229334
## stopped after 100 iterations
## Fitting Repeat 3
##
## # weights:  27
## initial   value 610.260658
## iter  10 value 348.665340
## iter  20 value 294.874553
## iter  30 value 260.578691
## iter  40 value 249.153993
## iter  50 value 246.699671
## iter  60 value 244.688446
## iter  70 value 243.836654
## iter  80 value 240.981540
## iter  90 value 237.700768
## iter 100 value 237.628871
## final   value 237.628871
## stopped after 100 iterations
## Fitting Repeat 4
##
## # weights:  27
## initial   value 513.916963
## iter  10 value 337.871570
## iter  20 value 282.786818
## iter  30 value 263.666354
## iter  40 value 255.003756
## iter  50 value 248.780385
## iter  60 value 243.360304
## iter  70 value 242.674209
## iter  80 value 241.334437
## iter  90 value 239.796126
## iter 100 value 229.505604
## final   value 229.505604
## stopped after 100 iterations
## Fitting Repeat 5
```

```
##
## # weights:  27
## initial   value 615.054059
## iter  10 value 385.647248
## iter  20 value 352.264550
## iter  30 value 303.574583
## iter  40 value 265.065243
## iter  50 value 254.550726
## iter  60 value 251.674656
## iter  70 value 244.604006
## iter  80 value 242.638734
## final   value 242.469662
## converged
## Fitting Repeat 1
##
## # weights:  7
## initial   value 571.509055
## iter  10 value 378.315339
## iter  20 value 378.044857
## iter  30 value 375.382532
## iter  40 value 361.812958
## iter  50 value 338.545801
## iter  60 value 337.979672
## iter  70 value 337.961344
## iter  80 value 337.914031
## iter  90 value 337.911253
## iter 100 value 337.908805
## final   value 337.908805
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  7
## initial   value 637.216205
## iter  10 value 378.419903
## iter  20 value 378.041192
## iter  30 value 378.040801
## iter  40 value 378.040403
## iter  50 value 378.039993
## iter  60 value 378.039559
## iter  70 value 378.039097
## iter  80 value 378.038603
## iter  90 value 378.038087
## iter 100 value 378.037562
## final   value 378.037562
## stopped after 100 iterations
## Fitting Repeat 3
##
## # weights:  7
## initial   value 562.838467
## iter  10 value 378.290771
## iter  20 value 357.467747
## iter  30 value 324.491941
## iter  40 value 321.704168
## iter  50 value 321.247049
```

```
## iter  60 value 321.103784
## iter  70 value 301.257635
## iter  80 value 267.180939
## final   value 264.279062
## converged
## Fitting Repeat 4
##
## # weights:  7
## initial  value 730.651262
## iter  10 value 378.477950
## iter  20 value 378.028138
## iter  30 value 378.027825
## iter  40 value 378.027503
## iter  50 value 378.027173
## iter  60 value 378.026834
## iter  70 value 378.026483
## iter  80 value 378.026122
## iter  90 value 378.025749
## iter 100 value 378.025364
## final   value 378.025364
## stopped after 100 iterations
## Fitting Repeat 5
##
## # weights:  7
## initial  value 614.313160
## iter  10 value 378.248159
## iter  20 value 335.876833
## iter  30 value 327.564321
## iter  40 value 327.337414
## iter  50 value 327.309213
## iter  60 value 327.304054
## iter  70 value 281.453609
## iter  80 value 276.548319
## final   value 276.548207
## converged
## Fitting Repeat 1
##
## # weights:  17
## initial  value 458.151235
## iter  10 value 378.259287
## iter  20 value 377.954851
## iter  30 value 351.782889
## iter  40 value 350.949302
## iter  50 value 335.998920
## iter  60 value 332.487561
## iter  70 value 331.677834
## iter  80 value 331.508821
## iter  90 value 331.421475
## iter 100 value 331.381148
## final   value 331.381148
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  17
```

```
## initial  value 658.366656
## iter  10 value 378.650065
## iter  20 value 377.760900
## iter  30 value 360.523543
## iter  40 value 268.221079
## iter  50 value 260.978085
## iter  60 value 249.431501
## iter  70 value 235.887888
## iter  80 value 233.748275
## iter  90 value 231.916604
## iter 100 value 231.144463
## final  value 231.144463
## stopped after 100 iterations
## Fitting Repeat 3
##
## # weights:  17
## initial  value 741.551925
## iter  10 value 378.673270
## iter  20 value 367.671930
## iter  30 value 324.043311
## iter  40 value 263.757450
## iter  50 value 252.861577
## iter  60 value 249.109799
## iter  70 value 248.414071
## iter  80 value 247.718470
## iter  90 value 247.702947
## iter 100 value 247.680665
## final  value 247.680665
## stopped after 100 iterations
## Fitting Repeat 4
##
## # weights:  17
## initial  value 781.755175
## iter  10 value 378.633541
## iter  20 value 307.039431
## iter  30 value 261.017320
## iter  40 value 252.491081
## iter  50 value 250.128092
## iter  60 value 249.439082
## iter  70 value 248.919702
## iter  80 value 248.904385
## iter  90 value 248.901590
## final  value 248.890192
## converged
## Fitting Repeat 5
##
## # weights:  17
## initial  value 803.012957
## iter  10 value 378.714478
## iter  20 value 378.014508
## iter  30 value 378.012945
## iter  40 value 378.002536
## iter  50 value 377.820008
## iter  60 value 374.399995
```

```
## iter  70 value 367.837696
## iter  80 value 367.772193
## iter  90 value 291.815193
## iter 100 value 274.565263
## final   value 274.565263
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  27
## initial   value 538.793827
## iter  10 value 378.626458
## iter  20 value 377.670347
## iter  30 value 327.994135
## iter  40 value 318.694008
## iter  50 value 276.115484
## iter  60 value 268.649938
## iter  70 value 261.174344
## iter  80 value 246.539271
## iter  90 value 242.888749
## iter 100 value 241.003606
## final   value 241.003606
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  27
## initial   value 647.706190
## iter  10 value 378.565029
## iter  20 value 351.894517
## iter  30 value 327.903985
## iter  40 value 324.156344
## iter  50 value 323.007363
## iter  60 value 321.515375
## iter  70 value 321.422904
## iter  80 value 321.388142
## iter  90 value 321.340259
## iter 100 value 321.301975
## final   value 321.301975
## stopped after 100 iterations
## Fitting Repeat 3
##
## # weights:  27
## initial   value 391.885958
## iter  10 value 378.139962
## iter  20 value 335.580400
## iter  30 value 328.919821
## iter  40 value 326.683458
## iter  50 value 326.635618
## iter  60 value 326.518744
## iter  70 value 321.917661
## iter  80 value 319.598303
## iter  90 value 265.970173
## iter 100 value 260.160981
## final   value 260.160981
## stopped after 100 iterations
```

```
## Fitting Repeat 4
##
## # weights:  27
## initial  value 617.297455
## iter  10 value 378.567411
## iter  20 value 377.761805
## iter  30 value 373.619907
## iter  40 value 373.452312
## iter  50 value 373.351686
## iter  60 value 372.269091
## iter  70 value 371.808572
## iter  80 value 371.754919
## iter  90 value 340.056443
## iter 100 value 328.432951
## final  value 328.432951
## stopped after 100 iterations
## Fitting Repeat 5
##
## # weights:  27
## initial  value 570.773042
## iter  10 value 378.473742
## iter  20 value 361.085589
## iter  30 value 328.550139
## iter  40 value 327.511251
## iter  50 value 291.756410
## iter  60 value 273.780262
## iter  70 value 266.529863
## iter  80 value 260.168994
## iter  90 value 256.991613
## iter 100 value 254.383578
## final  value 254.383578
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  7
## initial  value 445.976931
## final  value 320.000000
## converged
## Fitting Repeat 2
##
## # weights:  7
## initial  value 337.733990
## final  value 320.000000
## converged
## Fitting Repeat 3
##
## # weights:  7
## initial  value 431.387461
## final  value 320.000000
## converged
## Fitting Repeat 4
##
## # weights:  7
## initial  value 510.301515
```

```
## final   value 320.000000
## converged
## Fitting Repeat 5
##
## # weights:  7
## initial   value 448.094184
## final   value 320.000000
## converged
## Fitting Repeat 1
##
## # weights:  17
## initial   value 684.307515
## final   value 320.000000
## converged
## Fitting Repeat 2
##
## # weights:  17
## initial   value 442.631302
## final   value 320.000000
## converged
## Fitting Repeat 3
##
## # weights:  17
## initial   value 498.453089
## final   value 320.000000
## converged
## Fitting Repeat 4
##
## # weights:  17
## initial   value 674.192325
## final   value 320.000000
## converged
## Fitting Repeat 5
##
## # weights:  17
## initial   value 533.288424
## final   value 320.000000
## converged
## Fitting Repeat 1
##
## # weights:  27
## initial   value 457.597693
## final   value 320.000000
## converged
## Fitting Repeat 2
##
## # weights:  27
## initial   value 317.333618
## iter   10 value 282.233214
## iter   20 value 269.117478
## iter   30 value 265.505445
## iter   40 value 264.042958
## iter   50 value 263.620777
## iter   60 value 263.428178
```

```
## iter  70 value 263.023453
## iter  80 value 262.476914
## iter  90 value 262.097360
## iter 100 value 262.024806
## final   value 262.024806
## stopped after 100 iterations
## Fitting Repeat 3
##
## # weights:  27
## initial  value 495.466216
## final   value 320.000000
## converged
## Fitting Repeat 4
##
## # weights:  27
## initial  value 449.683890
## final   value 320.000000
## converged
## Fitting Repeat 5
##
## # weights:  27
## initial  value 762.676318
## final   value 320.000000
## converged
## Fitting Repeat 1
##
## # weights:  7
## initial  value 588.433111
## iter  10 value 264.235028
## iter  20 value 225.888535
## iter  30 value 219.001108
## final   value 219.000398
## converged
## Fitting Repeat 2
##
## # weights:  7
## initial  value 491.287664
## iter  10 value 283.224779
## iter  20 value 226.823545
## iter  30 value 219.000908
## final   value 219.000399
## converged
## Fitting Repeat 3
##
## # weights:  7
## initial  value 416.641205
## iter  10 value 267.178212
## iter  20 value 238.812126
## iter  30 value 219.316839
## final   value 219.000398
## converged
## Fitting Repeat 4
##
## # weights:  7
```

```
## initial  value 346.867429
## iter  10 value 263.254890
## iter  20 value 240.875519
## iter  30 value 221.948840
## iter  40 value 219.001530
## final  value 219.000398
## converged
## Fitting Repeat 5
##
## # weights:  7
## initial  value 553.321028
## iter  10 value 287.049338
## iter  20 value 235.390223
## iter  30 value 220.911798
## final  value 220.520786
## converged
## Fitting Repeat 1
##
## # weights:  17
## initial  value 548.430918
## iter  10 value 292.350843
## iter  20 value 239.438902
## iter  30 value 219.557572
## iter  40 value 214.178104
## iter  50 value 214.123465
## iter  50 value 214.123464
## iter  50 value 214.123464
## final  value 214.123464
## converged
## Fitting Repeat 2
##
## # weights:  17
## initial  value 566.661484
## iter  10 value 281.304814
## iter  20 value 236.986267
## iter  30 value 216.112731
## iter  40 value 214.071943
## iter  50 value 213.258582
## iter  60 value 212.547225
## iter  70 value 210.257757
## iter  80 value 209.839972
## final  value 209.839835
## converged
## Fitting Repeat 3
##
## # weights:  17
## initial  value 339.822255
## iter  10 value 293.659657
## iter  20 value 233.556459
## iter  30 value 217.427455
## iter  40 value 214.505551
## iter  50 value 214.473409
## final  value 214.472662
## converged
```

```
## Fitting Repeat 4
##
## # weights:  17
## initial  value 473.353060
## iter  10 value 270.970092
## iter  20 value 227.744988
## iter  30 value 218.547848
## iter  40 value 216.498790
## iter  50 value 216.421213
## final  value 216.421162
## converged
## Fitting Repeat 5
##
## # weights:  17
## initial  value 378.487176
## iter  10 value 276.501128
## iter  20 value 236.792815
## iter  30 value 223.169975
## iter  40 value 216.931321
## iter  50 value 216.553889
## final  value 216.553780
## converged
## Fitting Repeat 1
##
## # weights:  27
## initial  value 466.673666
## iter  10 value 299.271017
## iter  20 value 286.708514
## iter  30 value 237.226618
## iter  40 value 218.244334
## iter  50 value 213.920533
## iter  60 value 213.708919
## iter  70 value 213.701710
## iter  70 value 213.701709
## iter  70 value 213.701709
## final  value 213.701709
## converged
## Fitting Repeat 2
##
## # weights:  27
## initial  value 565.013048
## iter  10 value 301.588035
## iter  20 value 283.389767
## iter  30 value 228.643662
## iter  40 value 217.355348
## iter  50 value 214.369320
## iter  60 value 209.511176
## iter  70 value 208.504973
## iter  80 value 208.464171
## iter  80 value 208.464171
## final  value 208.464171
## converged
## Fitting Repeat 3
##
```

```
## # weights:  27
## initial  value 570.921518
## iter  10 value 366.434499
## iter  20 value 266.488264
## iter  30 value 239.286303
## iter  40 value 218.266245
## iter  50 value 214.892929
## iter  60 value 212.385499
## iter  70 value 211.904032
## final  value 211.903698
## converged
## Fitting Repeat 4
##
## # weights:  27
## initial  value 477.558988
## iter  10 value 280.698040
## iter  20 value 254.096311
## iter  30 value 227.268623
## iter  40 value 215.311569
## iter  50 value 212.567391
## iter  60 value 211.503747
## iter  70 value 211.493794
## final  value 211.493781
## converged
## Fitting Repeat 5
##
## # weights:  27
## initial  value 376.540866
## iter  10 value 298.601249
## iter  20 value 241.103385
## iter  30 value 217.535370
## iter  40 value 212.110839
## iter  50 value 211.578287
## final  value 211.564557
## converged
## Fitting Repeat 1
##
## # weights:  7
## initial  value 534.465824
## iter  10 value 320.331919
## iter  20 value 320.049269
## iter  30 value 320.048700
## iter  40 value 320.048097
## iter  50 value 320.047453
## iter  60 value 320.046763
## iter  70 value 320.046016
## iter  80 value 320.045203
## iter  90 value 320.044289
## iter 100 value 320.043287
## final  value 320.043287
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  7
```

```
## initial  value 656.691307
## iter  10 value 320.487420
## iter  20 value 320.030939
## iter  30 value 320.030722
## iter  40 value 320.030504
## iter  50 value 320.030283
## iter  60 value 320.030059
## iter  70 value 320.029833
## iter  80 value 320.029604
## iter  90 value 320.029372
## iter 100 value 320.029137
## final  value 320.029137
## stopped after 100 iterations
## Fitting Repeat 3
##
## # weights:  7
## initial  value 413.129140
## iter  10 value 320.173920
## iter  20 value 320.039898
## iter  30 value 320.034500
## iter  40 value 320.033406
## iter  50 value 320.032142
## iter  60 value 320.030653
## iter  70 value 320.028853
## iter  80 value 320.026612
## iter  90 value 320.023719
## iter 100 value 320.019805
## final  value 320.019805
## stopped after 100 iterations
## Fitting Repeat 4
##
## # weights:  7
## initial  value 558.499442
## iter  10 value 320.385453
## iter  20 value 319.983966
## iter  30 value 319.908754
## iter  40 value 285.312880
## iter  50 value 269.544762
## iter  60 value 265.104669
## iter  70 value 213.534589
## iter  80 value 209.820775
## iter  80 value 209.820774
## final  value 209.820774
## converged
## Fitting Repeat 5
##
## # weights:  7
## initial  value 760.060359
## iter  10 value 320.498212
## iter  20 value 319.980381
## iter  30 value 319.963676
## iter  40 value 319.921194
## iter  50 value 303.795393
## iter  60 value 277.651387
```

```
## iter  70 value 276.500219
## iter  80 value 235.274442
## iter  90 value 231.666497
## iter 100 value 230.335933
## final   value 230.335933
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  17
## initial   value 337.029722
## iter  10 value 320.193116
## iter  20 value 320.069658
## iter  30 value 320.068795
## iter  40 value 320.067859
## iter  50 value 320.066834
## iter  60 value 320.065697
## iter  70 value 320.064415
## iter  80 value 320.062868
## iter  90 value 320.060995
## iter 100 value 320.058843
## final   value 320.058843
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  17
## initial   value 753.637715
## iter  10 value 320.662971
## iter  20 value 319.043486
## iter  30 value 261.072368
## iter  40 value 248.881100
## iter  50 value 247.769165
## iter  60 value 242.233876
## iter  70 value 241.637102
## iter  80 value 240.466068
## iter  90 value 232.861107
## iter 100 value 228.715362
## final   value 228.715362
## stopped after 100 iterations
## Fitting Repeat 3
##
## # weights:  17
## initial   value 589.511459
## iter  10 value 320.468379
## iter  20 value 302.785002
## iter  30 value 277.831372
## iter  40 value 274.393612
## iter  50 value 271.418709
## iter  60 value 266.658519
## iter  70 value 265.752574
## iter  80 value 263.750790
## iter  90 value 263.684509
## iter 100 value 263.447649
## final   value 263.447649
## stopped after 100 iterations
```

```
## Fitting Repeat 4
##
## # weights:  17
## initial  value 694.092564
## iter  10 value 320.625228
## iter  20 value 320.002089
## iter  30 value 319.845960
## iter  40 value 275.050233
## iter  50 value 269.750360
## iter  60 value 267.271869
## iter  70 value 265.407070
## iter  80 value 241.268757
## iter  90 value 208.462863
## iter 100 value 207.390727
## final  value 207.390727
## stopped after 100 iterations
## Fitting Repeat 5
##
## # weights:  17
## initial  value 375.926968
## iter  10 value 319.938831
## iter  20 value 288.958044
## iter  30 value 270.256286
## iter  40 value 269.309933
## iter  50 value 267.635125
## iter  60 value 267.532095
## iter  70 value 267.317239
## iter  80 value 266.647275
## iter  90 value 264.576728
## iter 100 value 264.135038
## final  value 264.135038
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  27
## initial  value 642.698537
## iter  10 value 320.752363
## iter  20 value 314.806075
## iter  30 value 294.920224
## iter  40 value 238.878285
## iter  50 value 224.996187
## iter  60 value 212.139003
## iter  70 value 208.289724
## iter  80 value 207.401665
## iter  90 value 207.303821
## iter 100 value 207.284303
## final  value 207.284303
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  27
## initial  value 376.177138
## iter  10 value 320.314812
## iter  20 value 319.218852
```

```
## iter   30 value 305.461520
## iter   40 value 271.793870
## iter   50 value 260.321742
## iter   60 value 252.964634
## iter   70 value 251.773184
## iter   80 value 247.529016
## iter   90 value 232.201224
## iter  100 value 211.769450
## final   value 211.769450
## stopped after 100 iterations
## Fitting Repeat 3
##
## # weights:  27
## initial  value 626.722427
## iter   10 value 320.886066
## iter   20 value 319.265248
## iter   30 value 282.569233
## iter   40 value 277.596692
## iter   50 value 244.031109
## iter   60 value 220.141898
## iter   70 value 214.533660
## iter   80 value 211.641333
## iter   90 value 209.455408
## iter  100 value 208.818829
## final   value 208.818829
## stopped after 100 iterations
## Fitting Repeat 4
##
## # weights:  27
## initial  value 507.051489
## iter   10 value 320.625553
## iter   20 value 311.560303
## iter   30 value 282.205681
## iter   40 value 276.120204
## iter   50 value 273.280015
## iter   60 value 266.975369
## iter   70 value 264.658687
## iter   80 value 217.790634
## iter   90 value 207.697123
## iter  100 value 204.878246
## final   value 204.878246
## stopped after 100 iterations
## Fitting Repeat 5
##
## # weights:  27
## initial  value 647.469349
## iter   10 value 320.678877
## iter   20 value 320.017806
## iter   30 value 320.017621
## iter   40 value 320.017415
## iter   50 value 320.017146
## iter   60 value 319.945445
## iter   70 value 283.834283
## iter   80 value 270.999794
```

```
## iter  90 value 265.748770
## iter 100 value 264.234136
## final  value 264.234136
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  7
## initial  value 382.046204
## final  value 352.000000
## converged
## Fitting Repeat 2
##
## # weights:  7
## initial  value 860.199574
## final  value 352.000000
## converged
## Fitting Repeat 3
##
## # weights:  7
## initial  value 405.337817
## final  value 352.000000
## converged
## Fitting Repeat 4
##
## # weights:  7
## initial  value 563.208433
## final  value 352.000000
## converged
## Fitting Repeat 5
##
## # weights:  7
## initial  value 544.582966
## final  value 352.000000
## converged
## Fitting Repeat 1
##
## # weights:  17
## initial  value 537.760036
## final  value 352.000000
## converged
## Fitting Repeat 2
##
## # weights:  17
## initial  value 465.371506
## final  value 352.000000
## converged
## Fitting Repeat 3
##
## # weights:  17
## initial  value 437.784762
## final  value 352.000000
## converged
## Fitting Repeat 4
##
```

```
## # weights:  17
## initial   value 467.187799
## final   value 352.000000
## converged
## Fitting Repeat 5
##
## # weights:  17
## initial   value 497.303904
## final   value 352.000000
## converged
## Fitting Repeat 1
##
## # weights:  27
## initial   value 461.828915
## final   value 352.000000
## converged
## Fitting Repeat 2
##
## # weights:  27
## initial   value 676.601162
## final   value 352.000000
## converged
## Fitting Repeat 3
##
## # weights:  27
## initial   value 691.310650
## final   value 352.000000
## converged
## Fitting Repeat 4
##
## # weights:  27
## initial   value 491.071849
## final   value 352.000000
## converged
## Fitting Repeat 5
##
## # weights:  27
## initial   value 515.182745
## final   value 352.000000
## converged
## Fitting Repeat 1
##
## # weights:  7
## initial   value 471.137637
## iter  10 value 314.558918
## iter  20 value 280.287088
## iter  30 value 264.002778
## final   value 263.621349
## converged
## Fitting Repeat 2
##
## # weights:  7
## initial   value 407.881318
## iter  10 value 289.379049
```

```
## iter   20 value 277.339341
## iter   30 value 269.196347
## iter   40 value 262.899572
## iter   50 value 260.059951
## final   value 260.012091
## converged
## Fitting Repeat 3
##
## # weights:  7
## initial   value 388.556535
## iter   10 value 290.294602
## iter   20 value 265.094606
## iter   30 value 264.646626
## final   value 264.646528
## converged
## Fitting Repeat 4
##
## # weights:  7
## initial   value 417.147648
## iter   10 value 269.196096
## iter   20 value 263.622724
## final   value 263.621383
## converged
## Fitting Repeat 5
##
## # weights:  7
## initial   value 500.366903
## iter   10 value 298.539609
## iter   20 value 282.874311
## iter   30 value 268.286266
## iter   40 value 262.085283
## final   value 262.013530
## converged
## Fitting Repeat 1
##
## # weights:  17
## initial   value 681.731699
## iter   10 value 320.504761
## iter   20 value 266.393208
## iter   30 value 254.599512
## iter   40 value 253.631166
## iter   50 value 253.531675
## iter   60 value 252.741198
## iter   70 value 252.230408
## final   value 252.228934
## converged
## Fitting Repeat 2
##
## # weights:  17
## initial   value 565.067710
## iter   10 value 316.360427
## iter   20 value 260.634225
## iter   30 value 254.227185
## iter   40 value 252.916286
```

```
## iter   50 value 252.906909
## final   value 252.906817
## converged
## Fitting Repeat 3
##
## # weights:  17
## initial  value 477.913533
## iter   10 value 303.497230
## iter   20 value 265.080436
## iter   30 value 257.891284
## iter   40 value 255.852192
## iter   50 value 255.851766
## iter   50 value 255.851765
## iter   50 value 255.851765
## final   value 255.851765
## converged
## Fitting Repeat 4
##
## # weights:  17
## initial  value 707.602995
## iter   10 value 344.980704
## iter   20 value 283.515223
## iter   30 value 264.704460
## iter   40 value 258.918453
## iter   50 value 255.616448
## iter   60 value 253.997464
## iter   70 value 252.621716
## final   value 252.591894
## converged
## Fitting Repeat 5
##
## # weights:  17
## initial  value 358.883008
## iter   10 value 316.171020
## iter   20 value 307.897284
## iter   30 value 260.577684
## iter   40 value 256.206967
## iter   50 value 254.932093
## final   value 254.927647
## converged
## Fitting Repeat 1
##
## # weights:  27
## initial  value 333.593956
## iter   10 value 264.853817
## iter   20 value 256.665544
## iter   30 value 252.493978
## iter   40 value 250.597923
## iter   50 value 250.117082
## iter   60 value 249.823597
## iter   70 value 249.020062
## iter   80 value 248.138408
## iter   90 value 247.628765
## iter  100 value 247.189009
```

```
## final   value 247.189009
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  27
## initial   value 522.765591
## iter  10 value 317.477812
## iter  20 value 281.828491
## iter  30 value 259.834294
## iter  40 value 250.879040
## iter  50 value 249.215408
## iter  60 value 248.841795
## iter  70 value 248.802131
## iter  80 value 248.797854
## final   value 248.797184
## converged
## Fitting Repeat 3
##
## # weights:  27
## initial   value 452.844110
## iter  10 value 335.917344
## iter  20 value 278.641389
## iter  30 value 256.121816
## iter  40 value 249.580710
## iter  50 value 245.747006
## iter  60 value 243.320526
## iter  70 value 243.032701
## final   value 243.032663
## converged
## Fitting Repeat 4
##
## # weights:  27
## initial   value 405.760495
## iter  10 value 324.292318
## iter  20 value 285.362033
## iter  30 value 261.806081
## iter  40 value 253.096281
## iter  50 value 250.677523
## iter  60 value 249.378418
## iter  70 value 248.232271
## iter  80 value 247.805175
## final   value 247.772892
## converged
## Fitting Repeat 5
##
## # weights:  27
## initial   value 471.886945
## iter  10 value 325.783381
## iter  20 value 311.921099
## iter  30 value 271.533301
## iter  40 value 257.776124
## iter  50 value 252.958566
## iter  60 value 251.159478
## iter  70 value 250.198151
```

```
## iter  80 value 250.068446
## iter  90 value 250.043597
## iter 100 value 250.040455
## final   value 250.040455
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  7
## initial   value 643.608446
## iter  10 value 352.354345
## iter  20 value 352.053086
## iter  30 value 352.052470
## iter  40 value 352.051816
## iter  50 value 352.051095
## iter  60 value 352.050318
## iter  70 value 352.049492
## iter  80 value 352.048561
## iter  90 value 352.047561
## iter 100 value 352.046463
## final   value 352.046463
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  7
## initial   value 526.042243
## iter  10 value 352.282431
## iter  20 value 352.064624
## iter  30 value 352.063641
## iter  40 value 352.062555
## iter  50 value 352.061375
## iter  60 value 352.060051
## iter  70 value 352.058515
## iter  80 value 352.056637
## iter  90 value 352.054405
## iter 100 value 352.051630
## final   value 352.051630
## stopped after 100 iterations
## Fitting Repeat 3
##
## # weights:  7
## initial   value 582.081024
## iter  10 value 352.291073
## iter  20 value 308.985550
## iter  30 value 306.685764
## iter  40 value 306.429038
## iter  50 value 305.920289
## iter  60 value 260.860616
## final   value 260.559756
## converged
## Fitting Repeat 4
##
## # weights:  7
## initial   value 343.061223
## iter  10 value 278.240824
```

```
## iter  20 value 276.772504
## iter  30 value 273.271769
## final   value 273.199273
## converged
## Fitting Repeat 5
##
## # weights:  7
## initial  value 559.362565
## iter  10 value 352.335222
## iter  20 value 352.024988
## iter  30 value 352.024295
## iter  40 value 352.023552
## iter  50 value 352.022753
## iter  60 value 352.021886
## iter  70 value 352.020941
## iter  80 value 352.019903
## iter  90 value 352.018752
## iter 100 value 352.017463
## final   value 352.017463
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  17
## initial  value 545.144857
## iter  10 value 352.476763
## iter  20 value 352.028537
## iter  30 value 352.027848
## iter  40 value 352.026583
## iter  50 value 352.017680
## iter  60 value 334.833318
## iter  70 value 328.152620
## iter  80 value 327.019255
## iter  90 value 304.763333
## iter 100 value 303.635182
## final   value 303.635182
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  17
## initial  value 677.219135
## iter  10 value 352.460868
## iter  20 value 351.856053
## iter  30 value 318.681512
## iter  40 value 306.839953
## iter  50 value 304.222477
## iter  60 value 299.257620
## iter  70 value 298.454141
## iter  80 value 281.175658
## iter  90 value 257.127409
## iter 100 value 243.492301
## final   value 243.492301
## stopped after 100 iterations
## Fitting Repeat 3
##
```

```
## # weights:  17
## initial  value 565.867117
## iter  10 value 352.503255
## iter  20 value 343.785357
## iter  30 value 327.265975
## iter  40 value 282.518650
## iter  50 value 273.831429
## iter  60 value 273.399518
## iter  70 value 272.293831
## iter  80 value 269.273403
## iter  90 value 267.708666
## iter 100 value 267.443168
## final  value 267.443168
## stopped after 100 iterations
## Fitting Repeat 4
##
## # weights:  17
## initial  value 707.386435
## iter  10 value 352.567916
## iter  20 value 351.972187
## iter  30 value 343.721221
## iter  40 value 305.882959
## iter  50 value 303.320127
## iter  60 value 256.033373
## iter  70 value 249.819592
## iter  80 value 249.607619
## iter  90 value 249.429779
## iter 100 value 249.276388
## final  value 249.276388
## stopped after 100 iterations
## Fitting Repeat 5
##
## # weights:  17
## initial  value 530.318181
## iter  10 value 352.675456
## iter  20 value 342.635175
## iter  30 value 310.013082
## iter  40 value 307.070478
## iter  50 value 306.102125
## iter  60 value 305.722889
## iter  70 value 305.699523
## iter  80 value 305.694233
## iter  90 value 305.631147
## iter 100 value 298.220937
## final  value 298.220937
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  27
## initial  value 686.416737
## iter  10 value 352.826061
## iter  20 value 352.038190
## iter  30 value 297.671979
## iter  40 value 285.477257
```

```
## iter  50 value 277.757432
## iter  60 value 267.760218
## iter  70 value 266.551647
## iter  80 value 259.664717
## iter  90 value 258.617310
## iter 100 value 256.566534
## final  value 256.566534
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  27
## initial  value 651.067564
## iter  10 value 352.738566
## iter  20 value 282.883585
## iter  30 value 257.099056
## iter  40 value 254.004507
## iter  50 value 248.743550
## iter  60 value 246.262178
## iter  70 value 245.858573
## iter  80 value 245.362246
## iter  90 value 245.047537
## iter 100 value 244.947493
## final  value 244.947493
## stopped after 100 iterations
## Fitting Repeat 3
##
## # weights:  27
## initial  value 767.389443
## iter  10 value 353.084758
## iter  20 value 352.025821
## iter  30 value 352.025097
## iter  40 value 352.023858
## iter  50 value 352.019555
## iter  60 value 348.795951
## iter  70 value 340.691748
## iter  80 value 335.799479
## iter  90 value 323.359382
## iter 100 value 300.132202
## final  value 300.132202
## stopped after 100 iterations
## Fitting Repeat 4
##
## # weights:  27
## initial  value 616.596017
## iter  10 value 353.035634
## iter  20 value 352.130775
## iter  30 value 352.116228
## iter  40 value 352.081635
## iter  50 value 351.860779
## iter  60 value 329.835095
## iter  70 value 316.297744
## iter  80 value 314.824866
## iter  90 value 310.483670
## iter 100 value 304.758987
```

```
## final   value 304.758987
## stopped after 100 iterations
## Fitting Repeat 5
##
## # weights:  27
## initial   value 395.795856
## iter   10 value 352.258050
## iter   20 value 305.437624
## iter   30 value 301.108174
## iter   40 value 299.875558
## iter   50 value 297.387480
## iter   60 value 295.985659
## iter   70 value 295.745727
## iter   80 value 294.368294
## iter   90 value 293.955452
## iter  100 value 292.081652
## final   value 292.081652
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  7
## initial   value 494.971989
## final   value 348.000000
## converged
## Fitting Repeat 2
##
## # weights:  7
## initial   value 517.265083
## final   value 348.000000
## converged
## Fitting Repeat 3
##
## # weights:  7
## initial   value 641.018169
## final   value 348.000000
## converged
## Fitting Repeat 4
##
## # weights:  7
## initial   value 648.925572
## final   value 348.000000
## converged
## Fitting Repeat 5
##
## # weights:  7
## initial   value 495.246124
## final   value 348.000000
## converged
## Fitting Repeat 1
##
## # weights:  17
## initial   value 557.565507
## final   value 348.000000
## converged
```

```
## Fitting Repeat 2
##
## # weights:  17
## initial   value 515.488657
## final  value 348.000000
## converged
## Fitting Repeat 3
##
## # weights:  17
## initial   value 682.290199
## final  value 348.000000
## converged
## Fitting Repeat 4
##
## # weights:  17
## initial   value 676.271823
## final  value 348.000000
## converged
## Fitting Repeat 5
##
## # weights:  17
## initial   value 692.414816
## final  value 348.000000
## converged
## Fitting Repeat 1
##
## # weights:  27
## initial   value 719.028587
## final  value 348.000000
## converged
## Fitting Repeat 2
##
## # weights:  27
## initial   value 443.156132
## final  value 348.000000
## converged
## Fitting Repeat 3
##
## # weights:  27
## initial   value 333.675279
## iter  10 value 243.596008
## iter  20 value 233.324749
## iter  30 value 225.061697
## iter  40 value 222.432771
## iter  50 value 211.693862
## iter  60 value 208.562472
## iter  70 value 200.658684
## iter  80 value 196.627959
## iter  90 value 193.578041
## iter 100 value 193.503528
## final  value 193.503528
## stopped after 100 iterations
## Fitting Repeat 4
##
```

```
## # weights:  27
## initial   value 624.433483
## final   value 348.000000
## converged
## Fitting Repeat 5
##
## # weights:  27
## initial   value 433.073311
## final   value 348.000000
## converged
## Fitting Repeat 1
##
## # weights:  7
## initial   value 508.448024
## iter   10 value 313.869425
## iter   20 value 263.682708
## iter   30 value 248.497989
## iter   40 value 240.982469
## final   value 240.421747
## converged
## Fitting Repeat 2
##
## # weights:  7
## initial   value 369.682869
## iter   10 value 284.514349
## iter   20 value 255.261511
## iter   30 value 240.615717
## final   value 240.421749
## converged
## Fitting Repeat 3
##
## # weights:  7
## initial   value 512.541779
## iter   10 value 287.974060
## iter   20 value 277.320938
## iter   30 value 255.180085
## iter   40 value 247.307122
## iter   50 value 241.715998
## final   value 241.710428
## converged
## Fitting Repeat 4
##
## # weights:  7
## initial   value 525.362922
## iter   10 value 299.991605
## iter   20 value 252.502429
## iter   30 value 246.858625
## iter   40 value 244.854933
## iter   50 value 240.872954
## final   value 240.421747
## converged
## Fitting Repeat 5
##
## # weights:  7
```

```
## initial  value 575.703348
## iter  10 value 276.807743
## iter  20 value 251.549027
## iter  30 value 247.391953
## iter  40 value 246.147799
## iter  50 value 242.802152
## final  value 240.421747
## converged
## Fitting Repeat 1
##
## # weights:  17
## initial  value 731.357305
## iter  10 value 313.890939
## iter  20 value 260.244379
## iter  30 value 237.987675
## iter  40 value 228.889828
## iter  50 value 228.761059
## final  value 228.761053
## converged
## Fitting Repeat 2
##
## # weights:  17
## initial  value 602.759137
## iter  10 value 321.298108
## iter  20 value 265.391113
## iter  30 value 234.639752
## iter  40 value 229.627293
## iter  50 value 228.737346
## iter  60 value 226.808720
## iter  70 value 222.562513
## iter  80 value 221.235048
## final  value 221.227628
## converged
## Fitting Repeat 3
##
## # weights:  17
## initial  value 747.487664
## iter  10 value 309.814057
## iter  20 value 256.691319
## iter  30 value 235.933104
## iter  40 value 229.794045
## iter  50 value 229.607701
## final  value 229.607660
## converged
## Fitting Repeat 4
##
## # weights:  17
## initial  value 543.107428
## iter  10 value 322.899014
## iter  20 value 254.941335
## iter  30 value 240.429115
## iter  40 value 230.305825
## iter  50 value 230.052211
## final  value 230.051960
```

```
## converged
## Fitting Repeat 5
##
## # weights:  17
## initial  value 513.257126
## iter  10 value 285.015667
## iter  20 value 249.395037
## iter  30 value 240.201092
## iter  40 value 235.254185
## iter  50 value 230.376527
## iter  60 value 229.776908
## final   value 229.768302
## converged
## Fitting Repeat 1
##
## # weights:  27
## initial  value 389.486575
## iter  10 value 307.830903
## iter  20 value 266.761602
## iter  30 value 240.656194
## iter  40 value 230.882929
## iter  50 value 228.328623
## iter  60 value 228.171237
## final   value 228.170758
## converged
## Fitting Repeat 2
##
## # weights:  27
## initial  value 612.775329
## iter  10 value 319.718898
## iter  20 value 246.028409
## iter  30 value 228.279837
## iter  40 value 225.138245
## iter  50 value 223.192581
## iter  60 value 218.592339
## iter  70 value 218.204750
## iter  80 value 218.200012
## final   value 218.199865
## converged
## Fitting Repeat 3
##
## # weights:  27
## initial  value 382.531539
## iter  10 value 307.564464
## iter  20 value 246.160575
## iter  30 value 232.331337
## iter  40 value 229.172126
## iter  50 value 228.547602
## iter  60 value 228.487587
## iter  70 value 228.379644
## iter  80 value 227.212058
## iter  90 value 225.022631
## iter 100 value 219.619918
## final   value 219.619918
```

```
## stopped after 100 iterations
## Fitting Repeat 4
##
## # weights:  27
## initial  value 574.219455
## iter  10 value 304.230144
## iter  20 value 289.174141
## iter  30 value 244.916637
## iter  40 value 231.040612
## iter  50 value 228.533499
## iter  60 value 226.140013
## iter  70 value 222.113025
## iter  80 value 220.229438
## iter  90 value 219.767551
## iter 100 value 219.410890
## final  value 219.410890
## stopped after 100 iterations
## Fitting Repeat 5
##
## # weights:  27
## initial  value 496.394433
## iter  10 value 308.049676
## iter  20 value 247.311205
## iter  30 value 232.620106
## iter  40 value 229.224131
## iter  50 value 227.558786
## iter  60 value 222.779744
## iter  70 value 220.091033
## iter  80 value 215.151544
## iter  90 value 208.551805
## iter 100 value 206.705589
## final  value 206.705589
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  7
## initial  value 518.129647
## iter  10 value 348.283389
## iter  20 value 347.817952
## iter  30 value 309.910889
## iter  40 value 297.148456
## iter  50 value 296.664035
## iter  60 value 245.602951
## iter  70 value 245.181110
## iter  80 value 244.819422
## final  value 244.813751
## converged
## Fitting Repeat 2
##
## # weights:  7
## initial  value 508.405493
## iter  10 value 348.290264
## iter  20 value 347.989702
## iter  30 value 347.946228
```

```
## iter  40 value 347.505815
## iter  50 value 312.637190
## iter  60 value 312.499016
## iter  70 value 312.478573
## final   value 312.477934
## converged
## Fitting Repeat 3
##
## # weights:  7
## initial   value 574.033117
## iter  10 value 348.267958
## iter  20 value 347.975562
## iter  30 value 306.885721
## iter  40 value 296.538572
## iter  50 value 292.960958
## iter  60 value 289.376681
## iter  70 value 289.338810
## iter  80 value 236.726504
## iter  90 value 230.203200
## iter 100 value 230.188114
## final   value 230.188114
## stopped after 100 iterations
## Fitting Repeat 4
##
## # weights:  7
## initial   value 601.766586
## iter  10 value 348.402029
## iter  20 value 347.864730
## iter  30 value 336.048949
## iter  40 value 301.851502
## iter  50 value 297.102324
## iter  60 value 290.086638
## iter  70 value 235.727325
## iter  80 value 232.752377
## iter  90 value 230.157245
## final   value 230.156467
## converged
## Fitting Repeat 5
##
## # weights:  7
## initial   value 618.228456
## iter  10 value 348.294370
## iter  20 value 348.065196
## iter  30 value 348.063701
## iter  40 value 348.047771
## iter  50 value 348.040892
## iter  60 value 348.029207
## iter  70 value 348.004105
## iter  80 value 347.907960
## iter  90 value 339.490910
## iter 100 value 306.756677
## final   value 306.756677
## stopped after 100 iterations
## Fitting Repeat 1
```

```
##
## # weights:  17
## initial   value 681.964575
## iter  10 value 348.512311
## iter  20 value 343.701380
## iter  30 value 319.993782
## iter  40 value 315.728402
## iter  50 value 310.960275
## iter  60 value 310.804062
## iter  70 value 310.287058
## iter  80 value 310.139915
## iter  90 value 283.365871
## iter 100 value 273.433987
## final   value 273.433987
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  17
## initial   value 708.372678
## iter  10 value 348.458229
## iter  20 value 348.085598
## iter  30 value 348.041282
## iter  40 value 320.886118
## iter  50 value 320.354217
## iter  60 value 320.202103
## iter  70 value 320.164782
## iter  80 value 320.094607
## iter  90 value 320.056425
## iter 100 value 320.039234
## final   value 320.039234
## stopped after 100 iterations
## Fitting Repeat 3
##
## # weights:  17
## initial   value 484.038161
## iter  10 value 348.356899
## iter  20 value 334.619960
## iter  30 value 293.315608
## iter  40 value 289.183715
## iter  50 value 286.823721
## iter  60 value 286.080514
## iter  70 value 285.935524
## iter  80 value 285.618697
## iter  90 value 226.690746
## iter 100 value 223.698355
## final   value 223.698355
## stopped after 100 iterations
## Fitting Repeat 4
##
## # weights:  17
## initial   value 607.410086
## iter  10 value 348.501328
## iter  20 value 347.987112
## iter  30 value 297.304292
```

```
## iter  40 value 290.534108
## iter  50 value 260.207435
## iter  60 value 256.393768
## iter  70 value 248.512177
## iter  80 value 238.917489
## iter  90 value 225.842552
## iter 100 value 225.427809
## final  value 225.427809
## stopped after 100 iterations
## Fitting Repeat 5
##
## # weights:  17
## initial  value 598.063485
## iter  10 value 348.467372
## iter  20 value 347.936877
## iter  30 value 347.860259
## iter  40 value 347.000037
## iter  50 value 293.713573
## iter  60 value 282.637962
## iter  70 value 233.999653
## iter  80 value 227.502768
## iter  90 value 224.536997
## iter 100 value 223.934277
## final  value 223.934277
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  27
## initial  value 678.035283
## iter  10 value 348.772161
## iter  20 value 315.774005
## iter  30 value 233.634298
## iter  40 value 223.892133
## iter  50 value 222.144937
## iter  60 value 219.904596
## iter  70 value 219.715467
## iter  80 value 219.662245
## iter  90 value 219.641244
## iter 100 value 219.627524
## final  value 219.627524
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  27
## initial  value 457.922338
## iter  10 value 348.647717
## iter  20 value 348.010276
## iter  30 value 347.976242
## iter  40 value 341.365387
## iter  50 value 293.969254
## iter  60 value 290.343061
## iter  70 value 289.805436
## iter  80 value 288.155460
## iter  90 value 287.391709
```

```
## iter 100 value 277.791486
## final  value 277.791486
## stopped after 100 iterations
## Fitting Repeat 3
##
## # weights:  27
## initial  value 444.363409
## iter  10 value 348.359688
## iter  20 value 305.503458
## iter  30 value 289.511176
## iter  40 value 286.989662
## iter  50 value 285.257008
## iter  60 value 284.384773
## iter  70 value 284.274209
## iter  80 value 284.226397
## iter  90 value 284.126239
## iter 100 value 284.123104
## final  value 284.123104
## stopped after 100 iterations
## Fitting Repeat 4
##
## # weights:  27
## initial  value 395.021989
## iter  10 value 348.272799
## iter  20 value 301.367066
## iter  30 value 290.397294
## iter  40 value 235.834323
## iter  50 value 218.132387
## iter  60 value 213.723625
## iter  70 value 212.507124
## iter  80 value 211.318887
## iter  90 value 211.171901
## iter 100 value 211.044557
## final  value 211.044557
## stopped after 100 iterations
## Fitting Repeat 5
##
## # weights:  27
## initial  value 503.404719
## iter  10 value 348.507574
## iter  20 value 347.935519
## iter  30 value 299.951539
## iter  40 value 260.205625
## iter  50 value 248.867775
## iter  60 value 241.168370
## iter  70 value 226.950141
## iter  80 value 224.956318
## iter  90 value 224.348624
## iter 100 value 224.119010
## final  value 224.119010
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  7
```

```
## initial  value 488.110668
## final  value 308.000000
## converged
## Fitting Repeat 2
##
## # weights:  7
## initial  value 465.212330
## final  value 308.000000
## converged
## Fitting Repeat 3
##
## # weights:  7
## initial  value 506.727406
## final  value 308.000000
## converged
## Fitting Repeat 4
##
## # weights:  7
## initial  value 551.954194
## final  value 308.000000
## converged
## Fitting Repeat 5
##
## # weights:  7
## initial  value 429.224251
## final  value 308.000000
## converged
## Fitting Repeat 1
##
## # weights:  17
## initial  value 638.560384
## final  value 308.000000
## converged
## Fitting Repeat 2
##
## # weights:  17
## initial  value 761.219957
## final  value 308.000000
## converged
## Fitting Repeat 3
##
## # weights:  17
## initial  value 587.808802
## final  value 308.000000
## converged
## Fitting Repeat 4
##
## # weights:  17
## initial  value 568.294710
## final  value 308.000000
## converged
## Fitting Repeat 5
##
## # weights:  17
```

```
## initial  value 471.263553
## final  value 308.000000
## converged
## Fitting Repeat 1
##
## # weights:  27
## initial  value 455.767620
## final  value 308.000000
## converged
## Fitting Repeat 2
##
## # weights:  27
## initial  value 697.654146
## final  value 308.000000
## converged
## Fitting Repeat 3
##
## # weights:  27
## initial  value 421.023850
## final  value 308.000000
## converged
## Fitting Repeat 4
##
## # weights:  27
## initial  value 762.294027
## final  value 308.000000
## converged
## Fitting Repeat 5
##
## # weights:  27
## initial  value 584.014217
## final  value 308.000000
## converged
## Fitting Repeat 1
##
## # weights:  7
## initial  value 520.214447
## iter  10 value 268.361016
## iter  20 value 238.705167
## iter  30 value 235.130223
## final  value 235.059884
## converged
## Fitting Repeat 2
##
## # weights:  7
## initial  value 526.154741
## iter  10 value 258.484401
## iter  20 value 245.059762
## iter  30 value 239.181788
## final  value 239.179314
## converged
## Fitting Repeat 3
##
## # weights:  7
```

```
## initial  value 464.935044
## iter  10 value 267.530043
## iter  20 value 236.635564
## iter  30 value 236.283238
## final   value 236.283113
## converged
## Fitting Repeat 4
##
## # weights:  7
## initial  value 436.467979
## iter  10 value 260.947845
## iter  20 value 244.406273
## iter  30 value 243.705906
## final   value 243.705661
## converged
## Fitting Repeat 5
##
## # weights:  7
## initial  value 437.544337
## iter  10 value 273.418717
## iter  20 value 238.537672
## iter  30 value 235.059886
## iter  30 value 235.059884
## iter  30 value 235.059884
## final   value 235.059884
## converged
## Fitting Repeat 1
##
## # weights:  17
## initial  value 426.923531
## iter  10 value 282.323584
## iter  20 value 242.947895
## iter  30 value 233.579577
## iter  40 value 232.630996
## final   value 232.624445
## converged
## Fitting Repeat 2
##
## # weights:  17
## initial  value 614.909376
## iter  10 value 311.390347
## iter  20 value 252.960814
## iter  30 value 239.418291
## iter  40 value 227.122025
## iter  50 value 226.475291
## final   value 226.470521
## converged
## Fitting Repeat 3
##
## # weights:  17
## initial  value 685.344732
## iter  10 value 292.418983
## iter  20 value 241.761059
## iter  30 value 227.128898
```

```
## iter   40 value 225.877723
## iter   50 value 223.371903
## iter   60 value 222.755276
## iter   70 value 222.752459
## iter   70 value 222.752458
## final   value 222.752458
## converged
## Fitting Repeat 4
##
## # weights:  17
## initial  value 486.643347
## iter   10 value 283.320453
## iter   20 value 237.186339
## iter   30 value 227.697119
## iter   40 value 227.071766
## iter   50 value 226.908640
## iter   60 value 226.891706
## final   value 226.891687
## converged
## Fitting Repeat 5
##
## # weights:  17
## initial  value 485.464569
## iter   10 value 275.181407
## iter   20 value 231.901128
## iter   30 value 227.467900
## iter   40 value 227.286049
## final   value 227.284628
## converged
## Fitting Repeat 1
##
## # weights:  27
## initial  value 813.928761
## iter   10 value 323.443323
## iter   20 value 256.347075
## iter   30 value 239.675722
## iter   40 value 236.260724
## iter   50 value 231.460828
## iter   60 value 230.680020
## iter   70 value 230.610673
## final   value 230.606151
## converged
## Fitting Repeat 2
##
## # weights:  27
## initial  value 380.028997
## iter   10 value 276.738960
## iter   20 value 228.606107
## iter   30 value 224.776856
## iter   40 value 222.022943
## iter   50 value 221.769026
## final   value 221.769012
## converged
## Fitting Repeat 3
```

```
##
## # weights:  27
## initial   value 434.708527
## iter  10 value 254.269825
## iter  20 value 233.964981
## iter  30 value 226.480493
## iter  40 value 222.706507
## iter  50 value 221.073723
## iter  60 value 217.300911
## iter  70 value 212.238699
## iter  80 value 211.601172
## iter  90 value 211.463258
## iter 100 value 210.740403
## final   value 210.740403
## stopped after 100 iterations
## Fitting Repeat 4
##
## # weights:  27
## initial   value 799.465905
## iter  10 value 319.530545
## iter  20 value 258.352970
## iter  30 value 234.814576
## iter  40 value 223.832220
## iter  50 value 220.618592
## iter  60 value 217.435441
## iter  70 value 212.150364
## iter  80 value 212.029983
## iter  80 value 212.029981
## iter  80 value 212.029981
## final   value 212.029981
## converged
## Fitting Repeat 5
##
## # weights:  27
## initial   value 398.652424
## iter  10 value 284.836855
## iter  20 value 245.172628
## iter  30 value 226.440434
## iter  40 value 221.680228
## iter  50 value 220.705240
## iter  60 value 220.539291
## final   value 220.539186
## converged
## Fitting Repeat 1
##
## # weights:  7
## initial   value 411.311058
## iter  10 value 308.193799
## iter  20 value 308.011124
## iter  30 value 308.008101
## iter  40 value 308.004041
## iter  50 value 307.998190
## iter  60 value 307.988815
## iter  70 value 307.970818
```

```
## iter  80 value 307.920129
## iter  90 value 307.082232
## iter 100 value 276.225734
## final   value 276.225734
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  7
## initial   value 525.482659
## iter  10 value 308.326918
## iter  20 value 287.527051
## iter  30 value 282.590722
## iter  40 value 272.812141
## iter  50 value 271.498203
## iter  60 value 270.527933
## iter  70 value 270.177920
## iter  80 value 270.171544
## iter  90 value 233.378800
## final   value 232.197628
## converged
## Fitting Repeat 3
##
## # weights:  7
## initial   value 605.890630
## iter  10 value 308.393594
## iter  20 value 308.022517
## iter  30 value 308.019458
## iter  40 value 308.015250
## iter  50 value 308.008993
## iter  60 value 275.641233
## iter  70 value 271.063888
## iter  80 value 270.388183
## iter  90 value 270.172277
## iter 100 value 270.162984
## final   value 270.162984
## stopped after 100 iterations
## Fitting Repeat 4
##
## # weights:  7
## initial   value 729.298078
## iter  10 value 308.561186
## iter  20 value 308.035736
## iter  30 value 308.035454
## iter  40 value 308.035167
## iter  50 value 308.034873
## iter  60 value 308.034571
## iter  70 value 308.034258
## iter  80 value 308.033937
## iter  90 value 308.033613
## iter 100 value 308.033281
## final   value 308.033281
## stopped after 100 iterations
## Fitting Repeat 5
##
```

```
## # weights:  7
## initial  value 605.905990
## iter  10 value 308.431412
## iter  20 value 308.028623
## iter  30 value 308.026426
## iter  40 value 308.023589
## iter  50 value 308.019659
## iter  60 value 308.013834
## iter  70 value 301.253256
## iter  80 value 283.333285
## iter  90 value 283.051068
## iter 100 value 259.825151
## final  value 259.825151
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  17
## initial  value 410.877416
## iter  10 value 308.263101
## iter  20 value 307.699148
## iter  30 value 276.173633
## iter  40 value 267.905952
## iter  50 value 266.812209
## iter  60 value 266.217621
## iter  70 value 266.016695
## iter  80 value 265.975893
## iter  90 value 265.811615
## iter 100 value 265.801842
## final  value 265.801842
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  17
## initial  value 431.441900
## iter  10 value 308.225237
## iter  20 value 308.010902
## iter  30 value 308.001204
## iter  40 value 307.396078
## iter  50 value 274.587073
## iter  60 value 273.773178
## iter  70 value 272.918751
## iter  80 value 268.651712
## iter  90 value 264.976460
## iter 100 value 264.036007
## final  value 264.036007
## stopped after 100 iterations
## Fitting Repeat 3
##
## # weights:  17
## initial  value 617.904140
## iter  10 value 308.350508
## iter  20 value 307.652649
## iter  30 value 272.524594
## iter  40 value 270.622750
```

```
## iter  50 value 270.177406
## iter  60 value 269.932296
## iter  70 value 269.679971
## iter  80 value 269.581669
## iter  90 value 269.543099
## iter 100 value 269.515858
## final  value 269.515858
## stopped after 100 iterations
## Fitting Repeat 4
##
## # weights:  17
## initial  value 513.704023
## iter  10 value 308.436397
## iter  20 value 307.461736
## iter  30 value 278.043049
## iter  40 value 274.126892
## iter  50 value 270.204245
## iter  60 value 265.911505
## iter  70 value 265.097201
## iter  80 value 264.967166
## iter  90 value 264.963347
## iter 100 value 264.841883
## final  value 264.841883
## stopped after 100 iterations
## Fitting Repeat 5
##
## # weights:  17
## initial  value 609.672764
## iter  10 value 308.587394
## iter  20 value 308.052496
## iter  30 value 308.051558
## iter  40 value 308.050515
## iter  50 value 308.049339
## iter  60 value 308.047992
## iter  70 value 308.046416
## iter  80 value 308.044528
## iter  90 value 308.042195
## iter 100 value 308.039199
## final  value 308.039199
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  27
## initial  value 648.162910
## iter  10 value 308.566757
## iter  20 value 308.003503
## iter  30 value 290.277464
## iter  40 value 279.393439
## iter  50 value 276.161690
## iter  60 value 271.664207
## iter  70 value 268.436664
## iter  80 value 248.719115
## iter  90 value 241.800894
## iter 100 value 240.307625
```

```
## final   value 240.307625
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  27
## initial   value 498.257600
## iter  10 value 308.547444
## iter  20 value 308.017021
## iter  30 value 308.004965
## iter  40 value 307.219224
## iter  50 value 293.854136
## iter  60 value 280.793218
## iter  70 value 279.488807
## iter  80 value 276.814136
## iter  90 value 270.299626
## iter 100 value 266.374258
## final   value 266.374258
## stopped after 100 iterations
## Fitting Repeat 3
##
## # weights:  27
## initial   value 598.518629
## iter  10 value 308.830503
## iter  20 value 308.013492
## iter  30 value 308.009356
## iter  40 value 308.002516
## iter  50 value 298.614451
## iter  60 value 286.850004
## iter  70 value 271.718276
## iter  80 value 271.100554
## iter  90 value 271.060425
## iter 100 value 268.179708
## final   value 268.179708
## stopped after 100 iterations
## Fitting Repeat 4
##
## # weights:  27
## initial   value 379.337334
## iter  10 value 308.203711
## iter  20 value 278.288155
## iter  30 value 275.846178
## iter  40 value 274.165817
## iter  50 value 273.087382
## iter  60 value 273.016982
## iter  70 value 272.969286
## iter  80 value 272.953644
## iter  90 value 272.948648
## iter 100 value 272.928516
## final   value 272.928516
## stopped after 100 iterations
## Fitting Repeat 5
##
## # weights:  27
## initial   value 673.271211
```

```
## iter  10 value 308.889064
## iter  20 value 308.018229
## iter  30 value 305.167899
## iter  40 value 294.280304
## iter  50 value 270.860695
## iter  60 value 237.715609
## iter  70 value 233.640828
## iter  80 value 230.969260
## iter  90 value 229.103953
## iter 100 value 228.955469
## final  value 228.955469
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  7
## initial  value 579.203755
## final  value 332.000000
## converged
## Fitting Repeat 2
##
## # weights:  7
## initial  value 569.937681
## final  value 332.000000
## converged
## Fitting Repeat 3
##
## # weights:  7
## initial  value 417.350168
## final  value 332.000000
## converged
## Fitting Repeat 4
##
## # weights:  7
## initial  value 496.875056
## final  value 332.000000
## converged
## Fitting Repeat 5
##
## # weights:  7
## initial  value 458.178195
## final  value 332.000000
## converged
## Fitting Repeat 1
##
## # weights:  17
## initial  value 577.259213
## final  value 332.000000
## converged
## Fitting Repeat 2
##
## # weights:  17
## initial  value 812.443681
## final  value 332.000000
## converged
```

```
## Fitting Repeat 3
##
## # weights:  17
## initial  value 437.467573
## final  value 332.000000
## converged
## Fitting Repeat 4
##
## # weights:  17
## initial  value 568.168625
## final  value 332.000000
## converged
## Fitting Repeat 5
##
## # weights:  17
## initial  value 394.120566
## final  value 332.000000
## converged
## Fitting Repeat 1
##
## # weights:  27
## initial  value 817.156341
## final  value 332.000000
## converged
## Fitting Repeat 2
##
## # weights:  27
## initial  value 433.787207
## final  value 332.000000
## converged
## Fitting Repeat 3
##
## # weights:  27
## initial  value 551.974962
## final  value 332.000000
## converged
## Fitting Repeat 4
##
## # weights:  27
## initial  value 585.916873
## final  value 332.000000
## converged
## Fitting Repeat 5
##
## # weights:  27
## initial  value 455.541145
## final  value 332.000000
## converged
## Fitting Repeat 1
##
## # weights:  7
## initial  value 584.279654
## iter  10 value 292.939370
## iter  20 value 252.511306
```

```
## iter  30 value 248.601659
## final   value 248.367304
## converged
## Fitting Repeat 2
##
## # weights:  7
## initial   value 564.586205
## iter  10 value 300.450501
## iter  20 value 248.437205
## final   value 248.367304
## converged
## Fitting Repeat 3
##
## # weights:  7
## initial   value 631.797546
## iter  10 value 267.897956
## iter  20 value 243.030120
## iter  30 value 238.071876
## final   value 238.068243
## converged
## Fitting Repeat 4
##
## # weights:  7
## initial   value 519.795041
## iter  10 value 302.434432
## iter  20 value 250.248934
## iter  30 value 248.459977
## final   value 248.367304
## converged
## Fitting Repeat 5
##
## # weights:  7
## initial   value 416.162432
## iter  10 value 290.603746
## iter  20 value 249.878277
## iter  30 value 248.367609
## final   value 248.367305
## converged
## Fitting Repeat 1
##
## # weights:  17
## initial   value 624.627635
## iter  10 value 300.029571
## iter  20 value 247.671728
## iter  30 value 231.067970
## iter  40 value 230.628920
## iter  50 value 230.453357
## final   value 230.453196
## converged
## Fitting Repeat 2
##
## # weights:  17
## initial   value 499.930523
## iter  10 value 288.641544
```

```
## iter   20 value 252.169443
## iter   30 value 236.253292
## iter   40 value 228.894130
## iter   50 value 228.661111
## final   value 228.661107
## converged
## Fitting Repeat 3
##
## # weights:  17
## initial  value 766.428954
## iter   10 value 308.327476
## iter   20 value 240.316110
## iter   30 value 230.897607
## iter   40 value 230.745080
## final   value 230.745032
## converged
## Fitting Repeat 4
##
## # weights:  17
## initial  value 498.290411
## iter   10 value 292.962620
## iter   20 value 244.058931
## iter   30 value 233.383092
## iter   40 value 231.692674
## iter   50 value 231.615377
## iter   60 value 231.560571
## final   value 231.551851
## converged
## Fitting Repeat 5
##
## # weights:  17
## initial  value 646.530720
## iter   10 value 285.901379
## iter   20 value 258.925053
## iter   30 value 248.158853
## iter   40 value 245.591352
## iter   50 value 244.655447
## final   value 244.652319
## converged
## Fitting Repeat 1
##
## # weights:  27
## initial  value 506.288937
## iter   10 value 290.802867
## iter   20 value 250.176394
## iter   30 value 239.707003
## iter   40 value 231.226157
## iter   50 value 229.877168
## iter   60 value 217.396606
## iter   70 value 211.899972
## iter   80 value 206.067263
## iter   90 value 205.409018
## iter  100 value 204.340215
## final   value 204.340215
```

```
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  27
## initial  value 771.231048
## iter  10 value 278.526318
## iter  20 value 245.854588
## iter  30 value 230.468959
## iter  40 value 228.333162
## iter  50 value 228.098309
## iter  60 value 227.035420
## iter  70 value 226.796409
## iter  80 value 226.609678
## final  value 226.607126
## converged
## Fitting Repeat 3
##
## # weights:  27
## initial  value 474.482513
## iter  10 value 300.510597
## iter  20 value 282.666951
## iter  30 value 250.289027
## iter  40 value 234.226789
## iter  50 value 230.099707
## iter  60 value 228.986893
## iter  70 value 226.869382
## iter  80 value 226.589564
## iter  90 value 226.533079
## iter 100 value 226.521383
## final  value 226.521383
## stopped after 100 iterations
## Fitting Repeat 4
##
## # weights:  27
## initial  value 356.737377
## iter  10 value 300.862086
## iter  20 value 270.566014
## iter  30 value 239.570102
## iter  40 value 230.583604
## iter  50 value 228.123092
## iter  60 value 227.929866
## iter  70 value 227.925877
## final  value 227.925866
## converged
## Fitting Repeat 5
##
## # weights:  27
## initial  value 479.845004
## iter  10 value 302.589051
## iter  20 value 249.927266
## iter  30 value 236.040011
## iter  40 value 231.158076
## iter  50 value 228.370622
## iter  60 value 227.862378
```

```
## iter  70 value 227.819141
## iter  70 value 227.819140
## iter  70 value 227.819140
## final   value 227.819140
## converged
## Fitting Repeat 1
##
## # weights:  7
## initial   value 503.722031
## iter  10 value 332.281469
## iter  20 value 332.052576
## iter  30 value 332.049174
## iter  40 value 332.044472
## iter  50 value 332.037395
## iter  60 value 332.025207
## iter  70 value 331.998359
## iter  80 value 331.886680
## iter  90 value 298.556723
## iter 100 value 292.139563
## final   value 292.139563
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  7
## initial   value 507.828338
## iter  10 value 332.335303
## iter  20 value 305.063679
## iter  30 value 296.521189
## iter  40 value 292.188708
## iter  50 value 291.837782
## iter  60 value 261.926705
## iter  70 value 247.329298
## iter  80 value 245.338977
## iter  90 value 245.005269
## iter 100 value 244.713580
## final   value 244.713580
## stopped after 100 iterations
## Fitting Repeat 3
##
## # weights:  7
## initial   value 387.747272
## iter  10 value 332.147893
## iter  20 value 332.028864
## iter  30 value 332.027979
## iter  40 value 332.027061
## iter  50 value 332.026017
## iter  60 value 332.024813
## iter  70 value 332.023398
## iter  80 value 332.021697
## iter  90 value 332.019593
## iter 100 value 332.016896
## final   value 332.016896
## stopped after 100 iterations
## Fitting Repeat 4
```

```
##
## # weights:  7
## initial   value 544.234860
## iter   10 value 332.307724
## iter   20 value 332.072867
## iter   30 value 332.072083
## iter   40 value 332.071246
## iter   50 value 332.070345
## iter   60 value 332.069367
## iter   70 value 332.068293
## iter   80 value 332.067098
## iter   90 value 332.065749
## iter  100 value 332.064196
## final   value 332.064196
## stopped after 100 iterations
## Fitting Repeat 5
##
## # weights:  7
## initial   value 610.550260
## iter   10 value 332.404911
## iter   20 value 331.974272
## iter   30 value 293.123408
## iter   40 value 289.096761
## iter   50 value 288.658359
## iter   60 value 246.247265
## iter   70 value 245.021739
## iter   80 value 244.926396
## iter   90 value 244.706890
## iter   90 value 244.706888
## final   value 244.706888
## converged
## Fitting Repeat 1
##
## # weights:  17
## initial   value 464.822626
## iter   10 value 332.319679
## iter   20 value 314.859630
## iter   30 value 293.372415
## iter   40 value 284.284570
## iter   50 value 281.311138
## iter   60 value 280.154367
## iter   70 value 279.720133
## iter   80 value 251.982311
## iter   90 value 231.194185
## iter  100 value 227.423305
## final   value 227.423305
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  17
## initial   value 737.062709
## iter   10 value 332.749830
## iter   20 value 331.977974
## iter   30 value 297.447538
```

178

```
## iter  40 value 255.477479
## iter  50 value 229.653336
## iter  60 value 225.464737
## iter  70 value 224.557099
## iter  80 value 224.374654
## iter  90 value 224.354348
## iter 100 value 224.298640
## final  value 224.298640
## stopped after 100 iterations
## Fitting Repeat 3
##
## # weights:  17
## initial  value 346.674146
## iter  10 value 332.101212
## iter  20 value 322.422851
## iter  30 value 297.533393
## iter  40 value 284.542663
## iter  50 value 280.772866
## iter  60 value 280.535256
## iter  70 value 280.193647
## iter  80 value 280.172880
## iter  90 value 280.168013
## iter 100 value 280.150752
## final  value 280.150752
## stopped after 100 iterations
## Fitting Repeat 4
##
## # weights:  17
## initial  value 567.937176
## iter  10 value 332.536241
## iter  20 value 331.518979
## iter  30 value 258.651667
## iter  40 value 254.239835
## iter  50 value 251.689632
## iter  60 value 251.226382
## iter  70 value 250.424261
## iter  80 value 250.186607
## iter  90 value 250.102439
## iter 100 value 250.086682
## final  value 250.086682
## stopped after 100 iterations
## Fitting Repeat 5
##
## # weights:  17
## initial  value 528.626261
## iter  10 value 332.423464
## iter  20 value 294.649158
## iter  30 value 236.491474
## iter  40 value 230.468263
## iter  50 value 226.830850
## iter  60 value 226.340115
## iter  70 value 226.221569
## iter  80 value 225.903271
## iter  90 value 225.858141
```

```
## final   value 225.857951
## converged
## Fitting Repeat 1
##
## # weights:  27
## initial   value 347.751548
## iter  10 value 332.183096
## iter  20 value 301.478317
## iter  30 value 267.914729
## iter  40 value 244.431703
## iter  50 value 243.471734
## iter  60 value 236.478222
## iter  70 value 226.613886
## iter  80 value 220.018103
## iter  90 value 216.580616
## iter 100 value 215.242532
## final   value 215.242532
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  27
## initial   value 503.566958
## iter  10 value 332.431027
## iter  20 value 307.526828
## iter  30 value 291.790944
## iter  40 value 282.368412
## iter  50 value 280.547848
## iter  60 value 279.445367
## iter  70 value 278.979228
## iter  80 value 278.894574
## iter  90 value 278.768237
## iter 100 value 278.734687
## final   value 278.734687
## stopped after 100 iterations
## Fitting Repeat 3
##
## # weights:  27
## initial   value 541.148940
## iter  10 value 332.351109
## iter  20 value 328.237541
## iter  30 value 295.662275
## iter  40 value 290.659841
## iter  50 value 279.711256
## iter  60 value 242.395699
## iter  70 value 237.919205
## iter  80 value 237.000019
## iter  90 value 236.676842
## iter 100 value 235.208028
## final   value 235.208028
## stopped after 100 iterations
## Fitting Repeat 4
##
## # weights:  27
## initial   value 520.349733
```

```
## iter  10 value 332.747718
## iter  20 value 331.149985
## iter  30 value 288.036329
## iter  40 value 273.458528
## iter  50 value 248.551394
## iter  60 value 242.225065
## iter  70 value 237.735834
## iter  80 value 237.490436
## iter  90 value 237.407694
## iter 100 value 236.909929
## final  value 236.909929
## stopped after 100 iterations
## Fitting Repeat 5
##
## # weights:  27
## initial  value 452.250399
## iter  10 value 332.420657
## iter  20 value 326.817441
## iter  30 value 295.286737
## iter  40 value 284.908846
## iter  50 value 283.942219
## iter  60 value 283.515379
## iter  70 value 283.325157
## iter  80 value 283.133996
## iter  90 value 282.957339
## iter 100 value 282.595650
## final  value 282.595650
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  7
## initial  value 445.158521
## final  value 336.000000
## converged
## Fitting Repeat 2
##
## # weights:  7
## initial  value 408.294205
## final  value 336.000000
## converged
## Fitting Repeat 3
##
## # weights:  7
## initial  value 403.394420
## final  value 336.000000
## converged
## Fitting Repeat 4
##
## # weights:  7
## initial  value 630.568149
## final  value 336.000000
## converged
## Fitting Repeat 5
##
```

```
## # weights:  7
## initial   value 498.001316
## final   value 336.000000
## converged
## Fitting Repeat 1
##
## # weights:  17
## initial   value 403.310035
## final   value 336.000000
## converged
## Fitting Repeat 2
##
## # weights:  17
## initial   value 794.252668
## final   value 336.000000
## converged
## Fitting Repeat 3
##
## # weights:  17
## initial   value 656.848434
## final   value 336.000000
## converged
## Fitting Repeat 4
##
## # weights:  17
## initial   value 705.351419
## final   value 336.000000
## converged
## Fitting Repeat 5
##
## # weights:  17
## initial   value 486.885587
## final   value 336.000000
## converged
## Fitting Repeat 1
##
## # weights:  27
## initial   value 486.267469
## final   value 336.000000
## converged
## Fitting Repeat 2
##
## # weights:  27
## initial   value 470.627299
## final   value 336.000000
## converged
## Fitting Repeat 3
##
## # weights:  27
## initial   value 679.243903
## final   value 336.000000
## converged
## Fitting Repeat 4
##
```

```
## # weights:   27
## initial   value 429.600465
## final    value 336.000000
## converged
## Fitting Repeat 5
##
## # weights:   27
## initial   value 556.824591
## final    value 336.000000
## converged
## Fitting Repeat 1
##
## # weights:   7
## initial   value 381.818717
## iter   10 value 295.554579
## iter   20 value 248.166755
## iter   30 value 241.402292
## final    value 241.400388
## converged
## Fitting Repeat 2
##
## # weights:   7
## initial   value 366.009039
## iter   10 value 266.811378
## iter   20 value 253.301485
## iter   30 value 242.527082
## final    value 241.400389
## converged
## Fitting Repeat 3
##
## # weights:   7
## initial   value 547.667610
## iter   10 value 275.053245
## iter   20 value 249.654833
## iter   30 value 241.400412
## final    value 241.400393
## converged
## Fitting Repeat 4
##
## # weights:   7
## initial   value 512.060471
## iter   10 value 295.116739
## iter   20 value 272.515497
## iter   30 value 249.412008
## iter   40 value 247.881240
## iter   50 value 241.439923
## final    value 241.400388
## converged
## Fitting Repeat 5
##
## # weights:   7
## initial   value 400.591783
## iter   10 value 287.805558
## iter   20 value 263.677383
```

183

```
## iter   30 value 242.667306
## iter   40 value 241.400658
## final   value 241.400389
## converged
## Fitting Repeat 1
##
## # weights:   17
## initial   value 639.935989
## iter   10 value 308.119442
## iter   20 value 256.347360
## iter   30 value 246.052318
## iter   40 value 236.246715
## iter   50 value 233.915752
## iter   60 value 232.518030
## iter   70 value 230.409562
## iter   80 value 229.700039
## iter   90 value 229.519143
## final   value 229.501605
## converged
## Fitting Repeat 2
##
## # weights:   17
## initial   value 449.228896
## iter   10 value 285.387854
## iter   20 value 247.109364
## iter   30 value 234.680269
## iter   40 value 226.867039
## iter   50 value 223.377738
## iter   60 value 219.962709
## final   value 219.308222
## converged
## Fitting Repeat 3
##
## # weights:   17
## initial   value 382.490951
## iter   10 value 297.095025
## iter   20 value 232.698497
## iter   30 value 230.223626
## final   value 230.202627
## converged
## Fitting Repeat 4
##
## # weights:   17
## initial   value 471.662562
## iter   10 value 263.744320
## iter   20 value 233.715257
## iter   30 value 231.158608
## iter   40 value 230.650065
## final   value 230.641396
## converged
## Fitting Repeat 5
##
## # weights:   17
## initial   value 509.243015
```

```
## iter  10 value 286.754899
## iter  20 value 239.255269
## iter  30 value 234.659175
## iter  40 value 233.699758
## final   value 233.685378
## converged
## Fitting Repeat 1
##
## # weights:  27
## initial  value 596.619249
## iter  10 value 321.485751
## iter  20 value 284.185116
## iter  30 value 244.359906
## iter  40 value 238.877473
## iter  50 value 235.175519
## iter  60 value 234.529767
## iter  70 value 234.007882
## iter  80 value 231.132519
## iter  90 value 230.500940
## final   value 230.500844
## converged
## Fitting Repeat 2
##
## # weights:  27
## initial  value 410.152982
## iter  10 value 295.972323
## iter  20 value 250.807303
## iter  30 value 232.891008
## iter  40 value 231.218624
## iter  50 value 230.122162
## final   value 230.119952
## converged
## Fitting Repeat 3
##
## # weights:  27
## initial  value 681.800582
## iter  10 value 317.534605
## iter  20 value 281.753228
## iter  30 value 241.144217
## iter  40 value 230.524450
## iter  50 value 226.225396
## iter  60 value 225.250610
## iter  70 value 225.231960
## final   value 225.231830
## converged
## Fitting Repeat 4
##
## # weights:  27
## initial  value 570.708719
## iter  10 value 306.400728
## iter  20 value 247.878798
## iter  30 value 234.780689
## iter  40 value 226.714094
## iter  50 value 225.665542
```

```
## iter   60 value 225.619034
## final   value 225.618973
## converged
## Fitting Repeat 5
##
## # weights:  27
## initial   value 509.108458
## iter   10 value 282.164887
## iter   20 value 244.174451
## iter   30 value 235.652397
## iter   40 value 228.811169
## iter   50 value 226.990874
## iter   60 value 226.892942
## iter   70 value 226.841044
## final   value 226.840485
## converged
## Fitting Repeat 1
##
## # weights:   7
## initial   value 715.751482
## iter   10 value 336.485635
## iter   20 value 336.010673
## iter   30 value 336.007020
## iter   40 value 335.345148
## iter   50 value 295.166598
## iter   60 value 288.618157
## iter   70 value 287.095350
## final   value 287.094760
## converged
## Fitting Repeat 2
##
## # weights:   7
## initial   value 568.082694
## iter   10 value 336.298707
## iter   20 value 305.441787
## iter   30 value 300.465886
## iter   40 value 299.723273
## iter   50 value 299.640916
## iter   60 value 299.629364
## iter   70 value 299.597176
## iter   80 value 296.787200
## iter   90 value 263.207404
## final   value 263.197740
## converged
## Fitting Repeat 3
##
## # weights:   7
## initial   value 729.574986
## iter   10 value 336.486482
## iter   20 value 336.020704
## iter   30 value 336.002322
## iter   40 value 335.997230
## iter   50 value 335.989912
## iter   60 value 335.978115
```

```
## iter  70 value 335.954703
## iter  80 value 335.878438
## iter  90 value 324.114577
## iter 100 value 306.255157
## final   value 306.255157
## stopped after 100 iterations
## Fitting Repeat 4
##
## # weights:  7
## initial   value 523.041560
## iter  10 value 336.285329
## iter  20 value 335.115945
## iter  30 value 292.238830
## iter  40 value 291.214729
## iter  50 value 287.119137
## iter  60 value 287.108166
## final   value 287.108125
## converged
## Fitting Repeat 5
##
## # weights:  7
## initial   value 480.758465
## iter  10 value 336.238962
## iter  20 value 336.052247
## iter  30 value 335.967312
## iter  40 value 319.818897
## iter  50 value 294.995974
## iter  60 value 290.219833
## iter  70 value 287.166730
## iter  80 value 287.154328
## iter  90 value 287.019111
## iter 100 value 286.877958
## final   value 286.877958
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  17
## initial   value 552.990650
## iter  10 value 336.690070
## iter  20 value 336.005902
## iter  30 value 299.312907
## iter  40 value 285.690072
## iter  50 value 244.658058
## iter  60 value 228.767744
## iter  70 value 227.000895
## iter  80 value 226.063317
## iter  90 value 224.747935
## iter 100 value 223.371699
## final   value 223.371699
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  17
## initial   value 513.172665
```

```
## iter  10 value 336.364194
## iter  20 value 336.132125
## iter  30 value 336.129413
## iter  40 value 336.125981
## iter  50 value 336.120952
## iter  60 value 336.113435
## iter  70 value 336.100616
## iter  80 value 336.070955
## iter  90 value 335.897006
## iter 100 value 299.065200
## final  value 299.065200
## stopped after 100 iterations
## Fitting Repeat 3
##
## # weights:  17
## initial  value 572.810688
## iter  10 value 336.626242
## iter  20 value 335.113215
## iter  30 value 300.316912
## iter  40 value 294.154168
## iter  50 value 291.587861
## iter  60 value 289.912652
## iter  70 value 286.558049
## iter  80 value 280.255465
## iter  90 value 279.588669
## iter 100 value 279.515305
## final  value 279.515305
## stopped after 100 iterations
## Fitting Repeat 4
##
## # weights:  17
## initial  value 406.285497
## iter  10 value 336.255630
## iter  20 value 328.664712
## iter  30 value 288.866016
## iter  40 value 264.264015
## iter  50 value 248.773757
## iter  60 value 241.671647
## iter  70 value 239.044786
## iter  80 value 238.724052
## iter  90 value 238.694530
## iter 100 value 238.660236
## final  value 238.660236
## stopped after 100 iterations
## Fitting Repeat 5
##
## # weights:  17
## initial  value 530.231186
## iter  10 value 336.480471
## iter  20 value 310.715323
## iter  30 value 277.773410
## iter  40 value 250.613475
## iter  50 value 241.400047
## iter  60 value 240.501305
```

```
## iter  70 value 239.969611
## iter  80 value 239.923130
## iter  90 value 239.876075
## iter 100 value 239.820890
## final   value 239.820890
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  27
## initial  value 693.406797
## iter  10 value 336.801547
## iter  20 value 335.996808
## iter  30 value 308.450871
## iter  40 value 281.212694
## iter  50 value 254.738428
## iter  60 value 233.094831
## iter  70 value 230.293013
## iter  80 value 228.929422
## iter  90 value 227.648073
## iter 100 value 226.861346
## final   value 226.861346
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  27
## initial  value 410.044382
## iter  10 value 336.313051
## iter  20 value 335.836644
## iter  30 value 300.597023
## iter  40 value 299.168305
## iter  50 value 296.796103
## iter  60 value 288.846025
## iter  70 value 286.028285
## iter  80 value 284.253325
## iter  90 value 283.757346
## iter 100 value 282.499700
## final   value 282.499700
## stopped after 100 iterations
## Fitting Repeat 3
##
## # weights:  27
## initial  value 453.153978
## iter  10 value 336.384555
## iter  20 value 305.305949
## iter  30 value 297.121523
## iter  40 value 294.449945
## iter  50 value 291.844509
## iter  60 value 289.610244
## iter  70 value 282.512173
## iter  80 value 281.945425
## iter  90 value 280.888340
## iter 100 value 280.449797
## final   value 280.449797
## stopped after 100 iterations
```

```
## Fitting Repeat 4
##
## # weights:  27
## initial   value 610.366062
## iter  10 value 336.720558
## iter  20 value 332.448292
## iter  30 value 240.512871
## iter  40 value 228.232274
## iter  50 value 223.864683
## iter  60 value 219.996744
## iter  70 value 219.006880
## iter  80 value 218.776905
## iter  90 value 218.612220
## iter 100 value 218.544626
## final  value 218.544626
## stopped after 100 iterations
## Fitting Repeat 5
##
## # weights:  27
## initial   value 465.582284
## iter  10 value 336.413560
## iter  20 value 333.880114
## iter  30 value 298.414888
## iter  40 value 292.375398
## iter  50 value 270.168906
## iter  60 value 244.140969
## iter  70 value 237.323750
## iter  80 value 234.266153
## iter  90 value 229.929489
## iter 100 value 227.315086
## final  value 227.315086
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  7
## initial   value 452.515652
## final  value 320.000000
## converged
## Fitting Repeat 2
##
## # weights:  7
## initial   value 580.794492
## final  value 320.000000
## converged
## Fitting Repeat 3
##
## # weights:  7
## initial   value 334.223851
## final  value 320.000000
## converged
## Fitting Repeat 4
##
## # weights:  7
## initial   value 448.904177
```

190

```
## final   value 320.000000
## converged
## Fitting Repeat 5
##
## # weights:  7
## initial   value 590.879182
## final   value 320.000000
## converged
## Fitting Repeat 1
##
## # weights:  17
## initial   value 498.704243
## final   value 320.000000
## converged
## Fitting Repeat 2
##
## # weights:  17
## initial   value 485.640791
## final   value 320.000000
## converged
## Fitting Repeat 3
##
## # weights:  17
## initial   value 403.844316
## final   value 320.000000
## converged
## Fitting Repeat 4
##
## # weights:  17
## initial   value 607.313482
## final   value 320.000000
## converged
## Fitting Repeat 5
##
## # weights:  17
## initial   value 544.787130
## final   value 320.000000
## converged
## Fitting Repeat 1
##
## # weights:  27
## initial   value 334.116440
## iter   10 value 310.690908
## iter   20 value 306.515376
## iter   30 value 306.085513
## iter   40 value 306.014861
## iter   50 value 305.983601
## final   value 305.980657
## converged
## Fitting Repeat 2
##
## # weights:  27
## initial   value 316.447928
## iter   10 value 282.205058
```

```
## iter  20 value 276.100375
## iter  30 value 245.064862
## iter  40 value 239.777348
## iter  50 value 229.256363
## iter  60 value 224.218402
## iter  70 value 219.187919
## iter  80 value 218.629158
## iter  90 value 216.635355
## iter 100 value 215.683940
## final  value 215.683940
## stopped after 100 iterations
## Fitting Repeat 3
##
## # weights:  27
## initial  value 490.702130
## final  value 320.000000
## converged
## Fitting Repeat 4
##
## # weights:  27
## initial  value 492.667143
## final  value 320.000000
## converged
## Fitting Repeat 5
##
## # weights:  27
## initial  value 663.516200
## final  value 320.000000
## converged
## Fitting Repeat 1
##
## # weights:  7
## initial  value 548.681413
## iter  10 value 282.746008
## iter  20 value 256.083756
## iter  30 value 248.831802
## iter  40 value 237.639353
## final  value 237.619107
## converged
## Fitting Repeat 2
##
## # weights:  7
## initial  value 707.720354
## iter  10 value 311.139523
## iter  20 value 273.421120
## iter  30 value 247.189142
## iter  40 value 238.913059
## final  value 238.841223
## converged
## Fitting Repeat 3
##
## # weights:  7
## initial  value 484.907959
## iter  10 value 282.336202
```

```
## iter   20 value 250.004716
## iter   30 value 238.109465
## final   value 237.619111
## converged
## Fitting Repeat 4
##
## # weights:   7
## initial   value 598.605553
## iter   10 value 252.819790
## iter   20 value 239.771746
## iter   30 value 237.619129
## final   value 237.619107
## converged
## Fitting Repeat 5
##
## # weights:   7
## initial   value 792.401057
## iter   10 value 282.661260
## iter   20 value 261.388499
## iter   30 value 239.953137
## final   value 238.841220
## converged
## Fitting Repeat 1
##
## # weights:   17
## initial   value 720.537135
## iter   10 value 296.396395
## iter   20 value 260.456647
## iter   30 value 241.272167
## iter   40 value 232.777214
## iter   50 value 231.518204
## final   value 231.502841
## converged
## Fitting Repeat 2
##
## # weights:   17
## initial   value 611.782961
## iter   10 value 268.384752
## iter   20 value 240.701771
## iter   30 value 231.085703
## iter   40 value 228.515336
## iter   50 value 228.033649
## final   value 228.033645
## converged
## Fitting Repeat 3
##
## # weights:   17
## initial   value 725.353094
## iter   10 value 310.175025
## iter   20 value 262.360096
## iter   30 value 236.841733
## iter   40 value 228.532132
## iter   50 value 228.225820
## iter   60 value 228.210832
```

```
## final   value 228.210804
## converged
## Fitting Repeat 4
##
## # weights:  17
## initial   value 450.121771
## iter   10 value 283.914532
## iter   20 value 240.298496
## iter   30 value 235.439397
## iter   40 value 229.958188
## iter   50 value 228.057951
## final   value 228.056269
## converged
## Fitting Repeat 5
##
## # weights:  17
## initial   value 474.924559
## iter   10 value 293.952429
## iter   20 value 274.598066
## iter   30 value 240.175169
## iter   40 value 230.746832
## iter   50 value 230.646000
## final   value 230.645788
## converged
## Fitting Repeat 1
##
## # weights:  27
## initial   value 503.935367
## iter   10 value 276.919407
## iter   20 value 241.882156
## iter   30 value 223.245853
## iter   40 value 221.689611
## iter   50 value 220.361940
## iter   60 value 219.511155
## iter   70 value 219.232340
## iter   80 value 219.220236
## iter   90 value 219.179081
## iter  100 value 219.161360
## final   value 219.161360
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  27
## initial   value 663.873781
## iter   10 value 298.155054
## iter   20 value 251.324416
## iter   30 value 237.913069
## iter   40 value 233.639463
## iter   50 value 228.282882
## iter   60 value 227.480111
## iter   70 value 227.442682
## iter   80 value 227.442594
## final   value 227.442589
## converged
```

```
## Fitting Repeat 3
##
## # weights:  27
## initial  value 600.251528
## iter  10 value 291.027727
## iter  20 value 248.988925
## iter  30 value 236.865232
## iter  40 value 230.795542
## iter  50 value 228.913035
## iter  60 value 228.840065
## final  value 228.834901
## converged
## Fitting Repeat 4
##
## # weights:  27
## initial  value 754.456930
## iter  10 value 294.657978
## iter  20 value 248.157525
## iter  30 value 237.186105
## iter  40 value 232.849045
## iter  50 value 227.752846
## iter  60 value 227.614540
## iter  70 value 227.605062
## iter  80 value 227.600584
## final  value 227.600567
## converged
## Fitting Repeat 5
##
## # weights:  27
## initial  value 475.545618
## iter  10 value 302.364684
## iter  20 value 245.321751
## iter  30 value 235.969026
## iter  40 value 227.915502
## iter  50 value 223.140889
## iter  60 value 219.678151
## iter  70 value 217.505405
## iter  80 value 217.387432
## iter  90 value 217.386360
## final  value 217.385298
## converged
## Fitting Repeat 1
##
## # weights:  7
## initial  value 375.767833
## iter  10 value 320.139202
## iter  20 value 319.488566
## iter  30 value 285.065251
## iter  40 value 284.871315
## iter  50 value 284.472559
## iter  60 value 284.436518
## iter  70 value 284.348869
## iter  80 value 269.916813
## iter  90 value 250.122459
```

```
## iter 100 value 248.422957
## final  value 248.422957
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  7
## initial  value 572.639930
## iter  10 value 320.407083
## iter  20 value 279.683893
## iter  30 value 268.799772
## iter  40 value 268.796291
## final  value 268.795494
## converged
## Fitting Repeat 3
##
## # weights:  7
## initial  value 550.947280
## iter  10 value 320.456233
## iter  20 value 319.791826
## iter  30 value 294.490388
## iter  40 value 292.486729
## iter  50 value 291.329417
## iter  60 value 264.373022
## iter  70 value 261.280611
## iter  80 value 261.221092
## iter  90 value 261.202429
## iter 100 value 261.196255
## final  value 261.196255
## stopped after 100 iterations
## Fitting Repeat 4
##
## # weights:  7
## initial  value 698.343132
## iter  10 value 320.525694
## iter  20 value 320.032453
## iter  30 value 320.032144
## iter  40 value 320.031827
## iter  50 value 320.031503
## iter  60 value 320.031171
## iter  70 value 320.030830
## iter  80 value 320.030481
## iter  90 value 320.030121
## iter 100 value 320.029751
## final  value 320.029751
## stopped after 100 iterations
## Fitting Repeat 5
##
## # weights:  7
## initial  value 629.197058
## iter  10 value 320.358971
## iter  20 value 320.048125
## iter  30 value 320.046880
## iter  40 value 320.045336
## iter  50 value 320.039922
```

```
## iter  60 value 320.001478
## iter  70 value 319.952261
## iter  80 value 319.210732
## iter  90 value 286.256626
## iter 100 value 278.800867
## final   value 278.800867
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  17
## initial   value 522.070338
## iter  10 value 320.474224
## iter  20 value 320.014955
## iter  30 value 320.003234
## iter  40 value 319.977228
## iter  50 value 319.871579
## iter  60 value 297.042408
## iter  70 value 287.549527
## iter  80 value 284.486705
## iter  90 value 283.158856
## iter 100 value 280.928217
## final   value 280.928217
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  17
## initial   value 483.426970
## iter  10 value 320.358718
## iter  20 value 283.038074
## iter  30 value 273.428431
## iter  40 value 240.561659
## iter  50 value 233.719940
## iter  60 value 227.962271
## iter  70 value 227.005586
## iter  80 value 226.678175
## iter  90 value 226.470255
## iter 100 value 226.211056
## final   value 226.211056
## stopped after 100 iterations
## Fitting Repeat 3
##
## # weights:  17
## initial   value 710.537968
## iter  10 value 320.648902
## iter  20 value 316.782313
## iter  30 value 272.340433
## iter  40 value 264.767251
## iter  50 value 252.518714
## iter  60 value 248.752959
## iter  70 value 242.410062
## iter  80 value 240.524028
## iter  90 value 239.598318
## iter 100 value 239.593032
## final   value 239.593032
```

```
## stopped after 100 iterations
## Fitting Repeat 4
##
## # weights:  17
## initial  value 621.853745
## iter  10 value 320.465519
## iter  20 value 320.015644
## iter  30 value 296.957549
## iter  40 value 280.121765
## iter  50 value 276.751383
## iter  60 value 273.607667
## iter  70 value 273.100874
## iter  80 value 272.899541
## iter  90 value 272.763925
## iter 100 value 272.738938
## final  value 272.738938
## stopped after 100 iterations
## Fitting Repeat 5
##
## # weights:  17
## initial  value 313.992750
## iter  10 value 261.404650
## iter  20 value 248.692356
## iter  30 value 229.684744
## iter  40 value 226.312348
## iter  50 value 225.962317
## iter  60 value 225.163810
## iter  70 value 224.839130
## iter  80 value 224.613199
## iter  90 value 224.428584
## iter 100 value 224.378125
## final  value 224.378125
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  27
## initial  value 461.442961
## iter  10 value 320.349442
## iter  20 value 320.106587
## iter  30 value 290.166926
## iter  40 value 288.688062
## iter  50 value 286.991703
## iter  60 value 283.949014
## iter  70 value 282.626082
## iter  80 value 282.305683
## iter  90 value 281.923012
## iter 100 value 278.784214
## final  value 278.784214
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  27
## initial  value 698.236604
## iter  10 value 320.766607
```

198

```
## iter  20 value 320.008345
## iter  30 value 309.740614
## iter  40 value 274.542361
## iter  50 value 246.076659
## iter  60 value 239.701274
## iter  70 value 234.769434
## iter  80 value 232.909856
## iter  90 value 226.118460
## iter 100 value 223.773606
## final  value 223.773606
## stopped after 100 iterations
## Fitting Repeat 3
##
## # weights:  27
## initial  value 629.517985
## iter  10 value 320.714909
## iter  20 value 320.014531
## iter  30 value 308.600890
## iter  40 value 284.281578
## iter  50 value 281.986782
## iter  60 value 279.350415
## iter  70 value 274.162907
## iter  80 value 272.050917
## iter  90 value 248.811533
## iter 100 value 241.797551
## final  value 241.797551
## stopped after 100 iterations
## Fitting Repeat 4
##
## # weights:  27
## initial  value 855.295615
## iter  10 value 320.710154
## iter  20 value 319.932013
## iter  30 value 313.725108
## iter  40 value 296.164365
## iter  50 value 280.482732
## iter  60 value 273.491378
## iter  70 value 262.605681
## iter  80 value 239.492286
## iter  90 value 233.419869
## iter 100 value 232.506571
## final  value 232.506571
## stopped after 100 iterations
## Fitting Repeat 5
##
## # weights:  27
## initial  value 639.126032
## iter  10 value 320.597041
## iter  20 value 319.712460
## iter  30 value 289.000676
## iter  40 value 284.534192
## iter  50 value 282.818491
## iter  60 value 282.784480
## iter  70 value 282.061687
```

```
## iter  80 value 278.745288
## iter  90 value 277.864827
## iter 100 value 277.749532
## final   value 277.749532
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  7
## initial   value 400.389618
## final   value 360.000000
## converged
## Fitting Repeat 2
##
## # weights:  7
## initial   value 399.400588
## final   value 360.000000
## converged
## Fitting Repeat 3
##
## # weights:  7
## initial   value 638.729686
## final   value 360.000000
## converged
## Fitting Repeat 4
##
## # weights:  7
## initial   value 385.395849
## final   value 360.000000
## converged
## Fitting Repeat 5
##
## # weights:  7
## initial   value 389.562658
## final   value 360.000000
## converged
## Fitting Repeat 1
##
## # weights:  17
## initial   value 452.648960
## final   value 360.000000
## converged
## Fitting Repeat 2
##
## # weights:  17
## initial   value 653.366856
## final   value 360.000000
## converged
## Fitting Repeat 3
##
## # weights:  17
## initial   value 573.310539
## final   value 360.000000
## converged
## Fitting Repeat 4
```

```
##
## # weights:  17
## initial  value 594.393894
## final  value 360.000000
## converged
## Fitting Repeat 5
##
## # weights:  17
## initial  value 635.267994
## final  value 360.000000
## converged
## Fitting Repeat 1
##
## # weights:  27
## initial  value 531.925137
## final  value 360.000000
## converged
## Fitting Repeat 2
##
## # weights:  27
## initial  value 541.969868
## final  value 360.000000
## converged
## Fitting Repeat 3
##
## # weights:  27
## initial  value 966.464523
## final  value 360.000000
## converged
## Fitting Repeat 4
##
## # weights:  27
## initial  value 325.384834
## iter  10 value 263.093406
## iter  20 value 255.504324
## iter  30 value 248.317762
## iter  40 value 245.801509
## iter  50 value 243.738416
## iter  60 value 242.695480
## iter  70 value 241.098801
## iter  80 value 240.962171
## final  value 240.960197
## converged
## Fitting Repeat 5
##
## # weights:  27
## initial  value 659.502723
## final  value 360.000000
## converged
## Fitting Repeat 1
##
## # weights:  7
## initial  value 559.717642
## iter  10 value 306.580767
```

```
## iter   20 value 272.040020
## iter   30 value 267.634541
## iter   40 value 252.139521
## final   value 251.062056
## converged
## Fitting Repeat 2
##
## # weights:  7
## initial   value 539.994544
## iter   10 value 298.452377
## iter   20 value 252.066622
## iter   30 value 251.073273
## final   value 251.062056
## converged
## Fitting Repeat 3
##
## # weights:  7
## initial   value 476.581013
## iter   10 value 269.992663
## iter   20 value 251.916223
## final   value 251.062056
## converged
## Fitting Repeat 4
##
## # weights:  7
## initial   value 534.092690
## iter   10 value 304.361910
## iter   20 value 284.895161
## iter   30 value 269.028118
## iter   40 value 252.586559
## final   value 252.293295
## converged
## Fitting Repeat 5
##
## # weights:  7
## initial   value 462.461236
## iter   10 value 295.288849
## iter   20 value 271.271476
## iter   30 value 266.802007
## iter   40 value 256.778067
## iter   50 value 251.150381
## final   value 251.062056
## converged
## Fitting Repeat 1
##
## # weights:  17
## initial   value 725.593507
## iter   10 value 356.117720
## iter   20 value 285.440527
## iter   30 value 264.158011
## iter   40 value 259.144029
## iter   50 value 251.431951
## iter   60 value 249.529527
## iter   70 value 249.415666
```

```
## final   value 249.415656
## converged
## Fitting Repeat 2
##
## # weights:  17
## initial   value 573.408208
## iter   10 value 291.179627
## iter   20 value 267.007270
## iter   30 value 249.618319
## iter   40 value 249.123920
## iter   50 value 249.053828
## iter   60 value 249.019351
## final   value 249.019237
## converged
## Fitting Repeat 3
##
## # weights:  17
## initial   value 493.401618
## iter   10 value 322.506332
## iter   20 value 306.442329
## iter   30 value 263.209191
## iter   40 value 253.532429
## final   value 253.521851
## converged
## Fitting Repeat 4
##
## # weights:  17
## initial   value 478.066561
## iter   10 value 320.093728
## iter   20 value 261.681863
## iter   30 value 252.956255
## iter   40 value 251.106663
## iter   50 value 250.478857
## iter   60 value 249.978186
## iter   70 value 249.965523
## iter   80 value 249.949067
## iter   90 value 249.829427
## final   value 249.819233
## converged
## Fitting Repeat 5
##
## # weights:  17
## initial   value 412.956329
## iter   10 value 341.034528
## iter   20 value 261.779981
## iter   30 value 252.716226
## iter   40 value 252.586739
## iter   50 value 251.847196
## iter   60 value 251.555174
## final   value 251.555169
## converged
## Fitting Repeat 1
##
## # weights:  27
```

```
## initial  value 430.620767
## iter  10 value 331.166129
## iter  20 value 273.934435
## iter  30 value 260.530141
## iter  40 value 255.345032
## iter  50 value 247.347122
## iter  60 value 246.744604
## iter  70 value 246.309967
## iter  80 value 246.294360
## iter  90 value 246.214395
## iter 100 value 245.702618
## final  value 245.702618
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  27
## initial  value 823.972776
## iter  10 value 336.518806
## iter  20 value 286.951440
## iter  30 value 256.527206
## iter  40 value 249.406070
## iter  50 value 248.894635
## iter  60 value 248.771606
## iter  70 value 248.555070
## iter  80 value 248.501972
## final  value 248.501948
## converged
## Fitting Repeat 3
##
## # weights:  27
## initial  value 651.125179
## iter  10 value 327.248212
## iter  20 value 280.952135
## iter  30 value 261.933845
## iter  40 value 248.156970
## iter  50 value 246.677876
## iter  60 value 244.763352
## iter  70 value 243.071425
## iter  80 value 242.839987
## final  value 242.839960
## converged
## Fitting Repeat 4
##
## # weights:  27
## initial  value 660.505227
## iter  10 value 332.820987
## iter  20 value 289.018077
## iter  30 value 271.747338
## iter  40 value 249.893521
## iter  50 value 247.961555
## iter  60 value 247.829193
## iter  70 value 247.666348
## iter  80 value 246.066693
## final  value 246.022671
```

```
## converged
## Fitting Repeat 5
##
## # weights:  27
## initial  value 552.758198
## iter  10 value 327.140774
## iter  20 value 275.222309
## iter  30 value 262.643684
## iter  40 value 258.991401
## iter  50 value 253.798822
## iter  60 value 248.016502
## iter  70 value 246.178017
## iter  80 value 245.732102
## final  value 245.685912
## converged
## Fitting Repeat 1
##
## # weights:  7
## initial  value 603.278617
## iter  10 value 360.341642
## iter  20 value 287.464300
## iter  30 value 286.572566
## iter  40 value 286.350315
## final  value 286.146235
## converged
## Fitting Repeat 2
##
## # weights:  7
## initial  value 551.286360
## iter  10 value 360.318640
## iter  20 value 359.967101
## iter  30 value 359.900641
## iter  40 value 350.172974
## iter  50 value 313.220475
## iter  60 value 305.997019
## iter  70 value 301.376653
## iter  80 value 301.347663
## iter  90 value 301.148259
## iter 100 value 293.267677
## final  value 293.267677
## stopped after 100 iterations
## Fitting Repeat 3
##
## # weights:  7
## initial  value 518.198517
## iter  10 value 360.290413
## iter  20 value 314.496879
## iter  30 value 313.730561
## iter  40 value 313.643961
## iter  50 value 313.635099
## iter  60 value 313.579365
## iter  70 value 292.820756
## iter  80 value 266.037993
## iter  90 value 263.707360
```

```
## iter 100 value 263.621639
## final  value 263.621639
## stopped after 100 iterations
## Fitting Repeat 4
##
## # weights:  7
## initial  value 490.611034
## iter  10 value 360.168028
## iter  20 value 360.147295
## iter  30 value 360.083798
## iter  40 value 354.995196
## iter  50 value 323.413639
## iter  60 value 323.366898
## iter  70 value 323.314291
## iter  80 value 323.266816
## iter  90 value 323.253088
## iter 100 value 323.215310
## final  value 323.215310
## stopped after 100 iterations
## Fitting Repeat 5
##
## # weights:  7
## initial  value 440.545078
## iter  10 value 360.189997
## iter  20 value 284.009177
## iter  30 value 268.563256
## iter  40 value 266.911190
## iter  50 value 266.209395
## iter  60 value 266.020124
## iter  70 value 265.993661
## final  value 265.993654
## converged
## Fitting Repeat 1
##
## # weights:  17
## initial  value 601.934197
## iter  10 value 360.537115
## iter  20 value 351.788213
## iter  30 value 332.181595
## iter  40 value 307.406209
## iter  50 value 305.914892
## iter  60 value 305.760739
## iter  70 value 305.451151
## iter  80 value 291.006808
## iter  90 value 287.249243
## iter 100 value 263.955994
## final  value 263.955994
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  17
## initial  value 639.744622
## iter  10 value 360.610585
## iter  20 value 359.968549
```

206

```
## iter  30 value 359.815566
## iter  40 value 349.758406
## iter  50 value 316.395820
## iter  60 value 310.499075
## iter  70 value 261.906735
## iter  80 value 254.877167
## iter  90 value 250.157839
## iter 100 value 245.831631
## final  value 245.831631
## stopped after 100 iterations
## Fitting Repeat 3
##
## # weights:  17
## initial  value 590.948133
## iter  10 value 360.461825
## iter  20 value 359.968721
## iter  30 value 310.705924
## iter  40 value 304.621273
## iter  50 value 300.976398
## iter  60 value 298.647329
## iter  70 value 247.003530
## iter  80 value 245.876161
## iter  90 value 244.775638
## iter 100 value 244.726201
## final  value 244.726201
## stopped after 100 iterations
## Fitting Repeat 4
##
## # weights:  17
## initial  value 466.100930
## iter  10 value 360.268423
## iter  20 value 332.712342
## iter  30 value 331.927212
## iter  40 value 330.102608
## iter  50 value 326.614128
## iter  60 value 318.940693
## iter  70 value 318.733265
## iter  80 value 318.534671
## iter  90 value 318.495515
## iter 100 value 318.486399
## final  value 318.486399
## stopped after 100 iterations
## Fitting Repeat 5
##
## # weights:  17
## initial  value 555.972019
## iter  10 value 360.404791
## iter  20 value 360.001332
## iter  30 value 326.773589
## iter  40 value 307.114479
## iter  50 value 305.337745
## iter  60 value 293.725778
## iter  70 value 251.118250
## iter  80 value 245.828524
```

```
## iter  90 value 242.507161
## iter 100 value 242.371647
## final   value 242.371647
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  27
## initial  value 802.080793
## iter  10 value 360.690023
## iter  20 value 286.132015
## iter  30 value 253.193613
## iter  40 value 244.196790
## iter  50 value 238.770636
## iter  60 value 234.483654
## iter  70 value 232.535791
## iter  80 value 230.778636
## iter  90 value 230.600302
## iter 100 value 230.487703
## final   value 230.487703
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  27
## initial  value 535.404155
## iter  10 value 360.492473
## iter  20 value 321.853412
## iter  30 value 309.799276
## iter  40 value 294.614820
## iter  50 value 277.138432
## iter  60 value 258.703871
## iter  70 value 255.939507
## iter  80 value 251.428400
## iter  90 value 250.796224
## iter 100 value 250.034523
## final   value 250.034523
## stopped after 100 iterations
## Fitting Repeat 3
##
## # weights:  27
## initial  value 526.911734
## iter  10 value 360.480641
## iter  20 value 338.990675
## iter  30 value 310.501861
## iter  40 value 308.108801
## iter  50 value 303.988484
## iter  60 value 300.175668
## iter  70 value 296.954749
## iter  80 value 293.285186
## iter  90 value 283.705588
## iter 100 value 266.062520
## final   value 266.062520
## stopped after 100 iterations
## Fitting Repeat 4
##
```

```
## # weights:  27
## initial  value 660.564058
## iter  10 value 360.646041
## iter  20 value 359.953008
## iter  30 value 321.235120
## iter  40 value 307.908012
## iter  50 value 268.812372
## iter  60 value 264.228235
## iter  70 value 257.148413
## iter  80 value 251.519881
## iter  90 value 247.365037
## iter 100 value 246.187617
## final  value 246.187617
## stopped after 100 iterations
## Fitting Repeat 5
##
## # weights:  27
## initial  value 696.499088
## iter  10 value 360.661830
## iter  20 value 360.020378
## iter  30 value 360.012861
## iter  40 value 360.006739
## iter  50 value 359.993535
## iter  60 value 359.426150
## iter  70 value 317.713067
## iter  80 value 311.486936
## iter  90 value 307.252075
## iter 100 value 304.504501
## final  value 304.504501
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  7
## initial  value 461.745560
## final  value 368.000000
## converged
## Fitting Repeat 2
##
## # weights:  7
## initial  value 630.643093
## final  value 368.000000
## converged
## Fitting Repeat 3
##
## # weights:  7
## initial  value 413.503422
## final  value 368.000000
## converged
## Fitting Repeat 4
##
## # weights:  7
## initial  value 547.957500
## final  value 368.000000
## converged
```

209

```
## Fitting Repeat 5
##
## # weights:  7
## initial   value 642.590507
## final   value 368.000000
## converged
## Fitting Repeat 1
##
## # weights:  17
## initial   value 486.253092
## final   value 368.000000
## converged
## Fitting Repeat 2
##
## # weights:  17
## initial   value 364.007780
## iter   10 value 261.040453
## iter   20 value 249.609530
## iter   30 value 240.457351
## iter   40 value 239.530268
## iter   50 value 236.824786
## iter   60 value 236.707205
## final   value 236.706927
## converged
## Fitting Repeat 3
##
## # weights:  17
## initial   value 414.695404
## final   value 368.000000
## converged
## Fitting Repeat 4
##
## # weights:  17
## initial   value 587.763943
## final   value 368.000000
## converged
## Fitting Repeat 5
##
## # weights:  17
## initial   value 558.107756
## final   value 368.000000
## converged
## Fitting Repeat 1
##
## # weights:  27
## initial   value 636.181320
## final   value 368.000000
## converged
## Fitting Repeat 2
##
## # weights:  27
## initial   value 688.775884
## final   value 368.000000
## converged
```

```
## Fitting Repeat 3
##
## # weights:  27
## initial  value 410.392013
## final  value 368.000000
## converged
## Fitting Repeat 4
##
## # weights:  27
## initial  value 454.882143
## final  value 368.000000
## converged
## Fitting Repeat 5
##
## # weights:  27
## initial  value 533.995552
## final  value 368.000000
## converged
## Fitting Repeat 1
##
## # weights:  7
## initial  value 518.338477
## iter  10 value 329.038110
## iter  20 value 293.943716
## iter  30 value 264.437012
## iter  40 value 261.216011
## iter  50 value 258.771024
## final  value 256.707160
## converged
## Fitting Repeat 2
##
## # weights:  7
## initial  value 559.396383
## iter  10 value 271.352652
## iter  20 value 267.347916
## iter  30 value 258.920936
## final  value 258.356930
## converged
## Fitting Repeat 3
##
## # weights:  7
## initial  value 551.496006
## iter  10 value 325.943106
## iter  20 value 291.003820
## iter  30 value 274.796127
## iter  40 value 264.776699
## iter  50 value 259.411754
## iter  60 value 258.357094
## final  value 258.356908
## converged
## Fitting Repeat 4
##
## # weights:  7
## initial  value 445.608589
```

```
## iter  10 value 300.662690
## iter  20 value 265.444021
## iter  30 value 259.070507
## iter  40 value 258.357233
## final   value 258.356908
## converged
## Fitting Repeat 5
##
## # weights:  7
## initial  value 377.973473
## iter  10 value 293.682754
## iter  20 value 280.859434
## iter  30 value 263.070911
## iter  40 value 259.429174
## iter  50 value 258.357793
## final   value 258.356909
## converged
## Fitting Repeat 1
##
## # weights:  17
## initial  value 411.390242
## iter  10 value 317.794110
## iter  20 value 271.628208
## iter  30 value 252.765385
## iter  40 value 246.750038
## iter  50 value 246.294284
## iter  60 value 245.291742
## iter  70 value 245.222847
## iter  70 value 245.222846
## iter  70 value 245.222846
## final   value 245.222846
## converged
## Fitting Repeat 2
##
## # weights:  17
## initial  value 549.774117
## iter  10 value 331.819096
## iter  20 value 318.198231
## iter  30 value 276.269491
## iter  40 value 252.981294
## iter  50 value 245.207213
## iter  60 value 244.925988
## iter  70 value 244.924400
## final   value 244.924369
## converged
## Fitting Repeat 3
##
## # weights:  17
## initial  value 374.515591
## iter  10 value 320.845644
## iter  20 value 266.049037
## iter  30 value 247.774101
## iter  40 value 247.492947
## iter  50 value 247.460537
```

```
## final   value 247.456571
## converged
## Fitting Repeat 4
##
## # weights:  17
## initial   value 406.699567
## iter   10 value 321.060325
## iter   20 value 310.841832
## iter   30 value 260.606314
## iter   40 value 251.594817
## iter   50 value 250.303157
## iter   60 value 249.633058
## iter   70 value 249.585128
## iter   80 value 249.530979
## final   value 249.530835
## converged
## Fitting Repeat 5
##
## # weights:  17
## initial   value 557.095827
## iter   10 value 314.284400
## iter   20 value 281.701245
## iter   30 value 252.049049
## iter   40 value 246.539976
## iter   50 value 245.866632
## iter   60 value 245.717306
## iter   70 value 245.522506
## final   value 245.521876
## converged
## Fitting Repeat 1
##
## # weights:  27
## initial   value 737.215840
## iter   10 value 367.248779
## iter   20 value 286.102470
## iter   30 value 260.554955
## iter   40 value 253.113509
## iter   50 value 240.603741
## iter   60 value 235.119636
## iter   70 value 233.882786
## iter   80 value 233.759420
## final   value 233.759398
## converged
## Fitting Repeat 2
##
## # weights:  27
## initial   value 594.632130
## iter   10 value 338.430181
## iter   20 value 303.380027
## iter   30 value 275.134839
## iter   40 value 261.209645
## iter   50 value 246.902912
## iter   60 value 244.328779
## iter   70 value 244.011132
```

```
## iter  80 value 243.977712
## iter  90 value 243.868627
## iter 100 value 243.815388
## final   value 243.815388
## stopped after 100 iterations
## Fitting Repeat 3
##
## # weights:  27
## initial  value 838.467946
## iter  10 value 372.977901
## iter  20 value 282.019445
## iter  30 value 266.965227
## iter  40 value 252.697189
## iter  50 value 248.644768
## iter  60 value 248.386430
## iter  70 value 247.682530
## iter  80 value 246.764009
## iter  90 value 245.499570
## iter 100 value 244.218537
## final   value 244.218537
## stopped after 100 iterations
## Fitting Repeat 4
##
## # weights:  27
## initial  value 482.545055
## iter  10 value 323.733351
## iter  20 value 266.305561
## iter  30 value 243.537176
## iter  40 value 235.954473
## iter  50 value 232.660964
## iter  60 value 232.608112
## final   value 232.607880
## converged
## Fitting Repeat 5
##
## # weights:  27
## initial  value 766.268700
## iter  10 value 309.087838
## iter  20 value 274.346758
## iter  30 value 257.632454
## iter  40 value 242.086005
## iter  50 value 238.523095
## iter  60 value 238.425385
## final   value 238.424086
## converged
## Fitting Repeat 1
##
## # weights:  7
## initial  value 568.386180
## iter  10 value 368.371698
## iter  20 value 368.031441
## iter  30 value 337.792300
## iter  40 value 335.905263
## iter  50 value 330.737420
```

```
## iter  60 value 330.677069
## iter  70 value 330.101901
## iter  80 value 300.189138
## iter  90 value 294.104395
## iter 100 value 293.242638
## final  value 293.242638
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  7
## initial  value 578.494757
## iter  10 value 368.332469
## iter  20 value 340.445387
## iter  30 value 303.478044
## iter  40 value 261.715906
## iter  50 value 259.017998
## iter  60 value 250.999527
## iter  70 value 246.832595
## iter  80 value 246.727733
## iter  90 value 246.722622
## iter 100 value 246.720542
## final  value 246.720542
## stopped after 100 iterations
## Fitting Repeat 3
##
## # weights:  7
## initial  value 572.502000
## iter  10 value 368.382725
## iter  20 value 367.941557
## iter  30 value 367.713181
## iter  40 value 337.878229
## iter  50 value 336.869898
## iter  60 value 312.188142
## iter  70 value 301.044251
## iter  80 value 294.554666
## iter  90 value 294.018448
## iter 100 value 293.618343
## final  value 293.618343
## stopped after 100 iterations
## Fitting Repeat 4
##
## # weights:  7
## initial  value 677.831107
## iter  10 value 368.353487
## iter  20 value 368.001695
## iter  30 value 367.987317
## iter  40 value 331.234234
## iter  50 value 331.176647
## iter  60 value 330.977379
## iter  70 value 300.540737
## iter  80 value 294.086272
## iter  90 value 289.618892
## iter 100 value 288.815078
## final  value 288.815078
```

```
## stopped after 100 iterations
## Fitting Repeat 5
##
## # weights:  7
## initial  value 382.054980
## iter  10 value 368.088236
## iter  20 value 368.027266
## iter  30 value 368.026531
## iter  40 value 368.025723
## iter  50 value 368.024825
## iter  60 value 368.023816
## iter  70 value 368.022666
## iter  80 value 368.021335
## iter  90 value 368.019762
## iter 100 value 368.017859
## final  value 368.017859
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  17
## initial  value 379.228779
## iter  10 value 356.736287
## iter  20 value 322.147018
## iter  30 value 321.480648
## iter  40 value 321.384523
## iter  50 value 321.372731
## iter  60 value 321.359984
## iter  70 value 321.328171
## iter  80 value 291.503506
## iter  90 value 284.073779
## iter 100 value 283.488393
## final  value 283.488393
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  17
## initial  value 398.433923
## iter  10 value 368.182268
## iter  20 value 367.673522
## iter  30 value 319.787103
## iter  40 value 313.879739
## iter  50 value 313.208302
## iter  60 value 311.822471
## iter  70 value 310.611133
## iter  80 value 309.716283
## iter  90 value 309.620435
## iter 100 value 309.512579
## final  value 309.512579
## stopped after 100 iterations
## Fitting Repeat 3
##
## # weights:  17
## initial  value 670.695115
## iter  10 value 368.755929
```

```
## iter   20 value 367.809745
## iter   30 value 365.669201
## iter   40 value 318.635359
## iter   50 value 313.476155
## iter   60 value 313.332285
## iter   70 value 312.561913
## iter   80 value 308.021280
## iter   90 value 307.857639
## iter  100 value 254.897861
## final   value 254.897861
## stopped after 100 iterations
## Fitting Repeat 4
##
## # weights:   17
## initial   value 490.836099
## iter   10 value 368.366794
## iter   20 value 269.651337
## iter   30 value 254.638433
## iter   40 value 244.808718
## iter   50 value 242.760362
## iter   60 value 242.689497
## iter   70 value 241.979591
## iter   80 value 241.757268
## iter   90 value 241.731985
## iter  100 value 241.730947
## final   value 241.730947
## stopped after 100 iterations
## Fitting Repeat 5
##
## # weights:   17
## initial   value 496.454553
## iter   10 value 368.370076
## iter   20 value 368.030414
## iter   30 value 368.016680
## iter   40 value 367.984140
## iter   50 value 367.807029
## iter   60 value 328.614433
## iter   70 value 310.088221
## iter   80 value 305.889987
## iter   90 value 304.040181
## iter  100 value 303.737336
## final   value 303.737336
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:   27
## initial   value 549.734924
## iter   10 value 368.542150
## iter   20 value 367.809483
## iter   30 value 314.358660
## iter   40 value 304.896950
## iter   50 value 300.790405
## iter   60 value 299.583001
## iter   70 value 299.452134
```

```
## iter  80 value 299.428254
## iter  90 value 299.422130
## iter 100 value 299.281396
## final   value 299.281396
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  27
## initial   value 525.937334
## iter  10 value 368.592864
## iter  20 value 328.243839
## iter  30 value 308.158435
## iter  40 value 299.930960
## iter  50 value 297.269373
## iter  60 value 296.499696
## iter  70 value 296.255635
## iter  80 value 296.224070
## iter  90 value 296.208441
## iter 100 value 296.198351
## final   value 296.198351
## stopped after 100 iterations
## Fitting Repeat 3
##
## # weights:  27
## initial   value 617.786294
## iter  10 value 368.303561
## iter  20 value 368.072509
## iter  30 value 368.071004
## iter  40 value 368.065788
## iter  50 value 367.940455
## iter  60 value 317.939585
## iter  70 value 309.287663
## iter  80 value 300.097850
## iter  90 value 295.068243
## iter 100 value 293.512394
## final   value 293.512394
## stopped after 100 iterations
## Fitting Repeat 4
##
## # weights:  27
## initial   value 723.463494
## iter  10 value 368.956875
## iter  20 value 368.019771
## iter  30 value 367.801819
## iter  40 value 360.890404
## iter  50 value 360.559992
## iter  60 value 360.302255
## iter  70 value 360.225416
## iter  80 value 352.669704
## iter  90 value 352.517047
## iter 100 value 352.426222
## final   value 352.426222
## stopped after 100 iterations
## Fitting Repeat 5
```

```
##
## # weights:  27
## initial   value 553.380092
## iter   10 value 368.553002
## iter   20 value 338.848397
## iter   30 value 325.101645
## iter   40 value 279.005608
## iter   50 value 256.000349
## iter   60 value 237.376867
## iter   70 value 227.491450
## iter   80 value 222.164374
## iter   90 value 220.542956
## iter 100 value 217.513161
## final   value 217.513161
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  7
## initial   value 618.564370
## final   value 286.000000
## converged
## Fitting Repeat 2
##
## # weights:  7
## initial   value 319.772877
## final   value 286.000000
## converged
## Fitting Repeat 3
##
## # weights:  7
## initial   value 627.266174
## final   value 286.000000
## converged
## Fitting Repeat 4
##
## # weights:  7
## initial   value 516.085383
## final   value 286.000000
## converged
## Fitting Repeat 5
##
## # weights:  7
## initial   value 594.976735
## final   value 286.000000
## converged
## Fitting Repeat 1
##
## # weights:  17
## initial   value 524.814709
## final   value 286.000000
## converged
## Fitting Repeat 2
##
## # weights:  17
```

```
## initial  value 518.154385
## final  value 286.000000
## converged
## Fitting Repeat 3
##
## # weights:  17
## initial  value 506.924915
## final  value 286.000000
## converged
## Fitting Repeat 4
##
## # weights:  17
## initial  value 537.085636
## final  value 286.000000
## converged
## Fitting Repeat 5
##
## # weights:  17
## initial  value 374.971785
## final  value 286.000000
## converged
## Fitting Repeat 1
##
## # weights:  27
## initial  value 499.774094
## final  value 286.000000
## converged
## Fitting Repeat 2
##
## # weights:  27
## initial  value 724.978842
## final  value 286.000000
## converged
## Fitting Repeat 3
##
## # weights:  27
## initial  value 776.367058
## final  value 286.000000
## converged
## Fitting Repeat 4
##
## # weights:  27
## initial  value 404.102996
## final  value 286.000000
## converged
## Fitting Repeat 5
##
## # weights:  27
## initial  value 457.921368
## final  value 286.000000
## converged
## Fitting Repeat 1
##
## # weights:  7
```

```
## initial  value 580.779880
## iter  10 value 260.947003
## iter  20 value 222.845490
## iter  30 value 219.204748
## iter  40 value 218.809118
## iter  50 value 217.878058
## final  value 217.877838
## converged
## Fitting Repeat 2
##
## # weights:  7
## initial  value 451.630240
## iter  10 value 266.437732
## iter  20 value 227.629497
## iter  30 value 220.141931
## final  value 219.205576
## converged
## Fitting Repeat 3
##
## # weights:  7
## initial  value 456.175668
## iter  10 value 259.629006
## iter  20 value 227.894170
## iter  30 value 217.884160
## final  value 217.877838
## converged
## Fitting Repeat 4
##
## # weights:  7
## initial  value 583.061600
## iter  10 value 258.387482
## iter  20 value 226.294085
## iter  30 value 219.373851
## iter  40 value 218.744991
## iter  50 value 217.878335
## final  value 217.877838
## converged
## Fitting Repeat 5
##
## # weights:  7
## initial  value 517.911893
## iter  10 value 264.055704
## iter  20 value 222.771759
## iter  30 value 217.919529
## final  value 217.877838
## converged
## Fitting Repeat 1
##
## # weights:  17
## initial  value 356.191663
## iter  10 value 261.335290
## iter  20 value 238.542387
## iter  30 value 209.800649
## iter  40 value 204.502458
```

```
## iter   50 value 204.273934
## final   value 204.269590
## converged
## Fitting Repeat 2
##
## # weights:  17
## initial   value 337.648821
## iter   10 value 253.884629
## iter   20 value 229.431966
## iter   30 value 209.593191
## iter   40 value 207.631028
## iter   50 value 207.617873
## final   value 207.617814
## converged
## Fitting Repeat 3
##
## # weights:  17
## initial   value 505.714133
## iter   10 value 263.432027
## iter   20 value 224.806346
## iter   30 value 215.033234
## iter   40 value 207.773409
## iter   50 value 207.528083
## iter   60 value 207.516036
## iter   60 value 207.516036
## iter   60 value 207.516036
## final   value 207.516036
## converged
## Fitting Repeat 4
##
## # weights:  17
## initial   value 561.837606
## iter   10 value 284.388986
## iter   20 value 220.842967
## iter   30 value 208.169706
## iter   40 value 206.941588
## iter   50 value 206.654029
## iter   60 value 205.603506
## final   value 205.584473
## converged
## Fitting Repeat 5
##
## # weights:  17
## initial   value 373.722099
## iter   10 value 264.291793
## iter   20 value 244.975855
## iter   30 value 216.179248
## iter   40 value 209.885147
## iter   50 value 209.768888
## iter   60 value 209.106082
## iter   70 value 207.141585
## iter   80 value 206.776101
## final   value 206.774523
## converged
```

```
## Fitting Repeat 1
##
## # weights:  27
## initial   value 555.231301
## iter   10 value 253.720212
## iter   20 value 230.919044
## iter   30 value 224.233547
## iter   40 value 211.508645
## iter   50 value 203.485147
## iter   60 value 201.764380
## iter   70 value 201.753804
## iter   70 value 201.753802
## iter   70 value 201.753802
## final   value 201.753802
## converged
## Fitting Repeat 2
##
## # weights:  27
## initial   value 431.386712
## iter   10 value 254.824680
## iter   20 value 223.868025
## iter   30 value 210.072477
## iter   40 value 207.290220
## iter   50 value 205.305807
## iter   60 value 204.859416
## iter   70 value 204.775309
## iter   80 value 204.484120
## final   value 204.476005
## converged
## Fitting Repeat 3
##
## # weights:  27
## initial   value 494.859596
## iter   10 value 249.771423
## iter   20 value 218.973571
## iter   30 value 204.610774
## iter   40 value 203.135977
## iter   50 value 203.124256
## final   value 203.124250
## converged
## Fitting Repeat 4
##
## # weights:  27
## initial   value 463.763698
## iter   10 value 264.992219
## iter   20 value 224.698331
## iter   30 value 214.925810
## iter   40 value 202.738810
## iter   50 value 196.920908
## iter   60 value 196.513002
## iter   70 value 196.405673
## iter   80 value 196.298535
## iter   90 value 195.913675
## iter  100 value 195.862253
```

```
## final   value 195.862253
## stopped after 100 iterations
## Fitting Repeat 5
##
## # weights:  27
## initial  value 646.547811
## iter  10 value 268.383756
## iter  20 value 229.769878
## iter  30 value 211.035462
## iter  40 value 204.072654
## iter  50 value 202.906909
## final   value 202.905554
## converged
## Fitting Repeat 1
##
## # weights:  7
## initial  value 733.948196
## iter  10 value 286.563101
## iter  20 value 286.034074
## iter  30 value 286.033702
## iter  40 value 286.033320
## iter  50 value 286.032925
## iter  60 value 286.032516
## iter  70 value 286.032090
## iter  80 value 286.031647
## iter  90 value 286.031183
## iter 100 value 286.030695
## final   value 286.030695
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  7
## initial  value 348.549069
## iter  10 value 286.156998
## iter  20 value 285.994342
## iter  30 value 285.694821
## iter  40 value 255.573101
## iter  50 value 251.992163
## final   value 251.878473
## converged
## Fitting Repeat 3
##
## # weights:  7
## initial  value 699.535127
## iter  10 value 286.420949
## iter  20 value 285.997597
## iter  30 value 264.617811
## iter  40 value 254.151365
## iter  50 value 251.971816
## iter  60 value 251.733802
## iter  70 value 247.797991
## iter  80 value 213.732842
## iter  90 value 211.457512
## iter 100 value 211.107093
```

```
## final   value 211.107093
## stopped after 100 iterations
## Fitting Repeat 4
##
## # weights:  7
## initial   value 569.048831
## iter   10 value 286.312937
## iter   20 value 258.817217
## iter   30 value 253.535081
## iter   40 value 247.324130
## iter   50 value 221.022635
## iter   60 value 211.889690
## iter   70 value 211.076290
## final   value 211.071545
## converged
## Fitting Repeat 5
##
## # weights:  7
## initial   value 636.250533
## iter   10 value 286.518528
## iter   20 value 286.033690
## iter   30 value 285.962084
## iter   40 value 285.933364
## iter   50 value 285.862161
## iter   60 value 285.367505
## iter   70 value 238.343733
## iter   80 value 230.555411
## iter   90 value 228.014192
## iter  100 value 227.728578
## final   value 227.728578
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  17
## initial   value 584.088336
## iter   10 value 286.640132
## iter   20 value 286.051758
## iter   30 value 286.049409
## iter   40 value 286.046397
## iter   50 value 286.042287
## iter   60 value 286.036133
## iter   70 value 286.026036
## iter   80 value 286.006206
## iter   90 value 285.945632
## iter  100 value 282.260125
## final   value 282.260125
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  17
## initial   value 525.904320
## iter   10 value 286.481568
## iter   20 value 235.679176
## iter   30 value 228.580794
```

```
## iter   40 value 227.185786
## iter   50 value 226.591741
## iter   60 value 224.718461
## iter   70 value 222.447455
## iter   80 value 221.808356
## iter   90 value 221.794464
## iter 100 value 221.789470
## final   value 221.789470
## stopped after 100 iterations
## Fitting Repeat 3
##
## # weights:  17
## initial  value 707.974367
## iter   10 value 286.605135
## iter   20 value 258.960240
## iter   30 value 242.662495
## iter   40 value 206.166791
## iter   50 value 202.187281
## iter   60 value 201.775317
## iter   70 value 201.731606
## iter   80 value 201.697197
## iter   90 value 201.516404
## iter 100 value 201.475120
## final   value 201.475120
## stopped after 100 iterations
## Fitting Repeat 4
##
## # weights:  17
## initial  value 618.827083
## iter   10 value 286.686626
## iter   20 value 286.013611
## iter   30 value 286.009060
## iter   40 value 285.976738
## iter   50 value 258.391580
## iter   60 value 250.886581
## iter   70 value 244.341436
## iter   80 value 243.283437
## iter   90 value 217.867752
## iter 100 value 206.383265
## final   value 206.383265
## stopped after 100 iterations
## Fitting Repeat 5
##
## # weights:  17
## initial  value 654.446402
## iter   10 value 286.719207
## iter   20 value 226.896416
## iter   30 value 218.721346
## iter   40 value 218.166100
## iter   50 value 211.724867
## iter   60 value 210.644015
## iter   70 value 210.068514
## iter   80 value 209.903388
## iter   90 value 209.821218
```

```
## iter 100 value 209.803280
## final   value 209.803280
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  27
## initial   value 635.454478
## iter  10 value 286.817700
## iter  20 value 286.000603
## iter  30 value 285.970861
## iter  40 value 285.622037
## iter  50 value 263.876374
## iter  60 value 250.199063
## iter  70 value 228.667343
## iter  80 value 215.993075
## iter  90 value 210.781201
## iter 100 value 206.647963
## final   value 206.647963
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  27
## initial   value 621.500988
## iter  10 value 286.738380
## iter  20 value 247.739801
## iter  30 value 221.486526
## iter  40 value 212.340668
## iter  50 value 207.583253
## iter  60 value 206.818261
## iter  70 value 206.642283
## iter  80 value 206.617489
## iter  90 value 206.607209
## iter 100 value 206.546428
## final   value 206.546428
## stopped after 100 iterations
## Fitting Repeat 3
##
## # weights:  27
## initial   value 635.063511
## iter  10 value 286.766225
## iter  20 value 285.993176
## iter  30 value 275.854744
## iter  40 value 221.392528
## iter  50 value 209.220283
## iter  60 value 204.709548
## iter  70 value 203.763311
## iter  80 value 203.698471
## iter  90 value 203.679519
## iter 100 value 203.672490
## final   value 203.672490
## stopped after 100 iterations
## Fitting Repeat 4
##
## # weights:  27
```

```
## initial  value 432.415501
## iter  10 value 286.256299
## iter  20 value 257.801925
## iter  30 value 248.268963
## iter  40 value 245.334257
## iter  50 value 243.872407
## iter  60 value 241.023023
## iter  70 value 240.663144
## iter  80 value 240.619174
## iter  90 value 240.570608
## iter 100 value 240.545657
## final  value 240.545657
## stopped after 100 iterations
## Fitting Repeat 5
##
## # weights:  27
## initial  value 634.916107
## iter  10 value 286.892151
## iter  20 value 285.025203
## iter  30 value 258.845765
## iter  40 value 243.256747
## iter  50 value 223.443776
## iter  60 value 221.333843
## iter  70 value 215.535231
## iter  80 value 213.326586
## iter  90 value 213.116769
## iter 100 value 212.937292
## final  value 212.937292
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  7
## initial  value 626.557771
## final  value 338.000000
## converged
## Fitting Repeat 2
##
## # weights:  7
## initial  value 467.313275
## final  value 338.000000
## converged
## Fitting Repeat 3
##
## # weights:  7
## initial  value 640.572105
## final  value 338.000000
## converged
## Fitting Repeat 4
##
## # weights:  7
## initial  value 685.738298
## final  value 338.000000
## converged
## Fitting Repeat 5
```

```
## 
## # weights:  7
## initial  value 684.438298
## final  value 338.000000
## converged
## Fitting Repeat 1
## 
## # weights:  17
## initial  value 455.027358
## final  value 338.000000
## converged
## Fitting Repeat 2
## 
## # weights:  17
## initial  value 517.886781
## final  value 338.000000
## converged
## Fitting Repeat 3
## 
## # weights:  17
## initial  value 593.542476
## final  value 338.000000
## converged
## Fitting Repeat 4
## 
## # weights:  17
## initial  value 363.758617
## final  value 338.000000
## converged
## Fitting Repeat 5
## 
## # weights:  17
## initial  value 527.636022
## final  value 338.000000
## converged
## Fitting Repeat 1
## 
## # weights:  27
## initial  value 636.076996
## final  value 338.000000
## converged
## Fitting Repeat 2
## 
## # weights:  27
## initial  value 528.063771
## final  value 338.000000
## converged
## Fitting Repeat 3
## 
## # weights:  27
## initial  value 432.262977
## final  value 338.000000
## converged
## Fitting Repeat 4
```

```
##
## # weights:  27
## initial  value 902.822423
## final  value 338.000000
## converged
## Fitting Repeat 5
##
## # weights:  27
## initial  value 768.223146
## final  value 338.000000
## converged
## Fitting Repeat 1
##
## # weights:  7
## initial  value 527.706514
## iter  10 value 309.276120
## iter  20 value 265.603568
## iter  30 value 253.957002
## iter  40 value 238.685992
## final  value 237.296573
## converged
## Fitting Repeat 2
##
## # weights:  7
## initial  value 776.625491
## iter  10 value 277.743236
## iter  20 value 254.685007
## iter  30 value 244.435632
## iter  40 value 237.296638
## final  value 237.296584
## converged
## Fitting Repeat 3
##
## # weights:  7
## initial  value 570.933874
## iter  10 value 306.217762
## iter  20 value 256.751703
## iter  30 value 247.549798
## iter  40 value 240.947648
## final  value 237.296573
## converged
## Fitting Repeat 4
##
## # weights:  7
## initial  value 386.248334
## iter  10 value 293.756411
## iter  20 value 253.912045
## iter  30 value 247.490797
## iter  40 value 238.675868
## final  value 238.538622
## converged
## Fitting Repeat 5
##
## # weights:  7
```

```
## initial  value 809.188163
## iter   10 value 266.177865
## iter   20 value 265.961044
## final   value 265.960978
## converged
## Fitting Repeat 1
##
## # weights:  17
## initial  value 573.668981
## iter   10 value 307.323621
## iter   20 value 240.942617
## iter   30 value 234.988853
## iter   40 value 229.664738
## iter   50 value 222.010815
## iter   60 value 221.615042
## iter   70 value 220.478800
## iter   80 value 219.179879
## final   value 219.169851
## converged
## Fitting Repeat 2
##
## # weights:  17
## initial  value 605.001408
## iter   10 value 280.302317
## iter   20 value 253.334119
## iter   30 value 238.647889
## iter   40 value 229.303915
## iter   50 value 228.287020
## iter   60 value 222.987993
## iter   70 value 219.902323
## iter   80 value 219.837824
## final   value 219.837812
## converged
## Fitting Repeat 3
##
## # weights:  17
## initial  value 851.359494
## iter   10 value 320.885890
## iter   20 value 262.173609
## iter   30 value 252.014745
## iter   40 value 244.884501
## iter   50 value 230.927921
## iter   60 value 226.688443
## iter   70 value 225.236542
## iter   80 value 224.339118
## final   value 224.339062
## converged
## Fitting Repeat 4
##
## # weights:  17
## initial  value 442.329153
## iter   10 value 315.794848
## iter   20 value 251.682646
## iter   30 value 248.615842
```

```
## iter   40 value 247.036359
## iter   50 value 240.245525
## iter   60 value 238.704693
## iter   70 value 230.262899
## iter   80 value 226.904395
## iter   90 value 226.598173
## final   value 226.585227
## converged
## Fitting Repeat 5
##
## # weights:  17
## initial   value 660.689581
## iter   10 value 314.164485
## iter   20 value 253.055068
## iter   30 value 248.543381
## iter   40 value 248.347796
## final   value 248.347769
## converged
## Fitting Repeat 1
##
## # weights:  27
## initial   value 551.190391
## iter   10 value 298.591209
## iter   20 value 245.871328
## iter   30 value 233.373158
## iter   40 value 226.739240
## iter   50 value 225.358870
## iter   60 value 222.282563
## iter   70 value 220.943525
## iter   80 value 220.896886
## iter   90 value 220.847050
## final   value 220.846273
## converged
## Fitting Repeat 2
##
## # weights:  27
## initial   value 661.625288
## iter   10 value 302.448231
## iter   20 value 244.245070
## iter   30 value 227.460809
## iter   40 value 224.262460
## iter   50 value 220.597706
## iter   60 value 219.754626
## final   value 219.752262
## converged
## Fitting Repeat 3
##
## # weights:  27
## initial   value 555.608190
## iter   10 value 313.201712
## iter   20 value 242.637340
## iter   30 value 232.626376
## iter   40 value 228.115658
## iter   50 value 225.657598
```

```
## iter   60 value 225.364057
## final   value 225.362393
## converged
## Fitting Repeat 4
##
## # weights:  27
## initial  value 322.064216
## iter   10 value 237.004371
## iter   20 value 231.711343
## iter   30 value 224.976514
## iter   40 value 224.419190
## iter   50 value 220.905833
## iter   60 value 219.286981
## iter   70 value 218.624885
## iter   80 value 218.268283
## iter   90 value 218.048150
## final   value 218.046684
## converged
## Fitting Repeat 5
##
## # weights:  27
## initial  value 465.684289
## iter   10 value 308.995936
## iter   20 value 296.446209
## iter   30 value 251.149237
## iter   40 value 232.256925
## iter   50 value 223.060362
## iter   60 value 222.175288
## iter   70 value 221.971991
## iter   80 value 221.879809
## iter   90 value 221.879311
## iter  100 value 221.878862
## final   value 221.878862
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  7
## initial  value 410.456984
## iter   10 value 338.198932
## iter   20 value 305.170258
## iter   30 value 305.161376
## iter   40 value 304.957145
## iter   50 value 279.162761
## iter   60 value 272.280206
## iter   70 value 272.278281
## final   value 272.278077
## converged
## Fitting Repeat 2
##
## # weights:  7
## initial  value 580.791262
## iter   10 value 338.402673
## iter   20 value 338.005884
## iter   30 value 338.003616
```

```
## iter  40 value 338.000673
## iter  50 value 331.245855
## iter  60 value 263.091767
## iter  70 value 261.460432
## iter  80 value 260.350590
## iter  90 value 259.731094
## iter 100 value 256.418667
## final  value 256.418667
## stopped after 100 iterations
## Fitting Repeat 3
##
## # weights:  7
## initial  value 510.034595
## iter  10 value 338.315777
## iter  20 value 338.019343
## iter  30 value 331.737059
## iter  40 value 307.227940
## iter  50 value 306.484322
## iter  60 value 306.456888
## iter  70 value 306.342064
## iter  80 value 299.981640
## iter  90 value 280.197073
## iter 100 value 274.858394
## final  value 274.858394
## stopped after 100 iterations
## Fitting Repeat 4
##
## # weights:  7
## initial  value 498.923995
## iter  10 value 338.288794
## iter  20 value 322.187038
## iter  30 value 303.493737
## iter  40 value 298.204953
## iter  50 value 295.058631
## iter  60 value 292.969448
## iter  70 value 291.642998
## iter  80 value 291.474843
## iter  90 value 246.449618
## iter 100 value 233.975315
## final  value 233.975315
## stopped after 100 iterations
## Fitting Repeat 5
##
## # weights:  7
## initial  value 484.887995
## iter  10 value 338.233383
## iter  20 value 338.026681
## iter  30 value 338.016288
## iter  40 value 337.993988
## iter  50 value 337.906230
## iter  60 value 308.036653
## iter  70 value 306.501245
## iter  80 value 306.463633
## iter  90 value 306.458809
```

```
## iter 100 value 306.434055
## final  value 306.434055
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  17
## initial  value 420.127420
## iter  10 value 338.271674
## iter  20 value 335.642507
## iter  30 value 297.267391
## iter  40 value 290.287007
## iter  50 value 283.031739
## iter  60 value 282.599389
## iter  70 value 281.093419
## iter  80 value 270.893453
## iter  90 value 269.586119
## iter 100 value 265.805534
## final  value 265.805534
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  17
## initial  value 560.836498
## iter  10 value 338.482055
## iter  20 value 338.006379
## iter  30 value 280.209772
## iter  40 value 247.286096
## iter  50 value 229.039078
## iter  60 value 221.755666
## iter  70 value 221.551968
## iter  80 value 221.189921
## iter  90 value 221.178721
## iter 100 value 221.175032
## final  value 221.175032
## stopped after 100 iterations
## Fitting Repeat 3
##
## # weights:  17
## initial  value 458.766558
## iter  10 value 338.407816
## iter  20 value 337.976315
## iter  30 value 315.638988
## iter  40 value 286.527416
## iter  50 value 281.871618
## iter  60 value 279.615842
## iter  70 value 253.309394
## iter  80 value 227.057642
## iter  90 value 222.506490
## iter 100 value 221.004240
## final  value 221.004240
## stopped after 100 iterations
## Fitting Repeat 4
##
## # weights:  17
```

```
## initial  value 567.627016
## iter  10 value 338.480299
## iter  20 value 337.431870
## iter  30 value 312.399030
## iter  40 value 294.094502
## iter  50 value 290.884874
## iter  60 value 288.531654
## iter  70 value 261.144059
## iter  80 value 246.349365
## iter  90 value 241.272319
## iter 100 value 240.284554
## final  value 240.284554
## stopped after 100 iterations
## Fitting Repeat 5
##
## # weights:  17
## initial  value 493.737929
## iter  10 value 338.474604
## iter  20 value 333.671709
## iter  30 value 311.310923
## iter  40 value 294.987640
## iter  50 value 292.321812
## iter  60 value 282.892453
## iter  70 value 251.657522
## iter  80 value 249.556622
## iter  90 value 249.280213
## iter 100 value 248.958476
## final  value 248.958476
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  27
## initial  value 703.182175
## iter  10 value 338.783379
## iter  20 value 334.168456
## iter  30 value 262.868293
## iter  40 value 234.374533
## iter  50 value 222.911906
## iter  60 value 214.498009
## iter  70 value 213.087775
## iter  80 value 212.474810
## iter  90 value 212.237048
## iter 100 value 212.164728
## final  value 212.164728
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  27
## initial  value 697.394088
## iter  10 value 338.939548
## iter  20 value 338.013997
## iter  30 value 324.966079
## iter  40 value 312.689297
## iter  50 value 312.045759
```

```
## iter  60 value 311.351791
## iter  70 value 308.014284
## iter  80 value 303.774804
## iter  90 value 302.612566
## iter 100 value 302.386556
## final  value 302.386556
## stopped after 100 iterations
## Fitting Repeat 3
##
## # weights:  27
## initial  value 461.651479
## iter  10 value 337.314600
## iter  20 value 312.675593
## iter  30 value 297.633306
## iter  40 value 290.051271
## iter  50 value 289.389540
## iter  60 value 288.849460
## iter  70 value 288.825609
## iter  80 value 288.781587
## iter  90 value 288.714214
## iter 100 value 288.240764
## final  value 288.240764
## stopped after 100 iterations
## Fitting Repeat 4
##
## # weights:  27
## initial  value 615.187883
## iter  10 value 338.616785
## iter  20 value 335.362772
## iter  30 value 312.408202
## iter  40 value 294.121486
## iter  50 value 290.639806
## iter  60 value 289.360256
## iter  70 value 287.576963
## iter  80 value 287.427580
## iter  90 value 287.374888
## iter 100 value 287.366350
## final  value 287.366350
## stopped after 100 iterations
## Fitting Repeat 5
##
## # weights:  27
## initial  value 953.111128
## iter  10 value 338.873364
## iter  20 value 337.836671
## iter  30 value 308.321759
## iter  40 value 242.449438
## iter  50 value 234.180462
## iter  60 value 230.822794
## iter  70 value 230.436200
## iter  80 value 229.314416
## iter  90 value 226.637058
## iter 100 value 220.499567
## final  value 220.499567
```

```
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  7
## initial   value 389.483182
## final   value 340.000000
## converged
## Fitting Repeat 2
##
## # weights:  7
## initial   value 415.080525
## final   value 340.000000
## converged
## Fitting Repeat 3
##
## # weights:  7
## initial   value 567.108197
## final   value 340.000000
## converged
## Fitting Repeat 4
##
## # weights:  7
## initial   value 486.335014
## final   value 340.000000
## converged
## Fitting Repeat 5
##
## # weights:  7
## initial   value 541.779111
## final   value 340.000000
## converged
## Fitting Repeat 1
##
## # weights:  17
## initial   value 498.166546
## final   value 340.000000
## converged
## Fitting Repeat 2
##
## # weights:  17
## initial   value 555.061718
## final   value 340.000000
## converged
## Fitting Repeat 3
##
## # weights:  17
## initial   value 473.155178
## final   value 340.000000
## converged
## Fitting Repeat 4
##
## # weights:  17
## initial   value 520.202861
## final   value 340.000000
```

```
## converged
## Fitting Repeat 5
##
## # weights:  17
## initial  value 438.036897
## final  value 340.000000
## converged
## Fitting Repeat 1
##
## # weights:  27
## initial  value 615.716359
## final  value 340.000000
## converged
## Fitting Repeat 2
##
## # weights:  27
## initial  value 573.787992
## final  value 340.000000
## converged
## Fitting Repeat 3
##
## # weights:  27
## initial  value 613.067383
## final  value 340.000000
## converged
## Fitting Repeat 4
##
## # weights:  27
## initial  value 375.811508
## final  value 340.000000
## converged
## Fitting Repeat 5
##
## # weights:  27
## initial  value 500.063793
## final  value 340.000000
## converged
## Fitting Repeat 1
##
## # weights:  7
## initial  value 553.604781
## iter   10 value 324.466329
## iter   20 value 279.615587
## iter   30 value 252.831400
## iter   40 value 246.863604
## iter   50 value 245.163821
## iter   60 value 240.139176
## final  value 240.029929
## converged
## Fitting Repeat 2
##
## # weights:  7
## initial  value 550.944452
## iter   10 value 300.541643
```

```
## iter   20 value 256.614372
## iter   30 value 246.402878
## iter   40 value 240.032651
## final   value 240.029929
## converged
## Fitting Repeat 3
##
## # weights:  7
## initial   value 566.817295
## iter   10 value 264.599228
## iter   20 value 246.940259
## iter   30 value 238.778305
## iter   40 value 238.751803
## final   value 238.751756
## converged
## Fitting Repeat 4
##
## # weights:  7
## initial   value 371.410088
## iter   10 value 284.767680
## iter   20 value 253.142183
## iter   30 value 241.930467
## final   value 238.751756
## converged
## Fitting Repeat 5
##
## # weights:  7
## initial   value 564.316754
## iter   10 value 293.240231
## iter   20 value 249.871360
## iter   30 value 241.674752
## iter   40 value 240.029953
## final   value 240.029929
## converged
## Fitting Repeat 1
##
## # weights:  17
## initial   value 349.340149
## iter   10 value 290.403418
## iter   20 value 246.030133
## iter   30 value 227.724703
## iter   40 value 226.244075
## iter   50 value 220.418675
## iter   60 value 218.323604
## iter   70 value 217.898431
## final   value 217.765399
## converged
## Fitting Repeat 2
##
## # weights:  17
## initial   value 591.760586
## iter   10 value 264.811014
## iter   20 value 237.629579
## iter   30 value 226.139840
```

```
## iter   40 value 224.834689
## iter   50 value 224.776059
## final   value 224.776056
## converged
## Fitting Repeat 3
##
## # weights:   17
## initial   value 592.253355
## iter   10 value 283.090433
## iter   20 value 233.504587
## iter   30 value 224.377118
## iter   40 value 223.786555
## iter   50 value 222.904080
## iter   60 value 221.125415
## iter   70 value 217.080571
## iter   80 value 216.995734
## final   value 216.995723
## converged
## Fitting Repeat 4
##
## # weights:   17
## initial   value 371.947026
## iter   10 value 315.325611
## iter   20 value 274.234666
## iter   30 value 231.150212
## iter   40 value 224.726533
## iter   50 value 218.486493
## final   value 218.211633
## converged
## Fitting Repeat 5
##
## # weights:   17
## initial   value 650.909669
## iter   10 value 251.840005
## iter   20 value 234.195100
## iter   30 value 227.274503
## iter   40 value 226.777944
## iter   50 value 226.084054
## iter   60 value 226.059873
## final   value 226.059643
## converged
## Fitting Repeat 1
##
## # weights:   27
## initial   value 550.900554
## iter   10 value 318.078154
## iter   20 value 277.644286
## iter   30 value 239.799984
## iter   40 value 226.987546
## iter   50 value 223.350835
## iter   60 value 218.364591
## iter   70 value 214.955642
## iter   80 value 214.816422
## final   value 214.816290
```

```
## converged
## Fitting Repeat 2
##
## # weights:  27
## initial  value 702.348807
## iter  10 value 273.512933
## iter  20 value 257.748038
## iter  30 value 244.863777
## iter  40 value 237.474881
## iter  50 value 226.778192
## iter  60 value 224.558864
## iter  70 value 223.650545
## iter  80 value 222.814677
## final  value 222.812791
## converged
## Fitting Repeat 3
##
## # weights:  27
## initial  value 668.608987
## iter  10 value 271.766672
## iter  20 value 246.856224
## iter  30 value 228.679921
## iter  40 value 225.713537
## iter  50 value 221.393330
## iter  60 value 221.076815
## final  value 221.076704
## converged
## Fitting Repeat 4
##
## # weights:  27
## initial  value 615.160737
## iter  10 value 298.756478
## iter  20 value 262.475421
## iter  30 value 238.469368
## iter  40 value 224.278362
## iter  50 value 223.613292
## iter  60 value 223.561137
## iter  70 value 223.556404
## final  value 223.556394
## converged
## Fitting Repeat 5
##
## # weights:  27
## initial  value 691.956953
## iter  10 value 299.369164
## iter  20 value 251.877903
## iter  30 value 233.424634
## iter  40 value 225.197040
## iter  50 value 222.648215
## iter  60 value 221.217522
## iter  70 value 220.628320
## iter  80 value 220.397479
## iter  90 value 220.238948
## iter 100 value 220.214379
```

```
## final   value 220.214379
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  7
## initial   value 439.604316
## iter   10 value 340.202858
## iter   20 value 339.988011
## iter   30 value 339.921664
## iter   40 value 328.741670
## iter   50 value 291.367244
## iter   60 value 288.351164
## iter   70 value 284.798477
## iter   80 value 284.727318
## iter   90 value 284.720731
## iter  100 value 284.710647
## final   value 284.710647
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  7
## initial   value 564.642061
## iter   10 value 340.289477
## iter   20 value 339.870441
## iter   30 value 309.452917
## iter   40 value 295.955478
## iter   50 value 292.256453
## iter   60 value 285.792024
## iter   70 value 285.066295
## iter   80 value 284.738939
## iter   90 value 284.710682
## iter  100 value 284.700569
## final   value 284.700569
## stopped after 100 iterations
## Fitting Repeat 3
##
## # weights:  7
## initial   value 441.958753
## iter   10 value 340.197607
## iter   20 value 340.017533
## iter   30 value 340.015794
## iter   40 value 340.013446
## iter   50 value 301.490998
## iter   60 value 295.773991
## iter   70 value 291.698032
## iter   80 value 239.235418
## iter   90 value 229.567026
## iter  100 value 229.206039
## final   value 229.206039
## stopped after 100 iterations
## Fitting Repeat 4
##
## # weights:  7
## initial   value 559.075056
```

```
## iter  10 value 340.277919
## iter  20 value 298.419197
## iter  30 value 296.219827
## iter  40 value 295.334095
## iter  50 value 286.858940
## iter  60 value 285.040326
## iter  70 value 284.783295
## iter  80 value 244.569338
## iter  90 value 237.800932
## iter 100 value 230.079730
## final  value 230.079730
## stopped after 100 iterations
## Fitting Repeat 5
##
## # weights:  7
## initial  value 318.455161
## iter  10 value 245.106452
## iter  20 value 234.235734
## iter  30 value 229.402289
## iter  40 value 229.240843
## final  value 229.171927
## converged
## Fitting Repeat 1
##
## # weights:  17
## initial  value 469.512277
## iter  10 value 339.792030
## iter  20 value 296.067981
## iter  30 value 283.168027
## iter  40 value 280.685355
## iter  50 value 279.850535
## iter  60 value 279.429104
## iter  70 value 279.274073
## iter  80 value 279.180685
## iter  90 value 278.985420
## iter 100 value 278.965283
## final  value 278.965283
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  17
## initial  value 382.857633
## iter  10 value 340.186554
## iter  20 value 318.210845
## iter  30 value 286.431279
## iter  40 value 282.462926
## iter  50 value 282.246837
## iter  60 value 282.151169
## iter  70 value 281.675929
## iter  80 value 246.359785
## iter  90 value 225.152202
## iter 100 value 222.919535
## final  value 222.919535
## stopped after 100 iterations
```

```
## Fitting Repeat 3
##
## # weights:  17
## initial  value 604.323596
## iter  10 value 340.443840
## iter  20 value 340.066905
## iter  30 value 340.066165
## iter  40 value 340.065374
## iter  50 value 340.064524
## iter  60 value 340.063600
## iter  70 value 340.062587
## iter  80 value 340.061461
## iter  90 value 340.060190
## iter 100 value 340.058732
## final  value 340.058732
## stopped after 100 iterations
## Fitting Repeat 4
##
## # weights:  17
## initial  value 473.419004
## iter  10 value 340.324813
## iter  20 value 249.008631
## iter  30 value 244.088014
## iter  40 value 242.484342
## iter  50 value 240.908650
## iter  60 value 240.724179
## iter  70 value 240.712326
## iter  80 value 240.564989
## iter  90 value 240.546888
## iter 100 value 240.400118
## final  value 240.400118
## stopped after 100 iterations
## Fitting Repeat 5
##
## # weights:  17
## initial  value 622.938522
## iter  10 value 340.679245
## iter  20 value 339.832785
## iter  30 value 316.965135
## iter  40 value 298.482498
## iter  50 value 254.792835
## iter  60 value 253.150617
## iter  70 value 252.445482
## iter  80 value 252.426283
## iter  90 value 252.357217
## iter 100 value 252.302668
## final  value 252.302668
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  27
## initial  value 474.247820
## iter  10 value 340.282585
## iter  20 value 306.898379
```

```
## iter  30 value 287.832348
## iter  40 value 279.135360
## iter  50 value 278.048327
## iter  60 value 277.420374
## iter  70 value 277.399621
## iter  80 value 277.263322
## iter  90 value 277.239293
## iter 100 value 241.556355
## final  value 241.556355
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  27
## initial  value 545.449779
## iter  10 value 340.573150
## iter  20 value 319.070531
## iter  30 value 295.756591
## iter  40 value 284.655841
## iter  50 value 280.174706
## iter  60 value 278.500296
## iter  70 value 276.569269
## iter  80 value 276.512261
## iter  90 value 227.675338
## iter 100 value 219.541954
## final  value 219.541954
## stopped after 100 iterations
## Fitting Repeat 3
##
## # weights:  27
## initial  value 463.600019
## iter  10 value 340.446545
## iter  20 value 331.155483
## iter  30 value 288.386328
## iter  40 value 256.899909
## iter  50 value 225.033403
## iter  60 value 221.819805
## iter  70 value 220.937158
## iter  80 value 220.463386
## iter  90 value 219.942539
## iter 100 value 219.830366
## final  value 219.830366
## stopped after 100 iterations
## Fitting Repeat 4
##
## # weights:  27
## initial  value 747.770102
## iter  10 value 340.632826
## iter  20 value 296.658947
## iter  30 value 259.914178
## iter  40 value 243.406825
## iter  50 value 231.402931
## iter  60 value 228.305570
## iter  70 value 227.344641
## iter  80 value 227.036760
```

```
## iter  90 value 226.889599
## iter 100 value 226.717682
## final   value 226.717682
## stopped after 100 iterations
## Fitting Repeat 5
##
## # weights:  27
## initial  value 474.667907
## iter  10 value 340.423681
## iter  20 value 339.916719
## iter  30 value 302.378961
## iter  40 value 285.611691
## iter  50 value 280.064109
## iter  60 value 277.618528
## iter  70 value 276.161933
## iter  80 value 275.791301
## iter  90 value 275.499155
## iter 100 value 258.933268
## final   value 258.933268
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  7
## initial  value 544.420702
## final   value 370.000000
## converged
## Fitting Repeat 2
##
## # weights:  7
## initial  value 479.730999
## final   value 370.000000
## converged
## Fitting Repeat 3
##
## # weights:  7
## initial  value 557.775933
## final   value 370.000000
## converged
## Fitting Repeat 4
##
## # weights:  7
## initial  value 562.302275
## final   value 370.000000
## converged
## Fitting Repeat 5
##
## # weights:  7
## initial  value 440.750260
## final   value 370.000000
## converged
## Fitting Repeat 1
##
## # weights:  17
## initial  value 353.923032
```

```
## iter   10 value 261.950790
## iter   20 value 251.743325
## iter   30 value 247.133635
## iter   40 value 246.243813
## iter   50 value 246.150714
## iter   60 value 245.383861
## iter   70 value 245.343233
## iter   80 value 245.342087
## iter   90 value 245.284158
## final   value 245.281734
## converged
## Fitting Repeat 2
##
## # weights:  17
## initial   value 621.631231
## final   value 370.000000
## converged
## Fitting Repeat 3
##
## # weights:  17
## initial   value 450.746464
## final   value 370.000000
## converged
## Fitting Repeat 4
##
## # weights:  17
## initial   value 556.543863
## final   value 370.000000
## converged
## Fitting Repeat 5
##
## # weights:  17
## initial   value 521.879675
## final   value 370.000000
## converged
## Fitting Repeat 1
##
## # weights:  27
## initial   value 573.239654
## final   value 370.000000
## converged
## Fitting Repeat 2
##
## # weights:  27
## initial   value 453.013827
## final   value 370.000000
## converged
## Fitting Repeat 3
##
## # weights:  27
## initial   value 422.017932
## final   value 370.000000
## converged
## Fitting Repeat 4
```

```
##
## # weights:  27
## initial  value 356.024913
## iter  10 value 263.444617
## iter  20 value 258.838371
## iter  30 value 257.497118
## iter  40 value 254.905109
## iter  50 value 251.391377
## iter  60 value 249.496545
## iter  70 value 249.419621
## iter  80 value 249.284675
## iter  90 value 249.241235
## iter 100 value 248.737455
## final  value 248.737455
## stopped after 100 iterations
## Fitting Repeat 5
##
## # weights:  27
## initial  value 423.882253
## final  value 370.000000
## converged
## Fitting Repeat 1
##
## # weights:  7
## initial  value 566.579541
## iter  10 value 320.646263
## iter  20 value 264.020196
## iter  30 value 261.897577
## final  value 261.896853
## converged
## Fitting Repeat 2
##
## # weights:  7
## initial  value 448.362867
## iter  10 value 286.356665
## iter  20 value 271.021127
## iter  30 value 270.474764
## final  value 270.472408
## converged
## Fitting Repeat 3
##
## # weights:  7
## initial  value 584.247727
## iter  10 value 342.768311
## iter  20 value 269.490212
## iter  30 value 263.646399
## iter  40 value 263.389769
## final  value 263.389626
## converged
## Fitting Repeat 4
##
## # weights:  7
## initial  value 466.084135
## iter  10 value 314.384867
```

```
## iter   20 value 263.183625
## iter   30 value 261.896854
## iter   30 value 261.896854
## final   value 261.896854
## converged
## Fitting Repeat 5
##
## # weights:  7
## initial  value 381.305197
## iter   10 value 289.876247
## iter   20 value 274.337119
## iter   30 value 270.744911
## final   value 270.472408
## converged
## Fitting Repeat 1
##
## # weights:  17
## initial  value 543.084181
## iter   10 value 311.770998
## iter   20 value 289.798836
## iter   30 value 278.784984
## iter   40 value 277.518104
## iter   50 value 277.377241
## final   value 277.377107
## converged
## Fitting Repeat 2
##
## # weights:  17
## initial  value 485.729140
## iter   10 value 337.294543
## iter   20 value 280.385757
## iter   30 value 265.317365
## iter   40 value 260.479440
## iter   50 value 258.685443
## iter   60 value 258.520200
## final   value 258.520190
## converged
## Fitting Repeat 3
##
## # weights:  17
## initial  value 584.147236
## iter   10 value 348.377405
## iter   20 value 277.592386
## iter   30 value 251.931803
## iter   40 value 248.453926
## iter   50 value 248.137482
## iter   60 value 248.044888
## final   value 248.043972
## converged
## Fitting Repeat 4
##
## # weights:  17
## initial  value 381.376971
## iter   10 value 307.015436
```

```
## iter  20 value 273.560893
## iter  30 value 252.032598
## iter  40 value 247.023323
## iter  50 value 246.940968
## final   value 246.940159
## converged
## Fitting Repeat 5
##
## # weights:  17
## initial   value 450.513088
## iter  10 value 267.165134
## iter  20 value 251.125231
## iter  30 value 247.878947
## iter  40 value 247.052858
## iter  50 value 245.745493
## iter  60 value 245.520445
## final   value 245.520380
## converged
## Fitting Repeat 1
##
## # weights:  27
## initial   value 449.561175
## iter  10 value 353.829604
## iter  20 value 319.613273
## iter  30 value 298.763599
## iter  40 value 256.291186
## iter  50 value 246.644711
## iter  60 value 244.750737
## iter  70 value 244.191384
## iter  80 value 242.896605
## iter  90 value 242.261740
## iter 100 value 242.192219
## final   value 242.192219
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  27
## initial   value 783.777575
## iter  10 value 355.548513
## iter  20 value 299.158103
## iter  30 value 277.281194
## iter  40 value 259.889503
## iter  50 value 255.242174
## iter  60 value 254.025604
## iter  70 value 253.543842
## final   value 253.543761
## converged
## Fitting Repeat 3
##
## # weights:  27
## initial   value 776.397469
## iter  10 value 343.588166
## iter  20 value 271.869047
## iter  30 value 264.324432
```

```
## iter  40 value 261.749776
## iter  50 value 261.163893
## iter  60 value 258.341321
## iter  70 value 254.229580
## iter  80 value 244.364462
## iter  90 value 243.401946
## final   value 243.400675
## converged
## Fitting Repeat 4
##
## # weights:  27
## initial   value 669.746377
## iter  10 value 356.232103
## iter  20 value 318.076696
## iter  30 value 269.740677
## iter  40 value 254.035849
## iter  50 value 248.364494
## iter  60 value 247.656361
## iter  70 value 247.355175
## iter  80 value 247.340147
## final   value 247.340140
## converged
## Fitting Repeat 5
##
## # weights:  27
## initial   value 355.390272
## iter  10 value 257.897237
## iter  20 value 254.377144
## iter  30 value 249.740910
## iter  40 value 248.401201
## iter  50 value 248.231798
## iter  60 value 247.638999
## iter  70 value 246.189295
## iter  80 value 244.422587
## iter  90 value 244.401644
## iter 100 value 244.313940
## final   value 244.313940
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  7
## initial   value 737.983680
## iter  10 value 370.432358
## iter  20 value 353.203985
## iter  30 value 319.970964
## iter  40 value 284.639331
## iter  50 value 264.822354
## iter  60 value 261.400955
## iter  70 value 261.165029
## iter  80 value 260.850086
## iter  90 value 260.769775
## iter 100 value 259.833386
## final   value 259.833386
## stopped after 100 iterations
```

```
## Fitting Repeat 2
##
## # weights:  7
## initial   value 470.507570
## iter   10 value 370.201788
## iter   20 value 323.386769
## iter   30 value 319.242620
## iter   40 value 317.920722
## iter   50 value 317.702247
## iter   60 value 317.690331
## iter   70 value 317.632759
## iter   80 value 269.981102
## iter   90 value 265.228706
## iter  100 value 264.298354
## final   value 264.298354
## stopped after 100 iterations
## Fitting Repeat 3
##
## # weights:  7
## initial   value 554.853773
## iter   10 value 370.305599
## iter   20 value 363.399067
## iter   30 value 318.930866
## iter   40 value 315.666029
## iter   50 value 315.317734
## iter   60 value 315.178370
## final   value 315.170695
## converged
## Fitting Repeat 4
##
## # weights:  7
## initial   value 635.930527
## iter   10 value 370.362652
## iter   20 value 345.507120
## iter   30 value 286.260489
## iter   40 value 282.809926
## iter   50 value 282.737548
## iter   60 value 282.730796
## final   value 282.729578
## converged
## Fitting Repeat 5
##
## # weights:  7
## initial   value 436.260806
## iter   10 value 370.176441
## iter   20 value 369.671782
## iter   30 value 330.863976
## iter   40 value 326.497369
## iter   50 value 326.419059
## iter   60 value 326.405633
## iter   70 value 326.395507
## iter   80 value 326.370421
## iter   90 value 324.713730
## iter  100 value 289.484774
```

```
## final   value 289.484774
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  17
## initial   value 493.136255
## iter   10 value 370.288845
## iter   20 value 370.013276
## iter   30 value 370.009951
## iter   40 value 324.567821
## iter   50 value 279.443057
## iter   60 value 248.486994
## iter   70 value 245.681227
## iter   80 value 245.506901
## iter   90 value 245.477329
## iter  100 value 245.328705
## final   value 245.328705
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  17
## initial   value 404.134668
## iter   10 value 370.145360
## iter   20 value 369.795446
## iter   30 value 316.425073
## iter   40 value 311.088495
## iter   50 value 308.104649
## iter   60 value 307.545831
## iter   70 value 307.382560
## iter   80 value 307.320291
## iter   90 value 307.221526
## iter  100 value 307.198136
## final   value 307.198136
## stopped after 100 iterations
## Fitting Repeat 3
##
## # weights:  17
## initial   value 342.784476
## iter   10 value 254.077472
## iter   20 value 244.707563
## iter   30 value 243.401781
## iter   40 value 242.449408
## iter   50 value 242.310488
## iter   60 value 242.137341
## iter   70 value 241.923327
## final   value 241.921076
## converged
## Fitting Repeat 4
##
## # weights:  17
## initial   value 562.956128
## iter   10 value 370.534067
## iter   20 value 370.019846
## iter   30 value 370.007443
```

```
## iter   40 value 369.979769
## iter   50 value 369.860477
## iter   60 value 361.851464
## iter   70 value 361.596984
## iter   80 value 361.050915
## iter   90 value 360.941625
## iter  100 value 360.929873
## final   value 360.929873
## stopped after 100 iterations
## Fitting Repeat 5
##
## # weights:  17
## initial   value 503.931396
## iter   10 value 370.364225
## iter   20 value 369.995144
## iter   30 value 369.969024
## iter   40 value 369.922910
## iter   50 value 368.027478
## iter   60 value 314.798758
## iter   70 value 311.883516
## iter   80 value 260.983866
## iter   90 value 249.447244
## iter  100 value 248.984056
## final   value 248.984056
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  27
## initial   value 683.825045
## iter   10 value 370.353542
## iter   20 value 353.923732
## iter   30 value 350.982862
## iter   40 value 348.404476
## iter   50 value 324.352119
## iter   60 value 315.664940
## iter   70 value 313.910857
## iter   80 value 313.465131
## iter   90 value 313.351420
## iter  100 value 309.362216
## final   value 309.362216
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  27
## initial   value 609.687939
## iter   10 value 370.476389
## iter   20 value 369.056919
## iter   30 value 322.776974
## iter   40 value 309.322974
## iter   50 value 304.637374
## iter   60 value 303.764297
## iter   70 value 303.110769
## iter   80 value 302.983263
## iter   90 value 302.950267
```

```
## iter 100 value 302.944218
## final  value 302.944218
## stopped after 100 iterations
## Fitting Repeat 3
##
## # weights:  27
## initial  value 597.660499
## iter  10 value 370.565533
## iter  20 value 369.528921
## iter  30 value 336.307443
## iter  40 value 333.529036
## iter  50 value 320.101150
## iter  60 value 316.921323
## iter  70 value 281.335071
## iter  80 value 279.692953
## iter  90 value 278.217715
## iter 100 value 277.966734
## final  value 277.966734
## stopped after 100 iterations
## Fitting Repeat 4
##
## # weights:  27
## initial  value 550.131199
## iter  10 value 371.053608
## iter  20 value 370.100262
## iter  30 value 345.171818
## iter  40 value 337.882974
## iter  50 value 337.467385
## iter  60 value 337.287411
## iter  70 value 337.256163
## iter  80 value 332.455505
## iter  90 value 298.696012
## iter 100 value 296.780098
## final  value 296.780098
## stopped after 100 iterations
## Fitting Repeat 5
##
## # weights:  27
## initial  value 401.946062
## iter  10 value 370.326575
## iter  20 value 366.065938
## iter  30 value 339.251915
## iter  40 value 319.794181
## iter  50 value 319.232230
## iter  60 value 316.709361
## iter  70 value 316.431419
## iter  80 value 316.370803
## iter  90 value 316.131389
## iter 100 value 315.651676
## final  value 315.651676
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  7
```

```
## initial  value 374.625368
## final  value 350.000000
## converged
## Fitting Repeat 2
##
## # weights:  7
## initial  value 407.213247
## final  value 350.000000
## converged
## Fitting Repeat 3
##
## # weights:  7
## initial  value 653.675126
## final  value 350.000000
## converged
## Fitting Repeat 4
##
## # weights:  7
## initial  value 529.378235
## final  value 350.000000
## converged
## Fitting Repeat 5
##
## # weights:  7
## initial  value 495.777680
## final  value 350.000000
## converged
## Fitting Repeat 1
##
## # weights:  17
## initial  value 460.251256
## final  value 350.000000
## converged
## Fitting Repeat 2
##
## # weights:  17
## initial  value 475.451229
## final  value 350.000000
## converged
## Fitting Repeat 3
##
## # weights:  17
## initial  value 689.113030
## final  value 350.000000
## converged
## Fitting Repeat 4
##
## # weights:  17
## initial  value 361.538335
## final  value 350.000000
## converged
## Fitting Repeat 5
##
## # weights:  17
```

```
## initial  value 464.738590
## final  value 350.000000
## converged
## Fitting Repeat 1
##
## # weights:  27
## initial  value 594.394681
## final  value 350.000000
## converged
## Fitting Repeat 2
##
## # weights:  27
## initial  value 434.806609
## final  value 350.000000
## converged
## Fitting Repeat 3
##
## # weights:  27
## initial  value 695.047089
## final  value 350.000000
## converged
## Fitting Repeat 4
##
## # weights:  27
## initial  value 496.287618
## final  value 350.000000
## converged
## Fitting Repeat 5
##
## # weights:  27
## initial  value 538.037006
## final  value 350.000000
## converged
## Fitting Repeat 1
##
## # weights:  7
## initial  value 398.765643
## iter  10 value 294.936637
## iter  20 value 251.238888
## iter  30 value 249.936524
## final  value 249.925553
## converged
## Fitting Repeat 2
##
## # weights:  7
## initial  value 488.004634
## iter  10 value 303.149996
## iter  20 value 265.110528
## iter  30 value 254.332428
## iter  40 value 251.190680
## final  value 251.190641
## converged
## Fitting Repeat 3
##
```

```
## # weights:  7
## initial   value 586.554900
## iter   10 value 323.629319
## iter   20 value 293.039018
## iter   30 value 262.007864
## iter   40 value 249.940228
## final   value 249.925553
## converged
## Fitting Repeat 4
##
## # weights:  7
## initial   value 457.445136
## iter   10 value 303.977114
## iter   20 value 257.676274
## iter   30 value 251.190734
## final   value 251.190681
## converged
## Fitting Repeat 5
##
## # weights:  7
## initial   value 496.270867
## iter   10 value 289.151077
## iter   20 value 255.437285
## iter   30 value 249.925564
## iter   30 value 249.925563
## final   value 249.925563
## converged
## Fitting Repeat 1
##
## # weights:  17
## initial   value 735.080274
## iter   10 value 323.021859
## iter   20 value 264.246757
## iter   30 value 257.799054
## iter   40 value 246.383214
## iter   50 value 238.559432
## iter   60 value 238.377828
## iter   70 value 238.334194
## final   value 238.334136
## converged
## Fitting Repeat 2
##
## # weights:  17
## initial   value 463.324331
## iter   10 value 302.988451
## iter   20 value 252.724342
## iter   30 value 249.371666
## iter   40 value 245.985489
## iter   50 value 241.933076
## iter   60 value 241.890560
## iter   70 value 241.531013
## final   value 241.529317
## converged
## Fitting Repeat 3
```

```
##
## # weights:  17
## initial   value 568.572559
## iter   10 value 299.764583
## iter   20 value 246.221511
## iter   30 value 241.498427
## iter   40 value 240.560755
## iter   50 value 240.349509
## final   value 240.328837
## converged
## Fitting Repeat 4
##
## # weights:  17
## initial   value 593.689911
## iter   10 value 322.238314
## iter   20 value 299.772608
## iter   30 value 261.534927
## iter   40 value 244.971405
## iter   50 value 239.144227
## final   value 239.067216
## converged
## Fitting Repeat 5
##
## # weights:  17
## initial   value 524.329316
## iter   10 value 303.250465
## iter   20 value 257.455160
## iter   30 value 238.403146
## iter   40 value 237.605682
## iter   50 value 237.107526
## iter   60 value 236.843454
## final   value 236.841534
## converged
## Fitting Repeat 1
##
## # weights:  27
## initial   value 342.436225
## iter   10 value 251.569625
## iter   20 value 241.674209
## iter   30 value 238.795419
## iter   40 value 238.205221
## iter   50 value 238.186188
## final   value 238.185520
## converged
## Fitting Repeat 2
##
## # weights:  27
## initial   value 573.950812
## iter   10 value 323.011496
## iter   20 value 260.503281
## iter   30 value 248.594614
## iter   40 value 241.782707
## iter   50 value 238.060685
## iter   60 value 237.500046
```

```
## iter  70 value 234.999245
## iter  80 value 233.996517
## final   value 233.990902
## converged
## Fitting Repeat 3
##
## # weights:  27
## initial  value 484.053841
## iter  10 value 326.665282
## iter  20 value 282.564894
## iter  30 value 249.811999
## iter  40 value 239.629636
## iter  50 value 234.756473
## iter  60 value 231.761338
## iter  70 value 231.505605
## iter  80 value 231.501133
## final   value 231.501129
## converged
## Fitting Repeat 4
##
## # weights:  27
## initial  value 422.325720
## iter  10 value 307.917382
## iter  20 value 298.058340
## iter  30 value 267.150242
## iter  40 value 245.665544
## iter  50 value 238.152216
## iter  60 value 237.604799
## iter  70 value 237.070362
## iter  80 value 236.299529
## iter  90 value 236.284920
## final   value 236.284843
## converged
## Fitting Repeat 5
##
## # weights:  27
## initial  value 467.058447
## iter  10 value 325.370034
## iter  20 value 282.503909
## iter  30 value 248.529124
## iter  40 value 236.935336
## iter  50 value 232.968696
## iter  60 value 232.813784
## final   value 232.810728
## converged
## Fitting Repeat 1
##
## # weights:  7
## initial  value 684.829207
## iter  10 value 350.400463
## iter  20 value 350.024845
## iter  30 value 307.557028
## iter  40 value 303.190696
## iter  50 value 302.354668
```

```
## iter  60 value 297.947149
## iter  70 value 296.018392
## iter  80 value 295.866803
## iter  90 value 256.089968
## iter 100 value 241.672337
## final  value 241.672337
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  7
## initial  value 502.700062
## iter  10 value 350.253974
## iter  20 value 350.019498
## iter  30 value 350.014667
## iter  40 value 350.007231
## iter  50 value 349.994010
## iter  60 value 349.963251
## iter  70 value 349.808034
## iter  80 value 308.982475
## iter  90 value 303.557354
## iter 100 value 301.386745
## final  value 301.386745
## stopped after 100 iterations
## Fitting Repeat 3
##
## # weights:  7
## initial  value 693.206234
## iter  10 value 350.442604
## iter  20 value 350.026950
## iter  30 value 349.919530
## iter  40 value 349.286945
## iter  50 value 316.689051
## iter  60 value 315.937589
## iter  70 value 284.662818
## iter  80 value 282.138098
## iter  90 value 282.074945
## iter 100 value 281.805896
## final  value 281.805896
## stopped after 100 iterations
## Fitting Repeat 4
##
## # weights:  7
## initial  value 532.368841
## iter  10 value 350.320534
## iter  20 value 350.023409
## iter  30 value 350.019433
## iter  40 value 348.721460
## iter  50 value 303.822319
## iter  60 value 298.665476
## iter  70 value 296.111116
## iter  80 value 295.807978
## iter  90 value 294.545012
## iter 100 value 243.957409
## final  value 243.957409
```

```
## stopped after 100 iterations
## Fitting Repeat 5
##
## # weights:  7
## initial  value 353.389489
## iter  10 value 350.049607
## iter  20 value 350.048703
## iter  30 value 350.047683
## iter  40 value 350.046509
## iter  50 value 350.045124
## iter  60 value 350.043431
## iter  70 value 350.041270
## iter  80 value 350.038328
## iter  90 value 350.033927
## iter 100 value 350.026248
## final  value 350.026248
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  17
## initial  value 538.813540
## iter  10 value 350.396180
## iter  20 value 350.048895
## iter  30 value 349.996461
## iter  40 value 349.804361
## iter  50 value 304.439796
## iter  60 value 299.650086
## iter  70 value 298.272871
## iter  80 value 296.806849
## iter  90 value 293.455828
## iter 100 value 293.167542
## final  value 293.167542
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  17
## initial  value 616.463127
## iter  10 value 350.544654
## iter  20 value 349.908190
## iter  30 value 319.683879
## iter  40 value 299.570726
## iter  50 value 294.634810
## iter  60 value 291.677268
## iter  70 value 290.252041
## iter  80 value 289.775120
## iter  90 value 289.742087
## iter 100 value 289.738768
## final  value 289.738768
## stopped after 100 iterations
## Fitting Repeat 3
##
## # weights:  17
## initial  value 629.383333
## iter  10 value 350.456453
```

```
## iter  20 value 350.032506
## iter  30 value 350.030847
## iter  40 value 350.028848
## iter  50 value 350.026361
## iter  60 value 350.023138
## iter  70 value 350.018720
## iter  80 value 350.012168
## iter  90 value 350.001182
## iter 100 value 349.978300
## final  value 349.978300
## stopped after 100 iterations
## Fitting Repeat 4
##
## # weights:  17
## initial  value 636.918227
## iter  10 value 350.492730
## iter  20 value 348.851077
## iter  30 value 301.238357
## iter  40 value 295.291765
## iter  50 value 290.546815
## iter  60 value 253.072900
## iter  70 value 248.038938
## iter  80 value 247.382521
## iter  90 value 247.314820
## iter 100 value 247.005809
## final  value 247.005809
## stopped after 100 iterations
## Fitting Repeat 5
##
## # weights:  17
## initial  value 459.563464
## iter  10 value 350.313168
## iter  20 value 349.897545
## iter  30 value 349.682364
## iter  40 value 341.256701
## iter  50 value 325.590510
## iter  60 value 304.759978
## iter  70 value 269.495788
## iter  80 value 261.745202
## iter  90 value 256.645591
## iter 100 value 252.833159
## final  value 252.833159
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  27
## initial  value 503.800081
## iter  10 value 350.276217
## iter  20 value 304.508335
## iter  30 value 293.364642
## iter  40 value 289.928112
## iter  50 value 288.971475
## iter  60 value 288.271323
## iter  70 value 288.148635
```

```
## iter  80 value 288.116316
## iter  90 value 288.109877
## iter 100 value 288.095711
## final   value 288.095711
## stopped after 100 iterations
## Fitting Repeat 2
##
## # weights:  27
## initial   value 387.804323
## iter  10 value 339.453440
## iter  20 value 305.150176
## iter  30 value 298.517260
## iter  40 value 294.560372
## iter  50 value 292.547259
## iter  60 value 264.883258
## iter  70 value 259.789519
## iter  80 value 241.352572
## iter  90 value 233.109421
## iter 100 value 231.504327
## final   value 231.504327
## stopped after 100 iterations
## Fitting Repeat 3
##
## # weights:  27
## initial   value 361.711670
## iter  10 value 350.152834
## iter  20 value 259.279654
## iter  30 value 235.503904
## iter  40 value 224.110009
## iter  50 value 222.005381
## iter  60 value 221.033113
## iter  70 value 220.973241
## iter  80 value 220.911761
## iter  90 value 220.698988
## iter 100 value 220.681253
## final   value 220.681253
## stopped after 100 iterations
## Fitting Repeat 4
##
## # weights:  27
## initial   value 843.200904
## iter  10 value 350.854084
## iter  20 value 350.027650
## iter  30 value 338.163272
## iter  40 value 337.119853
## iter  50 value 337.067514
## iter  60 value 337.012159
## iter  70 value 336.912404
## iter  80 value 336.898015
## iter  90 value 336.717772
## iter 100 value 279.234258
## final   value 279.234258
## stopped after 100 iterations
## Fitting Repeat 5
```

```
##
## # weights:  27
## initial   value 533.298872
## iter  10 value 350.651331
## iter  20 value 349.919460
## iter  30 value 306.997170
## iter  40 value 256.002461
## iter  50 value 238.673021
## iter  60 value 234.870795
## iter  70 value 231.347555
## iter  80 value 230.076546
## iter  90 value 227.820663
## iter 100 value 226.623920
## final   value 226.623920
## stopped after 100 iterations
## Fitting Repeat 1
##
## # weights:  7
## initial   value 617.660602
## iter  10 value 309.526100
## iter  20 value 252.180019
## iter  30 value 246.133147
## iter  40 value 242.906339
## final   value 242.735125
## converged
## Fitting Repeat 2
##
## # weights:  7
## initial   value 533.158778
## iter  10 value 281.773359
## iter  20 value 251.928433
## iter  30 value 247.087787
## iter  40 value 243.033925
## iter  50 value 242.735128
## iter  50 value 242.735127
## iter  50 value 242.735126
## final   value 242.735126
## converged
## Fitting Repeat 3
##
## # weights:  7
## initial   value 437.789641
## iter  10 value 282.687017
## iter  20 value 249.740637
## iter  30 value 245.006171
## iter  40 value 242.735331
## final   value 242.735125
## converged
## Fitting Repeat 4
##
## # weights:  7
## initial   value 490.795457
## iter  10 value 298.275190
## iter  20 value 261.917900
```

```
## iter   30 value 245.683166
## iter   40 value 242.735633
## final    value 242.735125
## converged
## Fitting Repeat 5
##
## # weights:   7
## initial    value 513.600912
## iter   10 value 294.876734
## iter   20 value 248.052961
## iter   30 value 242.905721
## iter   40 value 242.735125
## iter   40 value 242.735125
## iter   40 value 242.735125
## final    value 242.735125
## converged
## [1] "mlp"
## [1] "monmlp"
## ** Ensemble 1
## 0.8169067
## ** 0.8169067
##
## ** Ensemble 1
## 0.6966106
## ** 0.6966106
##
## ** Ensemble 1
## 0.6007596
## ** 0.6007596
##
## ** Ensemble 1
## 0.9015416
## ** 0.9015416
##
## ** Ensemble 1
## 0.7203453
## ** 0.7203453
##
## ** Ensemble 1
## 0.6693001
## ** 0.6693001
##
## ** Ensemble 1
## 0.8734338
## ** 0.8734338
##
## ** Ensemble 1
## 0.7972549
## ** 0.7972549
##
## ** Ensemble 1
## 0.6370972
## ** 0.6370972
##
```

```
## ** Ensemble 1
## 0.8455232
## ** 0.8455232
##
## ** Ensemble 1
## 0.7504654
## ** 0.7504654
##
## ** Ensemble 1
## 0.6813194
## ** 0.6813194
##
## ** Ensemble 1
## 0.9002499
## ** 0.9002499
##
## ** Ensemble 1
## 0.7008103
## ** 0.7008103
##
## ** Ensemble 1
## 0.8059766
## ** 0.8059766
##
## ** Ensemble 1
## 0.8615089
## ** 0.8615089
##
## ** Ensemble 1
## 0.7747495
## ** 0.7747495
##
## ** Ensemble 1
## 0.7227856
## ** 0.7227856
##
## ** Ensemble 1
## 0.8722996
## ** 0.8722996
##
## ** Ensemble 1
## 0.8131276
## ** 0.8131276
##
## ** Ensemble 1
## 0.7207405
## ** 0.7207405
##
## ** Ensemble 1
## 0.9003218
## ** 0.9003218
##
## ** Ensemble 1
## 0.7063208
```

```
## ** 0.7063208
##
## ** Ensemble 1
## 0.679107
## ** 0.679107
##
## ** Ensemble 1
## 0.9010765
## ** 0.9010765
##
## ** Ensemble 1
## 0.7492188
## ** 0.7492188
##
## ** Ensemble 1
## 0.7200722
## ** 0.7200722
##
## ** Ensemble 1
## 0.8315435
## ** 0.8315435
##
## ** Ensemble 1
## 0.7831783
## ** 0.7831783
##
## ** Ensemble 1
## 0.6485349
## ** 0.6485349
##
## ** Ensemble 1
## 0.8318136
## ** 0.8318136
##
## ** Ensemble 1
## 0.7549498
## ** 0.7549498
##
## ** Ensemble 1
## 0.6325275
## ** 0.6325275
##
## ** Ensemble 1
## 0.7830241
## ** 0.7830241
##
## ** Ensemble 1
## 0.7452407
## ** 0.7452407
##
## ** Ensemble 1
## 0.6117011
## ** 0.6117011
##
```

```
## ** Ensemble 1
## 0.8650326
## ** 0.8650326
##
## ** Ensemble 1
## 0.8474695
## ** 0.8474695
##
## ** Ensemble 1
## 0.5188715
## ** 0.5188715
##
## ** Ensemble 1
## 0.8608523
## ** 0.8608523
##
## ** Ensemble 1
## 0.8265402
## ** 0.8265402
##
## ** Ensemble 1
## 0.6600127
## ** 0.6600127
##
## ** Ensemble 1
## 0.903268
## ** 0.903268
##
## ** Ensemble 1
## 0.7737686
## ** 0.7737686
##
## ** Ensemble 1
## 0.8261256
## ** 0.8261256
##
## ** Ensemble 1
## 0.8384433
## ** 0.8384433
##
## ** Ensemble 1
## 0.6804523
## ** 0.6804523
##
## ** Ensemble 1
## 0.7118222
## ** 0.7118222
##
## ** Ensemble 1
## 0.9033698
## ** 0.9033698
##
## ** Ensemble 1
## 0.8193993
```

```
## ** 0.8193993
##
## ** Ensemble 1
## 0.7134993
## ** 0.7134993
##
## ** Ensemble 1
## 0.8264429
## ** 0.8264429
##
## ** Ensemble 1
## 0.768402
## ** 0.768402
##
## ** Ensemble 1
## 0.6906884
## ** 0.6906884
##
## ** Ensemble 1
## 0.7885203
## ** 0.7885203
##
## ** Ensemble 1
## 0.6649098
## ** 0.6649098
##
## ** Ensemble 1
## 0.6865735
## ** 0.6865735
##
## ** Ensemble 1
## 0.9074428
## ** 0.9074428
##
## ** Ensemble 1
## 0.8545605
## ** 0.8545605
##
## ** Ensemble 1
## 0.7087402
## ** 0.7087402
##
## ** Ensemble 1
## 0.8321507
## ** 0.8321507
##
## ** Ensemble 1
## 0.8295033
## ** 0.8295033
##
## ** Ensemble 1
## 0.6809626
## ** 0.6809626
##
```

```
## ** Ensemble 1
## 0.8964134
## ** 0.8964134
##
## ** Ensemble 1
## 0.811927
## ** 0.811927
##
## ** Ensemble 1
## 0.6116767
## ** 0.6116767
##
## ** Ensemble 1
## 0.8846199
## ** 0.8846199
##
## ** Ensemble 1
## 0.7878012
## ** 0.7878012
##
## ** Ensemble 1
## 0.6935414
## ** 0.6935414
##
## ** Ensemble 1
## 0.8761184
## ** 0.8761184
##
## ** Ensemble 1
## 0.818771
## ** 0.818771
##
## ** Ensemble 1
## 0.5963141
## ** 0.5963141
##
## ** Ensemble 1
## 0.8995469
## ** 0.8995469
##
## ** Ensemble 1
## 0.8372152
## ** 0.8372152
##
## ** Ensemble 1
## 0.7112181
## ** 0.7112181
##
## ** Ensemble 1
## 0.6392689
## ** 0.6392689
##
## [1] "adaboost"
## [1] "gbm"
```

```
## Iter   TrainDeviance   ValidDeviance   StepSize   Improve
##     1       0.8798           nan         0.1000     0.0082
##     2       0.8663           nan         0.1000     0.0068
##     3       0.8540           nan         0.1000     0.0060
##     4       0.8452           nan         0.1000     0.0046
##     5       0.8380           nan         0.1000     0.0037
##     6       0.8339           nan         0.1000    -0.0000
##     7       0.8268           nan         0.1000     0.0027
##     8       0.8215           nan         0.1000     0.0019
##     9       0.8170           nan         0.1000     0.0010
##    10       0.8110           nan         0.1000     0.0026
##    20       0.7786           nan         0.1000    -0.0003
##    40       0.7437           nan         0.1000     0.0000
##    60       0.7317           nan         0.1000    -0.0009
##    80       0.7184           nan         0.1000     0.0008
##   100       0.7080           nan         0.1000    -0.0005
##   120       0.7004           nan         0.1000    -0.0001
##   140       0.6933           nan         0.1000    -0.0002
##   150       0.6893           nan         0.1000    -0.0005
##
## Iter   TrainDeviance   ValidDeviance   StepSize   Improve
##     1       0.8684           nan         0.1000     0.0141
##     2       0.8438           nan         0.1000     0.0099
##     3       0.8275           nan         0.1000     0.0074
##     4       0.8166           nan         0.1000     0.0046
##     5       0.8064           nan         0.1000     0.0031
##     6       0.7975           nan         0.1000     0.0040
##     7       0.7892           nan         0.1000     0.0037
##     8       0.7805           nan         0.1000     0.0026
##     9       0.7718           nan         0.1000     0.0025
##    10       0.7658           nan         0.1000     0.0021
##    20       0.7216           nan         0.1000     0.0012
##    40       0.6764           nan         0.1000    -0.0005
##    60       0.6567           nan         0.1000    -0.0007
##    80       0.6307           nan         0.1000    -0.0004
##   100       0.6133           nan         0.1000    -0.0005
##   120       0.5962           nan         0.1000    -0.0002
##   140       0.5812           nan         0.1000    -0.0011
##   150       0.5740           nan         0.1000    -0.0014
##
## Iter   TrainDeviance   ValidDeviance   StepSize   Improve
##     1       0.8675           nan         0.1000     0.0160
##     2       0.8414           nan         0.1000     0.0089
##     3       0.8276           nan         0.1000     0.0046
##     4       0.8133           nan         0.1000     0.0062
##     5       0.8005           nan         0.1000     0.0055
##     6       0.7873           nan         0.1000     0.0047
##     7       0.7777           nan         0.1000     0.0033
##     8       0.7681           nan         0.1000     0.0038
##     9       0.7613           nan         0.1000     0.0032
##    10       0.7546           nan         0.1000     0.0025
##    20       0.6948           nan         0.1000     0.0002
##    40       0.6331           nan         0.1000    -0.0011
##    60       0.5995           nan         0.1000    -0.0014
```

```
##     80     0.5561          nan     0.1000   -0.0006
##    100     0.5380          nan     0.1000   -0.0006
##    120     0.5117          nan     0.1000   -0.0000
##    140     0.4839          nan     0.1000   -0.0007
##    150     0.4751          nan     0.1000   -0.0015
##
## Iter   TrainDeviance   ValidDeviance   StepSize   Improve
##      1     0.9031          nan     0.1000    0.0089
##      2     0.8808          nan     0.1000    0.0074
##      3     0.8697          nan     0.1000    0.0059
##      4     0.8596          nan     0.1000    0.0049
##      5     0.8522          nan     0.1000    0.0038
##      6     0.8422          nan     0.1000    0.0024
##      7     0.8347          nan     0.1000    0.0016
##      8     0.8284          nan     0.1000    0.0028
##      9     0.8219          nan     0.1000    0.0033
##     10     0.8156          nan     0.1000    0.0023
##     20     0.7776          nan     0.1000    0.0010
##     40     0.7364          nan     0.1000    0.0001
##     60     0.7143          nan     0.1000   -0.0007
##     80     0.6958          nan     0.1000    0.0002
##    100     0.6842          nan     0.1000    0.0001
##    120     0.6754          nan     0.1000   -0.0009
##    140     0.6672          nan     0.1000   -0.0001
##    150     0.6657          nan     0.1000    0.0000
##
## Iter   TrainDeviance   ValidDeviance   StepSize   Improve
##      1     0.8880          nan     0.1000    0.0170
##      2     0.8638          nan     0.1000    0.0130
##      3     0.8473          nan     0.1000    0.0082
##      4     0.8301          nan     0.1000    0.0078
##      5     0.8157          nan     0.1000    0.0060
##      6     0.8034          nan     0.1000    0.0059
##      7     0.7939          nan     0.1000    0.0048
##      8     0.7857          nan     0.1000    0.0017
##      9     0.7780          nan     0.1000    0.0022
##     10     0.7712          nan     0.1000    0.0025
##     20     0.7243          nan     0.1000    0.0005
##     40     0.6687          nan     0.1000    0.0002
##     60     0.6334          nan     0.1000   -0.0014
##     80     0.6063          nan     0.1000   -0.0002
##    100     0.5758          nan     0.1000    0.0002
##    120     0.5504          nan     0.1000   -0.0011
##    140     0.5343          nan     0.1000   -0.0007
##    150     0.5265          nan     0.1000   -0.0007
##
## Iter   TrainDeviance   ValidDeviance   StepSize   Improve
##      1     0.8899          nan     0.1000    0.0177
##      2     0.8605          nan     0.1000    0.0101
##      3     0.8437          nan     0.1000    0.0070
##      4     0.8187          nan     0.1000    0.0100
##      5     0.8035          nan     0.1000    0.0060
##      6     0.7865          nan     0.1000    0.0072
##      7     0.7718          nan     0.1000    0.0061
```

274

```
##     8        0.7591          nan       0.1000      0.0035
##     9        0.7502          nan       0.1000      0.0038
##    10        0.7421          nan       0.1000      0.0029
##    20        0.6792          nan       0.1000      0.0021
##    40        0.5836          nan       0.1000      0.0009
##    60        0.5323          nan       0.1000      0.0015
##    80        0.4970          nan       0.1000     -0.0013
##   100        0.4626          nan       0.1000      0.0008
##   120        0.4397          nan       0.1000     -0.0008
##   140        0.4220          nan       0.1000     -0.0016
##   150        0.4122          nan       0.1000     -0.0008
##
## Iter   TrainDeviance   ValidDeviance   StepSize   Improve
##     1        0.9115          nan       0.1000      0.0079
##     2        0.8928          nan       0.1000      0.0064
##     3        0.8812          nan       0.1000      0.0052
##     4        0.8718          nan       0.1000      0.0043
##     5        0.8628          nan       0.1000      0.0031
##     6        0.8571          nan       0.1000      0.0019
##     7        0.8501          nan       0.1000      0.0031
##     8        0.8438          nan       0.1000      0.0025
##     9        0.8395          nan       0.1000      0.0016
##    10        0.8351          nan       0.1000      0.0011
##    20        0.7991          nan       0.1000      0.0002
##    40        0.7661          nan       0.1000     -0.0002
##    60        0.7443          nan       0.1000      0.0009
##    80        0.7271          nan       0.1000     -0.0002
##   100        0.7171          nan       0.1000     -0.0010
##   120        0.7088          nan       0.1000     -0.0012
##   140        0.6996          nan       0.1000     -0.0003
##   150        0.6960          nan       0.1000     -0.0002
##
## Iter   TrainDeviance   ValidDeviance   StepSize   Improve
##     1        0.9043          nan       0.1000      0.0122
##     2        0.8828          nan       0.1000      0.0103
##     3        0.8663          nan       0.1000      0.0062
##     4        0.8547          nan       0.1000      0.0058
##     5        0.8444          nan       0.1000      0.0040
##     6        0.8327          nan       0.1000      0.0061
##     7        0.8228          nan       0.1000      0.0047
##     8        0.8098          nan       0.1000      0.0064
##     9        0.7995          nan       0.1000      0.0038
##    10        0.7926          nan       0.1000      0.0013
##    20        0.7448          nan       0.1000      0.0006
##    40        0.6842          nan       0.1000      0.0004
##    60        0.6496          nan       0.1000     -0.0001
##    80        0.6197          nan       0.1000     -0.0009
##   100        0.5921          nan       0.1000      0.0005
##   120        0.5714          nan       0.1000     -0.0015
##   140        0.5497          nan       0.1000     -0.0012
##   150        0.5407          nan       0.1000     -0.0003
##
## Iter   TrainDeviance   ValidDeviance   StepSize   Improve
##     1        0.8907          nan       0.1000      0.0169
```

```
##     2       0.8665           nan       0.1000     0.0116
##     3       0.8483           nan       0.1000     0.0071
##     4       0.8326           nan       0.1000     0.0054
##     5       0.8160           nan       0.1000     0.0068
##     6       0.8039           nan       0.1000     0.0048
##     7       0.7918           nan       0.1000     0.0040
##     8       0.7796           nan       0.1000     0.0034
##     9       0.7714           nan       0.1000     0.0024
##    10       0.7641           nan       0.1000     0.0022
##    20       0.6953           nan       0.1000     0.0017
##    40       0.6121           nan       0.1000    -0.0005
##    60       0.5659           nan       0.1000    -0.0006
##    80       0.5291           nan       0.1000    -0.0001
##   100       0.4947           nan       0.1000    -0.0008
##   120       0.4713           nan       0.1000    -0.0012
##   140       0.4467           nan       0.1000    -0.0010
##   150       0.4336           nan       0.1000    -0.0009
##
## Iter   TrainDeviance   ValidDeviance   StepSize   Improve
##     1       0.9180           nan       0.1000     0.0104
##     2       0.8988           nan       0.1000     0.0078
##     3       0.8843           nan       0.1000     0.0060
##     4       0.8730           nan       0.1000     0.0042
##     5       0.8639           nan       0.1000     0.0037
##     6       0.8585           nan       0.1000     0.0023
##     7       0.8523           nan       0.1000     0.0018
##     8       0.8452           nan       0.1000     0.0031
##     9       0.8384           nan       0.1000     0.0036
##    10       0.8341           nan       0.1000     0.0015
##    20       0.7890           nan       0.1000     0.0021
##    40       0.7480           nan       0.1000    -0.0000
##    60       0.7258           nan       0.1000    -0.0002
##    80       0.7148           nan       0.1000    -0.0000
##   100       0.7015           nan       0.1000    -0.0001
##   120       0.6941           nan       0.1000    -0.0002
##   140       0.6830           nan       0.1000    -0.0003
##   150       0.6776           nan       0.1000    -0.0004
##
## Iter   TrainDeviance   ValidDeviance   StepSize   Improve
##     1       0.9065           nan       0.1000     0.0161
##     2       0.8823           nan       0.1000     0.0120
##     3       0.8599           nan       0.1000     0.0097
##     4       0.8401           nan       0.1000     0.0077
##     5       0.8249           nan       0.1000     0.0061
##     6       0.8114           nan       0.1000     0.0055
##     7       0.8018           nan       0.1000     0.0046
##     8       0.7919           nan       0.1000     0.0024
##     9       0.7846           nan       0.1000     0.0027
##    10       0.7795           nan       0.1000     0.0020
##    20       0.7309           nan       0.1000     0.0008
##    40       0.6797           nan       0.1000    -0.0004
##    60       0.6497           nan       0.1000    -0.0008
##    80       0.6292           nan       0.1000    -0.0003
##   100       0.6113           nan       0.1000    -0.0014
```

```
##    120        0.5834             nan      0.1000     -0.0006
##    140        0.5607             nan      0.1000     -0.0004
##    150        0.5539             nan      0.1000     -0.0002
##
## Iter   TrainDeviance   ValidDeviance    StepSize    Improve
##      1        0.9004             nan      0.1000      0.0176
##      2        0.8702             nan      0.1000      0.0143
##      3        0.8430             nan      0.1000      0.0106
##      4        0.8246             nan      0.1000      0.0071
##      5        0.8081             nan      0.1000      0.0064
##      6        0.7949             nan      0.1000      0.0068
##      7        0.7847             nan      0.1000      0.0024
##      8        0.7752             nan      0.1000      0.0024
##      9        0.7672             nan      0.1000      0.0015
##     10        0.7577             nan      0.1000      0.0035
##     20        0.7001             nan      0.1000      0.0002
##     40        0.6385             nan      0.1000     -0.0001
##     60        0.5932             nan      0.1000      0.0008
##     80        0.5482             nan      0.1000     -0.0005
##    100        0.5043             nan      0.1000     -0.0006
##    120        0.4851             nan      0.1000     -0.0009
##    140        0.4616             nan      0.1000     -0.0007
##    150        0.4512             nan      0.1000     -0.0010
##
## Iter   TrainDeviance   ValidDeviance    StepSize    Improve
##      1        0.8909             nan      0.1000      0.0076
##      2        0.8770             nan      0.1000      0.0061
##      3        0.8658             nan      0.1000      0.0046
##      4        0.8561             nan      0.1000      0.0040
##      5        0.8499             nan      0.1000      0.0015
##      6        0.8419             nan      0.1000      0.0037
##      7        0.8352             nan      0.1000      0.0024
##      8        0.8290             nan      0.1000      0.0030
##      9        0.8235             nan      0.1000      0.0013
##     10        0.8148             nan      0.1000      0.0029
##     20        0.7728             nan      0.1000      0.0003
##     40        0.7390             nan      0.1000     -0.0001
##     60        0.7174             nan      0.1000     -0.0002
##     80        0.7032             nan      0.1000      0.0001
##    100        0.6927             nan      0.1000     -0.0000
##    120        0.6851             nan      0.1000     -0.0007
##    140        0.6765             nan      0.1000     -0.0004
##    150        0.6726             nan      0.1000     -0.0006
##
## Iter   TrainDeviance   ValidDeviance    StepSize    Improve
##      1        0.8779             nan      0.1000      0.0143
##      2        0.8561             nan      0.1000      0.0116
##      3        0.8405             nan      0.1000      0.0054
##      4        0.8253             nan      0.1000      0.0063
##      5        0.8129             nan      0.1000      0.0029
##      6        0.8011             nan      0.1000      0.0039
##      7        0.7915             nan      0.1000      0.0035
##      8        0.7813             nan      0.1000      0.0043
##      9        0.7744             nan      0.1000      0.0016
```

```
##        10         0.7662             nan       0.1000       0.0036
##        20         0.7166             nan       0.1000       0.0004
##        40         0.6653             nan       0.1000      -0.0005
##        60         0.6309             nan       0.1000       0.0010
##        80         0.5994             nan       0.1000      -0.0000
##       100         0.5778             nan       0.1000      -0.0012
##       120         0.5592             nan       0.1000      -0.0001
##       140         0.5370             nan       0.1000      -0.0005
##       150         0.5320             nan       0.1000       0.0000
##
## Iter   TrainDeviance   ValidDeviance   StepSize     Improve
##         1         0.8712             nan       0.1000       0.0179
##         2         0.8452             nan       0.1000       0.0106
##         3         0.8277             nan       0.1000       0.0058
##         4         0.8086             nan       0.1000       0.0093
##         5         0.7911             nan       0.1000       0.0066
##         6         0.7790             nan       0.1000       0.0053
##         7         0.7670             nan       0.1000       0.0047
##         8         0.7567             nan       0.1000       0.0027
##         9         0.7449             nan       0.1000       0.0053
##        10         0.7379             nan       0.1000       0.0018
##        20         0.6767             nan       0.1000       0.0010
##        40         0.6064             nan       0.1000       0.0007
##        60         0.5633             nan       0.1000      -0.0010
##        80         0.5240             nan       0.1000       0.0003
##       100         0.5009             nan       0.1000      -0.0008
##       120         0.4651             nan       0.1000      -0.0003
##       140         0.4379             nan       0.1000       0.0001
##       150         0.4291             nan       0.1000      -0.0003
##
## Iter   TrainDeviance   ValidDeviance   StepSize     Improve
##         1         0.9171             nan       0.1000       0.0087
##         2         0.9049             nan       0.1000       0.0064
##         3         0.8941             nan       0.1000       0.0056
##         4         0.8858             nan       0.1000       0.0032
##         5         0.8772             nan       0.1000       0.0033
##         6         0.8711             nan       0.1000       0.0014
##         7         0.8629             nan       0.1000       0.0038
##         8         0.8567             nan       0.1000       0.0017
##         9         0.8501             nan       0.1000       0.0028
##        10         0.8450             nan       0.1000       0.0017
##        20         0.8051             nan       0.1000       0.0017
##        40         0.7745             nan       0.1000       0.0004
##        60         0.7561             nan       0.1000       0.0002
##        80         0.7403             nan       0.1000       0.0000
##       100         0.7319             nan       0.1000      -0.0005
##       120         0.7251             nan       0.1000       0.0001
##       140         0.7160             nan       0.1000      -0.0007
##       150         0.7126             nan       0.1000      -0.0002
##
## Iter   TrainDeviance   ValidDeviance   StepSize     Improve
##         1         0.9111             nan       0.1000       0.0144
##         2         0.8896             nan       0.1000       0.0108
##         3         0.8710             nan       0.1000       0.0071
```

278

```
##     4    0.8558         nan    0.1000    0.0072
##     5    0.8440         nan    0.1000    0.0047
##     6    0.8316         nan    0.1000    0.0043
##     7    0.8241         nan    0.1000    0.0032
##     8    0.8168         nan    0.1000    0.0029
##     9    0.8115         nan    0.1000   -0.0001
##    10    0.8053         nan    0.1000    0.0004
##    20    0.7616         nan    0.1000    0.0016
##    40    0.7159         nan    0.1000    0.0007
##    60    0.6790         nan    0.1000   -0.0003
##    80    0.6512         nan    0.1000   -0.0003
##   100    0.6311         nan    0.1000   -0.0010
##   120    0.6060         nan    0.1000    0.0010
##   140    0.5898         nan    0.1000   -0.0006
##   150    0.5786         nan    0.1000   -0.0005
##
## Iter   TrainDeviance  ValidDeviance  StepSize  Improve
##     1    0.9054         nan    0.1000    0.0152
##     2    0.8819         nan    0.1000    0.0096
##     3    0.8629         nan    0.1000    0.0078
##     4    0.8510         nan    0.1000    0.0022
##     5    0.8369         nan    0.1000    0.0050
##     6    0.8272         nan    0.1000    0.0029
##     7    0.8177         nan    0.1000    0.0035
##     8    0.8039         nan    0.1000    0.0065
##     9    0.7915         nan    0.1000    0.0035
##    10    0.7808         nan    0.1000    0.0046
##    20    0.7179         nan    0.1000    0.0012
##    40    0.6447         nan    0.1000   -0.0006
##    60    0.6069         nan    0.1000   -0.0004
##    80    0.5628         nan    0.1000    0.0003
##   100    0.5278         nan    0.1000   -0.0018
##   120    0.4992         nan    0.1000   -0.0008
##   140    0.4763         nan    0.1000   -0.0004
##   150    0.4647         nan    0.1000   -0.0010
##
## Iter   TrainDeviance  ValidDeviance  StepSize  Improve
##     1    0.9210         nan    0.1000    0.0159
##     2    0.8989         nan    0.1000    0.0077
##     3    0.8794         nan    0.1000    0.0098
##     4    0.8592         nan    0.1000    0.0067
##     5    0.8466         nan    0.1000    0.0056
##     6    0.8350         nan    0.1000    0.0042
##     7    0.8313         nan    0.1000    0.0007
##     8    0.8244         nan    0.1000    0.0038
##     9    0.8170         nan    0.1000    0.0023
##    10    0.8101         nan    0.1000    0.0028
##    20    0.7677         nan    0.1000    0.0007
##    40    0.7229         nan    0.1000    0.0004
##    60    0.6980         nan    0.1000   -0.0003
##    80    0.6801         nan    0.1000   -0.0002
##   100    0.6661         nan    0.1000   -0.0001
##   120    0.6547         nan    0.1000    0.0001
##   140    0.6448         nan    0.1000   -0.0006
```

```
##     150        0.6387         nan       0.1000   -0.0004
##
## Iter   TrainDeviance   ValidDeviance   StepSize   Improve
##       1        0.9169         nan       0.1000    0.0231
##       2        0.8914         nan       0.1000    0.0137
##       3        0.8615         nan       0.1000    0.0133
##       4        0.8462         nan       0.1000    0.0082
##       5        0.8307         nan       0.1000    0.0067
##       6        0.8112         nan       0.1000    0.0095
##       7        0.7948         nan       0.1000    0.0075
##       8        0.7842         nan       0.1000    0.0060
##       9        0.7734         nan       0.1000    0.0046
##      10        0.7626         nan       0.1000    0.0039
##      20        0.7092         nan       0.1000    0.0027
##      40        0.6480         nan       0.1000    0.0005
##      60        0.6094         nan       0.1000   -0.0000
##      80        0.5773         nan       0.1000    0.0004
##     100        0.5507         nan       0.1000   -0.0005
##     120        0.5260         nan       0.1000   -0.0005
##     140        0.4958         nan       0.1000   -0.0007
##     150        0.4877         nan       0.1000   -0.0004
##
## Iter   TrainDeviance   ValidDeviance   StepSize   Improve
##       1        0.9075         nan       0.1000    0.0257
##       2        0.8708         nan       0.1000    0.0171
##       3        0.8405         nan       0.1000    0.0121
##       4        0.8166         nan       0.1000    0.0094
##       5        0.7959         nan       0.1000    0.0077
##       6        0.7814         nan       0.1000    0.0070
##       7        0.7673         nan       0.1000    0.0066
##       8        0.7539         nan       0.1000    0.0059
##       9        0.7431         nan       0.1000    0.0026
##      10        0.7338         nan       0.1000    0.0027
##      20        0.6643         nan       0.1000    0.0007
##      40        0.5847         nan       0.1000   -0.0002
##      60        0.5222         nan       0.1000   -0.0006
##      80        0.4838         nan       0.1000   -0.0005
##     100        0.4508         nan       0.1000    0.0005
##     120        0.4208         nan       0.1000   -0.0000
##     140        0.3970         nan       0.1000   -0.0001
##     150        0.3848         nan       0.1000   -0.0003
##
## Iter   TrainDeviance   ValidDeviance   StepSize   Improve
##       1        0.8604         nan       0.1000    0.0074
##       2        0.8479         nan       0.1000    0.0054
##       3        0.8375         nan       0.1000    0.0040
##       4        0.8301         nan       0.1000    0.0033
##       5        0.8238         nan       0.1000    0.0025
##       6        0.8168         nan       0.1000    0.0033
##       7        0.8109         nan       0.1000    0.0031
##       8        0.8056         nan       0.1000    0.0014
##       9        0.8019         nan       0.1000    0.0004
##      10        0.7985         nan       0.1000    0.0016
##      20        0.7645         nan       0.1000   -0.0004
```

```
## 40     0.7387          nan      0.1000   -0.0010
## 60     0.7224          nan      0.1000   -0.0006
## 80     0.7112          nan      0.1000   -0.0001
## 100    0.6983          nan      0.1000   -0.0005
## 120    0.6907          nan      0.1000   -0.0005
## 140    0.6838          nan      0.1000   -0.0004
## 150    0.6791          nan      0.1000   -0.0005
##
## Iter   TrainDeviance  ValidDeviance   StepSize   Improve
## 1      0.8538          nan      0.1000    0.0128
## 2      0.8297          nan      0.1000    0.0104
## 3      0.8124          nan      0.1000    0.0067
## 4      0.8003          nan      0.1000    0.0051
## 5      0.7907          nan      0.1000    0.0035
## 6      0.7800          nan      0.1000    0.0045
## 7      0.7709          nan      0.1000    0.0037
## 8      0.7644          nan      0.1000    0.0023
## 9      0.7590          nan      0.1000    0.0014
## 10     0.7542          nan      0.1000    0.0016
## 20     0.7051          nan      0.1000    0.0009
## 40     0.6561          nan      0.1000    0.0001
## 60     0.6206          nan      0.1000   -0.0002
## 80     0.5969          nan      0.1000   -0.0003
## 100    0.5719          nan      0.1000   -0.0006
## 120    0.5515          nan      0.1000   -0.0012
## 140    0.5340          nan      0.1000   -0.0006
## 150    0.5225          nan      0.1000   -0.0004
##
## Iter   TrainDeviance  ValidDeviance   StepSize   Improve
## 1      0.8443          nan      0.1000    0.0165
## 2      0.8194          nan      0.1000    0.0108
## 3      0.8023          nan      0.1000    0.0073
## 4      0.7871          nan      0.1000    0.0061
## 5      0.7715          nan      0.1000    0.0049
## 6      0.7605          nan      0.1000    0.0044
## 7      0.7512          nan      0.1000    0.0023
## 8      0.7416          nan      0.1000    0.0036
## 9      0.7270          nan      0.1000    0.0060
## 10     0.7191          nan      0.1000    0.0021
## 20     0.6574          nan      0.1000    0.0008
## 40     0.5964          nan      0.1000    0.0004
## 60     0.5413          nan      0.1000   -0.0004
## 80     0.5064          nan      0.1000   -0.0007
## 100    0.4787          nan      0.1000   -0.0003
## 120    0.4530          nan      0.1000    0.0003
## 140    0.4308          nan      0.1000   -0.0007
## 150    0.4198          nan      0.1000   -0.0008
##
## Iter   TrainDeviance  ValidDeviance   StepSize   Improve
## 1      0.9163          nan      0.1000    0.0102
## 2      0.9005          nan      0.1000    0.0079
## 3      0.8868          nan      0.1000    0.0061
## 4      0.8769          nan      0.1000    0.0044
## 5      0.8690          nan      0.1000    0.0032
```

```
##         6        0.8599            nan       0.1000       0.0028
##         7        0.8530            nan       0.1000       0.0020
##         8        0.8477            nan       0.1000       0.0029
##         9        0.8399            nan       0.1000       0.0034
##        10        0.8339            nan       0.1000       0.0024
##        20        0.7894            nan       0.1000       0.0003
##        40        0.7497            nan       0.1000       0.0006
##        60        0.7281            nan       0.1000       0.0000
##        80        0.7156            nan       0.1000       0.0000
##       100        0.7067            nan       0.1000      -0.0003
##       120        0.7006            nan       0.1000      -0.0009
##       140        0.6935            nan       0.1000      -0.0006
##       150        0.6891            nan       0.1000      -0.0005
##
## Iter    TrainDeviance  ValidDeviance   StepSize     Improve
##         1        0.9012            nan       0.1000       0.0104
##         2        0.8810            nan       0.1000       0.0114
##         3        0.8602            nan       0.1000       0.0090
##         4        0.8450            nan       0.1000       0.0064
##         5        0.8338            nan       0.1000       0.0054
##         6        0.8242            nan       0.1000       0.0044
##         7        0.8149            nan       0.1000       0.0028
##         8        0.8007            nan       0.1000       0.0048
##         9        0.7939            nan       0.1000       0.0012
##        10        0.7849            nan       0.1000       0.0038
##        20        0.7343            nan       0.1000       0.0005
##        40        0.6869            nan       0.1000       0.0002
##        60        0.6607            nan       0.1000      -0.0001
##        80        0.6349            nan       0.1000      -0.0001
##       100        0.6164            nan       0.1000      -0.0003
##       120        0.6030            nan       0.1000       0.0001
##       140        0.5825            nan       0.1000      -0.0012
##       150        0.5727            nan       0.1000      -0.0003
##
## Iter    TrainDeviance  ValidDeviance   StepSize     Improve
##         1        0.9000            nan       0.1000       0.0161
##         2        0.8719            nan       0.1000       0.0136
##         3        0.8482            nan       0.1000       0.0095
##         4        0.8281            nan       0.1000       0.0066
##         5        0.8160            nan       0.1000       0.0039
##         6        0.8022            nan       0.1000       0.0041
##         7        0.7883            nan       0.1000       0.0052
##         8        0.7746            nan       0.1000       0.0053
##         9        0.7657            nan       0.1000       0.0030
##        10        0.7569            nan       0.1000       0.0028
##        20        0.6948            nan       0.1000       0.0007
##        40        0.6317            nan       0.1000      -0.0005
##        60        0.5928            nan       0.1000      -0.0002
##        80        0.5613            nan       0.1000      -0.0006
##       100        0.5326            nan       0.1000      -0.0004
##       120        0.5142            nan       0.1000      -0.0011
##       140        0.4903            nan       0.1000      -0.0002
##       150        0.4805            nan       0.1000      -0.0013
##
```

```
## Iter   TrainDeviance   ValidDeviance   StepSize   Improve
##      1      0.8981             nan     0.1000    0.0055
##      2      0.8775             nan     0.1000    0.0090
##      3      0.8647             nan     0.1000    0.0070
##      4      0.8536             nan     0.1000    0.0056
##      5      0.8409             nan     0.1000    0.0029
##      6      0.8297             nan     0.1000    0.0041
##      7      0.8223             nan     0.1000    0.0028
##      8      0.8164             nan     0.1000    0.0017
##      9      0.8100             nan     0.1000    0.0035
##     10      0.8028             nan     0.1000    0.0022
##     20      0.7569             nan     0.1000    0.0011
##     40      0.7205             nan     0.1000   -0.0002
##     60      0.6962             nan     0.1000    0.0013
##     80      0.6835             nan     0.1000   -0.0003
##    100      0.6704             nan     0.1000   -0.0005
##    120      0.6593             nan     0.1000   -0.0005
##    140      0.6527             nan     0.1000   -0.0000
##    150      0.6489             nan     0.1000   -0.0006
##
## Iter   TrainDeviance   ValidDeviance   StepSize   Improve
##      1      0.8764             nan     0.1000    0.0129
##      2      0.8504             nan     0.1000    0.0128
##      3      0.8295             nan     0.1000    0.0085
##      4      0.8168             nan     0.1000    0.0058
##      5      0.7976             nan     0.1000    0.0069
##      6      0.7862             nan     0.1000    0.0048
##      7      0.7772             nan     0.1000    0.0033
##      8      0.7690             nan     0.1000    0.0030
##      9      0.7616             nan     0.1000    0.0019
##     10      0.7563             nan     0.1000    0.0019
##     20      0.7083             nan     0.1000   -0.0002
##     40      0.6534             nan     0.1000    0.0010
##     60      0.6229             nan     0.1000   -0.0005
##     80      0.5937             nan     0.1000   -0.0001
##    100      0.5681             nan     0.1000   -0.0006
##    120      0.5455             nan     0.1000   -0.0006
##    140      0.5280             nan     0.1000   -0.0009
##    150      0.5193             nan     0.1000   -0.0005
##
## Iter   TrainDeviance   ValidDeviance   StepSize   Improve
##      1      0.8710             nan     0.1000    0.0180
##      2      0.8492             nan     0.1000    0.0132
##      3      0.8247             nan     0.1000    0.0089
##      4      0.8007             nan     0.1000    0.0086
##      5      0.7831             nan     0.1000    0.0055
##      6      0.7717             nan     0.1000    0.0039
##      7      0.7536             nan     0.1000    0.0058
##      8      0.7402             nan     0.1000    0.0044
##      9      0.7316             nan     0.1000    0.0028
##     10      0.7221             nan     0.1000    0.0030
##     20      0.6539             nan     0.1000    0.0026
##     40      0.5969             nan     0.1000   -0.0010
##     60      0.5568             nan     0.1000   -0.0004
```

```
##      80          0.5247            nan      0.1000     -0.0004
##     100          0.4842            nan      0.1000     -0.0010
##     120          0.4611            nan      0.1000     -0.0010
##     140          0.4403            nan      0.1000     -0.0009
##     150          0.4320            nan      0.1000     -0.0004
##
## Iter   TrainDeviance   ValidDeviance   StepSize   Improve
##       1          0.9241            nan      0.1000      0.0077
##       2          0.9114            nan      0.1000      0.0049
##       3          0.9022            nan      0.1000      0.0032
##       4          0.8940            nan      0.1000      0.0035
##       5          0.8880            nan      0.1000      0.0023
##       6          0.8812            nan      0.1000      0.0029
##       7          0.8738            nan      0.1000      0.0032
##       8          0.8681            nan      0.1000      0.0019
##       9          0.8611            nan      0.1000      0.0028
##      10          0.8567            nan      0.1000      0.0006
##      20          0.8198            nan      0.1000      0.0001
##      40          0.7847            nan      0.1000     -0.0004
##      60          0.7668            nan      0.1000     -0.0012
##      80          0.7502            nan      0.1000      0.0002
##     100          0.7392            nan      0.1000      0.0000
##     120          0.7313            nan      0.1000     -0.0003
##     140          0.7232            nan      0.1000     -0.0006
##     150          0.7201            nan      0.1000     -0.0000
##
## Iter   TrainDeviance   ValidDeviance   StepSize   Improve
##       1          0.9191            nan      0.1000      0.0067
##       2          0.9079            nan      0.1000      0.0052
##       3          0.8909            nan      0.1000      0.0092
##       4          0.8725            nan      0.1000      0.0077
##       5          0.8624            nan      0.1000      0.0036
##       6          0.8492            nan      0.1000      0.0051
##       7          0.8372            nan      0.1000      0.0053
##       8          0.8282            nan      0.1000      0.0028
##       9          0.8208            nan      0.1000      0.0030
##      10          0.8126            nan      0.1000      0.0039
##      20          0.7670            nan      0.1000      0.0013
##      40          0.7093            nan      0.1000     -0.0003
##      60          0.6764            nan      0.1000     -0.0008
##      80          0.6400            nan      0.1000      0.0002
##     100          0.6160            nan      0.1000     -0.0001
##     120          0.5984            nan      0.1000     -0.0004
##     140          0.5828            nan      0.1000     -0.0007
##     150          0.5730            nan      0.1000     -0.0009
##
## Iter   TrainDeviance   ValidDeviance   StepSize   Improve
##       1          0.9169            nan      0.1000      0.0096
##       2          0.8917            nan      0.1000      0.0100
##       3          0.8756            nan      0.1000      0.0042
##       4          0.8626            nan      0.1000      0.0045
##       5          0.8458            nan      0.1000      0.0063
##       6          0.8336            nan      0.1000      0.0022
##       7          0.8213            nan      0.1000      0.0056
```

```
##       8          0.8090             nan       0.1000       0.0041
##       9          0.7958             nan       0.1000       0.0058
##      10          0.7874             nan       0.1000       0.0011
##      20          0.7265             nan       0.1000       0.0014
##      40          0.6519             nan       0.1000      -0.0001
##      60          0.5917             nan       0.1000       0.0008
##      80          0.5511             nan       0.1000      -0.0004
##     100          0.5252             nan       0.1000       0.0001
##     120          0.4964             nan       0.1000      -0.0006
##     140          0.4727             nan       0.1000      -0.0009
##     150          0.4635             nan       0.1000      -0.0003
##
## Iter   TrainDeviance   ValidDeviance   StepSize    Improve
##       1          0.8661             nan       0.1000       0.0123
##       2          0.8465             nan       0.1000       0.0099
##       3          0.8322             nan       0.1000       0.0076
##       4          0.8221             nan       0.1000       0.0052
##       5          0.8104             nan       0.1000       0.0044
##       6          0.8008             nan       0.1000       0.0042
##       7          0.7925             nan       0.1000       0.0026
##       8          0.7872             nan       0.1000       0.0021
##       9          0.7838             nan       0.1000       0.0008
##      10          0.7793             nan       0.1000       0.0018
##      20          0.7442             nan       0.1000      -0.0003
##      40          0.7101             nan       0.1000      -0.0004
##      60          0.6894             nan       0.1000      -0.0003
##      80          0.6773             nan       0.1000       0.0003
##     100          0.6666             nan       0.1000       0.0002
##     120          0.6582             nan       0.1000      -0.0007
##     140          0.6502             nan       0.1000      -0.0007
##     150          0.6473             nan       0.1000      -0.0004
##
## Iter   TrainDeviance   ValidDeviance   StepSize    Improve
##       1          0.8498             nan       0.1000       0.0192
##       2          0.8236             nan       0.1000       0.0115
##       3          0.8087             nan       0.1000       0.0069
##       4          0.7896             nan       0.1000       0.0083
##       5          0.7748             nan       0.1000       0.0080
##       6          0.7663             nan       0.1000       0.0043
##       7          0.7539             nan       0.1000       0.0053
##       8          0.7441             nan       0.1000       0.0036
##       9          0.7372             nan       0.1000       0.0027
##      10          0.7307             nan       0.1000       0.0030
##      20          0.6785             nan       0.1000       0.0005
##      40          0.6299             nan       0.1000      -0.0004
##      60          0.5990             nan       0.1000       0.0005
##      80          0.5747             nan       0.1000      -0.0007
##     100          0.5544             nan       0.1000      -0.0003
##     120          0.5345             nan       0.1000      -0.0004
##     140          0.5109             nan       0.1000      -0.0001
##     150          0.5021             nan       0.1000      -0.0003
##
## Iter   TrainDeviance   ValidDeviance   StepSize    Improve
##       1          0.8452             nan       0.1000       0.0181
```

```
##     2      0.8094          nan        0.1000      0.0146
##     3      0.7814          nan        0.1000      0.0096
##     4      0.7627          nan        0.1000      0.0088
##     5      0.7454          nan        0.1000      0.0063
##     6      0.7365          nan        0.1000      0.0028
##     7      0.7252          nan        0.1000      0.0034
##     8      0.7116          nan        0.1000      0.0042
##     9      0.7036          nan        0.1000      0.0028
##    10      0.6956          nan        0.1000      0.0035
##    20      0.6418          nan        0.1000      0.0019
##    40      0.5790          nan        0.1000      0.0005
##    60      0.5339          nan        0.1000     -0.0008
##    80      0.4915          nan        0.1000      0.0001
##   100      0.4686          nan        0.1000     -0.0020
##   120      0.4455          nan        0.1000     -0.0001
##   140      0.4115          nan        0.1000     -0.0007
##   150      0.4017          nan        0.1000     -0.0007
##
## Iter   TrainDeviance   ValidDeviance   StepSize    Improve
##     1      0.8633          nan        0.1000      0.0100
##     2      0.8470          nan        0.1000      0.0076
##     3      0.8357          nan        0.1000      0.0044
##     4      0.8244          nan        0.1000      0.0046
##     5      0.8168          nan        0.1000      0.0031
##     6      0.8089          nan        0.1000      0.0030
##     7      0.8035          nan        0.1000      0.0023
##     8      0.7988          nan        0.1000      0.0015
##     9      0.7936          nan        0.1000      0.0017
##    10      0.7882          nan        0.1000      0.0025
##    20      0.7513          nan        0.1000     -0.0003
##    40      0.7155          nan        0.1000      0.0002
##    60      0.6945          nan        0.1000     -0.0002
##    80      0.6816          nan        0.1000     -0.0003
##   100      0.6732          nan        0.1000     -0.0002
##   120      0.6628          nan        0.1000     -0.0004
##   140      0.6564          nan        0.1000     -0.0001
##   150      0.6531          nan        0.1000     -0.0004
##
## Iter   TrainDeviance   ValidDeviance   StepSize    Improve
##     1      0.8511          nan        0.1000      0.0145
##     2      0.8260          nan        0.1000      0.0096
##     3      0.8102          nan        0.1000      0.0076
##     4      0.7949          nan        0.1000      0.0071
##     5      0.7803          nan        0.1000      0.0058
##     6      0.7685          nan        0.1000      0.0036
##     7      0.7595          nan        0.1000      0.0030
##     8      0.7489          nan        0.1000      0.0043
##     9      0.7403          nan        0.1000      0.0028
##    10      0.7336          nan        0.1000      0.0018
##    20      0.6896          nan        0.1000      0.0009
##    40      0.6435          nan        0.1000     -0.0005
##    60      0.6134          nan        0.1000     -0.0005
##    80      0.5907          nan        0.1000     -0.0006
##   100      0.5536          nan        0.1000     -0.0012
```

```
##    120        0.5343              nan       0.1000     -0.0005
##    140        0.5216              nan       0.1000     -0.0004
##    150        0.5134              nan       0.1000     -0.0005
##
## Iter    TrainDeviance   ValidDeviance    StepSize    Improve
##       1        0.8487              nan       0.1000      0.0151
##       2        0.8206              nan       0.1000      0.0125
##       3        0.8007              nan       0.1000      0.0078
##       4        0.7824              nan       0.1000      0.0079
##       5        0.7705              nan       0.1000      0.0038
##       6        0.7578              nan       0.1000      0.0042
##       7        0.7476              nan       0.1000      0.0032
##       8        0.7389              nan       0.1000      0.0029
##       9        0.7313              nan       0.1000      0.0036
##      10        0.7208              nan       0.1000      0.0050
##      20        0.6487              nan       0.1000      0.0002
##      40        0.5874              nan       0.1000     -0.0010
##      60        0.5486              nan       0.1000      0.0004
##      80        0.5207              nan       0.1000     -0.0001
##     100        0.4850              nan       0.1000     -0.0007
##     120        0.4592              nan       0.1000      0.0000
##     140        0.4397              nan       0.1000     -0.0010
##     150        0.4314              nan       0.1000     -0.0004
##
## Iter    TrainDeviance   ValidDeviance    StepSize    Improve
##       1        0.8581              nan       0.1000      0.0134
##       2        0.8359              nan       0.1000      0.0069
##       3        0.8216              nan       0.1000      0.0075
##       4        0.8087              nan       0.1000      0.0060
##       5        0.7992              nan       0.1000      0.0051
##       6        0.7930              nan       0.1000      0.0029
##       7        0.7861              nan       0.1000      0.0034
##       8        0.7824              nan       0.1000      0.0006
##       9        0.7754              nan       0.1000      0.0024
##      10        0.7706              nan       0.1000      0.0021
##      20        0.7302              nan       0.1000      0.0001
##      40        0.6899              nan       0.1000      0.0004
##      60        0.6653              nan       0.1000      0.0006
##      80        0.6453              nan       0.1000      0.0003
##     100        0.6342              nan       0.1000     -0.0009
##     120        0.6236              nan       0.1000     -0.0011
##     140        0.6160              nan       0.1000     -0.0006
##     150        0.6125              nan       0.1000     -0.0003
##
## Iter    TrainDeviance   ValidDeviance    StepSize    Improve
##       1        0.8407              nan       0.1000      0.0201
##       2        0.8126              nan       0.1000      0.0107
##       3        0.7897              nan       0.1000      0.0112
##       4        0.7731              nan       0.1000      0.0077
##       5        0.7602              nan       0.1000      0.0057
##       6        0.7437              nan       0.1000      0.0058
##       7        0.7326              nan       0.1000      0.0049
##       8        0.7224              nan       0.1000      0.0035
##       9        0.7148              nan       0.1000      0.0033
```

```
##     10        0.7118            nan       0.1000     0.0001
##     20        0.6578            nan       0.1000     0.0011
##     40        0.6039            nan       0.1000    -0.0001
##     60        0.5741            nan       0.1000    -0.0006
##     80        0.5470            nan       0.1000    -0.0001
##    100        0.5294            nan       0.1000    -0.0001
##    120        0.5077            nan       0.1000     0.0002
##    140        0.4862            nan       0.1000    -0.0007
##    150        0.4743            nan       0.1000    -0.0001
##
## Iter   TrainDeviance   ValidDeviance   StepSize   Improve
##      1        0.8304            nan       0.1000     0.0262
##      2        0.7971            nan       0.1000     0.0138
##      3        0.7725            nan       0.1000     0.0130
##      4        0.7518            nan       0.1000     0.0095
##      5        0.7343            nan       0.1000     0.0061
##      6        0.7207            nan       0.1000     0.0039
##      7        0.7087            nan       0.1000     0.0059
##      8        0.6980            nan       0.1000     0.0043
##      9        0.6847            nan       0.1000     0.0056
##     10        0.6758            nan       0.1000     0.0031
##     20        0.6112            nan       0.1000    -0.0003
##     40        0.5410            nan       0.1000    -0.0005
##     60        0.5044            nan       0.1000    -0.0004
##     80        0.4765            nan       0.1000    -0.0005
##    100        0.4496            nan       0.1000    -0.0006
##    120        0.4258            nan       0.1000    -0.0006
##    140        0.4030            nan       0.1000    -0.0002
##    150        0.3904            nan       0.1000    -0.0012
##
## Iter   TrainDeviance   ValidDeviance   StepSize   Improve
##      1        0.8917            nan       0.1000     0.0097
##      2        0.8753            nan       0.1000     0.0072
##      3        0.8668            nan       0.1000     0.0031
##      4        0.8523            nan       0.1000     0.0052
##      5        0.8443            nan       0.1000     0.0042
##      6        0.8358            nan       0.1000     0.0035
##      7        0.8291            nan       0.1000     0.0020
##      8        0.8227            nan       0.1000     0.0028
##      9        0.8164            nan       0.1000     0.0017
##     10        0.8115            nan       0.1000     0.0012
##     20        0.7724            nan       0.1000     0.0009
##     40        0.7321            nan       0.1000     0.0002
##     60        0.7068            nan       0.1000     0.0002
##     80        0.6906            nan       0.1000    -0.0003
##    100        0.6785            nan       0.1000    -0.0013
##    120        0.6687            nan       0.1000    -0.0009
##    140        0.6601            nan       0.1000    -0.0000
##    150        0.6573            nan       0.1000    -0.0004
##
## Iter   TrainDeviance   ValidDeviance   StepSize   Improve
##      1        0.8817            nan       0.1000     0.0113
##      2        0.8532            nan       0.1000     0.0145
##      3        0.8332            nan       0.1000     0.0084
```

```
##       4        0.8181             nan        0.1000     0.0067
##       5        0.8053             nan        0.1000     0.0045
##       6        0.7907             nan        0.1000     0.0063
##       7        0.7804             nan        0.1000     0.0046
##       8        0.7683             nan        0.1000     0.0051
##       9        0.7579             nan        0.1000     0.0040
##      10        0.7478             nan        0.1000     0.0016
##      20        0.7030             nan        0.1000     0.0008
##      40        0.6454             nan        0.1000     0.0009
##      60        0.6107             nan        0.1000    -0.0004
##      80        0.5801             nan        0.1000     0.0006
##     100        0.5595             nan        0.1000    -0.0007
##     120        0.5388             nan        0.1000    -0.0011
##     140        0.5167             nan        0.1000    -0.0020
##     150        0.5109             nan        0.1000    -0.0005
##
## Iter   TrainDeviance  ValidDeviance   StepSize    Improve
##       1        0.8735             nan        0.1000     0.0193
##       2        0.8439             nan        0.1000     0.0129
##       3        0.8194             nan        0.1000     0.0099
##       4        0.7993             nan        0.1000     0.0068
##       5        0.7862             nan        0.1000     0.0049
##       6        0.7740             nan        0.1000     0.0041
##       7        0.7605             nan        0.1000     0.0056
##       8        0.7456             nan        0.1000     0.0054
##       9        0.7374             nan        0.1000     0.0013
##      10        0.7279             nan        0.1000     0.0045
##      20        0.6409             nan        0.1000     0.0011
##      40        0.5774             nan        0.1000     0.0008
##      60        0.5370             nan        0.1000    -0.0004
##      80        0.5049             nan        0.1000    -0.0018
##     100        0.4761             nan        0.1000    -0.0004
##     120        0.4531             nan        0.1000    -0.0007
##     140        0.4307             nan        0.1000    -0.0008
##     150        0.4186             nan        0.1000    -0.0003
##
## Iter   TrainDeviance  ValidDeviance   StepSize    Improve
##       1        0.8551             nan        0.1000     0.0122
##       2        0.8379             nan        0.1000     0.0096
##       3        0.8234             nan        0.1000     0.0070
##       4        0.8121             nan        0.1000     0.0055
##       5        0.8021             nan        0.1000     0.0046
##       6        0.7940             nan        0.1000     0.0035
##       7        0.7885             nan        0.1000     0.0024
##       8        0.7829             nan        0.1000     0.0015
##       9        0.7748             nan        0.1000     0.0031
##      10        0.7705             nan        0.1000     0.0016
##      20        0.7291             nan        0.1000     0.0011
##      40        0.6932             nan        0.1000    -0.0005
##      60        0.6754             nan        0.1000    -0.0002
##      80        0.6647             nan        0.1000    -0.0005
##     100        0.6555             nan        0.1000    -0.0003
##     120        0.6487             nan        0.1000    -0.0005
##     140        0.6392             nan        0.1000    -0.0001
```

```
##     150         0.6334              nan      0.1000     -0.0003
##
## Iter   TrainDeviance   ValidDeviance   StepSize    Improve
##      1         0.8366              nan      0.1000      0.0166
##      2         0.8154              nan      0.1000      0.0078
##      3         0.7919              nan      0.1000      0.0101
##      4         0.7749              nan      0.1000      0.0075
##      5         0.7599              nan      0.1000      0.0061
##      6         0.7464              nan      0.1000      0.0047
##      7         0.7387              nan      0.1000      0.0035
##      8         0.7290              nan      0.1000      0.0032
##      9         0.7230              nan      0.1000      0.0019
##     10         0.7166              nan      0.1000      0.0026
##     20         0.6743              nan      0.1000      0.0014
##     40         0.6314              nan      0.1000     -0.0012
##     60         0.5977              nan      0.1000     -0.0003
##     80         0.5737              nan      0.1000     -0.0005
##    100         0.5491              nan      0.1000     -0.0003
##    120         0.5343              nan      0.1000     -0.0001
##    140         0.5185              nan      0.1000     -0.0010
##    150         0.5115              nan      0.1000     -0.0008
##
## Iter   TrainDeviance   ValidDeviance   StepSize    Improve
##      1         0.8334              nan      0.1000      0.0171
##      2         0.8045              nan      0.1000      0.0136
##      3         0.7807              nan      0.1000      0.0109
##      4         0.7637              nan      0.1000      0.0048
##      5         0.7486              nan      0.1000      0.0057
##      6         0.7335              nan      0.1000      0.0055
##      7         0.7217              nan      0.1000      0.0060
##      8         0.7143              nan      0.1000      0.0006
##      9         0.7058              nan      0.1000      0.0021
##     10         0.6973              nan      0.1000      0.0022
##     20         0.6460              nan      0.1000      0.0007
##     40         0.5810              nan      0.1000      0.0002
##     60         0.5351              nan      0.1000     -0.0009
##     80         0.5116              nan      0.1000     -0.0004
##    100         0.4832              nan      0.1000     -0.0004
##    120         0.4622              nan      0.1000     -0.0007
##    140         0.4404              nan      0.1000     -0.0011
##    150         0.4274              nan      0.1000     -0.0013
##
## Iter   TrainDeviance   ValidDeviance   StepSize    Improve
##      1         0.8504              nan      0.1000      0.0075
##      2         0.8305              nan      0.1000      0.0084
##      3         0.8202              nan      0.1000      0.0060
##      4         0.8100              nan      0.1000      0.0045
##      5         0.7972              nan      0.1000      0.0015
##      6         0.7888              nan      0.1000      0.0035
##      7         0.7820              nan      0.1000      0.0033
##      8         0.7766              nan      0.1000      0.0011
##      9         0.7697              nan      0.1000      0.0018
##     10         0.7664              nan      0.1000      0.0013
##     20         0.7333              nan      0.1000      0.0009
```

```
##      40        0.6986          nan       0.1000      0.0011
##      60        0.6792          nan       0.1000     -0.0005
##      80        0.6592          nan       0.1000     -0.0002
##     100        0.6494          nan       0.1000     -0.0001
##     120        0.6413          nan       0.1000     -0.0011
##     140        0.6306          nan       0.1000      0.0003
##     150        0.6269          nan       0.1000     -0.0003
##
## Iter   TrainDeviance   ValidDeviance   StepSize    Improve
##       1        0.8334          nan       0.1000      0.0144
##       2        0.8121          nan       0.1000      0.0098
##       3        0.7960          nan       0.1000      0.0071
##       4        0.7829          nan       0.1000      0.0074
##       5        0.7710          nan       0.1000      0.0060
##       6        0.7598          nan       0.1000      0.0053
##       7        0.7496          nan       0.1000      0.0041
##       8        0.7420          nan       0.1000      0.0031
##       9        0.7341          nan       0.1000      0.0010
##      10        0.7258          nan       0.1000      0.0030
##      20        0.6783          nan       0.1000      0.0009
##      40        0.6321          nan       0.1000      0.0003
##      60        0.5999          nan       0.1000     -0.0007
##      80        0.5788          nan       0.1000     -0.0004
##     100        0.5610          nan       0.1000     -0.0008
##     120        0.5375          nan       0.1000     -0.0002
##     140        0.5239          nan       0.1000     -0.0006
##     150        0.5154          nan       0.1000     -0.0001
##
## Iter   TrainDeviance   ValidDeviance   StepSize    Improve
##       1        0.8364          nan       0.1000      0.0156
##       2        0.8164          nan       0.1000      0.0075
##       3        0.7902          nan       0.1000      0.0099
##       4        0.7730          nan       0.1000      0.0083
##       5        0.7535          nan       0.1000      0.0068
##       6        0.7419          nan       0.1000      0.0048
##       7        0.7306          nan       0.1000      0.0043
##       8        0.7202          nan       0.1000      0.0037
##       9        0.7133          nan       0.1000      0.0022
##      10        0.7080          nan       0.1000      0.0019
##      20        0.6463          nan       0.1000      0.0016
##      40        0.5840          nan       0.1000     -0.0004
##      60        0.5456          nan       0.1000     -0.0003
##      80        0.5197          nan       0.1000     -0.0007
##     100        0.4933          nan       0.1000     -0.0010
##     120        0.4740          nan       0.1000     -0.0008
##     140        0.4489          nan       0.1000     -0.0009
##     150        0.4406          nan       0.1000     -0.0008
##
## Iter   TrainDeviance   ValidDeviance   StepSize    Improve
##       1        0.8474          nan       0.1000      0.0102
##       2        0.8319          nan       0.1000      0.0072
##       3        0.8192          nan       0.1000      0.0063
##       4        0.8092          nan       0.1000      0.0050
##       5        0.8030          nan       0.1000      0.0030
```

```
##      6        0.7951            nan      0.1000      0.0035
##      7        0.7896            nan      0.1000      0.0029
##      8        0.7849            nan      0.1000      0.0013
##      9        0.7777            nan      0.1000      0.0029
##     10        0.7712            nan      0.1000      0.0020
##     20        0.7344            nan      0.1000      0.0015
##     40        0.7017            nan      0.1000      0.0000
##     60        0.6873            nan      0.1000     -0.0006
##     80        0.6765            nan      0.1000     -0.0002
##    100        0.6665            nan      0.1000     -0.0001
##    120        0.6594            nan      0.1000     -0.0011
##    140        0.6545            nan      0.1000     -0.0006
##    150        0.6508            nan      0.1000     -0.0001
##
## Iter   TrainDeviance   ValidDeviance   StepSize    Improve
##      1        0.8345            nan      0.1000      0.0162
##      2        0.8136            nan      0.1000      0.0112
##      3        0.7936            nan      0.1000      0.0084
##      4        0.7792            nan      0.1000      0.0069
##      5        0.7686            nan      0.1000      0.0045
##      6        0.7552            nan      0.1000      0.0023
##      7        0.7475            nan      0.1000      0.0031
##      8        0.7388            nan      0.1000      0.0042
##      9        0.7315            nan      0.1000      0.0030
##     10        0.7259            nan      0.1000      0.0023
##     20        0.6835            nan      0.1000      0.0010
##     40        0.6371            nan      0.1000     -0.0006
##     60        0.6075            nan      0.1000     -0.0002
##     80        0.5873            nan      0.1000     -0.0004
##    100        0.5708            nan      0.1000     -0.0003
##    120        0.5549            nan      0.1000      0.0002
##    140        0.5375            nan      0.1000     -0.0003
##    150        0.5332            nan      0.1000     -0.0009
##
## Iter   TrainDeviance   ValidDeviance   StepSize    Improve
##      1        0.8311            nan      0.1000      0.0133
##      2        0.8002            nan      0.1000      0.0106
##      3        0.7803            nan      0.1000      0.0074
##      4        0.7643            nan      0.1000      0.0059
##      5        0.7509            nan      0.1000      0.0028
##      6        0.7394            nan      0.1000      0.0050
##      7        0.7285            nan      0.1000      0.0039
##      8        0.7173            nan      0.1000      0.0019
##      9        0.7090            nan      0.1000      0.0027
##     10        0.7016            nan      0.1000      0.0024
##     20        0.6480            nan      0.1000      0.0002
##     40        0.5919            nan      0.1000     -0.0013
##     60        0.5579            nan      0.1000     -0.0007
##     80        0.5204            nan      0.1000     -0.0007
##    100        0.4965            nan      0.1000     -0.0010
##    120        0.4717            nan      0.1000     -0.0010
##    140        0.4526            nan      0.1000     -0.0006
##    150        0.4436            nan      0.1000     -0.0000
##
```

```
## Iter   TrainDeviance   ValidDeviance   StepSize   Improve
##      1         0.8535             nan     0.1000    0.0079
##      2         0.8381             nan     0.1000    0.0063
##      3         0.8298             nan     0.1000    0.0050
##      4         0.8206             nan     0.1000    0.0033
##      5         0.8152             nan     0.1000    0.0009
##      6         0.8080             nan     0.1000    0.0030
##      7         0.8020             nan     0.1000    0.0025
##      8         0.7949             nan     0.1000    0.0019
##      9         0.7909             nan     0.1000    0.0007
##     10         0.7841             nan     0.1000    0.0028
##     20         0.7474             nan     0.1000   -0.0010
##     40         0.7073             nan     0.1000   -0.0001
##     60         0.6822             nan     0.1000   -0.0006
##     80         0.6668             nan     0.1000    0.0002
##    100         0.6548             nan     0.1000   -0.0005
##    120         0.6447             nan     0.1000   -0.0004
##    140         0.6359             nan     0.1000   -0.0005
##    150         0.6331             nan     0.1000   -0.0002
##
## Iter   TrainDeviance   ValidDeviance   StepSize   Improve
##      1         0.8435             nan     0.1000    0.0084
##      2         0.8223             nan     0.1000    0.0082
##      3         0.8063             nan     0.1000    0.0065
##      4         0.7931             nan     0.1000    0.0048
##      5         0.7802             nan     0.1000    0.0060
##      6         0.7686             nan     0.1000    0.0048
##      7         0.7611             nan     0.1000    0.0017
##      8         0.7538             nan     0.1000    0.0031
##      9         0.7450             nan     0.1000    0.0039
##     10         0.7380             nan     0.1000    0.0030
##     20         0.6933             nan     0.1000    0.0003
##     40         0.6472             nan     0.1000    0.0005
##     60         0.6136             nan     0.1000    0.0001
##     80         0.5891             nan     0.1000   -0.0010
##    100         0.5611             nan     0.1000   -0.0003
##    120         0.5435             nan     0.1000   -0.0008
##    140         0.5247             nan     0.1000   -0.0006
##    150         0.5178             nan     0.1000   -0.0004
##
## Iter   TrainDeviance   ValidDeviance   StepSize   Improve
##      1         0.8422             nan     0.1000    0.0137
##      2         0.8156             nan     0.1000    0.0107
##      3         0.7931             nan     0.1000    0.0081
##      4         0.7781             nan     0.1000    0.0056
##      5         0.7591             nan     0.1000    0.0070
##      6         0.7451             nan     0.1000    0.0035
##      7         0.7359             nan     0.1000    0.0032
##      8         0.7272             nan     0.1000    0.0014
##      9         0.7165             nan     0.1000    0.0013
##     10         0.7069             nan     0.1000    0.0037
##     20         0.6434             nan     0.1000    0.0005
##     40         0.5847             nan     0.1000    0.0001
##     60         0.5385             nan     0.1000   -0.0003
```

```
##     80        0.5065          nan      0.1000   -0.0005
##    100        0.4791          nan      0.1000   -0.0002
##    120        0.4474          nan      0.1000   -0.0009
##    140        0.4246          nan      0.1000   -0.0005
##    150        0.4156          nan      0.1000   -0.0009
##
## Iter   TrainDeviance   ValidDeviance   StepSize    Improve
##      1        0.9174          nan      0.1000    0.0095
##      2        0.8986          nan      0.1000    0.0077
##      3        0.8868          nan      0.1000    0.0065
##      4        0.8757          nan      0.1000    0.0053
##      5        0.8654          nan      0.1000    0.0034
##      6        0.8577          nan      0.1000    0.0027
##      7        0.8503          nan      0.1000    0.0036
##      8        0.8432          nan      0.1000    0.0035
##      9        0.8372          nan      0.1000    0.0011
##     10        0.8309          nan      0.1000    0.0029
##     20        0.7955          nan      0.1000   -0.0004
##     40        0.7647          nan      0.1000    0.0000
##     60        0.7478          nan      0.1000    0.0004
##     80        0.7354          nan      0.1000   -0.0008
##    100        0.7261          nan      0.1000   -0.0006
##    120        0.7194          nan      0.1000   -0.0007
##    140        0.7121          nan      0.1000   -0.0008
##    150        0.7081          nan      0.1000   -0.0005
##
## Iter   TrainDeviance   ValidDeviance   StepSize    Improve
##      1        0.9107          nan      0.1000    0.0148
##      2        0.8848          nan      0.1000    0.0107
##      3        0.8644          nan      0.1000    0.0079
##      4        0.8518          nan      0.1000    0.0061
##      5        0.8392          nan      0.1000    0.0060
##      6        0.8278          nan      0.1000    0.0031
##      7        0.8146          nan      0.1000    0.0035
##      8        0.8074          nan      0.1000    0.0024
##      9        0.7974          nan      0.1000    0.0039
##     10        0.7893          nan      0.1000    0.0039
##     20        0.7462          nan      0.1000   -0.0002
##     40        0.7031          nan      0.1000   -0.0004
##     60        0.6682          nan      0.1000   -0.0001
##     80        0.6387          nan      0.1000   -0.0002
##    100        0.6172          nan      0.1000   -0.0009
##    120        0.5995          nan      0.1000   -0.0014
##    140        0.5838          nan      0.1000   -0.0007
##    150        0.5751          nan      0.1000   -0.0004
##
## Iter   TrainDeviance   ValidDeviance   StepSize    Improve
##      1        0.9017          nan      0.1000    0.0149
##      2        0.8736          nan      0.1000    0.0127
##      3        0.8546          nan      0.1000    0.0072
##      4        0.8360          nan      0.1000    0.0072
##      5        0.8216          nan      0.1000    0.0054
##      6        0.8110          nan      0.1000    0.0023
##      7        0.7986          nan      0.1000    0.0044
```

```
##         8         0.7892            nan       0.1000      0.0018
##         9         0.7791            nan       0.1000      0.0037
##        10         0.7713            nan       0.1000      0.0006
##        20         0.7082            nan       0.1000      0.0018
##        40         0.6423            nan       0.1000     -0.0011
##        60         0.6005            nan       0.1000     -0.0003
##        80         0.5650            nan       0.1000      0.0002
##       100         0.5237            nan       0.1000     -0.0010
##       120         0.4994            nan       0.1000     -0.0010
##       140         0.4774            nan       0.1000     -0.0010
##       150         0.4714            nan       0.1000     -0.0004
##
## Iter   TrainDeviance   ValidDeviance   StepSize   Improve
##         1         0.8269            nan       0.1000      0.0121
##         2         0.8098            nan       0.1000      0.0092
##         3         0.7925            nan       0.1000      0.0060
##         4         0.7805            nan       0.1000      0.0044
##         5         0.7717            nan       0.1000      0.0045
##         6         0.7640            nan       0.1000      0.0035
##         7         0.7576            nan       0.1000      0.0020
##         8         0.7531            nan       0.1000      0.0014
##         9         0.7452            nan       0.1000      0.0023
##        10         0.7396            nan       0.1000      0.0027
##        20         0.6990            nan       0.1000      0.0018
##        40         0.6646            nan       0.1000      0.0001
##        60         0.6451            nan       0.1000     -0.0003
##        80         0.6355            nan       0.1000     -0.0006
##       100         0.6250            nan       0.1000      0.0006
##       120         0.6195            nan       0.1000     -0.0006
##       140         0.6126            nan       0.1000     -0.0003
##       150         0.6104            nan       0.1000     -0.0001
##
## Iter   TrainDeviance   ValidDeviance   StepSize   Improve
##         1         0.8149            nan       0.1000      0.0186
##         2         0.7812            nan       0.1000      0.0135
##         3         0.7643            nan       0.1000      0.0060
##         4         0.7495            nan       0.1000      0.0079
##         5         0.7347            nan       0.1000      0.0069
##         6         0.7230            nan       0.1000      0.0040
##         7         0.7164            nan       0.1000      0.0016
##         8         0.7064            nan       0.1000      0.0047
##         9         0.7000            nan       0.1000      0.0015
##        10         0.6945            nan       0.1000      0.0023
##        20         0.6516            nan       0.1000      0.0011
##        40         0.6073            nan       0.1000     -0.0010
##        60         0.5827            nan       0.1000     -0.0013
##        80         0.5617            nan       0.1000     -0.0004
##       100         0.5422            nan       0.1000     -0.0006
##       120         0.5263            nan       0.1000     -0.0004
##       140         0.5107            nan       0.1000     -0.0004
##       150         0.5052            nan       0.1000      0.0004
##
## Iter   TrainDeviance   ValidDeviance   StepSize   Improve
##         1         0.8042            nan       0.1000      0.0192
```

```
##      2         0.7736            nan       0.1000     0.0116
##      3         0.7503            nan       0.1000     0.0117
##      4         0.7349            nan       0.1000     0.0065
##      5         0.7191            nan       0.1000     0.0057
##      6         0.7061            nan       0.1000     0.0055
##      7         0.6947            nan       0.1000     0.0053
##      8         0.6882            nan       0.1000     0.0011
##      9         0.6791            nan       0.1000     0.0023
##     10         0.6744            nan       0.1000     0.0013
##     20         0.6131            nan       0.1000     0.0017
##     40         0.5594            nan       0.1000    -0.0005
##     60         0.5321            nan       0.1000    -0.0007
##     80         0.5066            nan       0.1000    -0.0007
##    100         0.4799            nan       0.1000    -0.0006
##    120         0.4550            nan       0.1000    -0.0011
##    140         0.4294            nan       0.1000    -0.0008
##    150         0.4185            nan       0.1000     0.0004
##
## Iter   TrainDeviance   ValidDeviance   StepSize   Improve
##      1         0.8653            nan       0.1000     0.0108
##      2         0.8519            nan       0.1000     0.0080
##      3         0.8336            nan       0.1000     0.0045
##      4         0.8249            nan       0.1000     0.0046
##      5         0.8149            nan       0.1000     0.0042
##      6         0.8078            nan       0.1000     0.0034
##      7         0.8005            nan       0.1000     0.0018
##      8         0.7957            nan       0.1000     0.0012
##      9         0.7906            nan       0.1000     0.0017
##     10         0.7847            nan       0.1000     0.0020
##     20         0.7513            nan       0.1000     0.0005
##     40         0.7249            nan       0.1000     0.0000
##     60         0.7101            nan       0.1000    -0.0003
##     80         0.6971            nan       0.1000    -0.0002
##    100         0.6907            nan       0.1000    -0.0000
##    120         0.6819            nan       0.1000    -0.0002
##    140         0.6723            nan       0.1000     0.0003
##    150         0.6697            nan       0.1000    -0.0003
##
## Iter   TrainDeviance   ValidDeviance   StepSize   Improve
##      1         0.8478            nan       0.1000     0.0155
##      2         0.8276            nan       0.1000     0.0114
##      3         0.8052            nan       0.1000     0.0086
##      4         0.7924            nan       0.1000     0.0071
##      5         0.7790            nan       0.1000     0.0053
##      6         0.7683            nan       0.1000     0.0045
##      7         0.7602            nan       0.1000     0.0020
##      8         0.7524            nan       0.1000     0.0027
##      9         0.7456            nan       0.1000     0.0035
##     10         0.7399            nan       0.1000     0.0014
##     20         0.7030            nan       0.1000     0.0009
##     40         0.6602            nan       0.1000    -0.0005
##     60         0.6293            nan       0.1000    -0.0011
##     80         0.6068            nan       0.1000    -0.0007
##    100         0.5868            nan       0.1000    -0.0009
```

```
##    120        0.5695           nan      0.1000   -0.0005
##    140        0.5495           nan      0.1000   -0.0005
##    150        0.5432           nan      0.1000   -0.0002
##
## Iter   TrainDeviance   ValidDeviance   StepSize   Improve
##      1        0.8479           nan      0.1000    0.0184
##      2        0.8160           nan      0.1000    0.0110
##      3        0.7932           nan      0.1000    0.0091
##      4        0.7795           nan      0.1000    0.0063
##      5        0.7665           nan      0.1000    0.0053
##      6        0.7569           nan      0.1000    0.0028
##      7        0.7483           nan      0.1000    0.0035
##      8        0.7393           nan      0.1000    0.0026
##      9        0.7308           nan      0.1000    0.0023
##     10        0.7234           nan      0.1000    0.0009
##     20        0.6613           nan      0.1000   -0.0005
##     40        0.5924           nan      0.1000    0.0005
##     60        0.5417           nan      0.1000    0.0003
##     80        0.5137           nan      0.1000   -0.0021
##    100        0.4857           nan      0.1000    0.0001
##    120        0.4626           nan      0.1000   -0.0005
##    140        0.4401           nan      0.1000   -0.0005
##    150        0.4308           nan      0.1000   -0.0009
##
## Iter   TrainDeviance   ValidDeviance   StepSize   Improve
##      1        0.8760           nan      0.1000    0.0113
##      2        0.8549           nan      0.1000    0.0097
##      3        0.8414           nan      0.1000    0.0070
##      4        0.8287           nan      0.1000    0.0051
##      5        0.8152           nan      0.1000    0.0054
##      6        0.8077           nan      0.1000    0.0029
##      7        0.8013           nan      0.1000    0.0026
##      8        0.7916           nan      0.1000    0.0035
##      9        0.7842           nan      0.1000    0.0032
##     10        0.7782           nan      0.1000    0.0011
##     20        0.7355           nan      0.1000   -0.0001
##     40        0.6898           nan      0.1000    0.0011
##     60        0.6639           nan      0.1000   -0.0001
##     80        0.6490           nan      0.1000   -0.0001
##    100        0.6307           nan      0.1000    0.0006
##    120        0.6209           nan      0.1000   -0.0007
##    140        0.6135           nan      0.1000    0.0001
##    150        0.6089           nan      0.1000   -0.0009
##
## Iter   TrainDeviance   ValidDeviance   StepSize   Improve
##      1        0.8686           nan      0.1000    0.0147
##      2        0.8456           nan      0.1000    0.0102
##      3        0.8194           nan      0.1000    0.0114
##      4        0.7941           nan      0.1000    0.0095
##      5        0.7798           nan      0.1000    0.0064
##      6        0.7639           nan      0.1000    0.0071
##      7        0.7530           nan      0.1000    0.0057
##      8        0.7423           nan      0.1000    0.0049
##      9        0.7337           nan      0.1000    0.0026
```

```
##     10        0.7272              nan       0.1000     0.0026
##     20        0.6698              nan       0.1000     0.0010
##     40        0.6126              nan       0.1000    -0.0009
##     60        0.5730              nan       0.1000    -0.0004
##     80        0.5467              nan       0.1000    -0.0006
##    100        0.5259              nan       0.1000     0.0000
##    120        0.5081              nan       0.1000    -0.0001
##    140        0.4944              nan       0.1000    -0.0003
##    150        0.4875              nan       0.1000     0.0001
##
## Iter   TrainDeviance   ValidDeviance   StepSize    Improve
##      1        0.8542              nan       0.1000     0.0209
##      2        0.8212              nan       0.1000     0.0153
##      3        0.7984              nan       0.1000     0.0108
##      4        0.7800              nan       0.1000     0.0090
##      5        0.7619              nan       0.1000     0.0052
##      6        0.7428              nan       0.1000     0.0075
##      7        0.7321              nan       0.1000     0.0036
##      8        0.7186              nan       0.1000     0.0046
##      9        0.7092              nan       0.1000     0.0031
##     10        0.7013              nan       0.1000     0.0027
##     20        0.6252              nan       0.1000     0.0019
##     40        0.5580              nan       0.1000    -0.0002
##     60        0.5139              nan       0.1000    -0.0003
##     80        0.4808              nan       0.1000    -0.0006
##    100        0.4603              nan       0.1000    -0.0008
##    120        0.4350              nan       0.1000     0.0003
##    140        0.4114              nan       0.1000    -0.0003
##    150        0.4025              nan       0.1000    -0.0002
##
## Iter   TrainDeviance   ValidDeviance   StepSize    Improve
##      1        0.8446              nan       0.1000     0.0140
##      2        0.8258              nan       0.1000     0.0101
##      3        0.8073              nan       0.1000     0.0076
##      4        0.7932              nan       0.1000     0.0061
##      5        0.7825              nan       0.1000     0.0049
##      6        0.7744              nan       0.1000     0.0042
##      7        0.7641              nan       0.1000     0.0039
##      8        0.7567              nan       0.1000     0.0030
##      9        0.7516              nan       0.1000     0.0023
##     10        0.7477              nan       0.1000     0.0011
##     20        0.7110              nan       0.1000     0.0010
##     40        0.6772              nan       0.1000    -0.0005
##     60        0.6641              nan       0.1000     0.0002
##     80        0.6492              nan       0.1000    -0.0010
##    100        0.6379              nan       0.1000    -0.0002
##    120        0.6295              nan       0.1000    -0.0001
##    140        0.6189              nan       0.1000    -0.0000
##    150        0.6127              nan       0.1000    -0.0011
##
## Iter   TrainDeviance   ValidDeviance   StepSize    Improve
##      1        0.8337              nan       0.1000     0.0179
##      2        0.8071              nan       0.1000     0.0102
##      3        0.7851              nan       0.1000     0.0104
```

```
##      4          0.7673            nan         0.1000      0.0076
##      5          0.7540            nan         0.1000      0.0053
##      6          0.7403            nan         0.1000      0.0054
##      7          0.7290            nan         0.1000      0.0030
##      8          0.7198            nan         0.1000      0.0036
##      9          0.7134            nan         0.1000      0.0015
##     10          0.7072            nan         0.1000      0.0020
##     20          0.6509            nan         0.1000      0.0012
##     40          0.6095            nan         0.1000     -0.0008
##     60          0.5832            nan         0.1000     -0.0006
##     80          0.5640            nan         0.1000      0.0004
##    100          0.5458            nan         0.1000     -0.0004
##    120          0.5290            nan         0.1000     -0.0012
##    140          0.5148            nan         0.1000     -0.0005
##    150          0.5093            nan         0.1000     -0.0013
##
## Iter    TrainDeviance   ValidDeviance   StepSize    Improve
##      1          0.8304            nan         0.1000      0.0152
##      2          0.7977            nan         0.1000      0.0130
##      3          0.7676            nan         0.1000      0.0114
##      4          0.7501            nan         0.1000      0.0083
##      5          0.7338            nan         0.1000      0.0063
##      6          0.7175            nan         0.1000      0.0062
##      7          0.7079            nan         0.1000      0.0036
##      8          0.6995            nan         0.1000      0.0036
##      9          0.6913            nan         0.1000      0.0018
##     10          0.6850            nan         0.1000      0.0019
##     20          0.6115            nan         0.1000     -0.0002
##     40          0.5504            nan         0.1000     -0.0006
##     60          0.5243            nan         0.1000     -0.0003
##     80          0.5035            nan         0.1000     -0.0005
##    100          0.4787            nan         0.1000     -0.0003
##    120          0.4522            nan         0.1000     -0.0014
##    140          0.4345            nan         0.1000     -0.0006
##    150          0.4271            nan         0.1000     -0.0008
##
## Iter    TrainDeviance   ValidDeviance   StepSize    Improve
##      1          0.8692            nan         0.1000      0.0062
##      2          0.8521            nan         0.1000      0.0074
##      3          0.8402            nan         0.1000      0.0052
##      4          0.8309            nan         0.1000      0.0040
##      5          0.8230            nan         0.1000      0.0041
##      6          0.8157            nan         0.1000      0.0006
##      7          0.8096            nan         0.1000      0.0024
##      8          0.8045            nan         0.1000      0.0016
##      9          0.8000            nan         0.1000      0.0020
##     10          0.7959            nan         0.1000      0.0013
##     20          0.7615            nan         0.1000      0.0016
##     40          0.7297            nan         0.1000      0.0002
##     60          0.7076            nan         0.1000      0.0005
##     80          0.6954            nan         0.1000     -0.0002
##    100          0.6852            nan         0.1000      0.0003
##    120          0.6739            nan         0.1000     -0.0002
##    140          0.6660            nan         0.1000      0.0000
```

```
##    150        0.6618            nan    0.1000    0.0001
##
## Iter  TrainDeviance  ValidDeviance   StepSize   Improve
##      1        0.8573            nan    0.1000    0.0119
##      2        0.8351            nan    0.1000    0.0098
##      3        0.8185            nan    0.1000    0.0077
##      4        0.8044            nan    0.1000    0.0064
##      5        0.7915            nan    0.1000    0.0058
##      6        0.7818            nan    0.1000    0.0044
##      7        0.7738            nan    0.1000    0.0005
##      8        0.7643            nan    0.1000    0.0041
##      9        0.7561            nan    0.1000    0.0041
##     10        0.7495            nan    0.1000    0.0033
##     20        0.7010            nan    0.1000    0.0001
##     40        0.6478            nan    0.1000    0.0003
##     60        0.6057            nan    0.1000   -0.0010
##     80        0.5803            nan    0.1000   -0.0004
##    100        0.5570            nan    0.1000   -0.0002
##    120        0.5362            nan    0.1000   -0.0001
##    140        0.5165            nan    0.1000   -0.0010
##    150        0.5077            nan    0.1000   -0.0002
##
## Iter  TrainDeviance  ValidDeviance   StepSize   Improve
##      1        0.8461            nan    0.1000    0.0162
##      2        0.8203            nan    0.1000    0.0131
##      3        0.8048            nan    0.1000    0.0051
##      4        0.7879            nan    0.1000    0.0065
##      5        0.7723            nan    0.1000    0.0060
##      6        0.7631            nan    0.1000    0.0021
##      7        0.7486            nan    0.1000    0.0060
##      8        0.7371            nan    0.1000    0.0045
##      9        0.7250            nan    0.1000    0.0036
##     10        0.7158            nan    0.1000    0.0036
##     20        0.6471            nan    0.1000    0.0005
##     40        0.5617            nan    0.1000    0.0004
##     60        0.5212            nan    0.1000   -0.0004
##     80        0.4887            nan    0.1000   -0.0013
##    100        0.4612            nan    0.1000   -0.0005
##    120        0.4390            nan    0.1000   -0.0007
##    140        0.4145            nan    0.1000    0.0002
##    150        0.4078            nan    0.1000   -0.0002
##
## Iter  TrainDeviance  ValidDeviance   StepSize   Improve
##      1        0.8618            nan    0.1000    0.0168
##      2        0.8353            nan    0.1000    0.0108
##      3        0.8127            nan    0.1000    0.0080
##      4        0.7966            nan    0.1000    0.0080
##      5        0.7832            nan    0.1000    0.0035
##      6        0.7702            nan    0.1000    0.0025
##      7        0.7610            nan    0.1000    0.0019
##      8        0.7505            nan    0.1000    0.0022
##      9        0.7410            nan    0.1000    0.0021
##     10        0.7366            nan    0.1000    0.0008
##     20        0.6888            nan    0.1000    0.0004
```

```
##     40           0.6461            nan       0.1000     0.0001
##     50           0.6284            nan       0.1000    -0.0006
##
## [1] "svmRadial"
## [1] "svmRadialCost"
## [1] "svmRadialSigma"
```

Project continues from page 301

.

We see that we train all the models.


```r
names(fits) <- models
names(fits)
```

```
##  [1] "glm"            "lda"            "naive_bayes"    "svmLinear"
##  [5] "gamboost"       "gamLoess"       "qda"            "knn"
##  [9] "kknn"           "loclda"         "gam"            "rf"
## [13] "ranger"         "wsrf"           "Rborist"        "avNNet"
## [17] "mlp"            "monmlp"         "adaboost"       "gbm"
## [21] "svmRadial"      "svmRadialCost"  "svmRadialSigma"
```


We use sapply to create a matrix (rows:100 colums:23) of predictions for the test set


```r
pred <- sapply(fits, function(object)
  predict(object, newdata = x_test))
```


Keep in mind that probably get some warnings.


```r
dim(pred)
```


```
## [1] 100   23
```


Compute accuracy for each model on the test set and look for the mean accuracy across all models.


```r
acc <- colMeans(pred == x_test$y)
acc
```


```
##          glm            lda    naive_bayes      svmLinear       gamboost
##         0.87           0.86           0.86           0.87           0.87
##     gamLoess            qda            knn           kknn         loclda
##         0.87           0.83           0.90           0.82           0.87
##          gam             rf         ranger           wsrf        Rborist
```

```
##              0.87             0.84             0.84             0.86             0.85
##           avNNet              mlp           monmlp         adaboost              gbm
##              0.87             0.87             0.85             0.83             0.85
##        svmRadial   svmRadialCost svmRadialSigma
##              0.87             0.87             0.86
```

```r
which.max(acc)
```

```
## knn
##   8
```

```r
mean(acc)
```

```
## [1] 0.8586957
```

Our maximum accuracy is achieved with knn model. Being the average of the models **0.8586957**.

We build an ensemble prediction by majority vote and compute the accuracy of the ensemble.

```r
votes <- rowMeans(pred == "others")
y_hat <- ifelse(votes > 0.5, "others", "Africa")
mean(y_hat == x_test$y )
```

```
## [1] 0.87
```

The accuracy of the ensemble is **0.87** the number of individual methods that do better than the ensemble prediction by majority vote is **1**.

```r
ind <- acc > mean(y_hat == x_test$y)
sum(ind)
```

```
## [1] 1
```

```r
models[ind]
```

```
## [1] "knn"
```

We use the accuracy estimates obtained from cross validation with the training data to remove the methods that do not perform well and re-do the ensemble only with methods with an estimated accuracy of greater than the mean.

```r
acc_hat <- sapply(fits, function(fit) min(fit$results$Accuracy))
acc_hat
```

```
##              glm             lda      naive_bayes        svmLinear         gamboost
##        0.8264872       0.8161430        0.8143013        0.8360556        0.8287467
##          gamLoess             qda              knn             kknn           loclda
##        0.8288868       0.8191147        0.8052311        0.8412766        0.8236201
##              gam              rf           ranger             wsrf          Rborist
##        0.8357701       0.8278916        0.8342199        0.8336040        0.8201186
##            avNNet             mlp           monmlp         adaboost              gbm
##        0.8321455       0.8194063        0.8350780        0.8306396        0.8308660
##         svmRadial   svmRadialCost   svmRadialSigma
##        0.8329050       0.8376359        0.8341778
```

```
mean(acc_hat)
```

```
## [1] 0.828014
```

```
ind <- acc_hat >= mean(acc_hat)
```

```
votes <- rowMeans(pred[,ind] == "others")
y_hat <- ifelse(votes >= 0.5, "others", "Africa")
mean(y_hat == x_test$y)
```

```
## [1] 0.88
```

The mean accuracy of the new ensemble is **0.88**

Results

The report finds Rborist as the best model predicting continents giving an Accuracy of **0.99875**.

The best ensemble using Dimension reduction differentiating Class Africa from Others countries is the one that use the accuracy estimates obtained from cross validation with the training data to remove the methods that do not perform well and re-do the ensemble only with methods with an estimated accuracy of greater than the mean with an accuracy of **0.88**.

Conclusions.

Combining both algorithms, we can predict the continent with great precision.

Our report shows that there is a global temperatures increase since preindustial period being European countries the most affected.

Finally in the last 14 years until **2012** the 10 highest land average temperatures per year have been reached, let us be aware that there is a global problem that urgently needs global solutions.