SoccerDataABI

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R Markdown

```
#used packages
library(tidyverse)  # for data wrangling
```

```
## Warning: package 'tidyverse' was built under R version 3.4.4
```

```
## -- Attaching packages ---------------------------------------------------------- tidyverse 1.2.1 --
```

```
## v ggplot2 3.0.0     v purrr   0.2.5
## v tibble  1.4.2     v dplyr   0.7.8
## v tidyr   0.8.1     v stringr 1.3.1
## v readr   1.1.1     v forcats 0.3.0
```

```
## Warning: package 'ggplot2' was built under R version 3.4.4
```

```
## Warning: package 'tibble' was built under R version 3.4.4
```

```
## Warning: package 'tidyr' was built under R version 3.4.4
```

```
## Warning: package 'readr' was built under R version 3.4.4
```

```
## Warning: package 'purrr' was built under R version 3.4.4
```

```
## Warning: package 'dplyr' was built under R version 3.4.4
```

```
## Warning: package 'stringr' was built under R version 3.4.4
```

```
## Warning: package 'forcats' was built under R version 3.4.4
```

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

```
library(stringr)    # for string manipulations
#install.packages('ggbiplot')
#install.packages('ggbiplot', dependencies=TRUE, repos='http://cran.rstudio.com/')
#library(ggbiplot)   # pca biplot with ggplot
library(ggplot2)
library(Rtsne)      # implements the t-SNE algorithm
```

```
## Warning: package 'Rtsne' was built under R version 3.4.4
```

```
#install.packages('kohonen')
library(kohonen)    # implements self organizing maps
```

```
## Warning: package 'kohonen' was built under R version 3.4.4
```

```
##
## Attaching package: 'kohonen'
```

```
## The following object is masked from 'package:purrr':
##
##     map
```

```
library(hrbrthemes) # nice themes for ggplot
```

```
## Warning: package 'hrbrthemes' was built under R version 3.4.4
```

```
## NOTE: Either Arial Narrow or Roboto Condensed fonts are *required* to use these themes.
```

```
##       Please use hrbrthemes::import_roboto_condensed() to install Roboto Condensed and
```

```
##       if Arial Narrow is not on your system, please see http://bit.ly/arialnarrow
```

```
library(GGally)
```

```
## Warning: package 'GGally' was built under R version 3.4.4
```

```
##
## Attaching package: 'GGally'
```

```
## The following object is masked from 'package:dplyr':
##
##     nasa
```

```
fifa_tbl = read.csv("C:/Users/Pranab/Documents/RWorkspace/ABI/Final Group Assignment/CompleteDataset.csv")


glimpse(fifa_tbl)
```

```
## Observations: 17,981
## Variables: 75
## $ X                   <int> 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, ...
## $ Name                <fct> Cristiano Ronaldo, L. Messi, Neymar, L. Su...
## $ Age                 <int> 32, 30, 25, 30, 31, 28, 26, 26, 27, 29, 31...
## $ Photo               <fct> https://cdn.sofifa.org/48/18/players/20801...
## $ Nationality         <fct> Portugal, Argentina, Brazil, Uruguay, Germ...
## $ Flag                <fct> https://cdn.sofifa.org/flags/38.png, https...
## $ Overall             <int> 94, 93, 92, 92, 92, 91, 90, 90, 90, 90, 90...
## $ Potential           <int> 94, 93, 94, 92, 92, 91, 92, 91, 90, 90, 90...
## $ Club                <fct> Real Madrid CF, FC Barcelona, Paris Saint-...
## $ Club.Logo           <fct> https://cdn.sofifa.org/24/18/teams/243.png...
## $ Value               <fct> â,¬95.5M, â,¬105M, â,¬123M, â,¬97M, â,¬61M...
## $ Wage                <fct> â,¬565K, â,¬565K, â,¬280K, â,¬510K, â,¬230...
## $ Special             <int> 2228, 2154, 2100, 2291, 1493, 2143, 1458, ...
## $ Acceleration        <fct> 89, 92, 94, 88, 58, 79, 57, 93, 60, 78, 75...
## $ Aggression          <fct> 63, 48, 56, 78, 29, 80, 38, 54, 60, 50, 84...
## $ Agility             <fct> 89, 90, 96, 86, 52, 78, 60, 93, 71, 75, 79...
## $ Balance             <fct> 63, 95, 82, 60, 35, 80, 43, 91, 69, 69, 60...
## $ Ball.control        <fct> 93, 95, 95, 91, 48, 89, 42, 92, 89, 85, 84...
## $ Composure           <fct> 95, 96, 92, 83, 70, 87, 64, 87, 85, 86, 80...
## $ Crossing            <fct> 85, 77, 75, 77, 15, 62, 17, 80, 85, 68, 66...
## $ Curve               <fct> 81, 89, 81, 86, 14, 77, 21, 82, 85, 74, 73...
## $ Dribbling           <fct> 91, 97, 96, 86, 30, 85, 18, 93, 79, 84, 61...
## $ Finishing           <fct> 94, 95, 89, 94, 13, 91, 13, 83, 76, 91, 60...
## $ Free.kick.accuracy  <fct> 76, 90, 84, 84, 11, 84, 19, 79, 84, 62, 67...
## $ GK.diving           <fct> 7, 6, 9, 27, 91, 15, 90, 11, 10, 5, 11, 15...
## $ GK.handling         <fct> 11, 11, 9, 25, 90, 6, 85, 12, 11, 12, 8, 1...
## $ GK.kicking          <fct> 15, 15, 15, 31, 95, 12, 87, 6, 13, 7, 9, 5...
## $ GK.positioning      <fct> 14, 14, 15, 33, 91, 8, 86, 8, 7, 5, 7, 10,...
## $ GK.reflexes         <fct> 11, 8, 11, 37, 89, 10, 90, 8, 10, 10, 11, ...
## $ Heading.accuracy    <fct> 88, 71, 62, 77, 25, 85, 21, 57, 54, 86, 91...
## $ Interceptions       <fct> 29, 22, 36, 41, 30, 39, 30, 41, 85, 20, 88...
## $ Jumping             <fct> 95, 68, 61, 69, 78, 84, 67, 59, 32, 79, 93...
## $ Long.passing        <fct> 77, 87, 75, 64, 59, 65, 51, 81, 93, 59, 72...
## $ Long.shots          <fct> 92, 88, 77, 86, 16, 83, 12, 82, 90, 82, 55...
## $ Marking             <fct> 22, 13, 21, 30, 10, 25, 13, 25, 63, 12, 86...
## $ Penalties           <fct> 85, 74, 81, 85, 47, 81, 40, 86, 73, 70, 68...
## $ Positioning         <fct> 95, 93, 90, 92, 12, 91, 12, 85, 79, 92, 52...
## $ Reactions           <fct> 96, 95, 88, 93, 85, 91, 88, 85, 86, 88, 85...
## $ Short.passing       <fct> 83, 88, 81, 83, 55, 83, 50, 86, 90, 75, 78...
## $ Shot.power          <fct> 94, 85, 80, 87, 25, 88, 31, 79, 87, 88, 79...
## $ Sliding.tackle      <fct> 23, 26, 33, 38, 11, 19, 13, 22, 69, 18, 91...
## $ Sprint.speed        <fct> 91, 87, 90, 77, 61, 83, 58, 87, 52, 80, 77...
## $ Stamina             <fct> 92, 73, 78, 89, 44, 79, 40, 79, 77, 72, 84...
## $ Standing.tackle     <fct> 31, 28, 24, 45, 10, 42, 21, 27, 82, 22, 89...
## $ Strength            <fct> 80, 59, 53, 80, 83, 84, 64, 65, 74, 85, 81...
## $ Vision              <fct> 85, 90, 80, 84, 70, 78, 68, 86, 88, 70, 63...
## $ Volleys             <fct> 88, 85, 83, 88, 11, 87, 13, 79, 82, 88, 66...
## $ CAM                 <dbl> 89, 92, 88, 87, NA, 84, NA, 88, 83, 81, 70...
## $ CB                  <dbl> 53, 45, 46, 58, NA, 57, NA, 47, 72, 46, 87...
## $ CDM                 <dbl> 62, 59, 59, 65, NA, 62, NA, 61, 82, 52, 83...
## $ CF                  <dbl> 91, 92, 88, 88, NA, 87, NA, 87, 81, 84, 70...
## $ CM                  <dbl> 82, 84, 79, 80, NA, 78, NA, 81, 87, 71, 74...
## $ ID                  <int> 20801, 158023, 190871, 176580, 167495, 188...
## $ LAM                 <dbl> 89, 92, 88, 87, NA, 84, NA, 88, 83, 81, 70...
## $ LB                  <dbl> 61, 57, 59, 64, NA, 58, NA, 59, 76, 51, 84...
## $ LCB                 <dbl> 53, 45, 46, 58, NA, 57, NA, 47, 72, 46, 87...
## $ LCM                 <dbl> 82, 84, 79, 80, NA, 78, NA, 81, 87, 71, 74...
## $ LDM                 <dbl> 62, 59, 59, 65, NA, 62, NA, 61, 82, 52, 83...
## $ LF                  <dbl> 91, 92, 88, 88, NA, 87, NA, 87, 81, 84, 70...
## $ LM                  <dbl> 89, 90, 87, 85, NA, 82, NA, 87, 81, 79, 71...
## $ LS                  <dbl> 92, 88, 84, 88, NA, 88, NA, 82, 77, 87, 72...
## $ LW                  <dbl> 91, 91, 89, 87, NA, 84, NA, 88, 80, 82, 69...
## $ LWB                 <dbl> 66, 62, 64, 68, NA, 61, NA, 64, 78, 55, 81...
## $ Preferred.Positions <fct> ST LW , RW , LW , ST , GK , ST , GK , LW ,...
## $ RAM                 <dbl> 89, 92, 88, 87, NA, 84, NA, 88, 83, 81, 70...
## $ RB                  <dbl> 61, 57, 59, 64, NA, 58, NA, 59, 76, 51, 84...
## $ RCB                 <dbl> 53, 45, 46, 58, NA, 57, NA, 47, 72, 46, 87...
## $ RCM                 <dbl> 82, 84, 79, 80, NA, 78, NA, 81, 87, 71, 74...
## $ RDM                 <dbl> 62, 59, 59, 65, NA, 62, NA, 61, 82, 52, 83...
## $ RF                  <dbl> 91, 92, 88, 88, NA, 87, NA, 87, 81, 84, 70...
## $ RM                  <dbl> 89, 90, 87, 85, NA, 82, NA, 87, 81, 79, 71...
## $ RS                  <dbl> 92, 88, 84, 88, NA, 88, NA, 82, 77, 87, 72...
```

```
## $ RW                <dbl> 91, 91, 89, 87, NA, 84, NA, 88, 80, 82, 69...
## $ RWB               <dbl> 66, 62, 64, 68, NA, 61, NA, 64, 78, 55, 81...
## $ ST                <dbl> 92, 88, 84, 88, NA, 88, NA, 82, 77, 87, 72...
```

```
names(fifa_tbl)
```

```
##  [1] "X"                   "Name"                "Age"
##  [4] "Photo"               "Nationality"         "Flag"
##  [7] "Overall"             "Potential"           "Club"
## [10] "Club.Logo"           "Value"               "Wage"
## [13] "Special"             "Acceleration"        "Aggression"
## [16] "Agility"             "Balance"             "Ball.control"
## [19] "Composure"           "Crossing"            "Curve"
## [22] "Dribbling"           "Finishing"           "Free.kick.accuracy"
## [25] "GK.diving"           "GK.handling"         "GK.kicking"
## [28] "GK.positioning"      "GK.reflexes"         "Heading.accuracy"
## [31] "Interceptions"       "Jumping"             "Long.passing"
## [34] "Long.shots"          "Marking"             "Penalties"
## [37] "Positioning"         "Reactions"           "Short.passing"
## [40] "Shot.power"          "Sliding.tackle"      "Sprint.speed"
## [43] "Stamina"             "Standing.tackle"     "Strength"
## [46] "Vision"              "Volleys"             "CAM"
## [49] "CB"                  "CDM"                 "CF"
## [52] "CM"                  "ID"                  "LAM"
## [55] "LB"                  "LCB"                 "LCM"
## [58] "LDM"                 "LF"                  "LM"
## [61] "LS"                  "LW"                  "LWB"
## [64] "Preferred.Positions" "RAM"                 "RB"
## [67] "RCB"                 "RCM"                 "RDM"
## [70] "RF"                  "RM"                  "RS"
## [73] "RW"                  "RWB"                 "ST"
```

```
fifa_tbl <- fifa_tbl %>% select(Acceleration:Volleys,`Preferred.Positions`)
head(fifa_tbl)
```

```
##   Acceleration Aggression Agility Balance Ball.control Composure Crossing
## 1           89         63      89      63           93        95       85
## 2           92         48      90      95           95        96       77
## 3           94         56      96      82           95        92       75
## 4           88         78      86      60           91        83       77
## 5           58         29      52      35           48        70       15
## 6           79         80      78      80           89        87       62
##   Curve Dribbling Finishing Free.kick.accuracy GK.diving GK.handling
## 1    81        91        94                76         7          11
## 2    89        97        95                90         6          11
## 3    81        96        89                84         9           9
## 4    86        86        94                84        27          25
## 5    14        30        13                11        91          90
## 6    77        85        91                84        15           6
##   GK.kicking GK.positioning GK.reflexes Heading.accuracy Interceptions
## 1         15             14          11               88            29
## 2         15             14           8               71            22
## 3         15             15          11               62            36
## 4         31             33          37               77            41
## 5         95             91          89               25            30
## 6         12              8          10               85            39
##   Jumping Long.passing Long.shots Marking Penalties Positioning Reactions
## 1      95           77         92      22        85          95        96
## 2      68           87         88      13        74          93        95
## 3      61           75         77      21        81          90        88
## 4      69           64         86      30        85          92        93
## 5      78           59         16      10        47          12        85
## 6      84           65         83      25        81          91        91
##   Short.passing Shot.power Sliding.tackle Sprint.speed Stamina
## 1            83         94             23           91      92
## 2            88         85             26           87      73
## 3            81         80             33           90      78
## 4            83         87             38           77      89
## 5            55         25             11           61      44
## 6            83         88             19           83      79
##   Standing.tackle Strength Vision Volleys Preferred.Positions
## 1              31       80     85      88              ST LW
## 2              28       59     90      85                 RW
## 3              24       53     80      83                 LW
## 4              45       80     84      88                 ST
## 5              10       83     70      11                 GK
## 6              42       84     78      87                 ST
```

```
head(fifa_tbl$`Preferred.Positions`)
```

```
## [1] ST LW  RW     LW     ST     GK     ST
## 802 Levels: CAM  CAM CB  CAM CB CDM  CAM CB CM  CAM CB CM CDM  ... ST RW RM
```

```
fifa_tbl <- fifa_tbl %>%
  mutate(position = word(`Preferred.Positions`,1)) %>%
  mutate(position = factor(position,
                           levels = c("GK","CB","RB","LB","RWB","LWB","CDM",
                                      "CM","RM","LM","CAM",
                                      "CF","RW","LW","ST")))
```

```
## Warning: package 'bindrcpp' was built under R version 3.4.4
```

```
defense  <- c("CB","RB","LB","RWB","LWB")
midfield <- c("CDM","CM","RM","LM","CAM")
offense  <- c("CF","RW","LW","ST")

fifa_tbl <- fifa_tbl %>%
  mutate(position2 = ifelse(position %in% defense,"D",
                            ifelse(position %in% midfield,"M",
                                   ifelse(position %in% offense,"O","GK")))) %>%
  mutate(position2 = factor(position2,levels = c("GK","D","M","O"))) %>%
  select(-`Preferred.Positions`)

names(fifa_tbl) <- str_replace_all(names(fifa_tbl)," ","_")

sapply(fifa_tbl, class)
```

```
##       Acceleration         Aggression            Agility
##           "factor"           "factor"           "factor"
##            Balance       Ball.control          Composure
##           "factor"           "factor"           "factor"
##           Crossing              Curve          Dribbling
##           "factor"           "factor"           "factor"
##          Finishing Free.kick.accuracy          GK.diving
##           "factor"           "factor"           "factor"
##        GK.handling         GK.kicking     GK.positioning
##           "factor"           "factor"           "factor"
##        GK.reflexes   Heading.accuracy      Interceptions
##           "factor"           "factor"           "factor"
##            Jumping       Long.passing         Long.shots
##           "factor"           "factor"           "factor"
##            Marking          Penalties        Positioning
##           "factor"           "factor"           "factor"
##          Reactions      Short.passing         Shot.power
##           "factor"           "factor"           "factor"
##     Sliding.tackle       Sprint.speed            Stamina
##           "factor"           "factor"           "factor"
##    Standing.tackle           Strength             Vision
##           "factor"           "factor"           "factor"
##            Volleys           position          position2
##           "factor"           "factor"           "factor"
```

```
library(GGally)

#fifa_tbl %>% select(Acceleration:Volleys,position2) %>% ggpairs(columns = c(1:5,12),aes(col=position2),)

names(fifa_tbl) <- str_replace_all(names(fifa_tbl),"_"," ")

is.factor(fifa_tbl$Acceleration)
```

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

```
fifa_tbl$Acceleration = as.numeric(fifa_tbl$Acceleration)

is.numeric(fifa_tbl$Acceleration)
```

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

```
fifa_tbl$Aggression = as.numeric(fifa_tbl$Aggression)
is.numeric(fifa_tbl$Aggression)
```

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

```
fifa_tbl$Agility = as.numeric(fifa_tbl$Agility)
is.numeric(fifa_tbl$Agility)
```

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

```
fifa_tbl$Balance = as.numeric(fifa_tbl$Balance)
is.numeric(fifa_tbl$Balance)
```

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

```
fifa_tbl$Ball.control = as.numeric(fifa_tbl$Ball.control)
is.numeric(fifa_tbl$Ball.control)
```

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

```
fifa_tbl$Composure = as.numeric(fifa_tbl$Composure)
is.numeric(fifa_tbl$Composure)
```

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

```
fifa_tbl$Crossing = as.numeric(fifa_tbl$Crossing)
is.numeric(fifa_tbl$Crossing)
```

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

```
fifa_tbl$Curve = as.numeric(fifa_tbl$Curve)
is.numeric(fifa_tbl$Curve)
```

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

```
fifa_tbl$Dribbling = as.numeric(fifa_tbl$Dribbling)
is.numeric(fifa_tbl$Dribbling)
```

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

```
fifa_tbl$Finishing = as.numeric(fifa_tbl$Finishing)
is.numeric(fifa_tbl$Finishing)
```

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

```
fifa_tbl$Free.kick.accuracy = as.numeric(fifa_tbl$Free.kick.accuracy)
is.numeric(fifa_tbl$Free.kick.accuracy)
```

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

```
fifa_tbl$GK.diving = as.numeric(fifa_tbl$GK.diving)
is.numeric(fifa_tbl$GK.diving)
```

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

```
fifa_tbl$GK.handling = as.numeric(fifa_tbl$GK.handling)
is.numeric(fifa_tbl$GK.handling)
```

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

```
fifa_tbl$GK.kicking = as.numeric(fifa_tbl$GK.kicking)
is.numeric(fifa_tbl$GK.kicking)
```

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

```
fifa_tbl$GK.positioning = as.numeric(fifa_tbl$GK.positioning)
is.numeric(fifa_tbl$GK.positioning)
```

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

```
fifa_tbl$GK.reflexes = as.numeric(fifa_tbl$GK.reflexes)
is.numeric(fifa_tbl$GK.reflexes)
```

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

```
fifa_tbl$Heading.accuracy = as.numeric(fifa_tbl$Heading.accuracy)
is.numeric(fifa_tbl$Heading.accuracy)
```

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

```
fifa_tbl$Interceptions = as.numeric(fifa_tbl$Interceptions)
is.numeric(fifa_tbl$Interceptions)
```

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

```
fifa_tbl$Jumping = as.numeric(fifa_tbl$Jumping)
is.numeric(fifa_tbl$Jumping)
```

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

```
fifa_tbl$Long.passing = as.numeric(fifa_tbl$Long.passing)
is.numeric(fifa_tbl$Long.passing)
```

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

```
fifa_tbl$Long.shots = as.numeric(fifa_tbl$Long.shots)
is.numeric(fifa_tbl$Long.shots)
```

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

```
fifa_tbl$Marking = as.numeric(fifa_tbl$Marking)
is.numeric(fifa_tbl$Marking)
```

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

```
fifa_tbl$Penalties= as.numeric(fifa_tbl$Penalties)
is.numeric(fifa_tbl$Penalties)
```

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

```
fifa_tbl$Positioning = as.numeric(fifa_tbl$Positioning)
is.numeric(fifa_tbl$Positioning)
```

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

```
fifa_tbl$Reactions = as.numeric(fifa_tbl$Reactions)
is.numeric(fifa_tbl$Reactions)
```

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

```
fifa_tbl$Short.passing = as.numeric(fifa_tbl$Short.passing)
is.numeric(fifa_tbl$Short.passing)
```

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

```
fifa_tbl$Shot.power = as.numeric(fifa_tbl$Shot.power)
is.numeric(fifa_tbl$Shot.power)
```

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

```
fifa_tbl$Sliding.tackle = as.numeric(fifa_tbl$Sliding.tackle)
is.numeric(fifa_tbl$Sliding.tackle)
```

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

```
fifa_tbl$Sprint.speed = as.numeric(fifa_tbl$Sprint.speed)
is.numeric(fifa_tbl$Sprint.speed)
```

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

```
fifa_tbl$Stamina = as.numeric(fifa_tbl$Stamina)
is.numeric(fifa_tbl$Stamina)
```

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

```
fifa_tbl$Standing.tackle = as.numeric(fifa_tbl$Standing.tackle)
is.numeric(fifa_tbl$Standing.tackle)
```

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

```
fifa_tbl$Strength = as.numeric(fifa_tbl$Strength)
is.numeric(fifa_tbl$Strength)
```

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

```
fifa_tbl$Vision = as.numeric(fifa_tbl$Vision)
is.numeric(fifa_tbl$Vision)
```

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

```
fifa_tbl$Volleys = as.numeric(fifa_tbl$Volleys)
is.numeric(fifa_tbl$Volleys)
```

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

```
fifa_tbl$Jumping = as.numeric(fifa_tbl$Jumping)
is.numeric(fifa_tbl$Jumping)
```

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

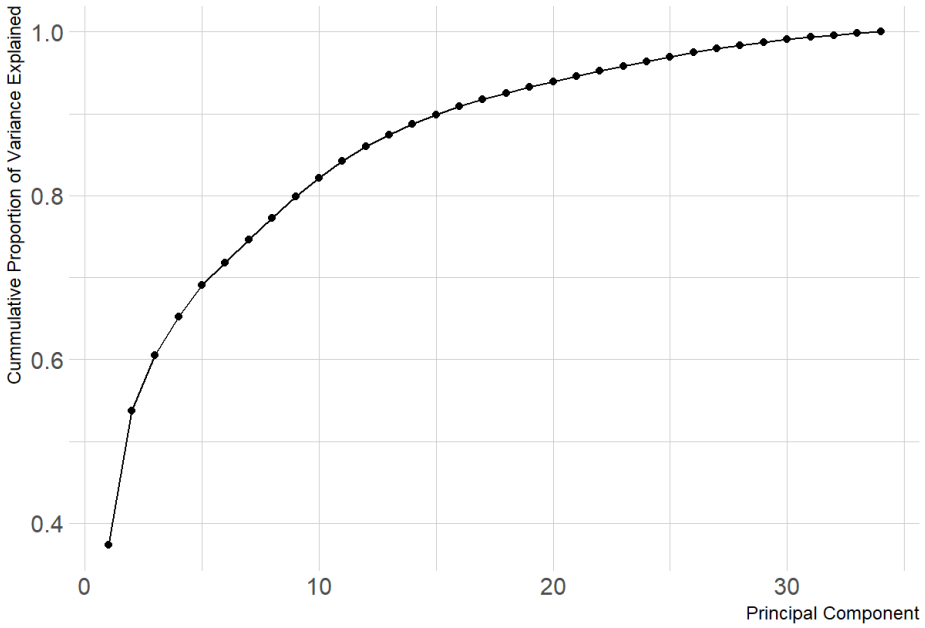
```
sapply(fifa_tbl, class)
```

```
##      Acceleration        Aggression           Agility
##         "numeric"         "numeric"         "numeric"
##           Balance      Ball.control          Composure
##         "numeric"         "numeric"         "numeric"
##          Crossing             Curve         Dribbling
##         "numeric"         "numeric"         "numeric"
##         Finishing Free.kick.accuracy          GK.diving
##         "numeric"         "numeric"         "numeric"
##       GK.handling        GK.kicking     GK.positioning
##         "numeric"         "numeric"         "numeric"
##       GK.reflexes   Heading.accuracy     Interceptions
##         "numeric"         "numeric"         "numeric"
##           Jumping      Long.passing        Long.shots
##         "numeric"         "numeric"         "numeric"
##           Marking         Penalties       Positioning
##         "numeric"         "numeric"         "numeric"
##         Reactions     Short.passing        Shot.power
##         "numeric"         "numeric"         "numeric"
##    Sliding.tackle      Sprint.speed           Stamina
##         "numeric"         "numeric"         "numeric"
##   Standing.tackle          Strength            Vision
##         "numeric"         "numeric"         "numeric"
##           Volleys          position         position2
##         "numeric"          "factor"          "factor"
```

```
fifa_pca <- fifa_tbl %>%
  select(Acceleration:Volleys) %>%
  prcomp(center=TRUE,scale.=TRUE)

tibble(sd = fifa_pca$sdev,
       pc = 1:length(sd)) %>%
  mutate(cumvar = cumsum((sd^2)/sum(sd^2))) %>%
  ggplot(aes(pc,cumvar))+geom_line()+geom_point()+
  labs(x="Principal Component",y="Cummulative Proportion of Variance Explained")+
  theme_ipsum_rc()
```

```
## Warning in grid.Call(C_textBounds, as.graphicsAnnot(x$label), x$x, x$y, :
## font family not found in Windows font database

## Warning in grid.Call(C_textBounds, as.graphicsAnnot(x$label), x$x, x$y, :
## font family not found in Windows font database

## Warning in grid.Call(C_textBounds, as.graphicsAnnot(x$label), x$x, x$y, :
## font family not found in Windows font database

## Warning in grid.Call(C_textBounds, as.graphicsAnnot(x$label), x$x, x$y, :
## font family not found in Windows font database

## Warning in grid.Call(C_textBounds, as.graphicsAnnot(x$label), x$x, x$y, :
## font family not found in Windows font database

## Warning in grid.Call(C_textBounds, as.graphicsAnnot(x$label), x$x, x$y, :
## font family not found in Windows font database

## Warning in grid.Call(C_textBounds, as.graphicsAnnot(x$label), x$x, x$y, :
## font family not found in Windows font database
```

```
## Warning in grid.Call.graphics(C_text, as.graphicsAnnot(x$label), x$x, x
## $y, : font family not found in Windows font database
```




```
#ggplot(fifa_pca, obs.scale = 1, var.scale = 1, alpha = 0.01,
#         groups = fifa_tbl$position2, varname.size = 4, varname.adjust = 2,
#        ellipse = TRUE, circle = FALSE) +
# scale_color_discrete(name = '') +
# scale_x_continuous(limits = c(-20,20))+
# scale_y_continuous(limits = c(-10,10))+
# theme_ipsum_rc()+
# theme(legend.direction = 'horizontal', legend.position = 'bottom')
```

```
library(dplyr)
set.seed(12)

fifa_tsne <- fifa_tbl %>%
  select(Acceleration:Volleys) %>%
  Rtsne(perplexity = 50, max_iter = 1000, check_duplicates = FALSE)

tibble(x = fifa_tsne$Y[,1],
       y = fifa_tsne$Y[,2],
       position = fifa_tbl$position2) %>%
  ggplot(aes(x,y)) + geom_point(aes(col = position), alpha = 0.25) +
  theme_ipsum_rc()+
  theme(legend.position = "bottom")+
  labs(x="",y="")
```

```
## Warning in grid.Call(C_textBounds, as.graphicsAnnot(x$label), x$x, x$y, :
## font family not found in Windows font database

## Warning in grid.Call(C_textBounds, as.graphicsAnnot(x$label), x$x, x$y, :
## font family not found in Windows font database

## Warning in grid.Call(C_textBounds, as.graphicsAnnot(x$label), x$x, x$y, :
## font family not found in Windows font database

## Warning in grid.Call(C_textBounds, as.graphicsAnnot(x$label), x$x, x$y, :
## font family not found in Windows font database

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## font family not found in Windows font database

## Warning in grid.Call(C_textBounds, as.graphicsAnnot(x$label), x$x, x$y, :
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## font family not found in Windows font database

## Warning in grid.Call(C_textBounds, as.graphicsAnnot(x$label), x$x, x$y, :
## font family not found in Windows font database

## Warning in grid.Call(C_textBounds, as.graphicsAnnot(x$label), x$x, x$y, :
## font family not found in Windows font database
```
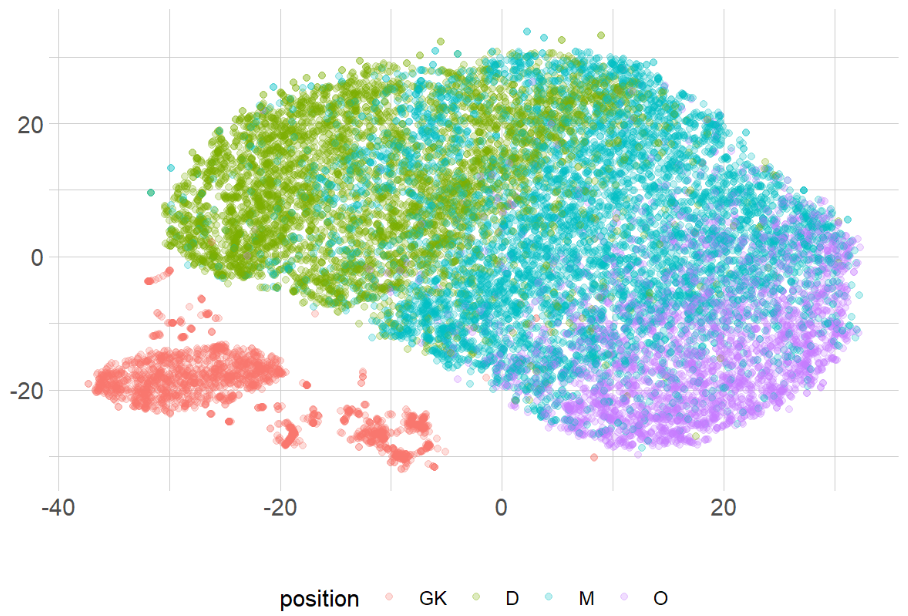
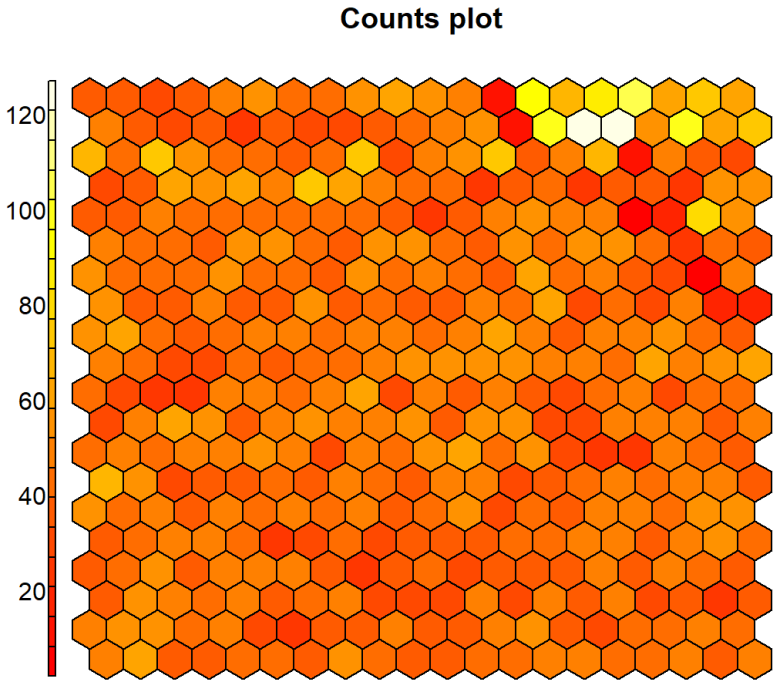
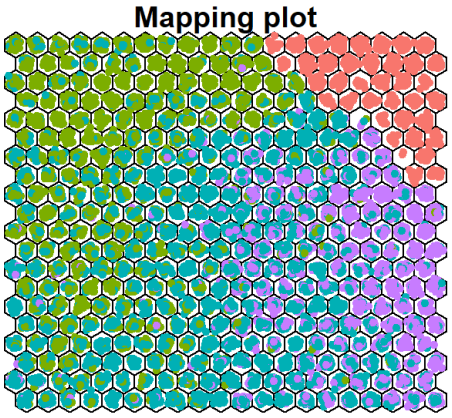



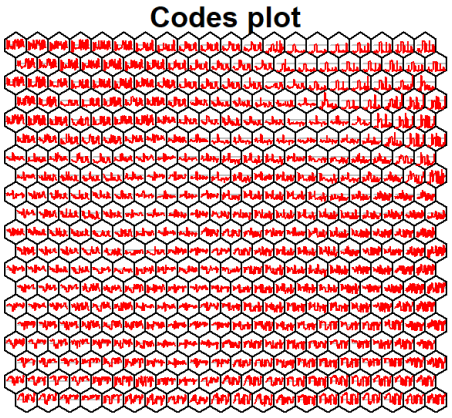

```
fifa_som <- fifa_tbl %>%
  select(Acceleration:Volleys) %>%
  scale() %>%
  som(grid = somgrid(20, 20, "hexagonal"), rlen = 300)

plot(fifa_som, type="changes")
```


```
plot(fifa_som, type="count", shape = "straight")
```




```
par(mfrow=c(1,2))
plot(fifa_som, type="mapping", pch=20,
     col = c("#F8766D","#7CAE00","#00B0B5","#C77CFF")[as.integer(fifa_tbl$position2)],
     shape = "straight")
plot(fifa_som, type="codes",shape="straight")
```






```
#used packages
library(tidyverse)  # for data wrangling
library(hrbrthemes) # nice themes for ggplot
library(caret) # ML algorithms
```

```
## Warning: package 'caret' was built under R version 3.4.4
```

```
## Loading required package: lattice
```

```
##
## Attaching package: 'caret'
```

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

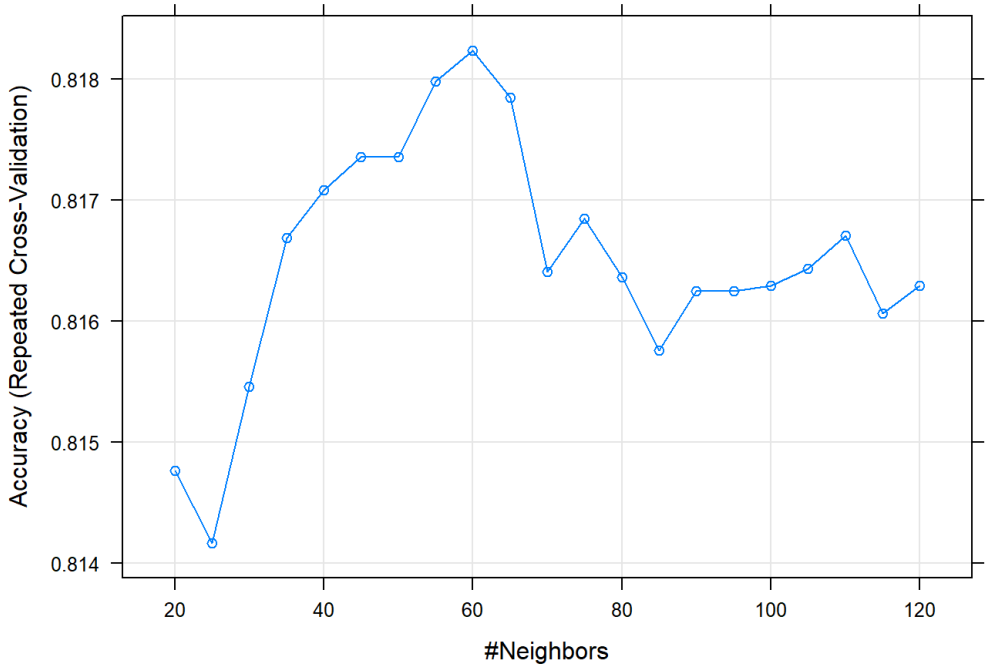
```
glimpse(fifa_tbl)
```

```
## Observations: 17,981
## Variables: 36
## $ Acceleration       <dbl> 151, 156, 159, 150, 57, 130, 55, 158, 63, 1...
## $ Aggression         <dbl> 79, 44, 59, 124, 20, 129, 31, 57, 72, 48, 1...
## $ Agility            <dbl> 139, 140, 146, 136, 49, 118, 64, 143, 101, ...
## $ Balance            <dbl> 63, 134, 115, 57, 23, 109, 31, 130, 82, 82,...
## $ Ball.control       <dbl> 182, 184, 184, 180, 49, 177, 40, 181, 177, ...
## $ Composure          <dbl> 160, 161, 159, 150, 123, 154, 97, 154, 152,...
## $ Crossing           <dbl> 168, 155, 153, 155, 6, 100, 8, 162, 168, 13...
## $ Curve              <dbl> 141, 150, 141, 147, 5, 133, 12, 143, 146, 1...
## $ Dribbling          <dbl> 190, 194, 193, 183, 23, 182, 10, 192, 172, ...
## $ Finishing          <dbl> 186, 187, 182, 186, 4, 185, 4, 176, 161, 18...
## $ Free.kick.accuracy <dbl> 116, 134, 127, 127, 2, 127, 10, 120, 127, 7...
## $ GK.diving          <dbl> 66, 45, 98, 17, 100, 7, 99, 3, 2, 30, 3, 7,...
## $ GK.handling        <dbl> 3, 3, 95, 14, 96, 47, 91, 4, 3, 4, 85, 5, 9...
## $ GK.kicking         <dbl> 7, 7, 7, 22, 103, 4, 100, 58, 5, 81, 101, 4...
## $ GK.positioning     <dbl> 6, 6, 7, 21, 99, 88, 95, 88, 75, 35, 75, 2,...
## $ GK.reflexes        <dbl> 3, 85, 3, 22, 100, 2, 102, 85, 2, 2, 3, 5, ...
## $ Heading.accuracy   <dbl> 151, 118, 87, 136, 16, 147, 12, 68, 61, 149...
## $ Interceptions      <dbl> 28, 18, 37, 47, 29, 43, 29, 47, 166, 15, 16...
## $ Jumping            <dbl> 140, 74, 50, 80, 115, 127, 69, 42, 11, 118,...
## $ Long.passing       <dbl> 168, 182, 162, 119, 98, 122, 67, 174, 188, ...
## $ Long.shots         <dbl> 156, 152, 136, 150, 7, 147, 3, 146, 154, 14...
## $ Marking            <dbl> 16, 4, 15, 30, 1, 23, 4, 23, 108, 3, 177, 3...
## $ Penalties          <dbl> 109, 96, 104, 109, 41, 104, 32, 110, 95, 88...
## $ Positioning        <dbl> 171, 170, 167, 169, 4, 168, 4, 161, 151, 16...
## $ Reactions          <dbl> 158, 157, 151, 156, 148, 154, 151, 148, 149...
## $ Short.passing      <dbl> 199, 205, 195, 199, 71, 199, 57, 203, 207, ...
## $ Shot.power         <dbl> 153, 143, 134, 146, 17, 147, 24, 131, 146, ...
## $ Sliding.tackle     <dbl> 18, 22, 33, 40, 2, 12, 4, 17, 123, 10, 169,...
## $ Sprint.speed       <dbl> 188, 178, 185, 143, 69, 165, 61, 178, 48, 1...
## $ Stamina            <dbl> 177, 124, 144, 173, 38, 149, 31, 149, 142, ...
## $ Standing.tackle    <dbl> 28, 24, 18, 53, 1, 49, 15, 22, 174, 16, 183...
## $ Strength           <dbl> 137, 65, 48, 137, 144, 148, 72, 73, 114, 15...
## $ Vision             <dbl> 165, 170, 160, 164, 127, 154, 119, 166, 168...
## $ Volleys            <dbl> 121, 118, 116, 121, 2, 120, 4, 111, 115, 12...
## $ position           <fct> ST, RW, LW, ST, GK, ST, GK, LW, CDM, ST, CB...
## $ position2          <fct> O, O, O, O, GK, O, GK, O, M, O, D, M, GK, M...
```

```
set.seed(6185)

train_sample <- createDataPartition(fifa_tbl$position2,p = 0.8,list = FALSE)
train_data   <- fifa_tbl[train_sample,] %>% select(-position)
test_data    <- fifa_tbl[-train_sample,] %>% select(-position)

train_control <- trainControl(method = "repeatedcv", number = 10, repeats = 3)
grid_knn <- expand.grid(.k=seq(20,120,5))
fifa_knn <- train(position2~., data=train_data, method = "knn",
                  trControl = train_control,preProcess = c("center","scale"),
                  tuneGrid = grid_knn)
fifa_knn
```

```
## k-Nearest Neighbors
##
## 14387 samples
##    34 predictor
##     4 classes: 'GK', 'D', 'M', 'O'
##
## Pre-processing: centered (33), scaled (33)
## Resampling: Cross-Validated (10 fold, repeated 3 times)
## Summary of sample sizes: 12948, 12947, 12948, 12949, 12948, 12949, ...
## Resampling results across tuning parameters:
##
##   k    Accuracy   Kappa
##    20  0.8147646  0.7341469
##    25  0.8141615  0.7332377
##    30  0.8154593  0.7349777
##    35  0.8166872  0.7365918
##    40  0.8170812  0.7370851
##    45  0.8173593  0.7373337
##    50  0.8173592  0.7372743
##    55  0.8179845  0.7381180
##    60  0.8182393  0.7384190
##    65  0.8178454  0.7377863
##    70  0.8164089  0.7356759
##    75  0.8168493  0.7362603
##    80  0.8163629  0.7355667
##    85  0.8157604  0.7346378
##    90  0.8162467  0.7352784
##    95  0.8162470  0.7352980
##   100  0.8162934  0.7353350
##   105  0.8164323  0.7354972
##   110  0.8167102  0.7358423
##   115  0.8160611  0.7348717
##   120  0.8162930  0.7351560
##
## Accuracy was used to select the optimal model using the largest value.
## The final value used for the model was k = 60.
```

```
plot(fifa_knn)
```




```
fifa_knn_predict <- predict(fifa_knn,newdata = test_data)
confusionMatrix(fifa_knn_predict,test_data$position2)
```

```
## Confusion Matrix and Statistics
##
##           Reference
## Prediction   GK    D    M    O
##         GK  399    0    0    0
##         D     6  920  169    5
##         M     0  167 1169  218
##         O     0    1   96  444
##
## Overall Statistics
##
##                Accuracy : 0.8158
##                  95% CI : (0.8027, 0.8284)
##     No Information Rate : 0.399
##     P-Value [Acc > NIR] : < 2.2e-16
##
##                   Kappa : 0.7347
##  Mcnemar's Test P-Value : NA
##
## Statistics by Class:
##
##                      Class: GK Class: D Class: M Class: O
## Sensitivity             0.9852   0.8456   0.8152   0.6657
## Specificity             1.0000   0.9282   0.8218   0.9669
## Pos Pred Value          1.0000   0.8364   0.7523   0.8207
## Neg Pred Value          0.9981   0.9326   0.8701   0.9270
## Prevalence              0.1127   0.3027   0.3990   0.1856
## Detection Rate          0.1110   0.2560   0.3253   0.1235
## Detection Prevalence    0.1110   0.3061   0.4324   0.1505
## Balanced Accuracy       0.9926   0.8869   0.8185   0.8163
```

```
#Random Forest
train_control <- trainControl(method = "repeatedcv",number = 10, repeats = 3)
grid_rf <- expand.grid(.mtry=c(4,8,12,16,20))
fifa_rf <- train(position2~., data=train_data, method = "rf",
                 trControl = train_control,preProcess = c("center","scale"),
                 tuneGrid = grid_rf)
fifa_rf
```

```
## Random Forest
##
## 14387 samples
##    34 predictor
##     4 classes: 'GK', 'D', 'M', 'O'
##
## Pre-processing: centered (33), scaled (33)
## Resampling: Cross-Validated (10 fold, repeated 3 times)
## Summary of sample sizes: 12948, 12948, 12949, 12948, 12947, 12948, ...
## Resampling results across tuning parameters:
##
##   mtry  Accuracy   Kappa
##    4    0.8363338  0.7657586
##    8    0.8381174  0.7684424
##   12    0.8383495  0.7687453
##   16    0.8375384  0.7676384
##   20    0.8379092  0.7681814
##
## Accuracy was used to select the optimal model using the largest value.
## The final value used for the model was mtry = 12.
```

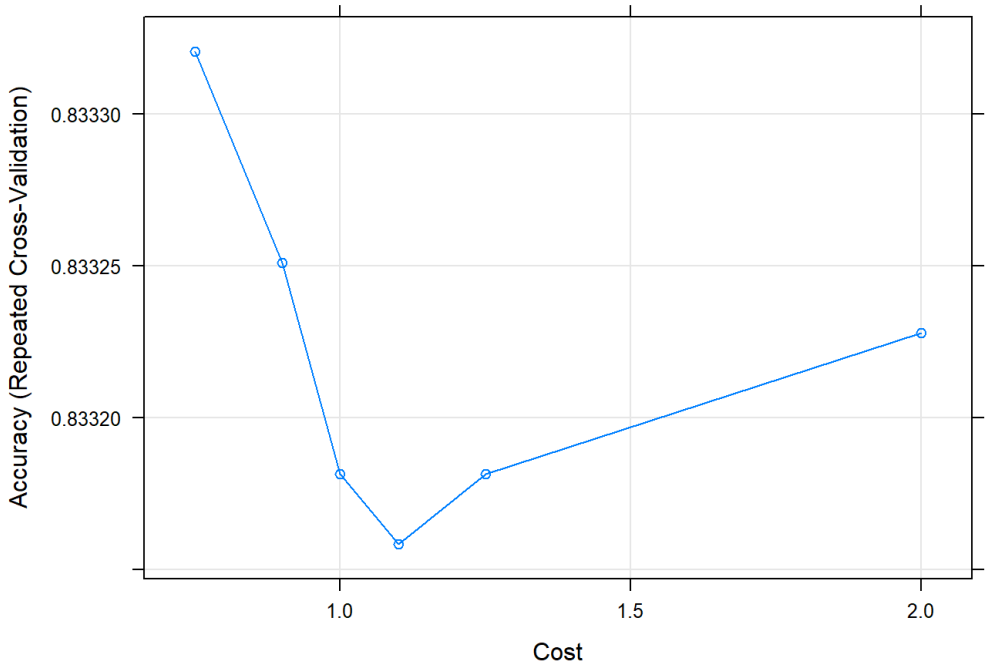
```
fifa_rf_predict <- predict(fifa_rf,newdata = test_data)
confusionMatrix(fifa_rf_predict,test_data$position2)
```

```
## Confusion Matrix and Statistics
##
##           Reference
## Prediction   GK    D    M    O
##         GK  405    0    0    0
##         D     0  958  161    7
##         M     0  128 1152  182
##         O     0    2  121  478
##
## Overall Statistics
##
##                Accuracy : 0.8328
##                  95% CI : (0.8202, 0.8448)
##     No Information Rate : 0.399
##     P-Value [Acc > NIR] : < 2.2e-16
##
##                   Kappa : 0.7608
##  Mcnemar's Test P-Value : NA
##
## Statistics by Class:
##
##                      Class: GK Class: D Class: M Class: O
## Sensitivity             1.0000   0.8805   0.8033   0.7166
## Specificity             1.0000   0.9330   0.8565   0.9580
## Pos Pred Value          1.0000   0.8508   0.7880   0.7953
## Neg Pred Value          1.0000   0.9473   0.8677   0.9369
## Prevalence              0.1127   0.3027   0.3990   0.1856
## Detection Rate          0.1127   0.2666   0.3205   0.1330
## Detection Prevalence    0.1127   0.3133   0.4068   0.1672
## Balanced Accuracy       1.0000   0.9067   0.8299   0.8373
```

```
train_control <- trainControl(method = "repeatedcv", number = 10, repeats = 3)
grid_svm <- expand.grid(.cost=c(0.75, 0.9, 1, 1.1, 1.25,2))
fifa_svm_linear <- train(position2 ~., data = train_data, method = "svmLinear2",
                   trControl=train_control,
                   preProcess = c("center", "scale"),
                   tuneGrid = grid_svm)
fifa_svm_linear
```

```
## Support Vector Machines with Linear Kernel
##
## 14387 samples
##    34 predictor
##     4 classes: 'GK', 'D', 'M', 'O'
##
## Pre-processing: centered (33), scaled (33)
## Resampling: Cross-Validated (10 fold, repeated 3 times)
## Summary of sample sizes: 12948, 12949, 12948, 12948, 12949, 12948, ...
## Resampling results across tuning parameters:
##
##   cost  Accuracy   Kappa
##   0.75  0.8333206  0.7616415
##   0.90  0.8332510  0.7615463
##   1.00  0.8331815  0.7614459
##   1.10  0.8331583  0.7614111
##   1.25  0.8331816  0.7614475
##   2.00  0.8332278  0.7615154
##
## Accuracy was used to select the optimal model using the largest value.
## The final value used for the model was cost = 0.75.
```

```
plot(fifa_svm_linear)
```




```
fifa_svm_linear_predict <- predict(fifa_svm_linear,newdata = test_data)
confusionMatrix(fifa_svm_linear_predict,test_data$position2)
```

```
## Confusion Matrix and Statistics
##
##           Reference
## Prediction   GK    D    M    O
##         GK  403    0    0    0
##         D     2  945  155    8
##         M     0  140 1153  195
##         O     0    3  126  464
##
## Overall Statistics
##
##                Accuracy : 0.825
##                  95% CI : (0.8122, 0.8373)
##     No Information Rate : 0.399
##     P-Value [Acc > NIR] : < 2.2e-16
##
##                   Kappa : 0.7493
##  Mcnemar's Test P-Value : NA
##
## Statistics by Class:
##
##                      Class: GK Class: D Class: M Class: O
## Sensitivity             0.9951   0.8686   0.8040   0.6957
## Specificity             1.0000   0.9342   0.8449   0.9559
## Pos Pred Value          1.0000   0.8514   0.7749   0.7825
## Neg Pred Value          0.9994   0.9424   0.8666   0.9324
## Prevalence              0.1127   0.3027   0.3990   0.1856
## Detection Rate          0.1121   0.2629   0.3208   0.1291
## Detection Prevalence    0.1121   0.3088   0.4140   0.1650
## Balanced Accuracy       0.9975   0.9014   0.8245   0.8258
```

```
train_control <- trainControl(method = "repeatedcv",number = 10, repeats = 3)
grid_nnet <- expand.grid(.decay=c(0.2,0.5,0.7),.size=c(1,5,10,15))
fifa_nnet <- train(position2~., data=train_data, method = "nnet",
                   trControl = train_control, preProcess = c("center","scale"),
                   tuneGrid = grid_nnet, maxit = 500, abstol=1e-2)
```

```
## # weights:  42
## initial  value 17014.362365
## iter  10 value 11397.157582
## iter  20 value 11283.887142
## iter  30 value 11143.198969
## iter  40 value 10961.507999
## iter  50 value 10596.479049
## iter  60 value 10378.778438
## iter  70 value 10362.443005
## iter  80 value 10359.748541
## iter  90 value 10356.337936
## iter 100 value 10351.166542
## iter 110 value 10333.346076
## iter 120 value 10286.067668
## iter 130 value 10206.837398
## iter 140 value 10139.451320
## final  value 10139.322596
## converged
## # weights:  42
## initial  value 18556.989646
## iter  10 value 12792.610860
## iter  20 value 11841.159509
## iter  30 value 11316.227284
## iter  40 value 10547.276132
## iter  50 value 9951.357754
## iter  60 value 9115.366183
## iter  70 value 8994.940818
## iter  80 value 8989.502354
## iter  90 value 8987.173838
## iter 100 value 8985.947414
## iter 110 value 8983.831817
## iter 120 value 8983.262006
## final  value 8982.779319
## converged
## # weights:  42
## initial  value 19657.910038
## iter  10 value 11881.046951
## iter  20 value 11578.844008
## iter  30 value 10755.364115
## iter  40 value 10358.005051
## iter  50 value 9579.759369
## iter  60 value 9178.675699
## iter  70 value 9163.708289
## iter  80 value 9150.691127
## iter  90 value 9143.061559
## iter 100 value 9142.418797
## iter 110 value 9142.302061
## iter 120 value 9142.168698
## iter 130 value 9141.903939
## iter 140 value 9141.896637
## iter 150 value 9141.889903
## iter 160 value 9141.877489
## iter 170 value 9141.873689
## final  value 9141.873408
## converged
## # weights:  194
## initial  value 20039.751911
## iter  10 value 6848.972165
## iter  20 value 5875.549123
## iter  30 value 5715.354452
## iter  40 value 5609.508370
## iter  50 value 5549.217997
## iter  60 value 5484.736469
## iter  70 value 5434.405484
## iter  80 value 5385.492822
## iter  90 value 5352.975230
## iter 100 value 5315.816470
## iter 110 value 5262.150800
## iter 120 value 5233.416288
## iter 130 value 5207.863490
## iter 140 value 5196.595653
## iter 150 value 5188.156017
## iter 160 value 5180.747395
## iter 170 value 5175.153515
```

```
## iter 180 value 5168.941924
## iter 190 value 5163.089258
## iter 200 value 5156.818196
## iter 210 value 5151.437299
## iter 220 value 5146.941317
## iter 230 value 5143.355882
## iter 240 value 5139.915894
## iter 250 value 5137.772415
## iter 260 value 5136.134070
## iter 270 value 5134.930168
## iter 280 value 5133.425160
## iter 290 value 5132.287668
## iter 300 value 5130.716116
## iter 310 value 5129.320437
## iter 320 value 5128.358369
## iter 330 value 5127.578831
## iter 340 value 5126.848277
## iter 350 value 5126.430275
## iter 360 value 5126.204461
## iter 370 value 5126.040109
## iter 380 value 5125.965856
## iter 390 value 5125.897311
## iter 400 value 5125.862847
## iter 410 value 5125.772685
## iter 420 value 5125.656044
## iter 430 value 5125.557436
## iter 440 value 5125.485333
## iter 450 value 5125.453709
## iter 460 value 5125.445531
## final  value 5125.444008
## converged
## # weights:  194
## initial  value 22777.790677
## iter  10 value 6612.998776
## iter  20 value 5745.456225
## iter  30 value 5589.912214
## iter  40 value 5452.370825
## iter  50 value 5378.127534
## iter  60 value 5341.606079
## iter  70 value 5322.939431
## iter  80 value 5299.767992
## iter  90 value 5280.368150
## iter 100 value 5268.682924
## iter 110 value 5258.918893
## iter 120 value 5250.680066
## iter 130 value 5244.998213
## iter 140 value 5238.604014
## iter 150 value 5233.053764
## iter 160 value 5228.421886
## iter 170 value 5224.482715
## iter 180 value 5220.989833
## iter 190 value 5217.273438
## iter 200 value 5213.330660
## iter 210 value 5205.601031
## iter 220 value 5201.687099
## iter 230 value 5199.151303
## iter 240 value 5198.480277
## iter 250 value 5198.099877
## iter 260 value 5197.994296
## iter 270 value 5197.969108
## iter 280 value 5197.953039
## iter 290 value 5197.935919
## iter 300 value 5197.928856
## final  value 5197.928722
## converged
## # weights:  194
## initial  value 18892.324603
## iter  10 value 6466.782418
## iter  20 value 5944.784675
## iter  30 value 5796.328918
## iter  40 value 5644.830707
## iter  50 value 5568.154602
## iter  60 value 5513.956176
## iter  70 value 5482.900619
## iter  80 value 5460.004979
```

```
## iter  90 value 5440.046841
## iter 100 value 5423.796989
## iter 110 value 5409.363795
## iter 120 value 5389.299074
## iter 130 value 5369.528313
## iter 140 value 5349.796710
## iter 150 value 5331.341055
## iter 160 value 5316.780608
## iter 170 value 5309.695798
## iter 180 value 5302.296490
## iter 190 value 5292.469127
## iter 200 value 5284.485952
## iter 210 value 5279.098104
## iter 220 value 5276.553071
## iter 230 value 5273.563183
## iter 240 value 5270.182290
## iter 250 value 5267.528007
## iter 260 value 5263.113195
## iter 270 value 5261.719758
## iter 280 value 5260.931656
## iter 290 value 5260.763773
## iter 300 value 5260.717295
## iter 310 value 5260.700137
## iter 320 value 5260.697773
## iter 330 value 5260.696591
## final  value 5260.695429
## converged
## # weights:  384
## initial  value 18802.672669
## iter  10 value 6477.059297
## iter  20 value 5438.905112
## iter  30 value 5213.600199
## iter  40 value 5151.191425
## iter  50 value 5112.868700
## iter  60 value 5084.823649
## iter  70 value 5065.088149
## iter  80 value 5054.869974
## iter  90 value 5043.840719
## iter 100 value 5027.537375
## iter 110 value 5018.312313
## iter 120 value 5011.323814
## iter 130 value 5004.623228
## iter 140 value 4999.452854
## iter 150 value 4994.772396
## iter 160 value 4990.905331
## iter 170 value 4987.967058
## iter 180 value 4985.321525
## iter 190 value 4982.177157
## iter 200 value 4979.535903
## iter 210 value 4977.806298
## iter 220 value 4975.574907
## iter 230 value 4972.712843
## iter 240 value 4968.250965
## iter 250 value 4962.012708
## iter 260 value 4956.697920
## iter 270 value 4949.646080
## iter 280 value 4940.247202
## iter 290 value 4931.888787
## iter 300 value 4927.445843
## iter 310 value 4924.787511
## iter 320 value 4923.060303
## iter 330 value 4921.561837
## iter 340 value 4920.272317
## iter 350 value 4919.035019
## iter 360 value 4917.849687
## iter 370 value 4916.456055
## iter 380 value 4914.912226
## iter 390 value 4913.515202
## iter 400 value 4911.687107
## iter 410 value 4910.204300
## iter 420 value 4909.198287
## iter 430 value 4906.182304
## iter 440 value 4901.793166
## iter 450 value 4896.798208
## iter 460 value 4892.682388
```

```
## iter 470 value 4890.710046
## iter 480 value 4888.621816
## iter 490 value 4887.265266
## iter 500 value 4884.067875
## final  value 4884.067875
## stopped after 500 iterations
## # weights:  384
## initial  value 17478.742963
## iter  10 value 6103.236803
## iter  20 value 5563.330031
## iter  30 value 5388.520742
## iter  40 value 5261.215497
## iter  50 value 5184.442760
## iter  60 value 5141.492687
## iter  70 value 5114.890193
## iter  80 value 5094.032443
## iter  90 value 5075.439322
## iter 100 value 5061.940638
## iter 110 value 5054.291952
## iter 120 value 5046.161250
## iter 130 value 5037.738347
## iter 140 value 5030.195854
## iter 150 value 5024.473064
## iter 160 value 5020.389187
## iter 170 value 5017.113061
## iter 180 value 5013.717337
## iter 190 value 5011.277762
## iter 200 value 5009.479535
## iter 210 value 5007.740265
## iter 220 value 5006.715580
## iter 230 value 5005.895280
## iter 240 value 5005.130196
## iter 250 value 5004.266579
## iter 260 value 5003.394599
## iter 270 value 5002.116746
## iter 280 value 5000.654679
## iter 290 value 4999.885296
## iter 300 value 4999.294494
## iter 310 value 4998.542794
## iter 320 value 4997.950327
## iter 330 value 4997.430103
## iter 340 value 4996.823896
## iter 350 value 4996.209913
## iter 360 value 4995.560674
## iter 370 value 4995.217656
## iter 380 value 4994.803344
## iter 390 value 4994.592823
## iter 400 value 4994.368386
## iter 410 value 4994.141326
## iter 420 value 4993.980147
## iter 430 value 4993.894983
## iter 440 value 4993.851955
## iter 450 value 4993.817622
## iter 460 value 4993.770800
## iter 470 value 4993.687487
## iter 480 value 4993.665206
## iter 490 value 4993.595779
## iter 500 value 4993.557085
## final  value 4993.557085
## stopped after 500 iterations
## # weights:  384
## initial  value 18943.013557
## iter  10 value 6354.042510
## iter  20 value 5481.898107
## iter  30 value 5337.402837
## iter  40 value 5242.290322
## iter  50 value 5182.801064
## iter  60 value 5147.587418
## iter  70 value 5123.240504
## iter  80 value 5104.279257
## iter  90 value 5092.774933
## iter 100 value 5080.992264
## iter 110 value 5073.741339
## iter 120 value 5067.946378
## iter 130 value 5060.707464
```

```
## iter 140 value 5055.644209
## iter 150 value 5051.096766
## iter 160 value 5047.426111
## iter 170 value 5045.452595
## iter 180 value 5043.750724
## iter 190 value 5042.752770
## iter 200 value 5041.491845
## iter 210 value 5040.593207
## iter 220 value 5039.902680
## iter 230 value 5038.885140
## iter 240 value 5037.347463
## iter 250 value 5036.096675
## iter 260 value 5035.329203
## iter 270 value 5034.496197
## iter 280 value 5033.642827
## iter 290 value 5033.084434
## iter 300 value 5032.559682
## iter 310 value 5032.126647
## iter 320 value 5031.659783
## iter 330 value 5031.309227
## iter 340 value 5030.940152
## iter 350 value 5030.600519
## iter 360 value 5030.344066
## iter 370 value 5029.918326
## iter 380 value 5029.337738
## iter 390 value 5029.124742
## iter 400 value 5028.767874
## iter 410 value 5028.573163
## iter 420 value 5028.307997
## iter 430 value 5027.723554
## iter 440 value 5027.479368
## iter 450 value 5027.352508
## iter 460 value 5027.309889
## iter 470 value 5027.281330
## iter 480 value 5027.266745
## iter 490 value 5027.257140
## iter 500 value 5027.254057
## final  value 5027.254057
## stopped after 500 iterations
## # weights:  574
## initial  value 18643.786290
## iter  10 value 6336.719163
## iter  20 value 5273.208757
## iter  30 value 5074.578026
## iter  40 value 4968.837946
## iter  50 value 4912.177325
## iter  60 value 4872.592575
## iter  70 value 4850.307566
## iter  80 value 4831.588160
## iter  90 value 4820.335132
## iter 100 value 4807.332770
## iter 110 value 4795.404770
## iter 120 value 4784.508012
## iter 130 value 4775.885241
## iter 140 value 4764.595579
## iter 150 value 4754.004785
## iter 160 value 4747.676835
## iter 170 value 4744.136782
## iter 180 value 4741.695559
## iter 190 value 4738.645512
## iter 200 value 4736.369133
## iter 210 value 4734.859333
## iter 220 value 4733.183303
## iter 230 value 4731.600435
## iter 240 value 4730.082195
## iter 250 value 4728.522905
## iter 260 value 4726.688169
## iter 270 value 4724.612600
## iter 280 value 4721.370340
## iter 290 value 4718.695920
## iter 300 value 4717.776546
## iter 310 value 4717.193270
## iter 320 value 4716.467964
## iter 330 value 4716.043516
## iter 340 value 4715.665901
```

```
## iter 350 value 4715.302775
## iter 360 value 4715.122809
## iter 370 value 4714.964315
## iter 380 value 4714.814693
## iter 390 value 4714.716937
## iter 400 value 4714.641706
## iter 410 value 4714.586630
## iter 420 value 4714.522596
## iter 430 value 4714.464058
## iter 440 value 4714.417571
## iter 450 value 4714.373673
## iter 460 value 4714.330410
## iter 470 value 4714.282412
## iter 480 value 4714.232821
## iter 490 value 4714.205351
## iter 500 value 4714.190778
## final  value 4714.190778
## stopped after 500 iterations
## # weights:  574
## initial  value 23530.676061
## iter  10 value 6562.291510
## iter  20 value 5483.272730
## iter  30 value 5308.387971
## iter  40 value 5200.662755
## iter  50 value 5131.721077
## iter  60 value 5088.733512
## iter  70 value 5052.417471
## iter  80 value 5016.708182
## iter  90 value 4989.419621
## iter 100 value 4967.390523
## iter 110 value 4950.446210
## iter 120 value 4934.382550
## iter 130 value 4924.428675
## iter 140 value 4915.294527
## iter 150 value 4907.136739
## iter 160 value 4897.215505
## iter 170 value 4890.116971
## iter 180 value 4884.553259
## iter 190 value 4876.260619
## iter 200 value 4869.528243
## iter 210 value 4862.979458
## iter 220 value 4856.829902
## iter 230 value 4853.756715
## iter 240 value 4851.244703
## iter 250 value 4847.689267
## iter 260 value 4843.736192
## iter 270 value 4840.322683
## iter 280 value 4837.655594
## iter 290 value 4835.650134
## iter 300 value 4834.087756
## iter 310 value 4832.871039
## iter 320 value 4831.593465
## iter 330 value 4830.606921
## iter 340 value 4829.203274
## iter 350 value 4827.834723
## iter 360 value 4826.791994
## iter 370 value 4826.090182
## iter 380 value 4825.563704
## iter 390 value 4825.090670
## iter 400 value 4824.799001
## iter 410 value 4824.599220
## iter 420 value 4824.427246
## iter 430 value 4824.218145
## iter 440 value 4824.088526
## iter 450 value 4823.933401
## iter 460 value 4823.584515
## iter 470 value 4822.886005
## iter 480 value 4822.071609
## iter 490 value 4820.831058
## iter 500 value 4819.219481
## final  value 4819.219481
## stopped after 500 iterations
## # weights:  574
## initial  value 32541.552798
## iter  10 value 5919.994790
```

```
## iter  20 value 5374.596032
## iter  30 value 5265.461474
## iter  40 value 5184.504319
## iter  50 value 5119.919286
## iter  60 value 5077.869701
## iter  70 value 5045.527390
## iter  80 value 5020.959710
## iter  90 value 4998.370290
## iter 100 value 4984.860081
## iter 110 value 4970.842021
## iter 120 value 4958.052640
## iter 130 value 4947.600663
## iter 140 value 4938.023123
## iter 150 value 4930.735902
## iter 160 value 4926.848719
## iter 170 value 4923.326003
## iter 180 value 4919.224319
## iter 190 value 4914.179506
## iter 200 value 4906.177540
## iter 210 value 4900.439752
## iter 220 value 4896.626477
## iter 230 value 4893.752784
## iter 240 value 4891.271692
## iter 250 value 4888.484643
## iter 260 value 4886.482390
## iter 270 value 4884.869835
## iter 280 value 4883.542103
## iter 290 value 4882.688874
## iter 300 value 4882.111390
## iter 310 value 4881.679733
## iter 320 value 4881.353719
## iter 330 value 4881.004592
## iter 340 value 4880.565806
## iter 350 value 4880.213283
## iter 360 value 4879.832293
## iter 370 value 4879.397805
## iter 380 value 4878.834692
## iter 390 value 4878.207247
## iter 400 value 4877.706187
## iter 410 value 4877.353079
## iter 420 value 4876.891174
## iter 430 value 4876.083822
## iter 440 value 4875.448501
## iter 450 value 4874.953562
## iter 460 value 4874.464468
## iter 470 value 4873.968693
## iter 480 value 4873.559690
## iter 490 value 4873.208639
## iter 500 value 4872.986644
## final  value 4872.986644
## stopped after 500 iterations
## # weights:  42
## initial  value 18971.351657
## iter  10 value 12436.558861
## iter  20 value 12108.400603
## iter  30 value 11996.374705
## iter  40 value 11884.665623
## iter  50 value 11642.493504
## iter  60 value 11033.121214
## iter  70 value 10580.565572
## iter  80 value 10294.475221
## iter  90 value 10113.843134
## iter 100 value 9789.572878
## iter 110 value 9713.114380
## iter 120 value 9410.169566
## iter 130 value 9116.167757
## iter 140 value 9001.605461
## iter 150 value 8992.849202
## final  value 8992.829749
## converged
## # weights:  42
## initial  value 19838.251053
## iter  10 value 13913.378216
## iter  20 value 12672.079680
## iter  30 value 12460.737778
```

```
## iter  40 value 12365.393645
## iter  50 value 12304.596014
## iter  60 value 12179.858208
## iter  70 value 11690.523692
## iter  80 value 10721.338521
## iter  90 value 10101.557343
## iter 100 value 9676.071546
## iter 110 value 9528.165011
## iter 120 value 9264.786629
## iter 130 value 9018.629657
## iter 140 value 8972.735264
## final  value 8972.054857
## converged
## # weights:  42
## initial  value 18997.537676
## iter  10 value 12312.209860
## iter  20 value 11794.256216
## iter  30 value 11500.869858
## iter  40 value 11121.628765
## iter  50 value 10300.565561
## iter  60 value 9497.121762
## iter  70 value 9445.313902
## iter  80 value 9411.884660
## iter  90 value 9400.725259
## iter 100 value 9386.046004
## iter 110 value 9367.099653
## iter 120 value 9363.292876
## iter 130 value 9357.369947
## iter 130 value 9357.369916
## iter 130 value 9357.369915
## final  value 9357.369915
## converged
## # weights:  194
## initial  value 18336.885959
## iter  10 value 8284.158831
## iter  20 value 6386.329272
## iter  30 value 6102.389182
## iter  40 value 5822.981522
## iter  50 value 5727.397924
## iter  60 value 5655.235015
## iter  70 value 5591.602748
## iter  80 value 5548.616615
## iter  90 value 5507.578406
## iter 100 value 5477.673217
## iter 110 value 5447.311635
## iter 120 value 5420.547055
## iter 130 value 5387.938333
## iter 140 value 5354.579610
## iter 150 value 5341.835028
## iter 160 value 5332.753224
## iter 170 value 5320.094746
## iter 180 value 5301.867894
## iter 190 value 5285.071434
## iter 200 value 5273.223071
## iter 210 value 5255.909466
## iter 220 value 5241.429570
## iter 230 value 5224.190109
## iter 240 value 5204.435851
## iter 250 value 5188.967111
## iter 260 value 5176.716171
## iter 270 value 5172.704452
## iter 280 value 5169.763738
## iter 290 value 5165.875224
## iter 300 value 5164.237967
## iter 310 value 5163.852780
## iter 320 value 5163.372764
## iter 330 value 5162.601139
## iter 340 value 5161.352039
## iter 350 value 5160.114649
## iter 360 value 5158.703680
## iter 370 value 5157.951643
## iter 380 value 5157.203605
## iter 390 value 5157.037171
## iter 400 value 5157.025470
## iter 410 value 5157.004990
```

```
## iter 420 value 5156.990690
## iter 430 value 5156.982185
## iter 440 value 5156.973249
## iter 450 value 5156.968465
## iter 460 value 5156.967548
## final  value 5156.967419
## converged
## # weights:  194
## initial  value 18564.580071
## iter  10 value 6383.404987
## iter  20 value 5687.803685
## iter  30 value 5604.506094
## iter  40 value 5543.181317
## iter  50 value 5473.807914
## iter  60 value 5434.239446
## iter  70 value 5416.859481
## iter  80 value 5402.811666
## iter  90 value 5392.068081
## iter 100 value 5378.670630
## iter 110 value 5370.397106
## iter 120 value 5363.130975
## iter 130 value 5354.397340
## iter 140 value 5343.377444
## iter 150 value 5334.849451
## iter 160 value 5322.259514
## iter 170 value 5310.083163
## iter 180 value 5298.322001
## iter 190 value 5288.681829
## iter 200 value 5281.589628
## iter 210 value 5268.240888
## iter 220 value 5256.333317
## iter 230 value 5249.573566
## iter 240 value 5242.556849
## iter 250 value 5238.354375
## iter 260 value 5236.775516
## iter 270 value 5235.038870
## iter 280 value 5231.739769
## iter 290 value 5229.742781
## iter 300 value 5227.167742
## iter 310 value 5223.934221
## iter 320 value 5222.940544
## iter 330 value 5222.560815
## iter 340 value 5222.385952
## iter 350 value 5222.287733
## iter 360 value 5222.282973
## final  value 5222.282384
## converged
## # weights:  194
## initial  value 25023.135860
## iter  10 value 8112.446211
## iter  20 value 6689.193356
## iter  30 value 6386.536809
## iter  40 value 6137.591815
## iter  50 value 5946.543433
## iter  60 value 5731.894662
## iter  70 value 5587.888722
## iter  80 value 5503.807209
## iter  90 value 5442.433802
## iter 100 value 5406.742036
## iter 110 value 5383.763800
## iter 120 value 5369.612578
## iter 130 value 5360.279881
## iter 140 value 5351.496968
## iter 150 value 5342.331786
## iter 160 value 5333.752185
## iter 170 value 5324.179397
## iter 180 value 5314.447592
## iter 190 value 5309.193089
## iter 200 value 5302.670800
## iter 210 value 5296.889291
## iter 220 value 5290.797365
## iter 230 value 5285.067138
## iter 240 value 5278.155615
## iter 250 value 5273.021940
## iter 260 value 5270.433591
```

```
## iter 270 value 5268.669370
## iter 280 value 5265.933729
## iter 290 value 5265.213479
## iter 300 value 5264.393155
## iter 310 value 5264.138630
## iter 320 value 5263.847848
## iter 330 value 5263.792269
## iter 340 value 5263.760948
## iter 350 value 5263.728961
## iter 360 value 5263.725095
## final  value 5263.724726
## converged
## # weights:  384
## initial  value 19331.762013
## iter  10 value 6520.798980
## iter  20 value 5345.463669
## iter  30 value 5176.584400
## iter  40 value 5093.193677
## iter  50 value 5052.338498
## iter  60 value 5022.617804
## iter  70 value 5009.552411
## iter  80 value 4995.226617
## iter  90 value 4986.316592
## iter 100 value 4977.204292
## iter 110 value 4968.354675
## iter 120 value 4964.068944
## iter 130 value 4958.214469
## iter 140 value 4951.201446
## iter 150 value 4946.967528
## iter 160 value 4943.049224
## iter 170 value 4940.511376
## iter 180 value 4938.292369
## iter 190 value 4935.633163
## iter 200 value 4933.587988
## iter 210 value 4932.090663
## iter 220 value 4931.121497
## iter 230 value 4930.409417
## iter 240 value 4929.470066
## iter 250 value 4928.321038
## iter 260 value 4927.549148
## iter 270 value 4927.052193
## iter 280 value 4926.717356
## iter 290 value 4926.397191
## iter 300 value 4925.999836
## iter 310 value 4925.617486
## iter 320 value 4925.211175
## iter 330 value 4924.808814
## iter 340 value 4924.417954
## iter 350 value 4924.194975
## iter 360 value 4924.050175
## iter 370 value 4923.924306
## iter 380 value 4923.812089
## iter 390 value 4923.740621
## iter 400 value 4923.709289
## iter 410 value 4923.692331
## iter 420 value 4923.681236
## iter 430 value 4923.669690
## iter 440 value 4923.652080
## iter 450 value 4923.628577
## iter 460 value 4923.599452
## iter 470 value 4923.572940
## iter 480 value 4923.553821
## final  value 4923.550133
## converged
## # weights:  384
## initial  value 17446.316403
## iter  10 value 6331.433032
## iter  20 value 5537.520749
## iter  30 value 5411.551581
## iter  40 value 5337.926635
## iter  50 value 5253.298794
## iter  60 value 5197.896626
## iter  70 value 5172.096766
## iter  80 value 5157.255116
## iter  90 value 5145.583983
```

```
## iter 100 value 5136.837631
## iter 110 value 5125.769767
## iter 120 value 5115.947213
## iter 130 value 5100.612899
## iter 140 value 5087.760299
## iter 150 value 5078.953370
## iter 160 value 5072.085896
## iter 170 value 5067.014173
## iter 180 value 5063.338485
## iter 190 value 5060.147203
## iter 200 value 5056.082092
## iter 210 value 5051.758373
## iter 220 value 5047.152702
## iter 230 value 5042.868646
## iter 240 value 5040.333526
## iter 250 value 5038.770427
## iter 260 value 5037.690496
## iter 270 value 5036.988240
## iter 280 value 5036.660184
## iter 290 value 5036.453817
## iter 300 value 5036.307886
## iter 310 value 5036.200670
## iter 320 value 5036.078579
## iter 330 value 5035.918672
## iter 340 value 5035.768062
## iter 350 value 5035.632086
## iter 360 value 5035.514157
## iter 370 value 5035.408511
## iter 380 value 5035.323427
## iter 390 value 5034.759174
## iter 400 value 5033.554256
## iter 410 value 5032.676722
## iter 420 value 5032.255572
## iter 430 value 5031.900259
## iter 440 value 5031.528460
## iter 450 value 5031.267109
## iter 460 value 5031.069699
## iter 470 value 5030.608797
## iter 480 value 5028.338483
## iter 490 value 5024.791903
## iter 500 value 5022.172574
## final  value 5022.172574
## stopped after 500 iterations
## # weights:  384
## initial  value 16543.859905
## iter  10 value 6185.593778
## iter  20 value 5586.982674
## iter  30 value 5495.197783
## iter  40 value 5441.580051
## iter  50 value 5344.095077
## iter  60 value 5270.847477
## iter  70 value 5241.479727
## iter  80 value 5224.629215
## iter  90 value 5211.069581
## iter 100 value 5198.614572
## iter 110 value 5184.216518
## iter 120 value 5171.615448
## iter 130 value 5159.584284
## iter 140 value 5149.924792
## iter 150 value 5140.659832
## iter 160 value 5132.419302
## iter 170 value 5127.040609
## iter 180 value 5119.448679
## iter 190 value 5104.806104
## iter 200 value 5089.928457
## iter 210 value 5080.886729
## iter 220 value 5074.476259
## iter 230 value 5069.935671
## iter 240 value 5067.172945
## iter 250 value 5065.800863
## iter 260 value 5064.620193
## iter 270 value 5063.466007
## iter 280 value 5062.434492
## iter 290 value 5061.465047
## iter 300 value 5060.426893
```

```
## iter 310 value 5059.275148
## iter 320 value 5058.421861
## iter 330 value 5057.698238
## iter 340 value 5057.126414
## iter 350 value 5056.697431
## iter 360 value 5056.308822
## iter 370 value 5055.943509
## iter 380 value 5055.634844
## iter 390 value 5055.227200
## iter 400 value 5054.222384
## iter 410 value 5052.526188
## iter 420 value 5051.709926
## iter 430 value 5051.050257
## iter 440 value 5050.275731
## iter 450 value 5049.574683
## iter 460 value 5048.999792
## iter 470 value 5048.738965
## iter 480 value 5048.632905
## iter 490 value 5048.571606
## iter 500 value 5048.511991
## final  value 5048.511991
## stopped after 500 iterations
## # weights:  574
## initial  value 19842.419216
## iter  10 value 6153.427607
## iter  20 value 5362.109956
## iter  30 value 5182.319575
## iter  40 value 5044.841356
## iter  50 value 4971.892915
## iter  60 value 4920.732404
## iter  70 value 4879.388516
## iter  80 value 4850.906971
## iter  90 value 4831.410895
## iter 100 value 4821.621221
## iter 110 value 4806.552248
## iter 120 value 4791.520424
## iter 130 value 4783.162174
## iter 140 value 4769.993239
## iter 150 value 4761.010351
## iter 160 value 4753.242041
## iter 170 value 4747.507661
## iter 180 value 4741.669494
## iter 190 value 4735.296527
## iter 200 value 4728.028768
## iter 210 value 4720.856029
## iter 220 value 4717.394096
## iter 230 value 4715.331462
## iter 240 value 4712.227075
## iter 250 value 4709.137022
## iter 260 value 4705.495863
## iter 270 value 4702.526795
## iter 280 value 4701.174420
## iter 290 value 4700.061934
## iter 300 value 4698.881401
## iter 310 value 4698.064322
## iter 320 value 4697.334310
## iter 330 value 4696.729383
## iter 340 value 4696.151645
## iter 350 value 4695.575281
## iter 360 value 4695.086793
## iter 370 value 4694.729926
## iter 380 value 4694.380339
## iter 390 value 4694.092601
## iter 400 value 4693.888983
## iter 410 value 4693.731543
## iter 420 value 4693.581999
## iter 430 value 4693.398791
## iter 440 value 4693.205765
## iter 450 value 4693.040952
## iter 460 value 4692.939392
## iter 470 value 4692.828629
## iter 480 value 4692.668711
## iter 490 value 4692.493408
## iter 500 value 4692.366497
## final  value 4692.366497
```

```
## stopped after 500 iterations
## # weights:  574
## initial  value 18346.414113
## iter  10 value 6393.727911
## iter  20 value 5451.252384
## iter  30 value 5289.205605
## iter  40 value 5229.956397
## iter  50 value 5157.079226
## iter  60 value 5064.282686
## iter  70 value 5010.605590
## iter  80 value 4975.802602
## iter  90 value 4952.014399
## iter 100 value 4932.028386
## iter 110 value 4914.596391
## iter 120 value 4898.181594
## iter 130 value 4885.210559
## iter 140 value 4875.534642
## iter 150 value 4869.950200
## iter 160 value 4867.043303
## iter 170 value 4864.255237
## iter 180 value 4861.315583
## iter 190 value 4858.262905
## iter 200 value 4855.420279
## iter 210 value 4852.745574
## iter 220 value 4849.133282
## iter 230 value 4845.918448
## iter 240 value 4841.588783
## iter 250 value 4837.782390
## iter 260 value 4833.836691
## iter 270 value 4829.616292
## iter 280 value 4827.403763
## iter 290 value 4825.887846
## iter 300 value 4824.752196
## iter 310 value 4823.894678
## iter 320 value 4823.391026
## iter 330 value 4822.993033
## iter 340 value 4822.601063
## iter 350 value 4822.067204
## iter 360 value 4821.599708
## iter 370 value 4821.227869
## iter 380 value 4820.892825
## iter 390 value 4820.376365
## iter 400 value 4819.824112
## iter 410 value 4819.247404
## iter 420 value 4818.591531
## iter 430 value 4818.024778
## iter 440 value 4817.586132
## iter 450 value 4817.357977
## iter 460 value 4817.236233
## iter 470 value 4817.131759
## iter 480 value 4817.035940
## iter 490 value 4816.915640
## iter 500 value 4816.755150
## final  value 4816.755150
## stopped after 500 iterations
## # weights:  574
## initial  value 20804.914567
## iter  10 value 6531.258837
## iter  20 value 5572.076727
## iter  30 value 5390.196855
## iter  40 value 5279.297204
## iter  50 value 5204.325636
## iter  60 value 5159.372381
## iter  70 value 5125.852287
## iter  80 value 5084.594449
## iter  90 value 5048.362215
## iter 100 value 5018.553889
## iter 110 value 4995.883854
## iter 120 value 4977.413279
## iter 130 value 4966.910545
## iter 140 value 4959.326281
## iter 150 value 4953.263400
## iter 160 value 4950.670048
## iter 170 value 4947.590142
## iter 180 value 4941.200356
```

```
## iter 190 value 4934.356531
## iter 200 value 4926.650331
## iter 210 value 4921.141985
## iter 220 value 4916.911427
## iter 230 value 4913.166894
## iter 240 value 4910.494369
## iter 250 value 4908.514282
## iter 260 value 4906.958648
## iter 270 value 4905.897680
## iter 280 value 4904.898979
## iter 290 value 4903.692859
## iter 300 value 4902.714839
## iter 310 value 4901.449441
## iter 320 value 4900.405726
## iter 330 value 4899.660701
## iter 340 value 4899.048031
## iter 350 value 4898.487927
## iter 360 value 4897.995639
## iter 370 value 4897.578168
## iter 380 value 4897.221593
## iter 390 value 4896.933892
## iter 400 value 4896.709522
## iter 410 value 4896.467717
## iter 420 value 4896.042359
## iter 430 value 4895.474945
## iter 440 value 4894.666821
## iter 450 value 4894.034466
## iter 460 value 4893.612184
## iter 470 value 4893.168748
## iter 480 value 4892.788624
## iter 490 value 4892.316078
## iter 500 value 4891.753338
## final  value 4891.753338
## stopped after 500 iterations
## # weights:  42
## initial  value 17130.534555
## iter  10 value 12270.307740
## iter  20 value 11747.536916
## iter  30 value 11581.645640
## iter  40 value 11458.669009
## iter  50 value 11054.214942
## iter  60 value 10133.766941
## iter  70 value 9622.511123
## iter  80 value 9225.525249
## iter  90 value 9146.913351
## iter 100 value 9079.580998
## iter 110 value 9072.056108
## iter 120 value 9056.378271
## iter 130 value 9032.750181
## final  value 9032.292537
## converged
## # weights:  42
## initial  value 20639.483103
## iter  10 value 14071.084362
## iter  20 value 13166.690783
## iter  30 value 12587.406564
## iter  40 value 11855.680765
## iter  50 value 11107.646655
## iter  60 value 10930.903799
## iter  70 value 10704.915812
## iter  80 value 10450.947439
## iter  90 value 9665.840558
## iter 100 value 9060.765072
## iter 110 value 9024.908520
## iter 120 value 9004.721712
## iter 130 value 8998.842077
## iter 140 value 8997.931206
## iter 150 value 8997.610923
## iter 160 value 8997.290135
## final  value 8996.982834
## converged
## # weights:  42
## initial  value 21906.448438
## iter  10 value 14812.188860
## iter  20 value 13539.172886
```

```
## iter  30 value 12274.963882
## iter  40 value 11566.867540
## iter  50 value 11168.339999
## iter  60 value 10322.135893
## iter  70 value 9615.018139
## iter  80 value 9476.261435
## iter  90 value 9441.865336
## iter 100 value 9396.329178
## iter 110 value 9392.458882
## iter 120 value 9385.686092
## iter 130 value 9383.247716
## final  value 9383.247526
## converged
## # weights:  194
## initial  value 20669.188866
## iter  10 value 7980.355731
## iter  20 value 6552.971606
## iter  30 value 6212.125612
## iter  40 value 6015.763064
## iter  50 value 5801.105390
## iter  60 value 5644.273423
## iter  70 value 5507.424988
## iter  80 value 5410.089883
## iter  90 value 5352.251926
## iter 100 value 5313.159127
## iter 110 value 5289.630204
## iter 120 value 5273.198612
## iter 130 value 5253.873826
## iter 140 value 5229.585252
## iter 150 value 5217.018802
## iter 160 value 5210.522010
## iter 170 value 5202.903901
## iter 180 value 5196.527965
## iter 190 value 5191.792669
## iter 200 value 5188.157652
## iter 210 value 5184.102713
## iter 220 value 5177.899594
## iter 230 value 5175.111515
## iter 240 value 5174.066528
## iter 250 value 5173.183533
## iter 260 value 5172.778836
## iter 270 value 5172.603398
## iter 280 value 5172.371102
## iter 290 value 5166.597149
## iter 300 value 5160.684175
## iter 310 value 5158.031360
## iter 320 value 5155.549854
## iter 330 value 5154.338342
## iter 340 value 5153.507290
## iter 350 value 5152.972082
## iter 360 value 5152.677280
## iter 370 value 5152.453705
## iter 380 value 5152.375430
## iter 390 value 5152.315500
## iter 400 value 5152.299366
## iter 410 value 5152.274105
## iter 420 value 5152.258124
## iter 430 value 5152.253146
## iter 440 value 5152.248886
## iter 450 value 5152.247157
## iter 460 value 5152.245887
## final  value 5152.244831
## converged
## # weights:  194
## initial  value 19279.016836
## iter  10 value 6814.230610
## iter  20 value 5955.778164
## iter  30 value 5804.903245
## iter  40 value 5619.376109
## iter  50 value 5537.899459
## iter  60 value 5470.561630
## iter  70 value 5413.551581
## iter  80 value 5373.128669
## iter  90 value 5348.452120
## iter 100 value 5325.938058
```

```
## iter 110 value 5311.196088
## iter 120 value 5301.662005
## iter 130 value 5293.863640
## iter 140 value 5289.107340
## iter 150 value 5284.271283
## iter 160 value 5279.036972
## iter 170 value 5274.736096
## iter 180 value 5271.667749
## iter 190 value 5268.076303
## iter 200 value 5265.373930
## iter 210 value 5262.901576
## iter 220 value 5261.200363
## iter 230 value 5259.922902
## iter 240 value 5259.078036
## iter 250 value 5258.706638
## iter 260 value 5258.493626
## iter 270 value 5258.375899
## iter 280 value 5258.239396
## iter 290 value 5255.113048
## iter 300 value 5250.959667
## iter 310 value 5250.066144
## iter 320 value 5249.863982
## iter 330 value 5249.796804
## iter 340 value 5249.757079
## iter 340 value 5249.757037
## iter 340 value 5249.757036
## final  value 5249.757036
## converged
## # weights:  194
## initial  value 18520.345720
## iter  10 value 7013.555312
## iter  20 value 5800.497144
## iter  30 value 5641.698243
## iter  40 value 5575.695622
## iter  50 value 5515.502858
## iter  60 value 5471.146479
## iter  70 value 5424.576783
## iter  80 value 5384.575256
## iter  90 value 5361.435164
## iter 100 value 5343.183646
## iter 110 value 5326.070789
## iter 120 value 5314.360696
## iter 130 value 5307.600698
## iter 140 value 5303.906390
## iter 150 value 5300.270091
## iter 160 value 5298.973460
## iter 170 value 5298.002535
## iter 180 value 5297.152683
## iter 190 value 5296.354357
## iter 200 value 5295.348285
## iter 210 value 5294.291778
## iter 220 value 5293.222688
## iter 230 value 5291.567334
## iter 240 value 5291.068463
## iter 250 value 5291.001730
## iter 260 value 5290.981469
## final  value 5290.980670
## converged
## # weights:  384
## initial  value 22469.058563
## iter  10 value 6687.557767
## iter  20 value 5545.936863
## iter  30 value 5387.543538
## iter  40 value 5326.016063
## iter  50 value 5253.892184
## iter  60 value 5199.376398
## iter  70 value 5178.265829
## iter  80 value 5153.496428
## iter  90 value 5130.502165
## iter 100 value 5107.972797
## iter 110 value 5092.916695
## iter 120 value 5083.523574
## iter 130 value 5073.172798
## iter 140 value 5060.631259
## iter 150 value 5049.839184
```

```
## iter 160 value 5038.438405
## iter 170 value 5032.804134
## iter 180 value 5027.004410
## iter 190 value 5017.239948
## iter 200 value 5005.854693
## iter 210 value 4994.484150
## iter 220 value 4986.500845
## iter 230 value 4982.701507
## iter 240 value 4980.442991
## iter 250 value 4977.434832
## iter 260 value 4972.197163
## iter 270 value 4967.617254
## iter 280 value 4965.253393
## iter 290 value 4963.895234
## iter 300 value 4963.167955
## iter 310 value 4962.757599
## iter 320 value 4961.980944
## iter 330 value 4960.429234
## iter 340 value 4959.765928
## iter 350 value 4959.309897
## iter 360 value 4958.909936
## iter 370 value 4958.520858
## iter 380 value 4958.274105
## iter 390 value 4957.849904
## iter 400 value 4956.840672
## iter 410 value 4956.176102
## iter 420 value 4955.590821
## iter 430 value 4954.983248
## iter 440 value 4954.431656
## iter 450 value 4954.161057
## iter 460 value 4954.061117
## iter 470 value 4953.999737
## iter 480 value 4953.939251
## iter 490 value 4953.804444
## iter 500 value 4953.694654
## final  value 4953.694654
## stopped after 500 iterations
## # weights:  384
## initial  value 27291.812820
## iter  10 value 6157.903361
## iter  20 value 5408.570799
## iter  30 value 5263.073751
## iter  40 value 5192.703407
## iter  50 value 5139.598160
## iter  60 value 5110.666670
## iter  70 value 5086.501808
## iter  80 value 5068.162637
## iter  90 value 5055.567125
## iter 100 value 5046.846503
## iter 110 value 5040.242615
## iter 120 value 5034.891926
## iter 130 value 5031.069355
## iter 140 value 5027.612345
## iter 150 value 5025.089338
## iter 160 value 5022.267510
## iter 170 value 5020.014277
## iter 180 value 5018.008758
## iter 190 value 5016.506814
## iter 200 value 5015.171555
## iter 210 value 5013.620824
## iter 220 value 5012.246638
## iter 230 value 5010.882814
## iter 240 value 5009.250197
## iter 250 value 5008.008272
## iter 260 value 5006.385678
## iter 270 value 5003.902531
## iter 280 value 5001.771373
## iter 290 value 5000.698586
## iter 300 value 4999.903076
## iter 310 value 4999.255478
## iter 320 value 4998.413624
## iter 330 value 4997.649339
## iter 340 value 4996.711412
## iter 350 value 4995.714008
## iter 360 value 4994.692714
```

```
## iter 370 value 4993.931511
## iter 380 value 4993.239263
## iter 390 value 4992.701573
## iter 400 value 4992.232726
## iter 410 value 4991.913029
## iter 420 value 4991.669618
## iter 430 value 4991.444511
## iter 440 value 4991.279186
## iter 450 value 4990.751801
## iter 460 value 4990.409059
## iter 470 value 4990.125591
## iter 480 value 4989.871562
## iter 490 value 4989.775883
## iter 500 value 4989.755071
## final  value 4989.755071
## stopped after 500 iterations
## # weights:  384
## initial  value 22696.663062
## iter  10 value 7539.856989
## iter  20 value 6237.616468
## iter  30 value 5937.214454
## iter  40 value 5710.038306
## iter  50 value 5516.354632
## iter  60 value 5397.272780
## iter  70 value 5334.297253
## iter  80 value 5269.243144
## iter  90 value 5225.494877
## iter 100 value 5197.837853
## iter 110 value 5167.730836
## iter 120 value 5151.632150
## iter 130 value 5133.991094
## iter 140 value 5122.783389
## iter 150 value 5114.984939
## iter 160 value 5109.876546
## iter 170 value 5101.535536
## iter 180 value 5093.938455
## iter 190 value 5090.043806
## iter 200 value 5087.991709
## iter 210 value 5085.621982
## iter 220 value 5083.167599
## iter 230 value 5081.024997
## iter 240 value 5078.812632
## iter 250 value 5076.973818
## iter 260 value 5075.732690
## iter 270 value 5074.810903
## iter 280 value 5074.056820
## iter 290 value 5073.458218
## iter 300 value 5072.967161
## iter 310 value 5072.324886
## iter 320 value 5071.845932
## iter 330 value 5071.312815
## iter 340 value 5070.817061
## iter 350 value 5070.173923
## iter 360 value 5069.312411
## iter 370 value 5068.490578
## iter 380 value 5067.672462
## iter 390 value 5066.889564
## iter 400 value 5066.387716
## iter 410 value 5066.035572
## iter 420 value 5065.708190
## iter 430 value 5065.535028
## iter 440 value 5065.451137
## iter 450 value 5065.393386
## iter 460 value 5065.339428
## iter 470 value 5065.247339
## iter 480 value 5065.191394
## iter 490 value 5065.150635
## iter 500 value 5065.132718
## final  value 5065.132718
## stopped after 500 iterations
## # weights:  574
## initial  value 19501.062688
## iter  10 value 6103.468539
## iter  20 value 5250.722997
## iter  30 value 5073.856936
```

```
## iter  40 value 4951.013697
## iter  50 value 4874.197452
## iter  60 value 4838.657314
## iter  70 value 4819.539849
## iter  80 value 4811.802322
## iter  90 value 4800.296494
## iter 100 value 4792.606948
## iter 110 value 4784.483941
## iter 120 value 4777.870640
## iter 130 value 4772.167028
## iter 140 value 4767.259761
## iter 150 value 4762.049913
## iter 160 value 4758.477798
## iter 170 value 4755.392048
## iter 180 value 4752.300886
## iter 190 value 4749.783328
## iter 200 value 4748.888211
## iter 210 value 4748.133427
## iter 220 value 4747.447090
## iter 230 value 4746.944532
## iter 240 value 4746.490709
## iter 250 value 4746.142591
## iter 260 value 4745.887845
## iter 270 value 4745.645544
## iter 280 value 4745.480465
## iter 290 value 4745.352090
## iter 300 value 4745.205286
## iter 310 value 4745.042780
## iter 320 value 4744.910959
## iter 330 value 4744.817625
## iter 340 value 4744.733622
## iter 350 value 4744.629411
## iter 360 value 4744.549246
## iter 370 value 4744.491808
## iter 380 value 4744.425706
## iter 390 value 4744.293626
## iter 400 value 4743.854175
## iter 410 value 4743.110741
## iter 420 value 4741.994744
## iter 430 value 4741.526751
## iter 440 value 4741.259521
## iter 450 value 4741.082689
## iter 460 value 4740.973536
## iter 470 value 4740.898906
## iter 480 value 4740.808491
## iter 490 value 4740.721831
## iter 500 value 4740.675302
## final  value 4740.675302
## stopped after 500 iterations
## # weights:  574
## initial  value 18498.677797
## iter  10 value 5926.022986
## iter  20 value 5357.002190
## iter  30 value 5245.269317
## iter  40 value 5123.395267
## iter  50 value 5053.245704
## iter  60 value 5019.675734
## iter  70 value 4994.469680
## iter  80 value 4976.465158
## iter  90 value 4959.213271
## iter 100 value 4946.819488
## iter 110 value 4934.474614
## iter 120 value 4920.787864
## iter 130 value 4908.700336
## iter 140 value 4895.179786
## iter 150 value 4885.413016
## iter 160 value 4877.037899
## iter 170 value 4870.485523
## iter 180 value 4864.589320
## iter 190 value 4859.364118
## iter 200 value 4855.384968
## iter 210 value 4852.363917
## iter 220 value 4849.333176
## iter 230 value 4845.935591
## iter 240 value 4843.695694
```

```
## iter 250 value 4841.785588
## iter 260 value 4839.808655
## iter 270 value 4837.844601
## iter 280 value 4836.248437
## iter 290 value 4834.947307
## iter 300 value 4833.924201
## iter 310 value 4833.305571
## iter 320 value 4832.887069
## iter 330 value 4832.471130
## iter 340 value 4832.157024
## iter 350 value 4831.800783
## iter 360 value 4831.330887
## iter 370 value 4830.815377
## iter 380 value 4830.353267
## iter 390 value 4830.073323
## iter 400 value 4829.884517
## iter 410 value 4829.667445
## iter 420 value 4829.448208
## iter 430 value 4829.334011
## iter 440 value 4829.090298
## iter 450 value 4828.847514
## iter 460 value 4828.523024
## iter 470 value 4828.103295
## iter 480 value 4827.693653
## iter 490 value 4827.423176
## iter 500 value 4827.251644
## final  value 4827.251644
## stopped after 500 iterations
## # weights:  574
## initial  value 17797.456320
## iter  10 value 6618.815240
## iter  20 value 5681.950787
## iter  30 value 5493.855367
## iter  40 value 5336.217583
## iter  50 value 5232.049471
## iter  60 value 5163.306758
## iter  70 value 5112.196083
## iter  80 value 5071.539220
## iter  90 value 5045.378057
## iter 100 value 5023.143661
## iter 110 value 5007.551297
## iter 120 value 4997.235247
## iter 130 value 4989.980219
## iter 140 value 4984.341504
## iter 150 value 4977.986897
## iter 160 value 4969.557298
## iter 170 value 4964.718175
## iter 180 value 4961.618059
## iter 190 value 4959.589186
## iter 200 value 4957.818508
## iter 210 value 4956.542543
## iter 220 value 4955.184500
## iter 230 value 4953.215980
## iter 240 value 4951.163486
## iter 250 value 4949.185892
## iter 260 value 4946.840219
## iter 270 value 4944.897605
## iter 280 value 4943.107279
## iter 290 value 4941.594710
## iter 300 value 4940.460032
## iter 310 value 4939.009469
## iter 320 value 4937.197737
## iter 330 value 4935.472905
## iter 340 value 4933.797302
## iter 350 value 4931.863171
## iter 360 value 4930.034442
## iter 370 value 4928.188748
## iter 380 value 4926.243862
## iter 390 value 4923.714200
## iter 400 value 4920.125226
## iter 410 value 4917.129003
## iter 420 value 4915.884651
## iter 430 value 4915.090311
## iter 440 value 4914.570678
## iter 450 value 4913.927552
```

```
## iter 460 value 4913.472995
## iter 470 value 4912.655952
## iter 480 value 4911.733305
## iter 490 value 4911.307893
## iter 500 value 4910.897611
## final  value 4910.897611
## stopped after 500 iterations
## # weights:  42
## initial  value 19135.088556
## iter  10 value 14126.562162
## iter  20 value 12717.483147
## iter  30 value 12075.698634
## iter  40 value 11807.408397
## iter  50 value 11661.041885
## iter  60 value 11508.757386
## iter  70 value 10956.519787
## iter  80 value 10154.841484
## iter  90 value 9590.983028
## iter 100 value 9430.081550
## iter 110 value 9357.110754
## iter 120 value 9146.483865
## iter 130 value 9052.080946
## iter 140 value 9020.168798
## final  value 9020.159738
## converged
## # weights:  42
## initial  value 17198.571862
## iter  10 value 12717.930672
## iter  20 value 12041.017137
## iter  30 value 11235.172717
## iter  40 value 10864.797006
## iter  50 value 10369.504783
## iter  60 value 9392.577594
## iter  70 value 9180.553683
## iter  80 value 9090.353411
## iter  90 value 9026.746480
## iter 100 value 9001.490163
## iter 110 value 8988.393697
## iter 120 value 8983.854760
## iter 130 value 8974.334672
## iter 130 value 8974.334615
## iter 130 value 8974.334614
## final  value 8974.334614
## converged
## # weights:  42
## initial  value 20361.607890
## iter  10 value 15253.641414
## iter  20 value 13984.451933
## iter  30 value 13016.510290
## iter  40 value 12029.916070
## iter  50 value 11360.032379
## iter  60 value 10605.962379
## iter  70 value 9845.158803
## iter  80 value 9690.852832
## iter  90 value 9584.774445
## iter 100 value 9481.781250
## iter 110 value 9453.537725
## iter 120 value 9411.654652
## iter 130 value 9372.937408
## final  value 9372.809436
## converged
## # weights:  194
## initial  value 22636.789640
## iter  10 value 8037.036955
## iter  20 value 6452.799928
## iter  30 value 6036.342886
## iter  40 value 5796.206867
## iter  50 value 5616.499780
## iter  60 value 5522.937332
## iter  70 value 5459.769565
## iter  80 value 5406.094887
## iter  90 value 5353.298720
## iter 100 value 5323.766700
## iter 110 value 5299.406064
## iter 120 value 5266.544460
```

```
## iter 130 value 5249.932134
## iter 140 value 5239.354452
## iter 150 value 5230.985043
## iter 160 value 5225.490773
## iter 170 value 5219.633236
## iter 180 value 5214.488609
## iter 190 value 5210.796243
## iter 200 value 5208.017274
## iter 210 value 5200.832014
## iter 220 value 5194.561167
## iter 230 value 5190.665045
## iter 240 value 5186.983968
## iter 250 value 5183.955782
## iter 260 value 5176.703810
## iter 270 value 5166.910615
## iter 280 value 5163.024991
## iter 290 value 5159.836513
## iter 300 value 5158.057415
## iter 310 value 5155.465913
## iter 320 value 5154.416811
## iter 330 value 5153.790550
## iter 340 value 5152.869595
## iter 350 value 5152.421014
## iter 360 value 5152.181972
## iter 370 value 5152.149225
## iter 380 value 5152.141398
## iter 390 value 5152.133096
## iter 390 value 5152.133053
## final  value 5152.133053
## converged
## # weights:  194
## initial  value 23876.280710
## iter  10 value 7058.357699
## iter  20 value 5991.741926
## iter  30 value 5787.518304
## iter  40 value 5646.720808
## iter  50 value 5536.530739
## iter  60 value 5482.691927
## iter  70 value 5452.054484
## iter  80 value 5436.420361
## iter  90 value 5423.551250
## iter 100 value 5411.607903
## iter 110 value 5399.043820
## iter 120 value 5378.569346
## iter 130 value 5363.085555
## iter 140 value 5352.686098
## iter 150 value 5345.433674
## iter 160 value 5337.274773
## iter 170 value 5325.587635
## iter 180 value 5300.015294
## iter 190 value 5273.179148
## iter 200 value 5262.160476
## iter 210 value 5253.697471
## iter 220 value 5245.451934
## iter 230 value 5240.460564
## iter 240 value 5235.525364
## iter 250 value 5232.817742
## iter 260 value 5230.907196
## iter 270 value 5228.715550
## iter 280 value 5223.046973
## iter 290 value 5220.896101
## iter 300 value 5219.639428
## iter 310 value 5218.504998
## iter 320 value 5217.589514
## iter 330 value 5216.945385
## iter 340 value 5216.596581
## iter 350 value 5216.283070
## iter 360 value 5216.216586
## iter 370 value 5216.202807
## iter 380 value 5216.194625
## iter 390 value 5216.193100
## iter 390 value 5216.193089
## final  value 5216.193089
## converged
## # weights:  194
```

```
## initial  value 25849.533583
## iter  10 value 7366.430853
## iter  20 value 6376.355315
## iter  30 value 6095.739739
## iter  40 value 5973.255569
## iter  50 value 5856.453027
## iter  60 value 5774.003317
## iter  70 value 5717.719220
## iter  80 value 5669.311052
## iter  90 value 5604.692000
## iter 100 value 5540.124449
## iter 110 value 5468.552896
## iter 120 value 5420.853857
## iter 130 value 5391.436668
## iter 140 value 5371.475659
## iter 150 value 5362.463459
## iter 160 value 5357.696600
## iter 170 value 5354.914136
## iter 180 value 5351.271228
## iter 190 value 5344.685142
## iter 200 value 5337.522989
## iter 210 value 5329.509340
## iter 220 value 5315.102712
## iter 230 value 5299.764869
## iter 240 value 5287.913079
## iter 250 value 5281.364181
## iter 260 value 5272.068666
## iter 270 value 5268.416057
## iter 280 value 5267.649104
## iter 290 value 5266.703012
## iter 300 value 5266.076546
## iter 310 value 5265.707231
## iter 320 value 5265.342999
## iter 330 value 5265.319468
## iter 340 value 5265.281214
## iter 350 value 5265.263369
## final  value 5265.260573
## converged
## # weights:  384
## initial  value 17655.607397
## iter  10 value 7811.213106
## iter  20 value 6276.969574
## iter  30 value 5747.511586
## iter  40 value 5571.096083
## iter  50 value 5427.149431
## iter  60 value 5350.499072
## iter  70 value 5291.504910
## iter  80 value 5238.039706
## iter  90 value 5200.869556
## iter 100 value 5162.666826
## iter 110 value 5117.199884
## iter 120 value 5083.281444
## iter 130 value 5061.584483
## iter 140 value 5046.438286
## iter 150 value 5030.661419
## iter 160 value 5013.346072
## iter 170 value 4993.725404
## iter 180 value 4978.605639
## iter 190 value 4968.891282
## iter 200 value 4961.404227
## iter 210 value 4952.260787
## iter 220 value 4941.604331
## iter 230 value 4934.561969
## iter 240 value 4930.126344
## iter 250 value 4926.038752
## iter 260 value 4921.480996
## iter 270 value 4916.644041
## iter 280 value 4912.506698
## iter 290 value 4910.690241
## iter 300 value 4909.285057
## iter 310 value 4908.165425
## iter 320 value 4907.394618
## iter 330 value 4906.804670
## iter 340 value 4906.341434
## iter 350 value 4905.841263
```

```
## iter 360 value 4905.290118
## iter 370 value 4904.889850
## iter 380 value 4904.467420
## iter 390 value 4903.917801
## iter 400 value 4903.118768
## iter 410 value 4902.145445
## iter 420 value 4901.419389
## iter 430 value 4899.053747
## iter 440 value 4893.762748
## iter 450 value 4889.058355
## iter 460 value 4885.979437
## iter 470 value 4884.012112
## iter 480 value 4882.957129
## iter 490 value 4882.450009
## iter 500 value 4881.919684
## final  value 4881.919684
## stopped after 500 iterations
## # weights:  384
## initial  value 18833.554157
## iter  10 value 6567.452544
## iter  20 value 5579.590678
## iter  30 value 5407.550534
## iter  40 value 5299.619960
## iter  50 value 5239.229651
## iter  60 value 5217.957261
## iter  70 value 5194.843652
## iter  80 value 5164.486952
## iter  90 value 5141.877089
## iter 100 value 5128.120569
## iter 110 value 5116.961663
## iter 120 value 5108.769833
## iter 130 value 5101.421722
## iter 140 value 5094.650844
## iter 150 value 5088.263614
## iter 160 value 5082.122668
## iter 170 value 5077.385507
## iter 180 value 5073.748025
## iter 190 value 5070.872626
## iter 200 value 5066.874744
## iter 210 value 5062.119411
## iter 220 value 5057.806150
## iter 230 value 5053.052197
## iter 240 value 5048.354816
## iter 250 value 5044.886677
## iter 260 value 5042.394769
## iter 270 value 5039.783683
## iter 280 value 5036.716482
## iter 290 value 5034.114796
## iter 300 value 5031.660355
## iter 310 value 5029.832467
## iter 320 value 5028.579251
## iter 330 value 5027.394882
## iter 340 value 5026.516178
## iter 350 value 5025.888398
## iter 360 value 5025.429984
## iter 370 value 5025.006780
## iter 380 value 5024.544803
## iter 390 value 5024.195830
## iter 400 value 5023.945629
## iter 410 value 5023.752331
## iter 420 value 5023.567884
## iter 430 value 5022.913241
## iter 440 value 5022.247496
## iter 450 value 5021.883848
## iter 460 value 5021.505560
## iter 470 value 5021.109731
## iter 480 value 5019.891023
## iter 490 value 5016.471158
## iter 500 value 5014.170517
## final  value 5014.170517
## stopped after 500 iterations
## # weights:  384
## initial  value 20404.320521
## iter  10 value 7195.153505
## iter  20 value 5439.286437
```

```
## iter  30 value 5312.669971
## iter  40 value 5270.144891
## iter  50 value 5225.020002
## iter  60 value 5201.706036
## iter  70 value 5184.762877
## iter  80 value 5172.834212
## iter  90 value 5160.819177
## iter 100 value 5154.407654
## iter 110 value 5147.822876
## iter 120 value 5141.790770
## iter 130 value 5137.115476
## iter 140 value 5131.110933
## iter 150 value 5122.043271
## iter 160 value 5116.242588
## iter 170 value 5107.326214
## iter 180 value 5103.492384
## iter 190 value 5099.721257
## iter 200 value 5095.206463
## iter 210 value 5089.506509
## iter 220 value 5084.351375
## iter 230 value 5081.245145
## iter 240 value 5078.280277
## iter 250 value 5073.191100
## iter 260 value 5066.552377
## iter 270 value 5062.449715
## iter 280 value 5058.745592
## iter 290 value 5055.624256
## iter 300 value 5054.335795
## iter 310 value 5053.284559
## iter 320 value 5051.156739
## iter 330 value 5047.563852
## iter 340 value 5045.641720
## iter 350 value 5044.747944
## iter 360 value 5043.953596
## iter 370 value 5043.287722
## iter 380 value 5042.559672
## iter 390 value 5041.385735
## iter 400 value 5039.972638
## iter 410 value 5037.629695
## iter 420 value 5035.931874
## iter 430 value 5034.792757
## iter 440 value 5033.084518
## iter 450 value 5031.826020
## iter 460 value 5031.285861
## iter 470 value 5030.863714
## iter 480 value 5030.509783
## iter 490 value 5030.091930
## iter 500 value 5029.923613
## final  value 5029.923613
## stopped after 500 iterations
## # weights:  574
## initial  value 23995.898735
## iter  10 value 5970.566702
## iter  20 value 5247.691891
## iter  30 value 5048.009631
## iter  40 value 4956.594895
## iter  50 value 4887.640447
## iter  60 value 4841.920908
## iter  70 value 4809.794840
## iter  80 value 4794.213496
## iter  90 value 4775.872426
## iter 100 value 4766.685598
## iter 110 value 4756.975481
## iter 120 value 4746.561608
## iter 130 value 4736.293410
## iter 140 value 4726.189141
## iter 150 value 4715.856018
## iter 160 value 4709.163195
## iter 170 value 4704.525218
## iter 180 value 4700.810474
## iter 190 value 4698.030119
## iter 200 value 4695.685280
## iter 210 value 4693.968868
## iter 220 value 4692.634537
## iter 230 value 4691.883810
```

```
## iter 240 value 4691.350726
## iter 250 value 4690.694329
## iter 260 value 4690.113564
## iter 270 value 4689.664281
## iter 280 value 4689.090000
## iter 290 value 4688.334694
## iter 300 value 4687.352435
## iter 310 value 4686.528948
## iter 320 value 4686.043649
## iter 330 value 4685.386516
## iter 340 value 4684.520676
## iter 350 value 4683.636988
## iter 360 value 4682.730372
## iter 370 value 4681.968139
## iter 380 value 4681.263639
## iter 390 value 4680.607394
## iter 400 value 4679.994283
## iter 410 value 4678.863427
## iter 420 value 4676.587619
## iter 430 value 4674.415982
## iter 440 value 4671.806002
## iter 450 value 4668.422914
## iter 460 value 4666.245876
## iter 470 value 4664.703986
## iter 480 value 4663.530883
## iter 490 value 4662.079886
## iter 500 value 4660.985753
## final  value 4660.985753
## stopped after 500 iterations
## # weights:  574
## initial  value 28577.890773
## iter  10 value 7610.292300
## iter  20 value 5776.608709
## iter  30 value 5519.959628
## iter  40 value 5362.669072
## iter  50 value 5243.112285
## iter  60 value 5153.395768
## iter  70 value 5079.236735
## iter  80 value 5019.333683
## iter  90 value 4980.709093
## iter 100 value 4956.712216
## iter 110 value 4943.686476
## iter 120 value 4937.150378
## iter 130 value 4930.233383
## iter 140 value 4920.858032
## iter 150 value 4913.952470
## iter 160 value 4908.452254
## iter 170 value 4900.935184
## iter 180 value 4894.817266
## iter 190 value 4889.053672
## iter 200 value 4883.756127
## iter 210 value 4880.282527
## iter 220 value 4877.690824
## iter 230 value 4874.786347
## iter 240 value 4872.344162
## iter 250 value 4870.217743
## iter 260 value 4866.514490
## iter 270 value 4862.409859
## iter 280 value 4859.533644
## iter 290 value 4854.630775
## iter 300 value 4849.659546
## iter 310 value 4847.185715
## iter 320 value 4845.727064
## iter 330 value 4843.564434
## iter 340 value 4841.677389
## iter 350 value 4840.210444
## iter 360 value 4839.405238
## iter 370 value 4838.840399
## iter 380 value 4838.205974
## iter 390 value 4837.636676
## iter 400 value 4837.253220
## iter 410 value 4836.976587
## iter 420 value 4836.672076
## iter 430 value 4836.314653
## iter 440 value 4836.079742
```

```
## iter 450 value 4835.699435
## iter 460 value 4835.323469
## iter 470 value 4834.880264
## iter 480 value 4834.572497
## iter 490 value 4834.114297
## iter 500 value 4833.369037
## final  value 4833.369037
## stopped after 500 iterations
## # weights:  574
## initial  value 23099.039132
## iter  10 value 6329.370061
## iter  20 value 5456.269815
## iter  30 value 5288.811080
## iter  40 value 5190.070686
## iter  50 value 5124.564288
## iter  60 value 5084.411066
## iter  70 value 5053.886336
## iter  80 value 5031.845199
## iter  90 value 5013.259042
## iter 100 value 4999.156844
## iter 110 value 4986.662909
## iter 120 value 4976.942929
## iter 130 value 4968.230147
## iter 140 value 4962.415203
## iter 150 value 4956.499406
## iter 160 value 4950.851679
## iter 170 value 4945.485684
## iter 180 value 4940.187449
## iter 190 value 4936.888817
## iter 200 value 4934.703657
## iter 210 value 4933.184130
## iter 220 value 4931.947671
## iter 230 value 4930.430831
## iter 240 value 4927.886881
## iter 250 value 4924.599517
## iter 260 value 4922.434206
## iter 270 value 4920.193670
## iter 280 value 4917.012039
## iter 290 value 4914.328488
## iter 300 value 4912.155962
## iter 310 value 4909.673444
## iter 320 value 4907.054914
## iter 330 value 4905.377944
## iter 340 value 4904.238682
## iter 350 value 4903.548313
## iter 360 value 4902.801066
## iter 370 value 4901.414980
## iter 380 value 4899.734354
## iter 390 value 4897.588344
## iter 400 value 4894.050141
## iter 410 value 4889.766439
## iter 420 value 4886.142292
## iter 430 value 4883.811026
## iter 440 value 4882.619800
## iter 450 value 4881.799658
## iter 460 value 4881.352051
## iter 470 value 4880.912497
## iter 480 value 4880.217997
## iter 490 value 4879.219658
## iter 500 value 4878.022193
## final  value 4878.022193
## stopped after 500 iterations
## # weights:  42
## initial  value 18589.246345
## iter  10 value 12052.111543
## iter  20 value 10542.569897
## iter  30 value 10313.638665
## iter  40 value 10089.911414
## iter  50 value 9681.959712
## iter  60 value 8862.380870
## iter  70 value 8719.388718
## iter  80 value 8693.956405
## iter  90 value 8691.768740
## iter 100 value 8691.630436
## iter 110 value 8691.613297
```

```
## iter 120 value 8691.598894
## iter 130 value 8691.567716
## final  value 8691.565332
## converged
## # weights:  42
## initial  value 18660.648187
## iter  10 value 11702.531164
## iter  20 value 11267.488115
## iter  30 value 10986.535769
## iter  40 value 10825.211562
## iter  50 value 10285.397307
## iter  60 value 9643.405022
## iter  70 value 9218.674951
## iter  80 value 9003.031057
## iter  90 value 8984.438273
## iter 100 value 8977.876952
## iter 110 value 8976.295595
## iter 120 value 8974.526986
## final  value 8972.812427
## converged
## # weights:  42
## initial  value 17779.098276
## iter  10 value 12572.423179
## iter  20 value 12109.434835
## iter  30 value 11924.167386
## iter  40 value 11680.474223
## iter  50 value 11105.614458
## iter  60 value 10636.122513
## iter  70 value 10132.756672
## iter  80 value 9725.959314
## iter  90 value 9583.872924
## iter 100 value 9469.937799
## iter 110 value 9437.593573
## iter 120 value 9409.464496
## iter 130 value 9371.358878
## final  value 9371.206362
## converged
## # weights:  194
## initial  value 18719.727890
## iter  10 value 7831.612267
## iter  20 value 6258.045916
## iter  30 value 5949.156055
## iter  40 value 5793.301236
## iter  50 value 5702.455948
## iter  60 value 5613.137899
## iter  70 value 5533.233300
## iter  80 value 5474.143647
## iter  90 value 5397.697309
## iter 100 value 5316.236567
## iter 110 value 5274.192598
## iter 120 value 5239.077709
## iter 130 value 5213.989717
## iter 140 value 5198.996618
## iter 150 value 5187.732477
## iter 160 value 5176.173456
## iter 170 value 5169.826937
## iter 180 value 5164.975689
## iter 190 value 5160.735083
## iter 200 value 5152.538293
## iter 210 value 5144.087146
## iter 220 value 5140.404020
## iter 230 value 5138.103664
## iter 240 value 5131.813294
## iter 250 value 5125.579146
## iter 260 value 5121.803955
## iter 270 value 5120.192090
## iter 280 value 5119.397189
## iter 290 value 5118.561790
## iter 300 value 5118.303900
## iter 310 value 5117.711276
## iter 320 value 5116.627724
## iter 330 value 5115.474700
## iter 340 value 5114.800608
## iter 350 value 5113.870804
## iter 360 value 5113.163304
```

```
## iter 370 value 5112.802973
## iter 380 value 5112.542823
## iter 390 value 5112.154398
## iter 400 value 5112.041883
## iter 410 value 5111.891269
## iter 420 value 5111.774718
## iter 430 value 5111.716153
## iter 440 value 5111.660843
## iter 450 value 5111.618469
## iter 460 value 5111.606543
## iter 470 value 5111.598275
## iter 480 value 5111.592552
## final  value 5111.591163
## converged
## # weights:  194
## initial  value 21769.314768
## iter  10 value 7030.660614
## iter  20 value 5957.830835
## iter  30 value 5693.299821
## iter  40 value 5526.702457
## iter  50 value 5449.032626
## iter  60 value 5395.481992
## iter  70 value 5356.994864
## iter  80 value 5325.021093
## iter  90 value 5305.371393
## iter 100 value 5286.654659
## iter 110 value 5274.694053
## iter 120 value 5264.696553
## iter 130 value 5252.895345
## iter 140 value 5246.987831
## iter 150 value 5240.076227
## iter 160 value 5233.273163
## iter 170 value 5229.220500
## iter 180 value 5227.296076
## iter 190 value 5225.934232
## iter 200 value 5224.717207
## iter 210 value 5223.177319
## iter 220 value 5220.620255
## iter 230 value 5215.857485
## iter 240 value 5211.142496
## iter 250 value 5209.223105
## iter 260 value 5208.169665
## iter 270 value 5206.832371
## iter 280 value 5200.963905
## iter 290 value 5199.323093
## iter 300 value 5198.533414
## iter 310 value 5197.412809
## iter 320 value 5196.857290
## iter 330 value 5196.313721
## iter 340 value 5196.188967
## iter 350 value 5196.161688
## iter 360 value 5196.143907
## iter 370 value 5196.134759
## iter 380 value 5196.125099
## final  value 5196.124735
## converged
## # weights:  194
## initial  value 16211.570713
## iter  10 value 6607.596971
## iter  20 value 5717.730485
## iter  30 value 5603.516277
## iter  40 value 5510.708725
## iter  50 value 5432.102203
## iter  60 value 5382.869795
## iter  70 value 5356.654320
## iter  80 value 5333.213500
## iter  90 value 5314.010081
## iter 100 value 5297.166605
## iter 110 value 5284.951796
## iter 120 value 5277.414932
## iter 130 value 5273.073252
## iter 140 value 5270.477259
## iter 150 value 5266.438324
## iter 160 value 5261.237383
## iter 170 value 5256.164103
```

```
## iter 180 value 5253.515309
## iter 190 value 5251.350152
## iter 200 value 5247.778969
## iter 210 value 5243.206757
## iter 220 value 5239.374751
## iter 230 value 5237.022355
## iter 240 value 5236.759626
## iter 250 value 5236.595905
## iter 260 value 5236.415040
## iter 270 value 5236.334723
## iter 280 value 5236.327581
## iter 290 value 5236.323405
## iter 300 value 5236.317133
## final  value 5236.316975
## converged
## # weights:  384
## initial  value 27644.827918
## iter  10 value 6688.341146
## iter  20 value 5415.719983
## iter  30 value 5252.755741
## iter  40 value 5194.399174
## iter  50 value 5104.212962
## iter  60 value 5037.444262
## iter  70 value 5002.469447
## iter  80 value 4978.291899
## iter  90 value 4960.902608
## iter 100 value 4947.719095
## iter 110 value 4928.876390
## iter 120 value 4914.188141
## iter 130 value 4904.666539
## iter 140 value 4898.231973
## iter 150 value 4891.833274
## iter 160 value 4885.245262
## iter 170 value 4881.463801
## iter 180 value 4879.257440
## iter 190 value 4877.360495
## iter 200 value 4876.048747
## iter 210 value 4875.322163
## iter 220 value 4874.805984
## iter 230 value 4874.389802
## iter 240 value 4873.764763
## iter 250 value 4872.614597
## iter 260 value 4870.620936
## iter 270 value 4868.688142
## iter 280 value 4866.343725
## iter 290 value 4864.706971
## iter 300 value 4863.437081
## iter 310 value 4862.894698
## iter 320 value 4862.408442
## iter 330 value 4862.074709
## iter 340 value 4861.854354
## iter 350 value 4861.622979
## iter 360 value 4861.466209
## iter 370 value 4861.292193
## iter 380 value 4861.066053
## iter 390 value 4860.835467
## iter 400 value 4860.676268
## iter 410 value 4860.576761
## iter 420 value 4860.518315
## iter 430 value 4860.444590
## iter 440 value 4860.333387
## iter 450 value 4860.083258
## iter 460 value 4859.920258
## iter 470 value 4859.821314
## iter 480 value 4859.657567
## iter 490 value 4859.504310
## iter 500 value 4859.440315
## final  value 4859.440315
## stopped after 500 iterations
## # weights:  384
## initial  value 19974.933666
## iter  10 value 6875.653654
## iter  20 value 6074.626944
## iter  30 value 5753.236550
## iter  40 value 5592.239271
```

```
## iter  50 value 5458.040363
## iter  60 value 5381.277673
## iter  70 value 5306.986761
## iter  80 value 5263.549923
## iter  90 value 5224.496619
## iter 100 value 5198.602335
## iter 110 value 5168.453688
## iter 120 value 5143.027839
## iter 130 value 5132.140102
## iter 140 value 5117.444380
## iter 150 value 5107.169150
## iter 160 value 5098.746769
## iter 170 value 5089.347436
## iter 180 value 5081.994510
## iter 190 value 5073.198235
## iter 200 value 5066.445940
## iter 210 value 5055.671509
## iter 220 value 5046.372532
## iter 230 value 5040.079095
## iter 240 value 5032.311797
## iter 250 value 5023.718060
## iter 260 value 5017.051401
## iter 270 value 5011.594826
## iter 280 value 5007.942923
## iter 290 value 5004.974675
## iter 300 value 5002.160650
## iter 310 value 4998.084058
## iter 320 value 4994.687251
## iter 330 value 4992.419082
## iter 340 value 4990.143201
## iter 350 value 4987.109863
## iter 360 value 4984.378220
## iter 370 value 4981.542289
## iter 380 value 4977.874100
## iter 390 value 4974.552506
## iter 400 value 4971.155271
## iter 410 value 4968.817743
## iter 420 value 4967.038204
## iter 430 value 4966.314377
## iter 440 value 4965.787005
## iter 450 value 4965.112725
## iter 460 value 4963.967670
## iter 470 value 4962.094344
## iter 480 value 4960.093557
## iter 490 value 4959.409055
## iter 500 value 4958.731613
## final  value 4958.731613
## stopped after 500 iterations
## # weights:  384
## initial  value 20611.730729
## iter  10 value 7256.957486
## iter  20 value 6033.097872
## iter  30 value 5806.765855
## iter  40 value 5652.232703
## iter  50 value 5554.854531
## iter  60 value 5453.500960
## iter  70 value 5339.264135
## iter  80 value 5258.620864
## iter  90 value 5195.824941
## iter 100 value 5162.474812
## iter 110 value 5141.430326
## iter 120 value 5124.573501
## iter 130 value 5112.497138
## iter 140 value 5104.341231
## iter 150 value 5097.594073
## iter 160 value 5093.789177
## iter 170 value 5090.054781
## iter 180 value 5087.153525
## iter 190 value 5083.699801
## iter 200 value 5080.905376
## iter 210 value 5079.115421
## iter 220 value 5077.133002
## iter 230 value 5074.967375
## iter 240 value 5071.967131
## iter 250 value 5069.372446
```

```
## iter 260 value 5067.653428
## iter 270 value 5066.233672
## iter 280 value 5065.238353
## iter 290 value 5064.395062
## iter 300 value 5063.561110
## iter 310 value 5062.810532
## iter 320 value 5061.953227
## iter 330 value 5061.445853
## iter 340 value 5060.755554
## iter 350 value 5058.063832
## iter 360 value 5053.389287
## iter 370 value 5050.161288
## iter 380 value 5047.273819
## iter 390 value 5045.406837
## iter 400 value 5044.503836
## iter 410 value 5043.836977
## iter 420 value 5043.491057
## iter 430 value 5043.153269
## iter 440 value 5042.967312
## iter 450 value 5042.827251
## iter 460 value 5042.413726
## iter 470 value 5041.150408
## iter 480 value 5039.708442
## iter 490 value 5039.070445
## iter 500 value 5038.887655
## final  value 5038.887655
## stopped after 500 iterations
## # weights:  574
## initial  value 37584.643735
## iter  10 value 5920.853757
## iter  20 value 5300.466442
## iter  30 value 5124.448745
## iter  40 value 4988.389649
## iter  50 value 4894.007005
## iter  60 value 4844.900720
## iter  70 value 4820.364234
## iter  80 value 4795.207295
## iter  90 value 4775.962688
## iter 100 value 4762.159754
## iter 110 value 4750.601360
## iter 120 value 4735.828170
## iter 130 value 4724.980660
## iter 140 value 4717.736695
## iter 150 value 4712.871411
## iter 160 value 4708.926571
## iter 170 value 4704.475941
## iter 180 value 4696.955600
## iter 190 value 4691.755397
## iter 200 value 4689.229956
## iter 210 value 4686.758949
## iter 220 value 4684.668181
## iter 230 value 4682.482686
## iter 240 value 4680.438441
## iter 250 value 4677.331033
## iter 260 value 4671.607538
## iter 270 value 4667.355907
## iter 280 value 4664.495037
## iter 290 value 4662.663345
## iter 300 value 4661.491424
## iter 310 value 4660.498184
## iter 320 value 4659.575449
## iter 330 value 4658.854353
## iter 340 value 4658.339985
## iter 350 value 4658.007965
## iter 360 value 4657.627128
## iter 370 value 4657.077076
## iter 380 value 4656.612855
## iter 390 value 4656.112064
## iter 400 value 4654.651776
## iter 410 value 4652.519701
## iter 420 value 4650.717857
## iter 430 value 4649.718142
## iter 440 value 4649.035354
## iter 450 value 4648.576000
## iter 460 value 4648.134413
```

```
## iter 470 value 4647.770086
## iter 480 value 4647.366426
## iter 490 value 4646.998334
## iter 500 value 4646.721756
## final  value 4646.721756
## stopped after 500 iterations
## # weights:  574
## initial  value 39237.309276
## iter  10 value 6571.255356
## iter  20 value 5370.355065
## iter  30 value 5175.730523
## iter  40 value 5096.069809
## iter  50 value 5034.145753
## iter  60 value 4992.803425
## iter  70 value 4967.334008
## iter  80 value 4948.190873
## iter  90 value 4934.091263
## iter 100 value 4918.711162
## iter 110 value 4908.654114
## iter 120 value 4895.409734
## iter 130 value 4888.992751
## iter 140 value 4884.614429
## iter 150 value 4878.526392
## iter 160 value 4872.557997
## iter 170 value 4867.717027
## iter 180 value 4862.630315
## iter 190 value 4856.818892
## iter 200 value 4849.337085
## iter 210 value 4841.936727
## iter 220 value 4837.045735
## iter 230 value 4833.385623
## iter 240 value 4829.682669
## iter 250 value 4826.641551
## iter 260 value 4822.789032
## iter 270 value 4819.538305
## iter 280 value 4816.949564
## iter 290 value 4815.031994
## iter 300 value 4813.531012
## iter 310 value 4811.625142
## iter 320 value 4809.735584
## iter 330 value 4808.070473
## iter 340 value 4806.528012
## iter 350 value 4804.775711
## iter 360 value 4802.984107
## iter 370 value 4801.766652
## iter 380 value 4800.936761
## iter 390 value 4799.950371
## iter 400 value 4798.707173
## iter 410 value 4797.708553
## iter 420 value 4796.995985
## iter 430 value 4796.500148
## iter 440 value 4796.154140
## iter 450 value 4795.886836
## iter 460 value 4795.630143
## iter 470 value 4795.352336
## iter 480 value 4795.045891
## iter 490 value 4794.703273
## iter 500 value 4794.368302
## final  value 4794.368302
## stopped after 500 iterations
## # weights:  574
## initial  value 19749.158425
## iter  10 value 5934.199935
## iter  20 value 5392.835312
## iter  30 value 5235.344688
## iter  40 value 5168.678330
## iter  50 value 5068.178550
## iter  60 value 5010.040776
## iter  70 value 4980.863010
## iter  80 value 4960.532837
## iter  90 value 4945.728670
## iter 100 value 4937.958904
## iter 110 value 4931.871914
## iter 120 value 4923.129312
## iter 130 value 4915.675851
```

```
## iter 140 value 4910.412657
## iter 150 value 4906.181255
## iter 160 value 4902.603707
## iter 170 value 4899.422873
## iter 180 value 4897.006438
## iter 190 value 4895.324209
## iter 200 value 4894.083497
## iter 210 value 4893.159856
## iter 220 value 4892.358190
## iter 230 value 4891.254291
## iter 240 value 4888.305884
## iter 250 value 4885.225412
## iter 260 value 4882.525549
## iter 270 value 4879.673851
## iter 280 value 4877.118514
## iter 290 value 4875.695915
## iter 300 value 4874.815511
## iter 310 value 4874.161101
## iter 320 value 4873.362201
## iter 330 value 4872.597961
## iter 340 value 4871.741761
## iter 350 value 4870.512960
## iter 360 value 4869.631110
## iter 370 value 4868.833574
## iter 380 value 4868.124858
## iter 390 value 4867.389404
## iter 400 value 4866.735109
## iter 410 value 4866.310070
## iter 420 value 4866.004210
## iter 430 value 4865.736007
## iter 440 value 4865.593402
## iter 450 value 4865.476950
## iter 460 value 4865.369806
## iter 470 value 4865.274206
## iter 480 value 4865.214479
## iter 490 value 4865.165480
## iter 500 value 4865.128160
## final  value 4865.128160
## stopped after 500 iterations
## # weights:  42
## initial  value 18177.261978
## iter  10 value 12558.917235
## iter  20 value 11792.617371
## iter  30 value 11465.666086
## iter  40 value 11138.089120
## iter  50 value 11023.005228
## iter  60 value 10397.510605
## iter  70 value 9792.093808
## iter  80 value 9291.727378
## iter  90 value 8914.789750
## iter 100 value 8848.523662
## iter 110 value 8775.562502
## iter 120 value 8722.791980
## iter 130 value 8617.044152
## final  value 8615.820594
## converged
## # weights:  42
## initial  value 23543.330117
## iter  10 value 14555.324345
## iter  20 value 12835.448370
## iter  30 value 11834.131669
## iter  40 value 11265.476855
## iter  50 value 10805.353749
## iter  60 value 10089.881662
## iter  70 value 9412.086675
## iter  80 value 9117.803962
## iter  90 value 9055.192899
## iter 100 value 8993.011883
## iter 110 value 8981.466131
## iter 120 value 8965.345548
## iter 130 value 8945.289521
## final  value 8945.236002
## converged
## # weights:  42
## initial  value 21392.763763
```

```
## iter  10 value 12679.593988
## iter  20 value 11617.002372
## iter  30 value 11382.109034
## iter  40 value 11195.579306
## iter  50 value 10940.535537
## iter  60 value 10407.815808
## iter  70 value 9871.557493
## iter  80 value 9382.695166
## iter  90 value 9181.971837
## iter 100 value 9137.450369
## iter 110 value 9119.156809
## iter 120 value 9099.663156
## iter 130 value 9080.050018
## final  value 9080.049723
## converged
## # weights:  194
## initial  value 21578.398230
## iter  10 value 7812.821081
## iter  20 value 6649.645220
## iter  30 value 6033.859237
## iter  40 value 5839.371072
## iter  50 value 5702.789171
## iter  60 value 5609.946409
## iter  70 value 5528.579004
## iter  80 value 5458.876086
## iter  90 value 5421.687717
## iter 100 value 5381.423653
## iter 110 value 5327.482372
## iter 120 value 5282.617117
## iter 130 value 5237.144194
## iter 140 value 5200.819255
## iter 150 value 5179.876131
## iter 160 value 5164.677567
## iter 170 value 5146.064731
## iter 180 value 5132.527298
## iter 190 value 5125.758241
## iter 200 value 5120.726160
## iter 210 value 5115.857004
## iter 220 value 5111.311613
## iter 230 value 5108.528275
## iter 240 value 5106.830025
## iter 250 value 5105.628288
## iter 260 value 5104.522537
## iter 270 value 5103.065149
## iter 280 value 5102.225002
## iter 290 value 5101.508355
## iter 300 value 5101.148465
## iter 310 value 5100.813926
## iter 320 value 5100.711913
## iter 330 value 5100.661871
## iter 340 value 5100.617762
## iter 350 value 5100.590926
## iter 360 value 5100.586932
## final  value 5100.586165
## converged
## # weights:  194
## initial  value 24242.723422
## iter  10 value 8865.835813
## iter  20 value 6772.950954
## iter  30 value 6521.398751
## iter  40 value 6231.708626
## iter  50 value 6063.650971
## iter  60 value 5921.465755
## iter  70 value 5739.249658
## iter  80 value 5584.845998
## iter  90 value 5488.846021
## iter 100 value 5431.820133
## iter 110 value 5399.605100
## iter 120 value 5370.728145
## iter 130 value 5345.027636
## iter 140 value 5327.749806
## iter 150 value 5310.630175
## iter 160 value 5287.551674
## iter 170 value 5266.570918
## iter 180 value 5249.446240
```

```
## iter 190 value 5240.148582
## iter 200 value 5232.719272
## iter 210 value 5225.656262
## iter 220 value 5220.928444
## iter 230 value 5212.026744
## iter 240 value 5205.147642
## iter 250 value 5202.395216
## iter 260 value 5200.137689
## iter 270 value 5193.134019
## iter 280 value 5187.684589
## iter 290 value 5182.760586
## iter 300 value 5179.232083
## iter 310 value 5176.479490
## iter 320 value 5174.782535
## iter 330 value 5173.921922
## iter 340 value 5173.536649
## iter 350 value 5173.327042
## iter 360 value 5173.205003
## iter 370 value 5173.165083
## iter 380 value 5173.154639
## final  value 5173.154246
## converged
## # weights:  194
## initial  value 18442.995938
## iter  10 value 7653.908818
## iter  20 value 6289.662337
## iter  30 value 5991.115446
## iter  40 value 5769.738598
## iter  50 value 5660.978695
## iter  60 value 5543.961568
## iter  70 value 5479.503365
## iter  80 value 5409.373199
## iter  90 value 5376.069906
## iter 100 value 5350.000624
## iter 110 value 5330.220943
## iter 120 value 5314.484712
## iter 130 value 5304.874882
## iter 140 value 5297.431957
## iter 150 value 5291.348445
## iter 160 value 5286.283053
## iter 170 value 5283.158303
## iter 180 value 5280.844096
## iter 190 value 5279.641698
## iter 200 value 5276.561983
## iter 210 value 5270.983003
## iter 220 value 5264.976402
## iter 230 value 5261.219158
## iter 240 value 5259.780663
## iter 250 value 5258.766132
## iter 260 value 5258.013388
## iter 270 value 5257.445031
## iter 280 value 5257.372365
## iter 290 value 5257.367142
## final  value 5257.366701
## converged
## # weights:  384
## initial  value 21136.860321
## iter  10 value 6139.159806
## iter  20 value 5269.819750
## iter  30 value 5134.541088
## iter  40 value 5050.221335
## iter  50 value 5014.141040
## iter  60 value 4985.413897
## iter  70 value 4965.343284
## iter  80 value 4948.561952
## iter  90 value 4939.722752
## iter 100 value 4930.763243
## iter 110 value 4924.032621
## iter 120 value 4917.356637
## iter 130 value 4912.115465
## iter 140 value 4903.804997
## iter 150 value 4898.684206
## iter 160 value 4896.116381
## iter 170 value 4893.917714
## iter 180 value 4892.170481
```

```
## iter 190 value 4890.848407
## iter 200 value 4889.681551
## iter 210 value 4888.539545
## iter 220 value 4887.345629
## iter 230 value 4885.590767
## iter 240 value 4883.714626
## iter 250 value 4882.739828
## iter 260 value 4882.231837
## iter 270 value 4881.728596
## iter 280 value 4881.224909
## iter 290 value 4880.941767
## iter 300 value 4880.689731
## iter 310 value 4880.448181
## iter 320 value 4880.211164
## iter 330 value 4879.881805
## iter 340 value 4879.485778
## iter 350 value 4879.195111
## iter 360 value 4878.690822
## iter 370 value 4877.840957
## iter 380 value 4876.477421
## iter 390 value 4875.758380
## iter 400 value 4874.947267
## iter 410 value 4874.550064
## iter 420 value 4874.002303
## iter 430 value 4872.650766
## iter 440 value 4871.204686
## iter 450 value 4870.187735
## iter 460 value 4869.719721
## iter 470 value 4869.495653
## iter 480 value 4869.342459
## iter 490 value 4869.207715
## iter 500 value 4868.985331
## final  value 4868.985331
## stopped after 500 iterations
## # weights:  384
## initial  value 21167.736658
## iter  10 value 7079.441751
## iter  20 value 5869.172319
## iter  30 value 5606.005233
## iter  40 value 5447.564326
## iter  50 value 5322.485940
## iter  60 value 5267.207064
## iter  70 value 5223.384477
## iter  80 value 5188.418409
## iter  90 value 5162.806731
## iter 100 value 5141.318848
## iter 110 value 5124.711948
## iter 120 value 5111.573672
## iter 130 value 5094.890558
## iter 140 value 5078.487001
## iter 150 value 5065.762104
## iter 160 value 5057.150522
## iter 170 value 5048.755434
## iter 180 value 5040.869030
## iter 190 value 5030.655012
## iter 200 value 5023.137201
## iter 210 value 5017.477638
## iter 220 value 5014.395181
## iter 230 value 5012.429128
## iter 240 value 5010.868403
## iter 250 value 5009.783525
## iter 260 value 5008.947802
## iter 270 value 5007.920812
## iter 280 value 5006.736233
## iter 290 value 5005.924021
## iter 300 value 5005.245503
## iter 310 value 5004.405726
## iter 320 value 5003.450911
## iter 330 value 5002.567658
## iter 340 value 5001.742955
## iter 350 value 5000.566278
## iter 360 value 4999.239109
## iter 370 value 4997.122823
## iter 380 value 4995.340596
## iter 390 value 4992.375170
```

```
## iter 400 value 4990.225887
## iter 410 value 4988.005148
## iter 420 value 4986.411259
## iter 430 value 4983.975832
## iter 440 value 4982.405115
## iter 450 value 4981.417605
## iter 460 value 4981.044109
## iter 470 value 4980.727346
## iter 480 value 4979.911600
## iter 490 value 4978.656371
## iter 500 value 4978.448041
## final  value 4978.448041
## stopped after 500 iterations
## # weights:  384
## initial  value 18548.059209
## iter  10 value 8434.473415
## iter  20 value 6164.984802
## iter  30 value 5918.816092
## iter  40 value 5807.069561
## iter  50 value 5693.020456
## iter  60 value 5577.815170
## iter  70 value 5515.545577
## iter  80 value 5466.716923
## iter  90 value 5395.882353
## iter 100 value 5313.191019
## iter 110 value 5260.753419
## iter 120 value 5209.093557
## iter 130 value 5183.141587
## iter 140 value 5153.976841
## iter 150 value 5128.700510
## iter 160 value 5116.643716
## iter 170 value 5110.166369
## iter 180 value 5106.041438
## iter 190 value 5101.124288
## iter 200 value 5094.861854
## iter 210 value 5089.394125
## iter 220 value 5083.139669
## iter 230 value 5075.211868
## iter 240 value 5070.644177
## iter 250 value 5066.581973
## iter 260 value 5061.868532
## iter 270 value 5057.762469
## iter 280 value 5054.694808
## iter 290 value 5053.192763
## iter 300 value 5052.254893
## iter 310 value 5050.653382
## iter 320 value 5048.364640
## iter 330 value 5045.926638
## iter 340 value 5044.004622
## iter 350 value 5042.571715
## iter 360 value 5040.824084
## iter 370 value 5039.564394
## iter 380 value 5038.467507
## iter 390 value 5037.443809
## iter 400 value 5035.806968
## iter 410 value 5034.050595
## iter 420 value 5032.965881
## iter 430 value 5032.326696
## iter 440 value 5031.878346
## iter 450 value 5031.669438
## iter 460 value 5031.572325
## iter 470 value 5031.489583
## iter 480 value 5031.102536
## iter 490 value 5030.751115
## iter 500 value 5030.674855
## final  value 5030.674855
## stopped after 500 iterations
## # weights:  574
## initial  value 28870.187887
## iter  10 value 6266.964476
## iter  20 value 5319.082236
## iter  30 value 5176.958262
## iter  40 value 5035.870532
## iter  50 value 4964.720213
## iter  60 value 4917.832639
```

```
## iter  70 value 4877.469549
## iter  80 value 4849.212883
## iter  90 value 4817.660614
## iter 100 value 4801.871345
## iter 110 value 4775.988416
## iter 120 value 4761.099351
## iter 130 value 4747.433616
## iter 140 value 4735.696558
## iter 150 value 4728.484992
## iter 160 value 4722.890683
## iter 170 value 4715.670400
## iter 180 value 4709.379907
## iter 190 value 4705.107614
## iter 200 value 4702.551154
## iter 210 value 4700.369212
## iter 220 value 4698.753698
## iter 230 value 4695.417852
## iter 240 value 4692.008601
## iter 250 value 4689.292688
## iter 260 value 4686.858880
## iter 270 value 4685.294442
## iter 280 value 4683.589247
## iter 290 value 4680.831330
## iter 300 value 4677.835793
## iter 310 value 4675.702447
## iter 320 value 4673.264182
## iter 330 value 4671.073153
## iter 340 value 4669.831127
## iter 350 value 4668.744233
## iter 360 value 4667.825906
## iter 370 value 4667.137377
## iter 380 value 4666.544114
## iter 390 value 4666.063718
## iter 400 value 4665.682290
## iter 410 value 4665.347218
## iter 420 value 4665.055418
## iter 430 value 4664.745349
## iter 440 value 4664.455586
## iter 450 value 4664.118349
## iter 460 value 4662.866904
## iter 470 value 4661.672322
## iter 480 value 4661.154082
## iter 490 value 4660.869577
## iter 500 value 4660.634515
## final  value 4660.634515
## stopped after 500 iterations
## # weights:  574
## initial  value 23964.181235
## iter  10 value 5963.678792
## iter  20 value 5302.715268
## iter  30 value 5130.641384
## iter  40 value 5039.451534
## iter  50 value 4983.080325
## iter  60 value 4944.281122
## iter  70 value 4917.598837
## iter  80 value 4891.522222
## iter  90 value 4871.846304
## iter 100 value 4858.545072
## iter 110 value 4851.964146
## iter 120 value 4847.030119
## iter 130 value 4841.673222
## iter 140 value 4838.046439
## iter 150 value 4834.509152
## iter 160 value 4831.159901
## iter 170 value 4828.068361
## iter 180 value 4824.580358
## iter 190 value 4821.269125
## iter 200 value 4819.083790
## iter 210 value 4817.830133
## iter 220 value 4816.719570
## iter 230 value 4815.348853
## iter 240 value 4814.026312
## iter 250 value 4812.687744
## iter 260 value 4811.236248
## iter 270 value 4809.789046
```

```
## iter 280 value 4808.539601
## iter 290 value 4807.448442
## iter 300 value 4806.661165
## iter 310 value 4806.241933
## iter 320 value 4805.942841
## iter 330 value 4805.683444
## iter 340 value 4805.313463
## iter 350 value 4804.886754
## iter 360 value 4804.474833
## iter 370 value 4803.720398
## iter 380 value 4802.441033
## iter 390 value 4801.100725
## iter 400 value 4800.337557
## iter 410 value 4799.833992
## iter 420 value 4799.591624
## iter 430 value 4799.427683
## iter 440 value 4799.013822
## iter 450 value 4798.507559
## iter 460 value 4798.196600
## iter 470 value 4798.074443
## iter 480 value 4797.897785
## iter 490 value 4797.669758
## iter 500 value 4797.411278
## final  value 4797.411278
## stopped after 500 iterations
## # weights:  574
## initial  value 22601.050562
## iter  10 value 7267.869438
## iter  20 value 5768.357954
## iter  30 value 5548.710913
## iter  40 value 5446.343146
## iter  50 value 5342.967826
## iter  60 value 5269.832965
## iter  70 value 5207.181564
## iter  80 value 5158.357699
## iter  90 value 5110.267882
## iter 100 value 5074.310828
## iter 110 value 5054.938728
## iter 120 value 5037.521381
## iter 130 value 5022.013084
## iter 140 value 5012.163252
## iter 150 value 5006.622240
## iter 160 value 5000.568083
## iter 170 value 4990.452852
## iter 180 value 4979.043100
## iter 190 value 4969.922808
## iter 200 value 4962.369536
## iter 210 value 4954.823326
## iter 220 value 4948.687968
## iter 230 value 4944.034558
## iter 240 value 4939.849310
## iter 250 value 4935.258462
## iter 260 value 4929.312219
## iter 270 value 4924.773239
## iter 280 value 4921.509252
## iter 290 value 4919.116078
## iter 300 value 4916.323410
## iter 310 value 4911.258160
## iter 320 value 4906.213051
## iter 330 value 4902.559051
## iter 340 value 4899.330432
## iter 350 value 4896.985857
## iter 360 value 4895.286580
## iter 370 value 4893.641320
## iter 380 value 4892.400219
## iter 390 value 4891.328892
## iter 400 value 4890.111952
## iter 410 value 4889.028206
## iter 420 value 4888.229537
## iter 430 value 4887.483453
## iter 440 value 4886.328056
## iter 450 value 4884.756795
## iter 460 value 4883.121033
## iter 470 value 4881.785424
## iter 480 value 4880.353001
```

```
## iter 490 value 4879.091908
## iter 500 value 4877.586454
## final  value 4877.586454
## stopped after 500 iterations
## # weights:  42
## initial  value 18727.295643
## iter  10 value 13580.492486
## iter  20 value 12019.467440
## iter  30 value 11373.695627
## iter  40 value 11185.588699
## iter  50 value 11085.388490
## iter  60 value 10985.255279
## iter  70 value 10411.799628
## iter  80 value 9621.705935
## iter  90 value 8990.339496
## iter 100 value 8874.969578
## iter 110 value 8847.654166
## iter 120 value 8781.697008
## iter 130 value 8680.985605
## iter 140 value 8663.455196
## final  value 8663.450455
## converged
## # weights:  42
## initial  value 18498.725045
## iter  10 value 12974.417058
## iter  20 value 11465.831834
## iter  30 value 10830.917965
## iter  40 value 10457.495255
## iter  50 value 9624.095971
## iter  60 value 9017.266722
## iter  70 value 8969.799655
## iter  80 value 8949.121148
## iter  90 value 8947.868020
## iter 100 value 8947.661453
## iter 110 value 8947.641629
## iter 120 value 8947.586097
## iter 130 value 8947.579670
## iter 130 value 8947.579635
## final  value 8947.578840
## converged
## # weights:  42
## initial  value 19642.865982
## iter  10 value 12720.307501
## iter  20 value 11776.744600
## iter  30 value 11526.360050
## iter  40 value 11335.383471
## iter  50 value 11073.523677
## iter  60 value 10642.409308
## iter  70 value 10290.534138
## iter  80 value 9915.097916
## iter  90 value 9789.896412
## iter 100 value 9538.356749
## iter 110 value 9442.779699
## iter 120 value 9264.299260
## iter 130 value 9108.867725
## final  value 9106.108368
## converged
## # weights:  194
## initial  value 21057.707109
## iter  10 value 6374.320709
## iter  20 value 5786.224327
## iter  30 value 5658.187327
## iter  40 value 5504.691504
## iter  50 value 5447.888134
## iter  60 value 5367.638839
## iter  70 value 5320.292907
## iter  80 value 5299.366666
## iter  90 value 5279.622843
## iter 100 value 5261.662998
## iter 110 value 5250.387744
## iter 120 value 5240.754280
## iter 130 value 5231.086176
## iter 140 value 5222.692661
## iter 150 value 5217.081960
## iter 160 value 5211.183347
```

```
## iter 170 value 5206.591168
## iter 180 value 5203.115379
## iter 190 value 5199.444738
## iter 200 value 5194.330447
## iter 210 value 5188.139599
## iter 220 value 5182.117442
## iter 230 value 5176.069287
## iter 240 value 5168.271845
## iter 250 value 5162.804452
## iter 260 value 5157.358833
## iter 270 value 5152.832355
## iter 280 value 5150.442100
## iter 290 value 5149.016045
## iter 300 value 5148.512284
## iter 310 value 5148.099153
## iter 320 value 5147.897491
## iter 330 value 5147.807579
## iter 340 value 5147.731137
## iter 350 value 5147.704351
## iter 360 value 5147.679358
## iter 370 value 5147.671107
## iter 380 value 5147.663038
## iter 390 value 5147.660523
## iter 390 value 5147.660519
## final  value 5147.660519
## converged
## # weights:  194
## initial  value 19271.656812
## iter  10 value 7595.508013
## iter  20 value 6091.194725
## iter  30 value 5886.622748
## iter  40 value 5764.844584
## iter  50 value 5672.724608
## iter  60 value 5547.476490
## iter  70 value 5480.674398
## iter  80 value 5439.728624
## iter  90 value 5407.166715
## iter 100 value 5376.609854
## iter 110 value 5352.843075
## iter 120 value 5342.300176
## iter 130 value 5335.154686
## iter 140 value 5323.183979
## iter 150 value 5303.749670
## iter 160 value 5294.227386
## iter 170 value 5289.712285
## iter 180 value 5286.798588
## iter 190 value 5284.089907
## iter 200 value 5281.885713
## iter 210 value 5279.791886
## iter 220 value 5277.718942
## iter 230 value 5274.020200
## iter 240 value 5270.720973
## iter 250 value 5262.239161
## iter 260 value 5248.250145
## iter 270 value 5240.658736
## iter 280 value 5236.281718
## iter 290 value 5233.966420
## iter 300 value 5233.014654
## iter 310 value 5232.686359
## iter 320 value 5232.545275
## iter 330 value 5232.473374
## iter 340 value 5232.439269
## iter 350 value 5232.434718
## final  value 5232.432432
## converged
## # weights:  194
## initial  value 18368.272234
## iter  10 value 6649.538544
## iter  20 value 5812.852897
## iter  30 value 5660.082311
## iter  40 value 5534.219484
## iter  50 value 5469.232169
## iter  60 value 5431.737744
## iter  70 value 5406.573532
## iter  80 value 5374.370254
```

```
## iter  90 value 5357.004011
## iter 100 value 5335.906344
## iter 110 value 5324.571532
## iter 120 value 5316.278266
## iter 130 value 5311.673409
## iter 140 value 5308.309480
## iter 150 value 5304.306859
## iter 160 value 5300.317892
## iter 170 value 5297.054202
## iter 180 value 5293.765348
## iter 190 value 5289.858188
## iter 200 value 5286.530053
## iter 210 value 5285.143226
## iter 220 value 5284.121574
## iter 230 value 5282.873334
## iter 240 value 5280.989055
## iter 250 value 5280.534512
## iter 260 value 5280.346784
## iter 270 value 5280.311638
## iter 280 value 5280.296332
## iter 290 value 5280.292383
## final  value 5280.292177
## converged
## # weights:  384
## initial  value 18381.430882
## iter  10 value 6173.069858
## iter  20 value 5382.168579
## iter  30 value 5197.625004
## iter  40 value 5144.385349
## iter  50 value 5074.921510
## iter  60 value 5031.624674
## iter  70 value 5015.427667
## iter  80 value 5002.234125
## iter  90 value 4990.599649
## iter 100 value 4976.388239
## iter 110 value 4961.655804
## iter 120 value 4948.753085
## iter 130 value 4943.027193
## iter 140 value 4939.225173
## iter 150 value 4934.360751
## iter 160 value 4930.460413
## iter 170 value 4927.975010
## iter 180 value 4926.309097
## iter 190 value 4924.559781
## iter 200 value 4921.797821
## iter 210 value 4918.992143
## iter 220 value 4916.917961
## iter 230 value 4915.549186
## iter 240 value 4914.309082
## iter 250 value 4912.670861
## iter 260 value 4911.185657
## iter 270 value 4910.024649
## iter 280 value 4909.419699
## iter 290 value 4908.649802
## iter 300 value 4907.980683
## iter 310 value 4907.095998
## iter 320 value 4906.064162
## iter 330 value 4904.273406
## iter 340 value 4902.912825
## iter 350 value 4901.757468
## iter 360 value 4901.189834
## iter 370 value 4900.782115
## iter 380 value 4900.560150
## iter 390 value 4900.319842
## iter 400 value 4900.107908
## iter 410 value 4899.942954
## iter 420 value 4899.865022
## iter 430 value 4899.807430
## iter 440 value 4899.746020
## iter 450 value 4899.690896
## iter 460 value 4899.626953
## iter 470 value 4899.563016
## iter 480 value 4899.502508
## iter 490 value 4899.454738
## iter 500 value 4899.429929
```

```
## final  value 4899.429929
## stopped after 500 iterations
## # weights:  384
## initial  value 22698.667706
## iter  10 value 7448.164861
## iter  20 value 5593.529983
## iter  30 value 5355.868528
## iter  40 value 5246.912997
## iter  50 value 5177.675113
## iter  60 value 5143.313347
## iter  70 value 5122.468174
## iter  80 value 5098.668710
## iter  90 value 5088.153510
## iter 100 value 5080.074058
## iter 110 value 5063.971294
## iter 120 value 5055.467025
## iter 130 value 5042.056360
## iter 140 value 5035.371491
## iter 150 value 5031.407208
## iter 160 value 5026.954259
## iter 170 value 5025.052055
## iter 180 value 5023.479179
## iter 190 value 5021.838706
## iter 200 value 5020.748084
## iter 210 value 5019.895410
## iter 220 value 5019.208989
## iter 230 value 5018.677258
## iter 240 value 5018.109155
## iter 250 value 5017.337031
## iter 260 value 5016.478194
## iter 270 value 5015.789222
## iter 280 value 5015.255976
## iter 290 value 5014.863257
## iter 300 value 5014.317572
## iter 310 value 5013.868169
## iter 320 value 5013.436546
## iter 330 value 5013.074812
## iter 340 value 5012.760733
## iter 350 value 5012.562540
## iter 360 value 5012.089148
## iter 370 value 5011.582329
## iter 380 value 5011.056177
## iter 390 value 5010.654099
## iter 400 value 5010.356925
## iter 410 value 5010.129697
## iter 420 value 5010.022942
## iter 430 value 5009.872974
## iter 440 value 5009.744464
## iter 450 value 5009.711807
## iter 460 value 5009.671616
## iter 470 value 5009.642127
## iter 480 value 5009.629739
## iter 490 value 5009.608334
## iter 500 value 5009.595250
## final  value 5009.595250
## stopped after 500 iterations
## # weights:  384
## initial  value 27480.134815
## iter  10 value 6532.383754
## iter  20 value 5645.184570
## iter  30 value 5474.142508
## iter  40 value 5420.836511
## iter  50 value 5342.227151
## iter  60 value 5281.448337
## iter  70 value 5256.766883
## iter  80 value 5241.394702
## iter  90 value 5221.532075
## iter 100 value 5206.877242
## iter 110 value 5198.559791
## iter 120 value 5190.834665
## iter 130 value 5185.429701
## iter 140 value 5176.684882
## iter 150 value 5166.713680
## iter 160 value 5156.326622
## iter 170 value 5147.157858
```

```
## iter 180 value 5137.596299
## iter 190 value 5130.516565
## iter 200 value 5125.849433
## iter 210 value 5122.762987
## iter 220 value 5120.160667
## iter 230 value 5118.561743
## iter 240 value 5117.212691
## iter 250 value 5115.922117
## iter 260 value 5114.252468
## iter 270 value 5112.468011
## iter 280 value 5110.905905
## iter 290 value 5109.732553
## iter 300 value 5108.769036
## iter 310 value 5107.778933
## iter 320 value 5106.954350
## iter 330 value 5105.808610
## iter 340 value 5104.878255
## iter 350 value 5103.324052
## iter 360 value 5099.725202
## iter 370 value 5096.679726
## iter 380 value 5093.049838
## iter 390 value 5090.232739
## iter 400 value 5087.242078
## iter 410 value 5084.387446
## iter 420 value 5082.140442
## iter 430 value 5080.038971
## iter 440 value 5078.913297
## iter 450 value 5078.157623
## iter 460 value 5077.665908
## iter 470 value 5077.228797
## iter 480 value 5076.387627
## iter 490 value 5075.969233
## iter 500 value 5075.506916
## final  value 5075.506916
## stopped after 500 iterations
## # weights:  574
## initial  value 17487.611236
## iter  10 value 6347.601923
## iter  20 value 5390.019113
## iter  30 value 5176.787047
## iter  40 value 5051.612105
## iter  50 value 4948.246039
## iter  60 value 4898.633754
## iter  70 value 4876.262390
## iter  80 value 4849.107892
## iter  90 value 4835.099962
## iter 100 value 4824.609426
## iter 110 value 4812.054453
## iter 120 value 4802.584946
## iter 130 value 4793.140355
## iter 140 value 4782.162951
## iter 150 value 4771.693481
## iter 160 value 4764.929311
## iter 170 value 4761.536237
## iter 180 value 4756.925184
## iter 190 value 4750.435049
## iter 200 value 4745.968211
## iter 210 value 4742.077329
## iter 220 value 4735.214055
## iter 230 value 4727.107714
## iter 240 value 4721.530009
## iter 250 value 4717.389590
## iter 260 value 4715.792454
## iter 270 value 4714.601515
## iter 280 value 4713.369597
## iter 290 value 4711.921669
## iter 300 value 4710.809301
## iter 310 value 4709.697256
## iter 320 value 4707.950292
## iter 330 value 4706.132317
## iter 340 value 4704.774730
## iter 350 value 4703.577745
## iter 360 value 4702.277493
## iter 370 value 4700.994167
## iter 380 value 4700.017905
```

```
## iter 390 value 4699.374644
## iter 400 value 4698.995988
## iter 410 value 4698.545164
## iter 420 value 4698.127225
## iter 430 value 4697.526936
## iter 440 value 4696.995706
## iter 450 value 4696.492291
## iter 460 value 4695.976782
## iter 470 value 4694.603077
## iter 480 value 4693.766295
## iter 490 value 4693.212558
## iter 500 value 4692.998806
## final  value 4692.998806
## stopped after 500 iterations
## # weights:  574
## initial  value 21342.402937
## iter  10 value 6047.696374
## iter  20 value 5337.195296
## iter  30 value 5203.367943
## iter  40 value 5135.436845
## iter  50 value 5042.550984
## iter  60 value 4986.978645
## iter  70 value 4959.439672
## iter  80 value 4937.387504
## iter  90 value 4920.422340
## iter 100 value 4907.864562
## iter 110 value 4898.843022
## iter 120 value 4891.122325
## iter 130 value 4883.580281
## iter 140 value 4880.686109
## iter 150 value 4877.612190
## iter 160 value 4874.473141
## iter 170 value 4870.677518
## iter 180 value 4867.654052
## iter 190 value 4865.272162
## iter 200 value 4863.082948
## iter 210 value 4860.908027
## iter 220 value 4858.922179
## iter 230 value 4857.300047
## iter 240 value 4856.035423
## iter 250 value 4854.928532
## iter 260 value 4853.738981
## iter 270 value 4852.552826
## iter 280 value 4851.807422
## iter 290 value 4851.223469
## iter 300 value 4850.467967
## iter 310 value 4849.749896
## iter 320 value 4849.027487
## iter 330 value 4848.268763
## iter 340 value 4847.725997
## iter 350 value 4847.272920
## iter 360 value 4846.921833
## iter 370 value 4846.617028
## iter 380 value 4846.321811
## iter 390 value 4846.125135
## iter 400 value 4845.983315
## iter 410 value 4845.875640
## iter 420 value 4845.777248
## iter 430 value 4845.683086
## iter 440 value 4845.563752
## iter 450 value 4845.422261
## iter 460 value 4845.190409
## iter 470 value 4844.752049
## iter 480 value 4844.239086
## iter 490 value 4844.046305
## iter 500 value 4843.887371
## final  value 4843.887371
## stopped after 500 iterations
## # weights:  574
## initial  value 19483.138995
## iter  10 value 6500.132619
## iter  20 value 5370.697418
## iter  30 value 5224.105718
## iter  40 value 5140.482944
## iter  50 value 5074.183388
```

```
## iter  60 value 5039.331376
## iter  70 value 5017.650213
## iter  80 value 4997.150853
## iter  90 value 4976.966051
## iter 100 value 4960.163730
## iter 110 value 4946.047819
## iter 120 value 4936.991573
## iter 130 value 4932.356406
## iter 140 value 4929.786143
## iter 150 value 4928.037559
## iter 160 value 4926.658594
## iter 170 value 4923.787897
## iter 180 value 4919.604656
## iter 190 value 4914.440242
## iter 200 value 4910.171812
## iter 210 value 4906.542558
## iter 220 value 4904.493120
## iter 230 value 4902.543547
## iter 240 value 4900.215973
## iter 250 value 4896.969719
## iter 260 value 4893.864857
## iter 270 value 4890.798525
## iter 280 value 4888.199361
## iter 290 value 4886.427102
## iter 300 value 4885.026584
## iter 310 value 4883.694533
## iter 320 value 4882.663579
## iter 330 value 4881.753262
## iter 340 value 4880.973816
## iter 350 value 4880.269293
## iter 360 value 4879.397978
## iter 370 value 4878.577031
## iter 380 value 4877.880702
## iter 390 value 4877.349900
## iter 400 value 4876.830165
## iter 410 value 4876.373661
## iter 420 value 4876.092035
## iter 430 value 4875.873478
## iter 440 value 4875.714662
## iter 450 value 4875.617080
## iter 460 value 4875.541122
## iter 470 value 4875.475437
## iter 480 value 4875.386236
## iter 490 value 4875.243197
## iter 500 value 4875.005706
## final  value 4875.005706
## stopped after 500 iterations
## # weights:  42
## initial  value 18055.148029
## iter  10 value 14271.087260
## iter  20 value 12488.961120
## iter  30 value 11926.642315
## iter  40 value 11817.022882
## iter  50 value 11690.839008
## iter  60 value 11413.463288
## iter  70 value 10808.277276
## iter  80 value 10178.349615
## iter  90 value 9592.482752
## iter 100 value 9285.243753
## iter 110 value 9197.738316
## iter 120 value 9162.852554
## iter 130 value 9060.775515
## iter 140 value 8994.728684
## final  value 8994.454819
## converged
## # weights:  42
## initial  value 20786.511934
## iter  10 value 11224.532554
## iter  20 value 10894.622329
## iter  30 value 10596.039651
## iter  40 value 10356.705481
## iter  50 value 9425.785087
## iter  60 value 8987.968238
## iter  70 value 8971.368312
## iter  80 value 8962.859482
```

```
## iter  90 value 8962.185110
## iter 100 value 8962.049472
## iter 110 value 8961.991641
## iter 120 value 8961.902451
## iter 130 value 8961.866546
## final  value 8961.866191
## converged
## # weights:  42
## initial  value 18863.723129
## iter  10 value 13828.584923
## iter  20 value 11984.921398
## iter  30 value 11396.592388
## iter  40 value 11175.198052
## iter  50 value 10944.462822
## iter  60 value 10462.787313
## iter  70 value 9744.981979
## iter  80 value 9297.253925
## iter  90 value 9175.797358
## iter 100 value 9155.859742
## iter 110 value 9133.232012
## iter 120 value 9129.438619
## iter 130 value 9118.893209
## iter 130 value 9118.893163
## iter 130 value 9118.893163
## final  value 9118.893163
## converged
## # weights:  194
## initial  value 24192.661361
## iter  10 value 8059.980674
## iter  20 value 6711.455588
## iter  30 value 6191.205303
## iter  40 value 5988.345155
## iter  50 value 5891.391628
## iter  60 value 5757.290841
## iter  70 value 5648.624755
## iter  80 value 5568.365868
## iter  90 value 5477.245556
## iter 100 value 5361.597345
## iter 110 value 5287.811768
## iter 120 value 5253.097335
## iter 130 value 5229.297251
## iter 140 value 5217.890785
## iter 150 value 5206.568037
## iter 160 value 5194.207534
## iter 170 value 5183.649761
## iter 180 value 5177.430088
## iter 190 value 5173.939553
## iter 200 value 5169.491167
## iter 210 value 5162.455666
## iter 220 value 5157.510653
## iter 230 value 5153.646827
## iter 240 value 5151.448764
## iter 250 value 5148.847512
## iter 260 value 5146.428050
## iter 270 value 5144.439018
## iter 280 value 5143.362071
## iter 290 value 5142.723108
## iter 300 value 5140.759489
## iter 310 value 5139.832479
## iter 320 value 5139.407076
## iter 330 value 5139.010800
## iter 340 value 5138.811937
## iter 350 value 5138.672618
## iter 360 value 5137.204815
## iter 370 value 5134.858674
## iter 380 value 5134.050125
## iter 390 value 5133.705686
## iter 400 value 5133.588018
## iter 410 value 5133.305029
## iter 420 value 5133.077160
## iter 430 value 5132.954958
## iter 440 value 5132.838941
## iter 450 value 5132.771377
## iter 460 value 5132.749329
## iter 470 value 5132.744386
```

```
## final  value 5132.743168
## converged
## # weights:  194
## initial  value 25605.832008
## iter  10 value 7482.279435
## iter  20 value 6330.611489
## iter  30 value 6028.981689
## iter  40 value 5832.754570
## iter  50 value 5725.075805
## iter  60 value 5608.039307
## iter  70 value 5532.118792
## iter  80 value 5491.841372
## iter  90 value 5473.891587
## iter 100 value 5450.254234
## iter 110 value 5418.032459
## iter 120 value 5385.397807
## iter 130 value 5364.503415
## iter 140 value 5347.481331
## iter 150 value 5329.975923
## iter 160 value 5315.928378
## iter 170 value 5295.877378
## iter 180 value 5279.302753
## iter 190 value 5269.395495
## iter 200 value 5260.774097
## iter 210 value 5253.143572
## iter 220 value 5246.991984
## iter 230 value 5238.464563
## iter 240 value 5234.558045
## iter 250 value 5232.420615
## iter 260 value 5230.809893
## iter 270 value 5229.137997
## iter 280 value 5228.506097
## iter 290 value 5227.741305
## iter 300 value 5227.392217
## iter 310 value 5227.316512
## iter 320 value 5227.238618
## iter 330 value 5227.232569
## iter 340 value 5227.230850
## iter 350 value 5227.227809
## iter 350 value 5227.227778
## iter 350 value 5227.227777
## final  value 5227.227777
## converged
## # weights:  194
## initial  value 18877.687509
## iter  10 value 6798.750160
## iter  20 value 6029.799691
## iter  30 value 5840.767142
## iter  40 value 5703.642479
## iter  50 value 5558.704908
## iter  60 value 5513.721925
## iter  70 value 5472.790367
## iter  80 value 5435.872471
## iter  90 value 5396.834062
## iter 100 value 5367.664149
## iter 110 value 5344.026884
## iter 120 value 5326.642725
## iter 130 value 5314.610549
## iter 140 value 5305.553174
## iter 150 value 5296.795589
## iter 160 value 5284.257067
## iter 170 value 5277.400371
## iter 180 value 5273.709054
## iter 190 value 5271.297767
## iter 200 value 5269.668760
## iter 210 value 5267.310179
## iter 220 value 5264.937581
## iter 230 value 5263.353761
## iter 240 value 5262.713363
## iter 250 value 5262.358217
## iter 260 value 5262.123337
## iter 270 value 5262.081943
## iter 280 value 5262.078474
## final  value 5262.077874
## converged
```

```
## # weights:  384
## initial  value 20111.031206
## iter  10 value 7223.875627
## iter  20 value 5580.888623
## iter  30 value 5365.553223
## iter  40 value 5254.959338
## iter  50 value 5157.066204
## iter  60 value 5110.929001
## iter  70 value 5078.230678
## iter  80 value 5060.443158
## iter  90 value 5044.953251
## iter 100 value 5034.719078
## iter 110 value 5022.148011
## iter 120 value 5005.173171
## iter 130 value 4988.083166
## iter 140 value 4976.303736
## iter 150 value 4963.705109
## iter 160 value 4952.442093
## iter 170 value 4946.422827
## iter 180 value 4940.480196
## iter 190 value 4937.083671
## iter 200 value 4934.849581
## iter 210 value 4931.890475
## iter 220 value 4929.671854
## iter 230 value 4927.871663
## iter 240 value 4924.943243
## iter 250 value 4922.581207
## iter 260 value 4921.392102
## iter 270 value 4920.484582
## iter 280 value 4919.617678
## iter 290 value 4918.480916
## iter 300 value 4917.336278
## iter 310 value 4916.483561
## iter 320 value 4915.634962
## iter 330 value 4914.661196
## iter 340 value 4913.826943
## iter 350 value 4912.971845
## iter 360 value 4911.746725
## iter 370 value 4909.786407
## iter 380 value 4907.695390
## iter 390 value 4904.961859
## iter 400 value 4902.244839
## iter 410 value 4897.412337
## iter 420 value 4893.723176
## iter 430 value 4891.824803
## iter 440 value 4890.467510
## iter 450 value 4889.720857
## iter 460 value 4888.991726
## iter 470 value 4888.453115
## iter 480 value 4887.938844
## iter 490 value 4887.475002
## iter 500 value 4887.219090
## final  value 4887.219090
## stopped after 500 iterations
## # weights:  384
## initial  value 20707.938816
## iter  10 value 6879.324356
## iter  20 value 5434.636402
## iter  30 value 5289.428029
## iter  40 value 5222.680775
## iter  50 value 5184.189355
## iter  60 value 5164.429083
## iter  70 value 5146.284282
## iter  80 value 5121.529280
## iter  90 value 5103.663809
## iter 100 value 5090.864913
## iter 110 value 5078.770945
## iter 120 value 5072.041432
## iter 130 value 5063.976266
## iter 140 value 5054.796001
## iter 150 value 5045.566919
## iter 160 value 5037.565353
## iter 170 value 5033.158856
## iter 180 value 5030.470861
## iter 190 value 5027.359784
```

```
## iter 200 value 5024.957941
## iter 210 value 5021.654915
## iter 220 value 5017.790561
## iter 230 value 5014.484561
## iter 240 value 5011.141601
## iter 250 value 5008.825430
## iter 260 value 5006.859086
## iter 270 value 5005.747626
## iter 280 value 5004.829284
## iter 290 value 5004.066924
## iter 300 value 5003.566882
## iter 310 value 5003.126965
## iter 320 value 5002.749192
## iter 330 value 5002.232824
## iter 340 value 5001.596723
## iter 350 value 5000.977429
## iter 360 value 5000.292147
## iter 370 value 4999.830250
## iter 380 value 4999.442580
## iter 390 value 4999.132380
## iter 400 value 4998.818700
## iter 410 value 4998.477306
## iter 420 value 4998.182941
## iter 430 value 4998.012385
## iter 440 value 4997.914888
## iter 450 value 4997.853041
## iter 460 value 4997.772691
## iter 470 value 4997.713488
## iter 480 value 4997.692600
## iter 490 value 4997.684230
## iter 500 value 4997.682630
## final  value 4997.682630
## stopped after 500 iterations
## # weights:  384
## initial  value 20295.677090
## iter  10 value 6361.393451
## iter  20 value 5480.347972
## iter  30 value 5355.623940
## iter  40 value 5262.492975
## iter  50 value 5206.414090
## iter  60 value 5180.728392
## iter  70 value 5164.269924
## iter  80 value 5146.358422
## iter  90 value 5138.803451
## iter 100 value 5126.905259
## iter 110 value 5116.017116
## iter 120 value 5108.283876
## iter 130 value 5102.726643
## iter 140 value 5098.830819
## iter 150 value 5095.506071
## iter 160 value 5092.784362
## iter 170 value 5090.110453
## iter 180 value 5086.674024
## iter 190 value 5083.769985
## iter 200 value 5079.877116
## iter 210 value 5071.767497
## iter 220 value 5065.556109
## iter 230 value 5062.896258
## iter 240 value 5060.567927
## iter 250 value 5058.879981
## iter 260 value 5057.524171
## iter 270 value 5056.469110
## iter 280 value 5055.873202
## iter 290 value 5055.496182
## iter 300 value 5055.147647
## iter 310 value 5054.858704
## iter 320 value 5054.431429
## iter 330 value 5053.979881
## iter 340 value 5053.467869
## iter 350 value 5052.663823
## iter 360 value 5051.959906
## iter 370 value 5051.117743
## iter 380 value 5049.692748
## iter 390 value 5048.320175
## iter 400 value 5046.661646
```

```
## iter 410 value 5044.917935
## iter 420 value 5043.883070
## iter 430 value 5042.829235
## iter 440 value 5041.804449
## iter 450 value 5040.661559
## iter 460 value 5039.286766
## iter 470 value 5038.539502
## iter 480 value 5038.069294
## iter 490 value 5037.684371
## iter 500 value 5037.427399
## final  value 5037.427399
## stopped after 500 iterations
## # weights:  574
## initial  value 22329.136058
## iter  10 value 6384.161826
## iter  20 value 5566.468841
## iter  30 value 5304.528182
## iter  40 value 5138.655902
## iter  50 value 5036.359129
## iter  60 value 4981.735502
## iter  70 value 4946.821813
## iter  80 value 4916.403308
## iter  90 value 4886.958624
## iter 100 value 4860.567482
## iter 110 value 4844.146725
## iter 120 value 4835.483675
## iter 130 value 4821.661873
## iter 140 value 4806.606517
## iter 150 value 4795.049871
## iter 160 value 4785.801970
## iter 170 value 4779.389076
## iter 180 value 4773.684574
## iter 190 value 4769.521075
## iter 200 value 4765.264772
## iter 210 value 4761.292149
## iter 220 value 4757.467878
## iter 230 value 4753.747399
## iter 240 value 4750.825775
## iter 250 value 4747.269393
## iter 260 value 4742.993044
## iter 270 value 4740.184945
## iter 280 value 4737.700737
## iter 290 value 4735.207084
## iter 300 value 4732.815675
## iter 310 value 4731.482710
## iter 320 value 4730.398919
## iter 330 value 4728.967924
## iter 340 value 4727.625200
## iter 350 value 4726.273356
## iter 360 value 4724.991724
## iter 370 value 4723.931919
## iter 380 value 4722.080147
## iter 390 value 4719.370908
## iter 400 value 4717.428969
## iter 410 value 4716.585842
## iter 420 value 4716.283353
## iter 430 value 4715.954652
## iter 440 value 4715.651499
## iter 450 value 4715.332921
## iter 460 value 4715.057647
## iter 470 value 4714.861775
## iter 480 value 4714.724256
## iter 490 value 4714.638928
## iter 500 value 4714.539004
## final  value 4714.539004
## stopped after 500 iterations
## # weights:  574
## initial  value 21311.015876
## iter  10 value 7699.865143
## iter  20 value 5743.600343
## iter  30 value 5580.051353
## iter  40 value 5428.365043
## iter  50 value 5326.729110
## iter  60 value 5257.021101
## iter  70 value 5200.041295
```

```
## iter  80 value 5152.291462
## iter  90 value 5115.117723
## iter 100 value 5074.958836
## iter 110 value 5043.478858
## iter 120 value 5018.259510
## iter 130 value 4995.859426
## iter 140 value 4981.625272
## iter 150 value 4966.995637
## iter 160 value 4953.122594
## iter 170 value 4944.889937
## iter 180 value 4936.234643
## iter 190 value 4927.846372
## iter 200 value 4918.388240
## iter 210 value 4908.470087
## iter 220 value 4900.178554
## iter 230 value 4891.993576
## iter 240 value 4887.239898
## iter 250 value 4882.765795
## iter 260 value 4876.542096
## iter 270 value 4870.208945
## iter 280 value 4864.806138
## iter 290 value 4860.175633
## iter 300 value 4856.989145
## iter 310 value 4854.045365
## iter 320 value 4851.185188
## iter 330 value 4846.723981
## iter 340 value 4836.442253
## iter 350 value 4828.691291
## iter 360 value 4825.832279
## iter 370 value 4823.937126
## iter 380 value 4822.142670
## iter 390 value 4820.037675
## iter 400 value 4818.170455
## iter 410 value 4816.704870
## iter 420 value 4815.108823
## iter 430 value 4813.288263
## iter 440 value 4811.227705
## iter 450 value 4808.731611
## iter 460 value 4806.396457
## iter 470 value 4804.777357
## iter 480 value 4803.537499
## iter 490 value 4802.712752
## iter 500 value 4801.872345
## final  value 4801.872345
## stopped after 500 iterations
## # weights:  574
## initial  value 20788.991205
## iter  10 value 6761.618249
## iter  20 value 5822.463168
## iter  30 value 5619.130044
## iter  40 value 5486.221513
## iter  50 value 5389.278114
## iter  60 value 5336.132403
## iter  70 value 5293.377610
## iter  80 value 5241.346468
## iter  90 value 5198.026474
## iter 100 value 5147.255230
## iter 110 value 5112.342952
## iter 120 value 5083.322263
## iter 130 value 5060.561517
## iter 140 value 5038.533124
## iter 150 value 5019.257858
## iter 160 value 5005.550334
## iter 170 value 4996.131836
## iter 180 value 4991.826798
## iter 190 value 4986.615619
## iter 200 value 4980.506658
## iter 210 value 4974.651196
## iter 220 value 4970.057886
## iter 230 value 4965.914220
## iter 240 value 4960.382495
## iter 250 value 4954.637050
## iter 260 value 4949.843230
## iter 270 value 4946.406077
## iter 280 value 4944.098770
```

```
## iter 290 value 4942.445162
## iter 300 value 4940.908018
## iter 310 value 4938.901927
## iter 320 value 4937.324013
## iter 330 value 4936.250124
## iter 340 value 4935.454826
## iter 350 value 4934.862227
## iter 360 value 4934.259796
## iter 370 value 4933.347974
## iter 380 value 4932.673350
## iter 390 value 4932.258680
## iter 400 value 4931.957133
## iter 410 value 4931.761528
## iter 420 value 4931.477231
## iter 430 value 4930.186267
## iter 440 value 4928.613407
## iter 450 value 4927.822635
## iter 460 value 4927.319246
## iter 470 value 4926.945797
## iter 480 value 4926.615893
## iter 490 value 4926.232028
## iter 500 value 4925.865987
## final  value 4925.865987
## stopped after 500 iterations
## # weights:  42
## initial  value 17875.130704
## iter  10 value 13057.230713
## iter  20 value 12223.620082
## iter  30 value 11829.693835
## iter  40 value 11376.307803
## iter  50 value 11132.935880
## iter  60 value 10431.927657
## iter  70 value 9984.454377
## iter  80 value 9173.221114
## iter  90 value 9038.729056
## iter 100 value 9022.521563
## iter 110 value 9013.344488
## iter 120 value 9011.296426
## iter 130 value 9010.887287
## iter 140 value 9010.145463
## iter 150 value 9009.880492
## iter 160 value 9009.871584
## final  value 9009.869856
## converged
## # weights:  42
## initial  value 19610.917391
## iter  10 value 11243.370610
## iter  20 value 11054.920148
## iter  30 value 10644.298647
## iter  40 value 10263.935324
## iter  50 value 9355.015795
## iter  60 value 8999.428043
## iter  70 value 8971.248112
## iter  80 value 8969.071232
## iter  90 value 8968.840086
## iter 100 value 8968.821669
## iter 110 value 8968.806493
## iter 120 value 8968.779194
## final  value 8968.776461
## converged
## # weights:  42
## initial  value 17493.084326
## iter  10 value 13184.449347
## iter  20 value 12514.530280
## iter  30 value 12054.434197
## iter  40 value 11839.863856
## iter  50 value 11751.252954
## iter  60 value 11417.376829
## iter  70 value 10500.088762
## iter  80 value 9690.065021
## iter  90 value 9465.788746
## iter 100 value 9415.473353
## iter 110 value 9397.143057
## iter 120 value 9380.822999
## iter 130 value 9365.534783
```

```
## final  value 9365.521834
## converged
## # weights:  194
## initial  value 17294.925533
## iter  10 value 6813.421797
## iter  20 value 5896.634335
## iter  30 value 5639.205649
## iter  40 value 5481.254316
## iter  50 value 5404.033724
## iter  60 value 5353.758460
## iter  70 value 5321.578273
## iter  80 value 5300.258916
## iter  90 value 5287.800972
## iter 100 value 5280.533482
## iter 110 value 5271.238622
## iter 120 value 5263.780004
## iter 130 value 5254.488983
## iter 140 value 5246.827164
## iter 150 value 5237.300238
## iter 160 value 5228.556774
## iter 170 value 5222.027482
## iter 180 value 5208.466306
## iter 190 value 5182.312797
## iter 200 value 5165.763508
## iter 210 value 5158.874946
## iter 220 value 5154.510757
## iter 230 value 5150.872396
## iter 240 value 5147.749536
## iter 250 value 5141.776647
## iter 260 value 5136.398288
## iter 270 value 5131.017967
## iter 280 value 5126.963637
## iter 290 value 5124.371135
## iter 300 value 5122.127978
## iter 310 value 5121.370402
## iter 320 value 5120.834653
## iter 330 value 5120.445810
## iter 340 value 5119.742106
## iter 350 value 5118.960412
## iter 360 value 5118.436312
## iter 370 value 5118.181863
## iter 380 value 5118.106486
## iter 390 value 5118.086793
## iter 400 value 5118.079592
## iter 410 value 5118.071621
## iter 420 value 5118.066512
## iter 430 value 5118.062993
## iter 440 value 5118.061921
## iter 450 value 5118.060476
## iter 460 value 5118.057304
## iter 470 value 5118.056137
## iter 480 value 5118.054022
## final  value 5118.053139
## converged
## # weights:  194
## initial  value 16001.509050
## iter  10 value 7471.782914
## iter  20 value 6415.173879
## iter  30 value 6227.380935
## iter  40 value 6057.947250
## iter  50 value 5924.491555
## iter  60 value 5803.060123
## iter  70 value 5683.722669
## iter  80 value 5588.791923
## iter  90 value 5504.486673
## iter 100 value 5457.266546
## iter 110 value 5427.889667
## iter 120 value 5403.225916
## iter 130 value 5373.601273
## iter 140 value 5343.816036
## iter 150 value 5321.700392
## iter 160 value 5311.541199
## iter 170 value 5299.440403
## iter 180 value 5287.173422
## iter 190 value 5280.966976
```

```
## iter 200 value 5275.710472
## iter 210 value 5269.128478
## iter 220 value 5264.560621
## iter 230 value 5259.408569
## iter 240 value 5248.655678
## iter 250 value 5242.871301
## iter 260 value 5240.050657
## iter 270 value 5239.228183
## iter 280 value 5238.187178
## iter 290 value 5236.437406
## iter 300 value 5234.590359
## iter 310 value 5233.433604
## iter 320 value 5233.129416
## iter 330 value 5233.012601
## iter 340 value 5232.990962
## iter 350 value 5232.987452
## final  value 5232.987032
## converged
## # weights:  194
## initial  value 19367.752280
## iter  10 value 6737.952802
## iter  20 value 5920.067380
## iter  30 value 5760.098378
## iter  40 value 5651.176903
## iter  50 value 5561.468621
## iter  60 value 5513.566905
## iter  70 value 5475.821574
## iter  80 value 5450.452615
## iter  90 value 5423.209704
## iter 100 value 5401.401356
## iter 110 value 5380.896437
## iter 120 value 5363.267133
## iter 130 value 5353.125797
## iter 140 value 5345.897525
## iter 150 value 5338.375418
## iter 160 value 5329.765127
## iter 170 value 5322.287260
## iter 180 value 5318.411026
## iter 190 value 5312.741522
## iter 200 value 5307.240839
## iter 210 value 5301.627075
## iter 220 value 5293.771715
## iter 230 value 5286.070916
## iter 240 value 5282.286927
## iter 250 value 5278.148112
## iter 260 value 5271.765280
## iter 270 value 5268.002457
## iter 280 value 5267.012032
## iter 290 value 5266.623300
## iter 300 value 5266.462912
## iter 310 value 5266.345649
## iter 320 value 5266.304678
## iter 330 value 5266.284696
## iter 340 value 5266.247588
## iter 350 value 5266.215458
## iter 360 value 5266.196237
## iter 370 value 5266.187120
## iter 380 value 5266.182608
## iter 390 value 5266.181203
## iter 390 value 5266.181197
## final  value 5266.181197
## converged
## # weights:  384
## initial  value 22481.034037
## iter  10 value 6231.225394
## iter  20 value 5407.258270
## iter  30 value 5255.199196
## iter  40 value 5149.139260
## iter  50 value 5102.538691
## iter  60 value 5065.355456
## iter  70 value 5037.958106
## iter  80 value 5019.893688
## iter  90 value 5001.896605
## iter 100 value 4987.840337
## iter 110 value 4976.738695
```

```
## iter 120 value 4965.738702
## iter 130 value 4956.264791
## iter 140 value 4947.300797
## iter 150 value 4941.042112
## iter 160 value 4936.062669
## iter 170 value 4930.097517
## iter 180 value 4924.624408
## iter 190 value 4922.545275
## iter 200 value 4920.822470
## iter 210 value 4918.408550
## iter 220 value 4916.277202
## iter 230 value 4914.804454
## iter 240 value 4914.037706
## iter 250 value 4913.363030
## iter 260 value 4912.729797
## iter 270 value 4912.181369
## iter 280 value 4910.102575
## iter 290 value 4909.240751
## iter 300 value 4908.994158
## iter 310 value 4908.673781
## iter 320 value 4907.857982
## iter 330 value 4906.819961
## iter 340 value 4906.273792
## iter 350 value 4905.764417
## iter 360 value 4905.252857
## iter 370 value 4905.006934
## iter 380 value 4904.448665
## iter 390 value 4903.013096
## iter 400 value 4901.547602
## iter 410 value 4900.303217
## iter 420 value 4899.428786
## iter 430 value 4898.329429
## iter 440 value 4897.270788
## iter 450 value 4895.683794
## iter 460 value 4893.961917
## iter 470 value 4893.591331
## iter 480 value 4893.395694
## iter 490 value 4893.299028
## iter 500 value 4893.242332
## final  value 4893.242332
## stopped after 500 iterations
## # weights:  384
## initial  value 18226.990264
## iter  10 value 6738.214183
## iter  20 value 5570.611903
## iter  30 value 5384.282281
## iter  40 value 5318.693301
## iter  50 value 5256.615648
## iter  60 value 5210.499641
## iter  70 value 5185.765204
## iter  80 value 5162.660277
## iter  90 value 5151.465281
## iter 100 value 5138.259752
## iter 110 value 5126.545911
## iter 120 value 5117.212634
## iter 130 value 5103.927919
## iter 140 value 5090.664801
## iter 150 value 5078.696320
## iter 160 value 5069.928060
## iter 170 value 5059.219404
## iter 180 value 5049.046502
## iter 190 value 5040.296313
## iter 200 value 5034.424476
## iter 210 value 5027.791168
## iter 220 value 5021.740187
## iter 230 value 5017.270485
## iter 240 value 5014.420233
## iter 250 value 5012.202596
## iter 260 value 5010.488245
## iter 270 value 5009.077650
## iter 280 value 5007.817120
## iter 290 value 5006.766877
## iter 300 value 5005.855904
## iter 310 value 5004.843374
## iter 320 value 5003.927210
```

```
## iter 330 value 5002.791839
## iter 340 value 5001.404489
## iter 350 value 4999.419409
## iter 360 value 4997.635600
## iter 370 value 4996.318108
## iter 380 value 4995.624625
## iter 390 value 4994.915930
## iter 400 value 4992.932150
## iter 410 value 4991.731940
## iter 420 value 4990.784859
## iter 430 value 4990.036908
## iter 440 value 4989.421540
## iter 450 value 4988.498200
## iter 460 value 4986.899425
## iter 470 value 4986.221457
## iter 480 value 4985.829011
## iter 490 value 4985.554115
## iter 500 value 4985.329197
## final  value 4985.329197
## stopped after 500 iterations
## # weights:  384
## initial  value 17071.536789
## iter  10 value 6577.253262
## iter  20 value 5708.696111
## iter  30 value 5550.688405
## iter  40 value 5430.404118
## iter  50 value 5345.193294
## iter  60 value 5302.038947
## iter  70 value 5253.447821
## iter  80 value 5209.188133
## iter  90 value 5166.649030
## iter 100 value 5149.169767
## iter 110 value 5131.972811
## iter 120 value 5117.407409
## iter 130 value 5107.093919
## iter 140 value 5097.840175
## iter 150 value 5089.958986
## iter 160 value 5082.033683
## iter 170 value 5075.888491
## iter 180 value 5069.802988
## iter 190 value 5063.273348
## iter 200 value 5059.101864
## iter 210 value 5055.664171
## iter 220 value 5052.580735
## iter 230 value 5050.487939
## iter 240 value 5049.108506
## iter 250 value 5047.392775
## iter 260 value 5045.067149
## iter 270 value 5042.918370
## iter 280 value 5041.656950
## iter 290 value 5040.852597
## iter 300 value 5040.216409
## iter 310 value 5039.713811
## iter 320 value 5039.247636
## iter 330 value 5038.678007
## iter 340 value 5038.272001
## iter 350 value 5037.836604
## iter 360 value 5037.483246
## iter 370 value 5037.201656
## iter 380 value 5036.971530
## iter 390 value 5036.792664
## iter 400 value 5036.643255
## iter 410 value 5036.553422
## iter 420 value 5036.489292
## iter 430 value 5036.448272
## iter 440 value 5036.378282
## iter 450 value 5036.300442
## iter 460 value 5036.243830
## iter 470 value 5036.219060
## iter 480 value 5036.210231
## iter 490 value 5036.203418
## iter 500 value 5036.194097
## final  value 5036.194097
## stopped after 500 iterations
## # weights:  574
```

```
## initial  value 19246.011459
## iter  10 value 6723.128435
## iter  20 value 5381.319183
## iter  30 value 5175.400743
## iter  40 value 5038.219666
## iter  50 value 4955.977137
## iter  60 value 4895.799548
## iter  70 value 4862.833851
## iter  80 value 4834.817496
## iter  90 value 4817.206051
## iter 100 value 4805.803721
## iter 110 value 4792.063588
## iter 120 value 4778.443247
## iter 130 value 4765.204660
## iter 140 value 4754.932152
## iter 150 value 4744.495358
## iter 160 value 4732.735926
## iter 170 value 4719.003740
## iter 180 value 4707.936819
## iter 190 value 4702.013391
## iter 200 value 4697.288481
## iter 210 value 4693.570166
## iter 220 value 4691.293485
## iter 230 value 4689.786915
## iter 240 value 4687.624018
## iter 250 value 4685.126101
## iter 260 value 4682.661632
## iter 270 value 4679.497861
## iter 280 value 4676.687957
## iter 290 value 4674.233610
## iter 300 value 4672.393823
## iter 310 value 4671.006039
## iter 320 value 4669.666092
## iter 330 value 4667.966385
## iter 340 value 4665.674918
## iter 350 value 4663.489273
## iter 360 value 4661.975193
## iter 370 value 4661.106959
## iter 380 value 4660.472385
## iter 390 value 4659.936823
## iter 400 value 4659.434704
## iter 410 value 4658.928805
## iter 420 value 4658.424645
## iter 430 value 4658.096099
## iter 440 value 4657.758168
## iter 450 value 4657.515432
## iter 460 value 4657.255270
## iter 470 value 4656.926874
## iter 480 value 4656.567562
## iter 490 value 4656.180599
## iter 500 value 4655.343993
## final  value 4655.343993
## stopped after 500 iterations
## # weights:  574
## initial  value 23280.997825
## iter  10 value 6707.886402
## iter  20 value 5687.819647
## iter  30 value 5482.940860
## iter  40 value 5364.132399
## iter  50 value 5273.089705
## iter  60 value 5225.191226
## iter  70 value 5155.912609
## iter  80 value 5099.080411
## iter  90 value 5051.075441
## iter 100 value 5016.238637
## iter 110 value 4981.825341
## iter 120 value 4964.861963
## iter 130 value 4951.986825
## iter 140 value 4939.258099
## iter 150 value 4929.036122
## iter 160 value 4922.389253
## iter 170 value 4914.330323
## iter 180 value 4908.114776
## iter 190 value 4900.988949
## iter 200 value 4895.050497
```

```
## iter 210 value 4891.163051
## iter 220 value 4886.431636
## iter 230 value 4881.347275
## iter 240 value 4877.841479
## iter 250 value 4875.482597
## iter 260 value 4868.852439
## iter 270 value 4859.551505
## iter 280 value 4855.391922
## iter 290 value 4852.653393
## iter 300 value 4850.040297
## iter 310 value 4847.564262
## iter 320 value 4845.950922
## iter 330 value 4845.277990
## iter 340 value 4844.929286
## iter 350 value 4844.555864
## iter 360 value 4844.182844
## iter 370 value 4843.916190
## iter 380 value 4843.573382
## iter 390 value 4842.367848
## iter 400 value 4840.124560
## iter 410 value 4838.972409
## iter 420 value 4837.960419
## iter 430 value 4836.335853
## iter 440 value 4834.751605
## iter 450 value 4833.683822
## iter 460 value 4832.826495
## iter 470 value 4832.311064
## iter 480 value 4831.854476
## iter 490 value 4831.511318
## iter 500 value 4831.257757
## final  value 4831.257757
## stopped after 500 iterations
## # weights:  574
## initial  value 24619.365969
## iter  10 value 6173.084579
## iter  20 value 5357.089382
## iter  30 value 5256.768108
## iter  40 value 5158.990945
## iter  50 value 5061.713656
## iter  60 value 5024.512157
## iter  70 value 5000.141329
## iter  80 value 4977.579386
## iter  90 value 4966.717477
## iter 100 value 4956.051563
## iter 110 value 4946.881414
## iter 120 value 4940.346548
## iter 130 value 4933.895109
## iter 140 value 4928.146705
## iter 150 value 4922.369821
## iter 160 value 4917.365129
## iter 170 value 4913.769694
## iter 180 value 4911.067796
## iter 190 value 4907.026737
## iter 200 value 4902.911270
## iter 210 value 4899.254300
## iter 220 value 4897.058869
## iter 230 value 4895.222005
## iter 240 value 4893.873951
## iter 250 value 4893.039348
## iter 260 value 4892.311007
## iter 270 value 4891.758826
## iter 280 value 4891.234814
## iter 290 value 4890.747874
## iter 300 value 4890.320638
## iter 310 value 4889.920035
## iter 320 value 4889.524785
## iter 330 value 4889.050216
## iter 340 value 4888.613242
## iter 350 value 4888.296541
## iter 360 value 4888.059222
## iter 370 value 4887.897882
## iter 380 value 4887.663426
## iter 390 value 4887.279036
## iter 400 value 4886.711276
## iter 410 value 4886.219406
```

```
## iter 420 value 4885.926000
## iter 430 value 4885.670214
## iter 440 value 4885.441098
## iter 450 value 4885.262453
## iter 460 value 4885.090593
## iter 470 value 4884.969312
## iter 480 value 4884.875034
## iter 490 value 4884.772908
## iter 500 value 4884.622699
## final  value 4884.622699
## stopped after 500 iterations
## # weights:  42
## initial  value 20650.007231
## iter  10 value 12061.967839
## iter  20 value 11213.317278
## iter  30 value 10743.595679
## iter  40 value 10224.882411
## iter  50 value 9541.880323
## iter  60 value 8794.428671
## iter  70 value 8750.264892
## iter  80 value 8706.150804
## iter  90 value 8699.375128
## iter 100 value 8694.392083
## iter 110 value 8684.425080
## iter 120 value 8669.462881
## iter 130 value 8657.743496
## final  value 8657.740290
## converged
## # weights:  42
## initial  value 18523.724391
## iter  10 value 11751.436051
## iter  20 value 11147.251041
## iter  30 value 10937.115015
## iter  40 value 10742.540549
## iter  50 value 10374.399408
## iter  60 value 9812.796869
## iter  70 value 9488.813162
## iter  80 value 9299.961754
## iter  90 value 9160.018763
## iter 100 value 9069.627663
## iter 110 value 9024.687573
## iter 120 value 8986.853764
## iter 130 value 8964.175340
## final  value 8964.168760
## converged
## # weights:  42
## initial  value 18855.228240
## iter  10 value 12282.226075
## iter  20 value 11591.971806
## iter  30 value 11043.759714
## iter  40 value 10746.423206
## iter  50 value 10313.987856
## iter  60 value 9667.438019
## iter  70 value 9459.221429
## iter  80 value 9423.670291
## iter  90 value 9405.671046
## iter 100 value 9394.211838
## iter 110 value 9389.198851
## iter 120 value 9384.874629
## iter 130 value 9381.948234
## iter 130 value 9381.948221
## iter 130 value 9381.948221
## final  value 9381.948221
## converged
## # weights:  194
## initial  value 19927.889233
## iter  10 value 6932.807557
## iter  20 value 6082.794744
## iter  30 value 5831.590602
## iter  40 value 5638.084685
## iter  50 value 5553.467943
## iter  60 value 5479.228968
## iter  70 value 5415.865642
## iter  80 value 5372.348477
## iter  90 value 5345.444069
```

```
## iter 100 value 5317.494697
## iter 110 value 5291.372709
## iter 120 value 5274.368384
## iter 130 value 5256.922390
## iter 140 value 5235.227661
## iter 150 value 5220.813263
## iter 160 value 5209.985519
## iter 170 value 5199.451347
## iter 180 value 5191.625105
## iter 190 value 5185.691053
## iter 200 value 5179.685230
## iter 210 value 5174.924629
## iter 220 value 5169.022165
## iter 230 value 5165.502117
## iter 240 value 5162.458854
## iter 250 value 5161.439283
## iter 260 value 5161.057633
## iter 270 value 5160.895101
## iter 280 value 5160.752186
## iter 290 value 5160.624482
## iter 300 value 5160.384066
## iter 310 value 5160.336006
## iter 320 value 5160.299022
## iter 330 value 5160.273801
## iter 340 value 5160.248608
## final  value 5160.247153
## converged
## # weights:  194
## initial  value 18118.224423
## iter  10 value 7093.641927
## iter  20 value 6107.740894
## iter  30 value 5935.772659
## iter  40 value 5829.919848
## iter  50 value 5761.792378
## iter  60 value 5662.842790
## iter  70 value 5581.504137
## iter  80 value 5497.131440
## iter  90 value 5415.657048
## iter 100 value 5373.218422
## iter 110 value 5335.147134
## iter 120 value 5316.501072
## iter 130 value 5307.265637
## iter 140 value 5298.854966
## iter 150 value 5292.170233
## iter 160 value 5288.676041
## iter 170 value 5285.408501
## iter 180 value 5282.139340
## iter 190 value 5279.236710
## iter 200 value 5275.531692
## iter 210 value 5271.848086
## iter 220 value 5266.320821
## iter 230 value 5252.886691
## iter 240 value 5243.213364
## iter 250 value 5234.176640
## iter 260 value 5230.321664
## iter 270 value 5228.414217
## iter 280 value 5227.918025
## iter 290 value 5227.786152
## iter 300 value 5227.569428
## iter 310 value 5224.799798
## iter 320 value 5222.532366
## iter 330 value 5222.172923
## iter 340 value 5221.895432
## iter 350 value 5221.680555
## iter 360 value 5221.600675
## iter 370 value 5221.578544
## final  value 5221.576638
## converged
## # weights:  194
## initial  value 20523.198859
## iter  10 value 6352.469502
## iter  20 value 5783.430626
## iter  30 value 5654.847909
## iter  40 value 5567.509456
## iter  50 value 5456.314865
```

```
## iter  60 value 5428.270541
## iter  70 value 5402.809506
## iter  80 value 5383.466219
## iter  90 value 5370.451024
## iter 100 value 5361.464310
## iter 110 value 5351.460224
## iter 120 value 5343.354848
## iter 130 value 5334.968850
## iter 140 value 5325.812396
## iter 150 value 5320.671819
## iter 160 value 5317.204070
## iter 170 value 5311.927218
## iter 180 value 5304.082305
## iter 190 value 5295.613554
## iter 200 value 5285.498263
## iter 210 value 5280.156372
## iter 220 value 5277.113934
## iter 230 value 5272.863233
## iter 240 value 5272.042510
## iter 250 value 5271.570798
## iter 260 value 5271.109514
## iter 270 value 5270.910194
## iter 280 value 5270.842287
## iter 290 value 5270.811421
## iter 300 value 5270.782181
## iter 310 value 5270.773536
## iter 320 value 5270.750356
## final  value 5270.749580
## converged
## # weights:  384
## initial  value 21296.415146
## iter  10 value 6049.271312
## iter  20 value 5375.356811
## iter  30 value 5241.639146
## iter  40 value 5143.265382
## iter  50 value 5095.473113
## iter  60 value 5060.399360
## iter  70 value 5043.085563
## iter  80 value 5034.758213
## iter  90 value 5024.142820
## iter 100 value 5006.373759
## iter 110 value 4992.233544
## iter 120 value 4975.477290
## iter 130 value 4962.937927
## iter 140 value 4954.123890
## iter 150 value 4948.065439
## iter 160 value 4943.241090
## iter 170 value 4939.094083
## iter 180 value 4936.170603
## iter 190 value 4933.039035
## iter 200 value 4929.145328
## iter 210 value 4926.005533
## iter 220 value 4924.063677
## iter 230 value 4922.341419
## iter 240 value 4921.115571
## iter 250 value 4920.510461
## iter 260 value 4920.004874
## iter 270 value 4919.402478
## iter 280 value 4918.656187
## iter 290 value 4917.949574
## iter 300 value 4917.300304
## iter 310 value 4916.533938
## iter 320 value 4915.804191
## iter 330 value 4915.091929
## iter 340 value 4914.698377
## iter 350 value 4914.278230
## iter 360 value 4913.963748
## iter 370 value 4913.791967
## iter 380 value 4913.602081
## iter 390 value 4913.453343
## iter 400 value 4913.384707
## iter 410 value 4913.342648
## iter 420 value 4913.299253
## iter 430 value 4913.268006
## iter 440 value 4913.232398
```

```
## iter 450 value 4913.216360
## iter 460 value 4913.209684
## iter 470 value 4913.201788
## iter 480 value 4913.196196
## iter 490 value 4913.194015
## iter 500 value 4913.191246
## final  value 4913.191246
## stopped after 500 iterations
## # weights:  384
## initial  value 20619.305378
## iter  10 value 6600.134822
## iter  20 value 5487.569675
## iter  30 value 5296.839309
## iter  40 value 5228.322555
## iter  50 value 5181.463680
## iter  60 value 5148.781769
## iter  70 value 5111.407374
## iter  80 value 5096.404415
## iter  90 value 5079.602160
## iter 100 value 5069.441457
## iter 110 value 5060.343190
## iter 120 value 5051.100909
## iter 130 value 5041.510274
## iter 140 value 5033.072102
## iter 150 value 5026.727946
## iter 160 value 5023.163126
## iter 170 value 5020.858225
## iter 180 value 5019.197178
## iter 190 value 5018.343773
## iter 200 value 5017.549637
## iter 210 value 5016.793562
## iter 220 value 5016.201935
## iter 230 value 5015.661600
## iter 240 value 5015.232184
## iter 250 value 5014.902783
## iter 260 value 5014.302291
## iter 270 value 5013.557238
## iter 280 value 5012.709967
## iter 290 value 5011.635592
## iter 300 value 5010.393829
## iter 310 value 5009.642483
## iter 320 value 5009.201861
## iter 330 value 5008.749273
## iter 340 value 5008.320771
## iter 350 value 5007.705105
## iter 360 value 5007.151192
## iter 370 value 5006.727109
## iter 380 value 5006.180740
## iter 390 value 5005.659323
## iter 400 value 5005.000673
## iter 410 value 5003.180233
## iter 420 value 5002.506429
## iter 430 value 5002.017828
## iter 440 value 5001.766648
## iter 450 value 5001.616753
## iter 460 value 5001.486720
## iter 470 value 5001.370377
## iter 480 value 5001.254116
## iter 490 value 5001.201299
## iter 500 value 5001.187323
## final  value 5001.187323
## stopped after 500 iterations
## # weights:  384
## initial  value 21555.058379
## iter  10 value 6489.126015
## iter  20 value 5562.608582
## iter  30 value 5418.193786
## iter  40 value 5335.223640
## iter  50 value 5287.764730
## iter  60 value 5260.447364
## iter  70 value 5233.432901
## iter  80 value 5205.141145
## iter  90 value 5180.726255
## iter 100 value 5160.896745
## iter 110 value 5144.883875
```

```
## iter 120 value 5130.801114
## iter 130 value 5119.348588
## iter 140 value 5112.635576
## iter 150 value 5107.487887
## iter 160 value 5103.056855
## iter 170 value 5098.111614
## iter 180 value 5091.321370
## iter 190 value 5084.501277
## iter 200 value 5076.295000
## iter 210 value 5070.367789
## iter 220 value 5066.515240
## iter 230 value 5063.061053
## iter 240 value 5061.289410
## iter 250 value 5060.304094
## iter 260 value 5059.666162
## iter 270 value 5059.060302
## iter 280 value 5058.400442
## iter 290 value 5057.720679
## iter 300 value 5057.024460
## iter 310 value 5056.568296
## iter 320 value 5056.161719
## iter 330 value 5055.882109
## iter 340 value 5055.661507
## iter 350 value 5055.456603
## iter 360 value 5055.208092
## iter 370 value 5054.792930
## iter 380 value 5054.515878
## iter 390 value 5054.321415
## iter 400 value 5054.155373
## iter 410 value 5054.052880
## iter 420 value 5053.923583
## iter 430 value 5053.793214
## iter 440 value 5053.685699
## iter 450 value 5053.535055
## iter 460 value 5053.483631
## iter 470 value 5053.467814
## iter 480 value 5053.437484
## iter 490 value 5053.425734
## iter 500 value 5053.367788
## final  value 5053.367788
## stopped after 500 iterations
## # weights:  574
## initial  value 25160.365823
## iter  10 value 6683.746430
## iter  20 value 5513.343874
## iter  30 value 5286.598558
## iter  40 value 5113.513389
## iter  50 value 5030.041420
## iter  60 value 4976.140860
## iter  70 value 4942.137103
## iter  80 value 4920.685498
## iter  90 value 4900.750098
## iter 100 value 4885.637872
## iter 110 value 4867.895991
## iter 120 value 4852.744317
## iter 130 value 4837.046765
## iter 140 value 4820.914024
## iter 150 value 4813.562187
## iter 160 value 4807.955011
## iter 170 value 4799.361928
## iter 180 value 4790.331624
## iter 190 value 4781.190190
## iter 200 value 4771.686124
## iter 210 value 4764.242280
## iter 220 value 4761.035629
## iter 230 value 4758.226027
## iter 240 value 4755.421880
## iter 250 value 4753.446824
## iter 260 value 4752.084517
## iter 270 value 4751.115262
## iter 280 value 4750.352054
## iter 290 value 4749.551147
## iter 300 value 4748.374973
## iter 310 value 4747.232241
## iter 320 value 4745.660366
```

```
## iter 330 value 4740.404869
## iter 340 value 4732.048258
## iter 350 value 4727.412599
## iter 360 value 4724.932210
## iter 370 value 4722.189087
## iter 380 value 4719.313002
## iter 390 value 4717.971149
## iter 400 value 4717.429049
## iter 410 value 4717.071299
## iter 420 value 4716.556179
## iter 430 value 4716.048249
## iter 440 value 4712.684205
## iter 450 value 4710.836387
## iter 460 value 4709.745648
## iter 470 value 4709.001424
## iter 480 value 4705.920458
## iter 490 value 4701.504441
## iter 500 value 4699.614809
## final  value 4699.614809
## stopped after 500 iterations
## # weights:  574
## initial  value 22999.531562
## iter  10 value 6714.284211
## iter  20 value 5682.261657
## iter  30 value 5449.833569
## iter  40 value 5321.859956
## iter  50 value 5232.426498
## iter  60 value 5188.077784
## iter  70 value 5137.055058
## iter  80 value 5089.228873
## iter  90 value 5057.971286
## iter 100 value 5032.667112
## iter 110 value 5014.161704
## iter 120 value 5002.637415
## iter 130 value 4989.101888
## iter 140 value 4974.695859
## iter 150 value 4969.030051
## iter 160 value 4955.818833
## iter 170 value 4942.039076
## iter 180 value 4925.683722
## iter 190 value 4917.392981
## iter 200 value 4911.258627
## iter 210 value 4904.823189
## iter 220 value 4899.923766
## iter 230 value 4895.811249
## iter 240 value 4892.078560
## iter 250 value 4887.896709
## iter 260 value 4884.479728
## iter 270 value 4881.481852
## iter 280 value 4879.323785
## iter 290 value 4876.944322
## iter 300 value 4874.524943
## iter 310 value 4871.868030
## iter 320 value 4868.844755
## iter 330 value 4866.600629
## iter 340 value 4864.648645
## iter 350 value 4863.026863
## iter 360 value 4861.610581
## iter 370 value 4860.345188
## iter 380 value 4859.203868
## iter 390 value 4857.935828
## iter 400 value 4855.911698
## iter 410 value 4853.314855
## iter 420 value 4851.107527
## iter 430 value 4849.008148
## iter 440 value 4847.068207
## iter 450 value 4845.002843
## iter 460 value 4841.528410
## iter 470 value 4838.437436
## iter 480 value 4833.335018
## iter 490 value 4828.296406
## iter 500 value 4824.927501
## final  value 4824.927501
## stopped after 500 iterations
## # weights:  574
```

```
## initial  value 25572.221582
## iter  10 value 6297.883302
## iter  20 value 5417.032492
## iter  30 value 5275.523457
## iter  40 value 5169.360541
## iter  50 value 5077.521284
## iter  60 value 5041.001332
## iter  70 value 5018.593100
## iter  80 value 4998.099770
## iter  90 value 4980.813301
## iter 100 value 4962.551978
## iter 110 value 4949.103431
## iter 120 value 4937.716398
## iter 130 value 4931.928115
## iter 140 value 4926.551074
## iter 150 value 4922.883898
## iter 160 value 4919.503459
## iter 170 value 4916.733795
## iter 180 value 4913.003271
## iter 190 value 4908.866337
## iter 200 value 4905.650832
## iter 210 value 4902.474635
## iter 220 value 4899.857536
## iter 230 value 4896.650312
## iter 240 value 4893.595718
## iter 250 value 4890.616465
## iter 260 value 4887.141035
## iter 270 value 4884.331617
## iter 280 value 4882.662760
## iter 290 value 4881.019399
## iter 300 value 4879.352342
## iter 310 value 4877.766243
## iter 320 value 4876.524759
## iter 330 value 4875.745771
## iter 340 value 4875.181266
## iter 350 value 4874.730752
## iter 360 value 4874.430185
## iter 370 value 4874.183588
## iter 380 value 4873.913673
## iter 390 value 4873.698709
## iter 400 value 4873.548376
## iter 410 value 4873.455242
## iter 420 value 4873.346719
## iter 430 value 4873.257526
## iter 440 value 4873.078583
## iter 450 value 4872.869420
## iter 460 value 4872.632447
## iter 470 value 4872.411130
## iter 480 value 4872.021550
## iter 490 value 4871.687841
## iter 500 value 4871.376315
## final  value 4871.376315
## stopped after 500 iterations
## # weights:  42
## initial  value 20720.361089
## iter  10 value 13363.775782
## iter  20 value 12293.451095
## iter  30 value 11977.178267
## iter  40 value 11635.071362
## iter  50 value 10918.481527
## iter  60 value 9806.208018
## iter  70 value 9411.734714
## iter  80 value 9231.740942
## iter  90 value 9144.426451
## iter 100 value 9103.038170
## iter 110 value 9078.471832
## iter 120 value 9026.911526
## iter 130 value 8973.401852
## iter 140 value 8968.135970
## final  value 8968.135868
## converged
## # weights:  42
## initial  value 18763.062513
## iter  10 value 12276.095909
## iter  20 value 11480.843022
```

```
## iter  30 value 10906.246431
## iter  40 value 10321.151541
## iter  50 value 9534.326618
## iter  60 value 9337.778229
## iter  70 value 9270.378551
## iter  80 value 9218.205594
## iter  90 value 9205.842195
## iter 100 value 9205.741255
## iter 110 value 9205.685454
## iter 120 value 9205.654743
## iter 130 value 9205.571519
## final  value 9205.570567
## converged
## # weights:  42
## initial  value 17883.570714
## iter  10 value 12702.842324
## iter  20 value 12227.794313
## iter  30 value 11990.794111
## iter  40 value 11658.311742
## iter  50 value 11334.138270
## iter  60 value 10505.345642
## iter  70 value 9806.553426
## iter  80 value 9462.296786
## iter  90 value 9401.902957
## iter 100 value 9362.340795
## iter 110 value 9354.815406
## iter 120 value 9343.276049
## iter 130 value 9334.202290
## final  value 9334.191675
## converged
## # weights:  194
## initial  value 17408.599020
## iter  10 value 7056.854591
## iter  20 value 5964.067945
## iter  30 value 5653.385955
## iter  40 value 5551.562525
## iter  50 value 5471.287380
## iter  60 value 5423.171664
## iter  70 value 5395.190122
## iter  80 value 5369.193006
## iter  90 value 5346.363657
## iter 100 value 5327.232613
## iter 110 value 5307.367091
## iter 120 value 5282.350028
## iter 130 value 5264.690703
## iter 140 value 5248.647619
## iter 150 value 5237.923932
## iter 160 value 5228.004190
## iter 170 value 5219.801117
## iter 180 value 5214.310746
## iter 190 value 5209.616863
## iter 200 value 5205.396867
## iter 210 value 5196.583233
## iter 220 value 5184.795651
## iter 230 value 5172.177797
## iter 240 value 5165.684635
## iter 250 value 5160.646216
## iter 260 value 5156.199026
## iter 270 value 5153.814222
## iter 280 value 5151.744694
## iter 290 value 5150.876613
## iter 300 value 5150.514090
## iter 310 value 5150.286974
## iter 320 value 5150.038834
## iter 330 value 5149.961009
## iter 340 value 5149.892570
## iter 350 value 5149.834719
## iter 360 value 5149.761143
## iter 370 value 5149.713908
## iter 380 value 5149.701162
## iter 390 value 5149.696581
## iter 390 value 5149.696566
## final  value 5149.696566
## converged
## # weights:  194
```

```
## initial  value 20912.671594
## iter  10 value 7601.311414
## iter  20 value 6255.691513
## iter  30 value 5911.406281
## iter  40 value 5765.895774
## iter  50 value 5645.511827
## iter  60 value 5502.537233
## iter  70 value 5421.773655
## iter  80 value 5360.113877
## iter  90 value 5333.087231
## iter 100 value 5316.212519
## iter 110 value 5304.670429
## iter 120 value 5294.266386
## iter 130 value 5283.704327
## iter 140 value 5274.189825
## iter 150 value 5260.122671
## iter 160 value 5251.276686
## iter 170 value 5245.092888
## iter 180 value 5241.183732
## iter 190 value 5238.138812
## iter 200 value 5236.515976
## iter 210 value 5235.375271
## iter 220 value 5233.942366
## iter 230 value 5231.225353
## iter 240 value 5229.932411
## iter 250 value 5228.446673
## iter 260 value 5226.697694
## iter 270 value 5221.627518
## iter 280 value 5218.967754
## iter 290 value 5217.506307
## iter 300 value 5216.890903
## iter 310 value 5216.782494
## iter 320 value 5216.755343
## iter 330 value 5216.676637
## iter 340 value 5216.644680
## iter 350 value 5216.634757
## iter 360 value 5216.630276
## final  value 5216.626908
## converged
## # weights:  194
## initial  value 19786.517478
## iter  10 value 8631.032990
## iter  20 value 6807.123829
## iter  30 value 6407.255730
## iter  40 value 6123.755390
## iter  50 value 5980.635593
## iter  60 value 5793.702086
## iter  70 value 5662.063091
## iter  80 value 5524.392548
## iter  90 value 5455.037343
## iter 100 value 5397.167395
## iter 110 value 5370.663254
## iter 120 value 5354.396007
## iter 130 value 5343.979524
## iter 140 value 5337.218689
## iter 150 value 5331.415862
## iter 160 value 5326.425897
## iter 170 value 5321.709139
## iter 180 value 5318.136693
## iter 190 value 5314.401937
## iter 200 value 5311.807759
## iter 210 value 5308.831834
## iter 220 value 5304.520689
## iter 230 value 5296.092461
## iter 240 value 5285.722943
## iter 250 value 5282.439073
## iter 260 value 5281.360300
## iter 270 value 5280.165006
## iter 280 value 5279.096756
## iter 290 value 5277.135018
## iter 300 value 5274.993037
## iter 310 value 5274.198678
## iter 320 value 5273.841308
## iter 330 value 5273.767887
## iter 340 value 5273.758550
```

```
## iter 350 value 5273.757386
## iter 360 value 5273.752756
## iter 370 value 5273.751584
## final  value 5273.751273
## converged
## # weights:  384
## initial  value 20499.068679
## iter  10 value 6257.908266
## iter  20 value 5475.529433
## iter  30 value 5351.031529
## iter  40 value 5262.547157
## iter  50 value 5191.996270
## iter  60 value 5130.091699
## iter  70 value 5085.432336
## iter  80 value 5062.797319
## iter  90 value 5047.368104
## iter 100 value 5035.776987
## iter 110 value 5023.731733
## iter 120 value 5011.832174
## iter 130 value 5006.414199
## iter 140 value 5001.734915
## iter 150 value 4996.955852
## iter 160 value 4993.122848
## iter 170 value 4990.132819
## iter 180 value 4985.347068
## iter 190 value 4979.788108
## iter 200 value 4971.481613
## iter 210 value 4964.681664
## iter 220 value 4960.161143
## iter 230 value 4957.318697
## iter 240 value 4954.097110
## iter 250 value 4950.451946
## iter 260 value 4945.987521
## iter 270 value 4940.147931
## iter 280 value 4933.464749
## iter 290 value 4929.583105
## iter 300 value 4927.255689
## iter 310 value 4925.761239
## iter 320 value 4924.743462
## iter 330 value 4923.594277
## iter 340 value 4922.154770
## iter 350 value 4921.050363
## iter 360 value 4919.796206
## iter 370 value 4918.589648
## iter 380 value 4917.486545
## iter 390 value 4916.980885
## iter 400 value 4916.588443
## iter 410 value 4915.994090
## iter 420 value 4914.693338
## iter 430 value 4913.599930
## iter 440 value 4912.596862
## iter 450 value 4909.458901
## iter 460 value 4904.760205
## iter 470 value 4902.711887
## iter 480 value 4900.845464
## iter 490 value 4897.484050
## iter 500 value 4895.889975
## final  value 4895.889975
## stopped after 500 iterations
## # weights:  384
## initial  value 17622.377197
## iter  10 value 7083.594822
## iter  20 value 5904.500172
## iter  30 value 5718.125408
## iter  40 value 5643.637631
## iter  50 value 5521.119481
## iter  60 value 5453.279230
## iter  70 value 5410.695271
## iter  80 value 5372.572253
## iter  90 value 5338.404025
## iter 100 value 5306.098619
## iter 110 value 5258.871804
## iter 120 value 5228.887153
## iter 130 value 5194.338030
## iter 140 value 5174.543032
```

```
## iter 150 value 5157.823958
## iter 160 value 5143.598335
## iter 170 value 5131.032780
## iter 180 value 5120.257783
## iter 190 value 5108.145379
## iter 200 value 5100.897861
## iter 210 value 5090.890775
## iter 220 value 5083.081757
## iter 230 value 5077.365001
## iter 240 value 5073.643526
## iter 250 value 5069.215723
## iter 260 value 5065.207637
## iter 270 value 5061.277922
## iter 280 value 5057.604356
## iter 290 value 5054.236200
## iter 300 value 5050.350835
## iter 310 value 5046.975950
## iter 320 value 5044.633858
## iter 330 value 5042.578112
## iter 340 value 5040.314733
## iter 350 value 5037.156738
## iter 360 value 5034.648766
## iter 370 value 5032.672003
## iter 380 value 5031.356109
## iter 390 value 5030.353701
## iter 400 value 5029.273133
## iter 410 value 5027.487340
## iter 420 value 5025.597192
## iter 430 value 5024.587345
## iter 440 value 5023.227663
## iter 450 value 5021.917426
## iter 460 value 5020.824270
## iter 470 value 5020.076921
## iter 480 value 5019.302393
## iter 490 value 5018.146715
## iter 500 value 5015.795467
## final  value 5015.795467
## stopped after 500 iterations
## # weights:  384
## initial  value 19391.576015
## iter  10 value 6595.946242
## iter  20 value 5656.416403
## iter  30 value 5504.763182
## iter  40 value 5405.034095
## iter  50 value 5340.386741
## iter  60 value 5309.353651
## iter  70 value 5271.164318
## iter  80 value 5241.425411
## iter  90 value 5220.105142
## iter 100 value 5191.995706
## iter 110 value 5168.083754
## iter 120 value 5154.552635
## iter 130 value 5141.542712
## iter 140 value 5133.742863
## iter 150 value 5126.209527
## iter 160 value 5119.458576
## iter 170 value 5114.020001
## iter 180 value 5108.545567
## iter 190 value 5103.823742
## iter 200 value 5100.146952
## iter 210 value 5095.706008
## iter 220 value 5090.887798
## iter 230 value 5087.409038
## iter 240 value 5084.622845
## iter 250 value 5081.907603
## iter 260 value 5079.673364
## iter 270 value 5078.232529
## iter 280 value 5077.223277
## iter 290 value 5075.860343
## iter 300 value 5074.311162
## iter 310 value 5072.877431
## iter 320 value 5071.396801
## iter 330 value 5069.601751
## iter 340 value 5068.051451
## iter 350 value 5067.058668
```

```
## iter 360 value 5066.324901
## iter 370 value 5065.146620
## iter 380 value 5064.043126
## iter 390 value 5062.360645
## iter 400 value 5060.653368
## iter 410 value 5059.592460
## iter 420 value 5058.883206
## iter 430 value 5058.314013
## iter 440 value 5057.606030
## iter 450 value 5057.077596
## iter 460 value 5056.739968
## iter 470 value 5056.367326
## iter 480 value 5055.790466
## iter 490 value 5055.458388
## iter 500 value 5055.241181
## final  value 5055.241181
## stopped after 500 iterations
## # weights:  574
## initial  value 19116.283770
## iter  10 value 6108.478721
## iter  20 value 5237.277874
## iter  30 value 5085.958085
## iter  40 value 5019.399651
## iter  50 value 4970.360933
## iter  60 value 4895.032707
## iter  70 value 4845.503900
## iter  80 value 4817.216265
## iter  90 value 4795.702189
## iter 100 value 4779.628427
## iter 110 value 4769.676221
## iter 120 value 4763.642511
## iter 130 value 4755.993964
## iter 140 value 4749.619965
## iter 150 value 4743.056196
## iter 160 value 4738.766374
## iter 170 value 4735.765273
## iter 180 value 4732.428978
## iter 190 value 4727.449664
## iter 200 value 4723.642895
## iter 210 value 4720.816374
## iter 220 value 4718.523810
## iter 230 value 4716.803424
## iter 240 value 4714.316030
## iter 250 value 4711.442613
## iter 260 value 4707.492527
## iter 270 value 4703.972441
## iter 280 value 4701.734671
## iter 290 value 4699.790818
## iter 300 value 4698.173341
## iter 310 value 4696.934065
## iter 320 value 4696.202809
## iter 330 value 4695.512743
## iter 340 value 4694.736654
## iter 350 value 4693.875488
## iter 360 value 4693.170978
## iter 370 value 4692.726648
## iter 380 value 4692.358450
## iter 390 value 4692.045591
## iter 400 value 4691.634335
## iter 410 value 4691.096892
## iter 420 value 4690.611988
## iter 430 value 4690.206604
## iter 440 value 4689.980223
## iter 450 value 4689.730065
## iter 460 value 4689.473008
## iter 470 value 4689.046565
## iter 480 value 4688.344505
## iter 490 value 4687.731733
## iter 500 value 4687.478168
## final  value 4687.478168
## stopped after 500 iterations
## # weights:  574
## initial  value 19130.168477
## iter  10 value 6476.717427
## iter  20 value 5385.791552
```

```
## iter  30 value 5233.363622
## iter  40 value 5108.425480
## iter  50 value 5020.895715
## iter  60 value 4972.378852
## iter  70 value 4943.784585
## iter  80 value 4924.905540
## iter  90 value 4910.013735
## iter 100 value 4900.263965
## iter 110 value 4893.556368
## iter 120 value 4887.244238
## iter 130 value 4880.848796
## iter 140 value 4876.261812
## iter 150 value 4872.163701
## iter 160 value 4868.349230
## iter 170 value 4864.038971
## iter 180 value 4859.148061
## iter 190 value 4854.397964
## iter 200 value 4851.998307
## iter 210 value 4849.162903
## iter 220 value 4846.896202
## iter 230 value 4844.592111
## iter 240 value 4842.090647
## iter 250 value 4840.419941
## iter 260 value 4839.304686
## iter 270 value 4838.402388
## iter 280 value 4837.679817
## iter 290 value 4836.925507
## iter 300 value 4836.018395
## iter 310 value 4835.061328
## iter 320 value 4834.108411
## iter 330 value 4832.560505
## iter 340 value 4831.051415
## iter 350 value 4829.912611
## iter 360 value 4829.120215
## iter 370 value 4828.558450
## iter 380 value 4827.868449
## iter 390 value 4826.981080
## iter 400 value 4826.187951
## iter 410 value 4825.611724
## iter 420 value 4825.059176
## iter 430 value 4824.423711
## iter 440 value 4823.982042
## iter 450 value 4823.137332
## iter 460 value 4821.911290
## iter 470 value 4821.227674
## iter 480 value 4820.350547
## iter 490 value 4818.620781
## iter 500 value 4816.629551
## final  value 4816.629551
## stopped after 500 iterations
## # weights:  574
## initial  value 22068.660500
## iter  10 value 6673.693806
## iter  20 value 5618.815409
## iter  30 value 5405.474623
## iter  40 value 5296.637955
## iter  50 value 5210.559906
## iter  60 value 5146.019112
## iter  70 value 5099.556023
## iter  80 value 5058.731679
## iter  90 value 5030.038266
## iter 100 value 5007.427521
## iter 110 value 4987.112661
## iter 120 value 4974.373001
## iter 130 value 4962.917923
## iter 140 value 4956.405841
## iter 150 value 4951.264145
## iter 160 value 4946.223160
## iter 170 value 4942.321934
## iter 180 value 4939.276115
## iter 190 value 4935.960973
## iter 200 value 4932.947393
## iter 210 value 4929.721810
## iter 220 value 4925.761879
## iter 230 value 4921.971003
```

```
## iter 240 value 4917.143417
## iter 250 value 4913.007623
## iter 260 value 4908.457277
## iter 270 value 4904.778639
## iter 280 value 4900.821144
## iter 290 value 4896.802631
## iter 300 value 4894.825787
## iter 310 value 4893.738067
## iter 320 value 4892.935729
## iter 330 value 4892.254566
## iter 340 value 4891.634003
## iter 350 value 4890.728434
## iter 360 value 4889.107887
## iter 370 value 4887.604566
## iter 380 value 4886.573023
## iter 390 value 4886.087745
## iter 400 value 4885.801264
## iter 410 value 4885.572018
## iter 420 value 4885.403781
## iter 430 value 4885.246706
## iter 440 value 4885.095692
## iter 450 value 4884.977037
## iter 460 value 4884.852884
## iter 470 value 4884.738857
## iter 480 value 4884.629336
## iter 490 value 4884.537797
## iter 500 value 4884.456104
## final  value 4884.456104
## stopped after 500 iterations
## # weights:  42
## initial  value 19140.210220
## iter  10 value 12910.539990
## iter  20 value 11980.408189
## iter  30 value 11362.742764
## iter  40 value 10910.539625
## iter  50 value 10335.822075
## iter  60 value 9298.998506
## iter  70 value 8836.723273
## iter  80 value 8748.383820
## iter  90 value 8715.350247
## iter 100 value 8688.192933
## iter 110 value 8682.949903
## iter 120 value 8677.632719
## iter 130 value 8670.104385
## final  value 8670.100786
## converged
## # weights:  42
## initial  value 19912.783892
## iter  10 value 11632.068227
## iter  20 value 11379.727313
## iter  30 value 10859.060240
## iter  40 value 10413.084065
## iter  50 value 9889.586242
## iter  60 value 9303.159979
## iter  70 value 9271.869644
## iter  80 value 9246.215795
## iter  90 value 9242.023294
## iter 100 value 9241.143272
## iter 110 value 9240.690269
## iter 120 value 9240.387287
## final  value 9240.007307
## converged
## # weights:  42
## initial  value 20446.524483
## iter  10 value 16433.244528
## iter  20 value 12583.733404
## iter  30 value 11861.410981
## iter  40 value 11603.917369
## iter  50 value 11388.195316
## iter  60 value 10652.447253
## iter  70 value 10209.538579
## iter  80 value 9861.072377
## iter  90 value 9698.765028
## iter 100 value 9509.783122
## iter 110 value 9471.734023
```

```
## iter 120 value 9395.976589
## iter 130 value 9359.537701
## final  value 9359.330826
## converged
## # weights:  194
## initial  value 20247.630460
## iter  10 value 6846.845250
## iter  20 value 5798.011758
## iter  30 value 5600.741122
## iter  40 value 5497.450976
## iter  50 value 5396.907263
## iter  60 value 5347.203135
## iter  70 value 5325.924738
## iter  80 value 5304.275059
## iter  90 value 5282.747976
## iter 100 value 5256.174427
## iter 110 value 5237.021236
## iter 120 value 5221.018093
## iter 130 value 5200.315346
## iter 140 value 5187.755857
## iter 150 value 5181.230776
## iter 160 value 5175.287514
## iter 170 value 5168.960757
## iter 180 value 5161.901204
## iter 190 value 5158.557017
## iter 200 value 5155.952762
## iter 210 value 5153.598292
## iter 220 value 5152.049394
## iter 230 value 5150.698420
## iter 240 value 5149.419888
## iter 250 value 5148.594287
## iter 260 value 5147.892884
## iter 270 value 5147.192855
## iter 280 value 5146.915755
## iter 290 value 5146.409407
## iter 300 value 5145.059796
## iter 310 value 5141.137679
## iter 320 value 5140.475388
## iter 330 value 5140.321882
## iter 340 value 5140.170323
## iter 350 value 5139.966466
## iter 360 value 5139.913966
## iter 370 value 5139.768465
## iter 380 value 5139.720100
## iter 390 value 5139.697376
## final  value 5139.696632
## converged
## # weights:  194
## initial  value 17226.512202
## iter  10 value 6924.375304
## iter  20 value 6064.449518
## iter  30 value 5807.662376
## iter  40 value 5671.212351
## iter  50 value 5583.046429
## iter  60 value 5520.861495
## iter  70 value 5474.128294
## iter  80 value 5429.560518
## iter  90 value 5379.734025
## iter 100 value 5344.597986
## iter 110 value 5322.158139
## iter 120 value 5306.991460
## iter 130 value 5299.328272
## iter 140 value 5294.815127
## iter 150 value 5290.119145
## iter 160 value 5283.388157
## iter 170 value 5272.886955
## iter 180 value 5263.074621
## iter 190 value 5253.289584
## iter 200 value 5242.586688
## iter 210 value 5235.541288
## iter 220 value 5230.829257
## iter 230 value 5226.221196
## iter 240 value 5222.913475
## iter 250 value 5219.270457
## iter 260 value 5216.388205
```

```
## iter 270 value 5213.060210
## iter 280 value 5211.192205
## iter 290 value 5210.066216
## iter 300 value 5209.072513
## iter 310 value 5208.729265
## iter 320 value 5208.615577
## iter 330 value 5208.559328
## iter 340 value 5208.520436
## iter 350 value 5208.513239
## final  value 5208.512911
## converged
## # weights:  194
## initial  value 20986.439904
## iter  10 value 10788.521906
## iter  20 value 8771.607837
## iter  30 value 8146.220267
## iter  40 value 7292.930888
## iter  50 value 6895.649332
## iter  60 value 6624.176873
## iter  70 value 6295.755884
## iter  80 value 6067.681211
## iter  90 value 5938.668143
## iter 100 value 5859.712887
## iter 110 value 5782.791682
## iter 120 value 5738.071987
## iter 130 value 5680.964551
## iter 140 value 5627.391687
## iter 150 value 5545.462038
## iter 160 value 5484.701166
## iter 170 value 5445.121002
## iter 180 value 5417.778441
## iter 190 value 5394.445904
## iter 200 value 5374.489624
## iter 210 value 5355.611187
## iter 220 value 5337.960434
## iter 230 value 5324.054217
## iter 240 value 5319.314309
## iter 250 value 5307.044776
## iter 260 value 5299.148339
## iter 270 value 5296.665082
## iter 280 value 5295.939091
## iter 290 value 5295.636281
## iter 300 value 5295.417278
## iter 310 value 5295.350258
## iter 320 value 5295.284418
## iter 330 value 5295.264199
## iter 340 value 5295.260402
## iter 350 value 5295.257704
## iter 360 value 5295.255547
## final  value 5295.255431
## converged
## # weights:  384
## initial  value 19095.590386
## iter  10 value 7024.131603
## iter  20 value 5636.011912
## iter  30 value 5402.827757
## iter  40 value 5256.474244
## iter  50 value 5200.803897
## iter  60 value 5148.415219
## iter  70 value 5118.221189
## iter  80 value 5072.792857
## iter  90 value 5048.062415
## iter 100 value 5026.133649
## iter 110 value 5007.716246
## iter 120 value 4992.414488
## iter 130 value 4981.661267
## iter 140 value 4972.490915
## iter 150 value 4961.837501
## iter 160 value 4952.413347
## iter 170 value 4945.875358
## iter 180 value 4940.403789
## iter 190 value 4935.385833
## iter 200 value 4931.002015
## iter 210 value 4928.257126
## iter 220 value 4925.631158
```

```
## iter 230 value 4922.998333
## iter 240 value 4919.908760
## iter 250 value 4917.355508
## iter 260 value 4915.946072
## iter 270 value 4914.403509
## iter 280 value 4912.466820
## iter 290 value 4910.028180
## iter 300 value 4907.843677
## iter 310 value 4905.900285
## iter 320 value 4904.468398
## iter 330 value 4903.292782
## iter 340 value 4902.083644
## iter 350 value 4900.464206
## iter 360 value 4897.754915
## iter 370 value 4895.819584
## iter 380 value 4894.223532
## iter 390 value 4891.842479
## iter 400 value 4883.964140
## iter 410 value 4880.819160
## iter 420 value 4879.820770
## iter 430 value 4879.391649
## iter 440 value 4879.137496
## iter 450 value 4878.825800
## iter 460 value 4878.475314
## iter 470 value 4878.264430
## iter 480 value 4878.185456
## iter 490 value 4878.151008
## iter 500 value 4878.125936
## final  value 4878.125936
## stopped after 500 iterations
## # weights:  384
## initial  value 20368.395781
## iter  10 value 5971.656471
## iter  20 value 5454.658942
## iter  30 value 5308.229515
## iter  40 value 5232.356215
## iter  50 value 5189.065018
## iter  60 value 5156.177199
## iter  70 value 5133.319742
## iter  80 value 5121.131498
## iter  90 value 5107.280856
## iter 100 value 5087.988890
## iter 110 value 5069.056606
## iter 120 value 5055.166727
## iter 130 value 5043.521052
## iter 140 value 5034.269170
## iter 150 value 5027.634230
## iter 160 value 5023.082183
## iter 170 value 5018.921100
## iter 180 value 5015.060907
## iter 190 value 5012.000435
## iter 200 value 5009.392711
## iter 210 value 5007.880669
## iter 220 value 5007.011172
## iter 230 value 5006.130978
## iter 240 value 5005.159412
## iter 250 value 5004.494656
## iter 260 value 5003.964095
## iter 270 value 5003.507078
## iter 280 value 5003.093493
## iter 290 value 5002.784545
## iter 300 value 5002.534870
## iter 310 value 5002.295589
## iter 320 value 5002.104518
## iter 330 value 5001.976942
## iter 340 value 5001.895801
## iter 350 value 5001.780470
## iter 360 value 5001.681084
## iter 370 value 5001.610361
## iter 380 value 5001.533767
## iter 390 value 5001.491264
## iter 400 value 5001.463958
## iter 410 value 5001.439639
## iter 420 value 5001.423905
## iter 430 value 5001.410909
```

```
## iter 440 value 5001.394826
## iter 450 value 5001.383522
## iter 460 value 5001.366363
## iter 470 value 5001.359292
## iter 480 value 5001.351308
## iter 490 value 5001.349470
## final  value 5001.349368
## converged
## # weights:  384
## initial  value 19624.662909
## iter  10 value 6071.184755
## iter  20 value 5473.442048
## iter  30 value 5346.852249
## iter  40 value 5242.620030
## iter  50 value 5188.585827
## iter  60 value 5164.956224
## iter  70 value 5146.351250
## iter  80 value 5127.390480
## iter  90 value 5117.768221
## iter 100 value 5108.599841
## iter 110 value 5099.602406
## iter 120 value 5092.667786
## iter 130 value 5083.470984
## iter 140 value 5076.052030
## iter 150 value 5069.053090
## iter 160 value 5064.758886
## iter 170 value 5061.703519
## iter 180 value 5059.746859
## iter 190 value 5058.075320
## iter 200 value 5056.276858
## iter 210 value 5054.638311
## iter 220 value 5053.408164
## iter 230 value 5052.413664
## iter 240 value 5051.696988
## iter 250 value 5050.910905
## iter 260 value 5050.022986
## iter 270 value 5049.365150
## iter 280 value 5048.952386
## iter 290 value 5048.561006
## iter 300 value 5048.350960
## iter 310 value 5048.203232
## iter 320 value 5048.045465
## iter 330 value 5047.787827
## iter 340 value 5047.523996
## iter 350 value 5047.291310
## iter 360 value 5047.174352
## iter 370 value 5047.073143
## iter 380 value 5047.010960
## iter 390 value 5046.973804
## iter 400 value 5046.928095
## iter 410 value 5046.890433
## iter 420 value 5046.867186
## iter 430 value 5046.850640
## iter 440 value 5046.838986
## iter 440 value 5046.838974
## iter 450 value 5046.831016
## iter 460 value 5046.821088
## iter 470 value 5046.816276
## iter 480 value 5046.811918
## iter 490 value 5046.808553
## iter 500 value 5046.806681
## final  value 5046.806681
## stopped after 500 iterations
## # weights:  574
## initial  value 21330.000432
## iter  10 value 5924.250170
## iter  20 value 5269.471860
## iter  30 value 5077.894977
## iter  40 value 4983.379402
## iter  50 value 4917.241193
## iter  60 value 4876.571430
## iter  70 value 4843.926509
## iter  80 value 4824.016833
## iter  90 value 4805.566556
## iter 100 value 4795.765724
```

```
## iter 110 value 4785.639075
## iter 120 value 4775.958137
## iter 130 value 4766.438994
## iter 140 value 4761.592908
## iter 150 value 4758.022657
## iter 160 value 4754.228795
## iter 170 value 4749.618996
## iter 180 value 4746.464537
## iter 190 value 4743.310068
## iter 200 value 4739.891981
## iter 210 value 4736.546149
## iter 220 value 4732.585690
## iter 230 value 4727.466555
## iter 240 value 4720.492317
## iter 250 value 4715.606332
## iter 260 value 4712.706860
## iter 270 value 4709.688051
## iter 280 value 4707.327002
## iter 290 value 4705.998684
## iter 300 value 4705.126145
## iter 310 value 4704.707187
## iter 320 value 4704.470389
## iter 330 value 4704.303460
## iter 340 value 4704.133925
## iter 350 value 4703.988882
## iter 360 value 4703.846776
## iter 370 value 4703.702487
## iter 380 value 4703.601815
## iter 390 value 4703.404884
## iter 400 value 4703.216626
## iter 410 value 4703.122450
## iter 420 value 4702.992490
## iter 430 value 4702.849503
## iter 440 value 4702.762693
## iter 450 value 4702.688016
## iter 460 value 4702.629590
## iter 470 value 4702.598900
## iter 480 value 4702.584498
## iter 490 value 4702.575285
## iter 500 value 4702.557497
## final  value 4702.557497
## stopped after 500 iterations
## # weights:  574
## initial  value 23078.592553
## iter  10 value 6497.723807
## iter  20 value 5436.595666
## iter  30 value 5281.873755
## iter  40 value 5171.972183
## iter  50 value 5092.305869
## iter  60 value 5040.755171
## iter  70 value 5008.404793
## iter  80 value 4982.585991
## iter  90 value 4964.135072
## iter 100 value 4952.886272
## iter 110 value 4941.509661
## iter 120 value 4932.660915
## iter 130 value 4924.256515
## iter 140 value 4912.489092
## iter 150 value 4905.510113
## iter 160 value 4898.005734
## iter 170 value 4892.381785
## iter 180 value 4886.628989
## iter 190 value 4879.140714
## iter 200 value 4871.492943
## iter 210 value 4866.565244
## iter 220 value 4864.558981
## iter 230 value 4862.774266
## iter 240 value 4860.146076
## iter 250 value 4855.359474
## iter 260 value 4851.149782
## iter 270 value 4848.812123
## iter 280 value 4847.107408
## iter 290 value 4845.947815
## iter 300 value 4844.887514
## iter 310 value 4843.873084
```

```
## iter 320 value 4842.944525
## iter 330 value 4841.980474
## iter 340 value 4841.089820
## iter 350 value 4840.039446
## iter 360 value 4839.164031
## iter 370 value 4838.528312
## iter 380 value 4838.056925
## iter 390 value 4837.588325
## iter 400 value 4837.094623
## iter 410 value 4836.667299
## iter 420 value 4836.280820
## iter 430 value 4835.613863
## iter 440 value 4834.392019
## iter 450 value 4833.547416
## iter 460 value 4832.055125
## iter 470 value 4830.624980
## iter 480 value 4829.060976
## iter 490 value 4827.450529
## iter 500 value 4826.378573
## final  value 4826.378573
## stopped after 500 iterations
## # weights:  574
## initial  value 21658.403167
## iter  10 value 6139.147161
## iter  20 value 5385.849605
## iter  30 value 5244.924390
## iter  40 value 5159.730929
## iter  50 value 5082.630753
## iter  60 value 5044.605853
## iter  70 value 5014.748827
## iter  80 value 4996.094752
## iter  90 value 4980.072011
## iter 100 value 4965.564280
## iter 110 value 4956.007559
## iter 120 value 4947.496267
## iter 130 value 4940.670515
## iter 140 value 4935.923720
## iter 150 value 4930.282848
## iter 160 value 4925.866376
## iter 170 value 4923.657570
## iter 180 value 4920.404249
## iter 190 value 4916.199278
## iter 200 value 4912.495676
## iter 210 value 4906.912908
## iter 220 value 4902.692830
## iter 230 value 4898.126145
## iter 240 value 4894.685384
## iter 250 value 4892.700464
## iter 260 value 4891.334698
## iter 270 value 4889.704111
## iter 280 value 4887.631288
## iter 290 value 4886.055360
## iter 300 value 4884.247067
## iter 310 value 4882.268037
## iter 320 value 4881.117477
## iter 330 value 4880.213841
## iter 340 value 4879.112685
## iter 350 value 4878.073973
## iter 360 value 4877.274422
## iter 370 value 4876.617329
## iter 380 value 4875.844310
## iter 390 value 4875.082898
## iter 400 value 4874.163369
## iter 410 value 4872.844476
## iter 420 value 4871.185906
## iter 430 value 4869.737607
## iter 440 value 4868.818205
## iter 450 value 4868.294292
## iter 460 value 4867.798507
## iter 470 value 4867.042005
## iter 480 value 4866.397055
## iter 490 value 4865.889155
## iter 500 value 4865.436310
## final  value 4865.436310
## stopped after 500 iterations
```

```
## # weights:  42
## initial  value 20008.663014
## iter  10 value 12814.275997
## iter  20 value 11847.969631
## iter  30 value 11288.241659
## iter  40 value 10975.742372
## iter  50 value 10523.855552
## iter  60 value 9704.689485
## iter  70 value 9230.323080
## iter  80 value 8940.229096
## iter  90 value 8849.828102
## iter 100 value 8763.900088
## iter 110 value 8746.581463
## iter 120 value 8732.024748
## iter 130 value 8689.175004
## final  value 8688.680189
## converged
## # weights:  42
## initial  value 20539.655887
## iter  10 value 15201.765616
## iter  20 value 13955.917855
## iter  30 value 12015.301928
## iter  40 value 11389.593494
## iter  50 value 10996.896625
## iter  60 value 10522.180030
## iter  70 value 10476.306275
## iter  80 value 10456.349928
## iter  90 value 10445.216970
## iter 100 value 10423.925935
## iter 110 value 10379.167591
## iter 120 value 10360.644571
## iter 130 value 10235.333378
## iter 140 value 10218.154017
## final  value 10218.153704
## converged
## # weights:  42
## initial  value 18019.693467
## iter  10 value 13502.969868
## iter  20 value 12438.799622
## iter  30 value 11322.400735
## iter  40 value 10629.501858
## iter  50 value 9906.691978
## iter  60 value 9464.462275
## iter  70 value 9382.814120
## iter  80 value 9379.880911
## iter  90 value 9378.621165
## iter 100 value 9378.053787
## iter 110 value 9376.915230
## iter 120 value 9376.634064
## final  value 9376.404249
## converged
## # weights:  194
## initial  value 18043.396179
## iter  10 value 6795.781670
## iter  20 value 5683.402617
## iter  30 value 5498.101298
## iter  40 value 5445.899284
## iter  50 value 5372.151701
## iter  60 value 5331.504101
## iter  70 value 5320.063576
## iter  80 value 5305.359752
## iter  90 value 5291.801627
## iter 100 value 5274.301006
## iter 110 value 5247.626758
## iter 120 value 5229.132316
## iter 130 value 5214.951891
## iter 140 value 5206.080680
## iter 150 value 5201.372204
## iter 160 value 5198.345213
## iter 170 value 5196.318628
## iter 180 value 5195.043245
## iter 190 value 5193.675410
## iter 200 value 5192.417369
## iter 210 value 5191.903412
## iter 220 value 5191.018381
```

```
## iter 230 value 5190.411130
## iter 240 value 5189.259103
## iter 250 value 5188.402478
## iter 260 value 5186.418685
## iter 270 value 5183.641913
## iter 280 value 5183.291912
## iter 290 value 5182.926429
## iter 300 value 5182.726814
## iter 310 value 5182.505735
## iter 320 value 5182.368103
## iter 330 value 5182.059123
## iter 340 value 5180.463094
## iter 350 value 5177.559388
## iter 360 value 5175.253066
## iter 370 value 5173.172308
## iter 380 value 5172.516217
## iter 390 value 5172.052994
## iter 400 value 5171.915259
## iter 410 value 5171.709401
## iter 420 value 5171.604769
## iter 430 value 5171.472337
## iter 440 value 5171.397760
## iter 450 value 5171.367586
## iter 460 value 5171.355025
## iter 470 value 5171.352643
## iter 480 value 5171.350072
## final  value 5171.349648
## converged
## # weights:  194
## initial  value 20697.782166
## iter  10 value 7113.918293
## iter  20 value 6294.017616
## iter  30 value 6008.565015
## iter  40 value 5851.517774
## iter  50 value 5736.530815
## iter  60 value 5630.264549
## iter  70 value 5502.841000
## iter  80 value 5442.496265
## iter  90 value 5401.169990
## iter 100 value 5378.508747
## iter 110 value 5355.636390
## iter 120 value 5339.326152
## iter 130 value 5324.811879
## iter 140 value 5316.139637
## iter 150 value 5305.668209
## iter 160 value 5295.091089
## iter 170 value 5287.993905
## iter 180 value 5281.940077
## iter 190 value 5277.760364
## iter 200 value 5274.325539
## iter 210 value 5269.154737
## iter 220 value 5258.112838
## iter 230 value 5250.109079
## iter 240 value 5244.993029
## iter 250 value 5243.626870
## iter 260 value 5242.448892
## iter 270 value 5241.958681
## iter 280 value 5241.858511
## iter 290 value 5241.785156
## iter 300 value 5241.752418
## iter 310 value 5241.733436
## iter 320 value 5241.721738
## iter 330 value 5241.713459
## final  value 5241.712308
## converged
## # weights:  194
## initial  value 20968.927138
## iter  10 value 6612.399936
## iter  20 value 5985.408648
## iter  30 value 5839.384706
## iter  40 value 5715.947110
## iter  50 value 5546.588358
## iter  60 value 5484.186891
## iter  70 value 5433.988735
## iter  80 value 5409.097688
```

```
## iter  90 value 5374.738987
## iter 100 value 5357.950297
## iter 110 value 5341.295927
## iter 120 value 5329.123857
## iter 130 value 5318.582824
## iter 140 value 5311.929414
## iter 150 value 5305.315906
## iter 160 value 5300.520543
## iter 170 value 5297.713970
## iter 180 value 5296.023960
## iter 190 value 5294.003941
## iter 200 value 5292.165149
## iter 210 value 5290.259291
## iter 220 value 5289.505347
## iter 230 value 5289.092419
## iter 240 value 5288.617100
## iter 250 value 5288.342518
## iter 260 value 5288.244396
## iter 270 value 5288.198515
## iter 280 value 5288.191519
## final  value 5288.191201
## converged
## # weights:  384
## initial  value 19504.563329
## iter  10 value 5924.832876
## iter  20 value 5262.581683
## iter  30 value 5178.038283
## iter  40 value 5091.059983
## iter  50 value 5032.649310
## iter  60 value 4982.893004
## iter  70 value 4958.408536
## iter  80 value 4949.362124
## iter  90 value 4937.832220
## iter 100 value 4930.107012
## iter 110 value 4923.238238
## iter 120 value 4918.675533
## iter 130 value 4914.852490
## iter 140 value 4910.211600
## iter 150 value 4906.336029
## iter 160 value 4904.535144
## iter 170 value 4902.986643
## iter 180 value 4901.814312
## iter 190 value 4900.521030
## iter 200 value 4899.481838
## iter 210 value 4897.913954
## iter 220 value 4894.882815
## iter 230 value 4891.484583
## iter 240 value 4889.563155
## iter 250 value 4887.817571
## iter 260 value 4886.301976
## iter 270 value 4885.633456
## iter 280 value 4885.273701
## iter 290 value 4885.024742
## iter 300 value 4884.636215
## iter 310 value 4884.336162
## iter 320 value 4884.227767
## iter 330 value 4884.074390
## iter 340 value 4883.977275
## iter 350 value 4883.906273
## iter 360 value 4883.746546
## iter 370 value 4883.436303
## iter 380 value 4883.129763
## iter 390 value 4883.006806
## iter 400 value 4882.893485
## iter 410 value 4882.839287
## iter 420 value 4882.793543
## iter 430 value 4882.766695
## iter 440 value 4882.754356
## iter 450 value 4882.744755
## iter 460 value 4882.733403
## iter 470 value 4882.727924
## final  value 4882.725899
## converged
## # weights:  384
## initial  value 19966.839787
```

```
## iter  10 value 5870.769836
## iter  20 value 5407.946209
## iter  30 value 5296.926563
## iter  40 value 5236.950753
## iter  50 value 5194.338526
## iter  60 value 5176.660659
## iter  70 value 5153.532535
## iter  80 value 5130.391661
## iter  90 value 5102.345457
## iter 100 value 5079.551708
## iter 110 value 5058.337067
## iter 120 value 5046.271616
## iter 130 value 5039.890037
## iter 140 value 5035.506356
## iter 150 value 5031.993130
## iter 160 value 5029.097119
## iter 170 value 5027.088270
## iter 180 value 5025.537000
## iter 190 value 5022.975201
## iter 200 value 5020.052594
## iter 210 value 5017.141355
## iter 220 value 5014.858144
## iter 230 value 5013.409845
## iter 240 value 5012.428724
## iter 250 value 5011.833200
## iter 260 value 5011.314844
## iter 270 value 5010.740343
## iter 280 value 5010.004874
## iter 290 value 5009.095655
## iter 300 value 5008.107895
## iter 310 value 5007.436670
## iter 320 value 5006.971461
## iter 330 value 5006.623384
## iter 340 value 5006.236770
## iter 350 value 5005.893173
## iter 360 value 5005.684899
## iter 370 value 5005.566746
## iter 380 value 5005.405689
## iter 390 value 5005.267858
## iter 400 value 5005.168681
## iter 410 value 5005.114024
## iter 420 value 5005.061418
## iter 430 value 5005.030278
## iter 440 value 5005.017332
## iter 450 value 5005.003049
## iter 460 value 5004.995107
## iter 470 value 5004.992199
## iter 480 value 5004.990737
## iter 490 value 5004.989998
## final  value 5004.989720
## converged
## # weights:  384
## initial  value 19429.894525
## iter  10 value 6264.181059
## iter  20 value 5584.308291
## iter  30 value 5431.121030
## iter  40 value 5325.882607
## iter  50 value 5266.264091
## iter  60 value 5235.920366
## iter  70 value 5207.896925
## iter  80 value 5181.426960
## iter  90 value 5153.634064
## iter 100 value 5135.142330
## iter 110 value 5123.865900
## iter 120 value 5116.408110
## iter 130 value 5106.264413
## iter 140 value 5097.453065
## iter 150 value 5093.056084
## iter 160 value 5089.654566
## iter 170 value 5087.298164
## iter 180 value 5085.287739
## iter 190 value 5083.748238
## iter 200 value 5082.493544
## iter 210 value 5081.240382
## iter 220 value 5079.647549
```

```
## iter 230 value 5077.850119
## iter 240 value 5075.739191
## iter 250 value 5073.316403
## iter 260 value 5069.749536
## iter 270 value 5064.879597
## iter 280 value 5061.082790
## iter 290 value 5059.141003
## iter 300 value 5058.079960
## iter 310 value 5057.165987
## iter 320 value 5056.371548
## iter 330 value 5055.650777
## iter 340 value 5055.037177
## iter 350 value 5054.465779
## iter 360 value 5053.716120
## iter 370 value 5052.913619
## iter 380 value 5052.417446
## iter 390 value 5052.095920
## iter 400 value 5051.910066
## iter 410 value 5051.750746
## iter 420 value 5051.611729
## iter 430 value 5051.523163
## iter 440 value 5051.470271
## iter 450 value 5051.433256
## iter 460 value 5051.400625
## iter 470 value 5051.390709
## iter 480 value 5051.387589
## iter 490 value 5051.380637
## iter 500 value 5051.140703
## final  value 5051.140703
## stopped after 500 iterations
## # weights:  574
## initial  value 22114.938055
## iter  10 value 6207.830946
## iter  20 value 5389.552680
## iter  30 value 5188.526721
## iter  40 value 5049.074430
## iter  50 value 4964.196525
## iter  60 value 4908.833085
## iter  70 value 4880.424685
## iter  80 value 4852.351218
## iter  90 value 4824.345895
## iter 100 value 4800.924203
## iter 110 value 4785.447737
## iter 120 value 4772.802550
## iter 130 value 4760.674895
## iter 140 value 4752.325432
## iter 150 value 4746.644689
## iter 160 value 4742.517876
## iter 170 value 4739.870786
## iter 180 value 4737.658576
## iter 190 value 4736.413213
## iter 200 value 4734.837210
## iter 210 value 4733.628332
## iter 220 value 4732.648274
## iter 230 value 4731.295901
## iter 240 value 4730.099722
## iter 250 value 4728.862150
## iter 260 value 4727.696484
## iter 270 value 4726.662050
## iter 280 value 4725.542676
## iter 290 value 4724.362135
## iter 300 value 4723.017751
## iter 310 value 4721.909467
## iter 320 value 4721.133345
## iter 330 value 4720.500229
## iter 340 value 4720.102626
## iter 350 value 4719.809223
## iter 360 value 4719.584053
## iter 370 value 4719.359180
## iter 380 value 4719.019757
## iter 390 value 4718.771591
## iter 400 value 4718.580957
## iter 410 value 4718.352478
## iter 420 value 4717.844052
## iter 430 value 4717.161912
```

```
## iter 440 value 4716.605838
## iter 450 value 4716.208959
## iter 460 value 4715.915026
## iter 470 value 4715.770066
## iter 480 value 4715.707931
## iter 490 value 4715.683266
## iter 500 value 4715.669046
## final  value 4715.669046
## stopped after 500 iterations
## # weights:  574
## initial  value 18842.415001
## iter  10 value 5837.303452
## iter  20 value 5257.188897
## iter  30 value 5161.045475
## iter  40 value 5098.498539
## iter  50 value 5023.206442
## iter  60 value 4974.801101
## iter  70 value 4950.791751
## iter  80 value 4931.396899
## iter  90 value 4915.349884
## iter 100 value 4901.199050
## iter 110 value 4892.156002
## iter 120 value 4882.965731
## iter 130 value 4874.854920
## iter 140 value 4868.711654
## iter 150 value 4863.114657
## iter 160 value 4858.903016
## iter 170 value 4854.528771
## iter 180 value 4850.473366
## iter 190 value 4847.123527
## iter 200 value 4844.492899
## iter 210 value 4842.409176
## iter 220 value 4840.736255
## iter 230 value 4839.200549
## iter 240 value 4837.915067
## iter 250 value 4836.567563
## iter 260 value 4835.393664
## iter 270 value 4834.409286
## iter 280 value 4833.418259
## iter 290 value 4832.330633
## iter 300 value 4831.228854
## iter 310 value 4830.134535
## iter 320 value 4829.138575
## iter 330 value 4828.143978
## iter 340 value 4827.337949
## iter 350 value 4826.745974
## iter 360 value 4826.420665
## iter 370 value 4826.165866
## iter 380 value 4825.859201
## iter 390 value 4825.369507
## iter 400 value 4824.510095
## iter 410 value 4823.215258
## iter 420 value 4821.647715
## iter 430 value 4820.532969
## iter 440 value 4819.971120
## iter 450 value 4819.722234
## iter 460 value 4819.505167
## iter 470 value 4819.270779
## iter 480 value 4819.048902
## iter 490 value 4818.779726
## iter 500 value 4818.551813
## final  value 4818.551813
## stopped after 500 iterations
## # weights:  574
## initial  value 24224.968687
## iter  10 value 7383.606015
## iter  20 value 5745.925718
## iter  30 value 5504.303608
## iter  40 value 5384.606021
## iter  50 value 5300.232221
## iter  60 value 5249.303211
## iter  70 value 5196.514543
## iter  80 value 5140.064093
## iter  90 value 5088.079365
## iter 100 value 5054.225989
```

```
## iter 110 value 5032.577600
## iter 120 value 5017.744511
## iter 130 value 5004.997111
## iter 140 value 4990.841458
## iter 150 value 4978.486582
## iter 160 value 4971.494282
## iter 170 value 4965.221453
## iter 180 value 4958.065643
## iter 190 value 4953.014553
## iter 200 value 4950.170471
## iter 210 value 4947.597484
## iter 220 value 4945.117387
## iter 230 value 4943.279390
## iter 240 value 4942.054330
## iter 250 value 4940.638292
## iter 260 value 4939.183257
## iter 270 value 4938.028136
## iter 280 value 4936.754190
## iter 290 value 4935.003759
## iter 300 value 4931.935990
## iter 310 value 4928.164698
## iter 320 value 4925.479107
## iter 330 value 4923.933753
## iter 340 value 4922.749170
## iter 350 value 4921.868469
## iter 360 value 4921.180082
## iter 370 value 4920.755895
## iter 380 value 4920.363580
## iter 390 value 4919.846482
## iter 400 value 4919.047125
## iter 410 value 4917.596251
## iter 420 value 4915.553808
## iter 430 value 4913.629330
## iter 440 value 4912.376528
## iter 450 value 4911.719830
## iter 460 value 4911.008355
## iter 470 value 4910.328668
## iter 480 value 4909.947731
## iter 490 value 4909.564065
## iter 500 value 4909.195411
## final  value 4909.195411
## stopped after 500 iterations
## # weights:  42
## initial  value 17130.521770
## iter  10 value 12520.355239
## iter  20 value 12039.160243
## iter  30 value 11728.452035
## iter  40 value 11369.802270
## iter  50 value 10863.820872
## iter  60 value 10271.086915
## iter  70 value 9719.858868
## iter  80 value 9336.863221
## iter  90 value 9212.542994
## iter 100 value 9112.770344
## iter 110 value 9084.442355
## iter 120 value 9067.443388
## iter 130 value 9042.916248
## final  value 9042.809992
## converged
## # weights:  42
## initial  value 20016.263800
## iter  10 value 13204.654969
## iter  20 value 12523.618751
## iter  30 value 11400.888571
## iter  40 value 11085.094039
## iter  50 value 10807.675963
## iter  60 value 9617.257215
## iter  70 value 9152.588667
## iter  80 value 9030.192573
## iter  90 value 8993.998126
## iter 100 value 8979.435756
## iter 110 value 8975.823573
## iter 120 value 8970.476912
## iter 130 value 8966.848377
## iter 130 value 8966.848376
```

```
## iter 130 value 8966.848376
## final  value 8966.848376
## converged
## # weights:  42
## initial  value 17619.163049
## iter  10 value 12411.284850
## iter  20 value 11862.575439
## iter  30 value 11349.216606
## iter  40 value 11110.991157
## iter  50 value 10580.532496
## iter  60 value 9727.369617
## iter  70 value 9410.503397
## iter  80 value 9293.498026
## iter  90 value 9250.918030
## iter 100 value 9202.616131
## iter 110 value 9179.591534
## iter 120 value 9162.862423
## iter 130 value 9147.771555
## final  value 9147.767120
## converged
## # weights:  194
## initial  value 17471.727277
## iter  10 value 6681.368506
## iter  20 value 5897.622487
## iter  30 value 5731.870595
## iter  40 value 5643.631145
## iter  50 value 5555.705314
## iter  60 value 5518.460174
## iter  70 value 5494.861316
## iter  80 value 5477.432058
## iter  90 value 5460.935218
## iter 100 value 5443.077708
## iter 110 value 5408.351209
## iter 120 value 5370.253870
## iter 130 value 5331.360671
## iter 140 value 5294.378982
## iter 150 value 5263.532062
## iter 160 value 5244.111957
## iter 170 value 5232.679439
## iter 180 value 5221.310149
## iter 190 value 5213.768980
## iter 200 value 5203.662825
## iter 210 value 5192.658673
## iter 220 value 5183.871521
## iter 230 value 5176.709947
## iter 240 value 5171.679396
## iter 250 value 5166.445746
## iter 260 value 5161.591908
## iter 270 value 5157.707064
## iter 280 value 5154.234350
## iter 290 value 5152.925675
## iter 300 value 5152.586662
## iter 310 value 5152.396034
## iter 320 value 5150.476801
## iter 330 value 5146.550358
## iter 340 value 5141.908748
## iter 350 value 5139.462814
## iter 360 value 5137.661918
## iter 370 value 5136.684552
## iter 380 value 5135.515560
## iter 390 value 5134.859296
## iter 400 value 5134.707531
## iter 410 value 5134.472895
## iter 420 value 5134.281129
## iter 430 value 5134.159044
## iter 440 value 5133.990357
## iter 450 value 5133.916106
## iter 460 value 5133.897377
## iter 470 value 5133.892812
## final  value 5133.891866
## converged
## # weights:  194
## initial  value 17417.316185
## iter  10 value 6914.681115
## iter  20 value 5840.317370
```

```
## iter  30 value 5629.212826
## iter  40 value 5566.927623
## iter  50 value 5448.380037
## iter  60 value 5387.218505
## iter  70 value 5353.593398
## iter  80 value 5320.608581
## iter  90 value 5293.246670
## iter 100 value 5279.016103
## iter 110 value 5262.945696
## iter 120 value 5255.099941
## iter 130 value 5247.205116
## iter 140 value 5242.152887
## iter 150 value 5238.559829
## iter 160 value 5236.273013
## iter 170 value 5235.325230
## iter 180 value 5234.910138
## iter 190 value 5234.544612
## iter 200 value 5233.936991
## iter 210 value 5232.756951
## iter 220 value 5230.210572
## iter 230 value 5229.180116
## iter 240 value 5228.797113
## iter 250 value 5228.734298
## iter 260 value 5228.708813
## iter 270 value 5228.693891
## iter 280 value 5228.683034
## iter 290 value 5228.680570
## iter 300 value 5228.679863
## iter 300 value 5228.679826
## iter 300 value 5228.679817
## final  value 5228.679817
## converged
## # weights:  194
## initial  value 21867.201552
## iter  10 value 8716.312926
## iter  20 value 7136.003552
## iter  30 value 6809.509823
## iter  40 value 6466.318006
## iter  50 value 6228.051698
## iter  60 value 6018.932422
## iter  70 value 5873.046005
## iter  80 value 5731.013714
## iter  90 value 5619.839832
## iter 100 value 5567.028853
## iter 110 value 5519.420795
## iter 120 value 5480.858472
## iter 130 value 5449.775046
## iter 140 value 5415.871209
## iter 150 value 5376.650189
## iter 160 value 5348.884037
## iter 170 value 5330.297522
## iter 180 value 5320.303685
## iter 190 value 5314.593238
## iter 200 value 5310.433230
## iter 210 value 5307.450690
## iter 220 value 5305.382602
## iter 230 value 5302.555866
## iter 240 value 5299.556963
## iter 250 value 5297.841181
## iter 260 value 5296.740709
## iter 270 value 5296.355775
## iter 280 value 5296.256730
## iter 290 value 5296.199905
## iter 300 value 5296.173996
## iter 310 value 5296.169102
## final  value 5296.168895
## converged
## # weights:  384
## initial  value 19280.741689
## iter  10 value 7072.267442
## iter  20 value 5641.052512
## iter  30 value 5415.151493
## iter  40 value 5292.343313
## iter  50 value 5208.519784
## iter  60 value 5173.036959
```

```
## iter  70 value 5147.519295
## iter  80 value 5119.506139
## iter  90 value 5095.617754
## iter 100 value 5078.929630
## iter 110 value 5065.272779
## iter 120 value 5055.483883
## iter 130 value 5046.051829
## iter 140 value 5032.434020
## iter 150 value 5018.556526
## iter 160 value 5002.699577
## iter 170 value 4988.578305
## iter 180 value 4977.590980
## iter 190 value 4969.072801
## iter 200 value 4957.227427
## iter 210 value 4944.284815
## iter 220 value 4937.406529
## iter 230 value 4933.849096
## iter 240 value 4930.294957
## iter 250 value 4926.298884
## iter 260 value 4923.298814
## iter 270 value 4921.616553
## iter 280 value 4919.897972
## iter 290 value 4917.831681
## iter 300 value 4916.266669
## iter 310 value 4914.917944
## iter 320 value 4913.906730
## iter 330 value 4912.364160
## iter 340 value 4911.229303
## iter 350 value 4907.994277
## iter 360 value 4905.852291
## iter 370 value 4905.185743
## iter 380 value 4904.697212
## iter 390 value 4904.038664
## iter 400 value 4903.527726
## iter 410 value 4902.290468
## iter 420 value 4893.169278
## iter 430 value 4884.811856
## iter 440 value 4881.718617
## iter 450 value 4880.373679
## iter 460 value 4879.840209
## iter 470 value 4879.284854
## iter 480 value 4878.794161
## iter 490 value 4878.215705
## iter 500 value 4877.789153
## final  value 4877.789153
## stopped after 500 iterations
## # weights:  384
## initial  value 24699.000724
## iter  10 value 6430.152349
## iter  20 value 5518.827973
## iter  30 value 5345.121784
## iter  40 value 5229.915893
## iter  50 value 5161.426303
## iter  60 value 5139.970042
## iter  70 value 5127.339344
## iter  80 value 5112.438245
## iter  90 value 5097.304922
## iter 100 value 5082.749329
## iter 110 value 5068.329432
## iter 120 value 5058.373023
## iter 130 value 5049.609946
## iter 140 value 5043.972219
## iter 150 value 5037.100574
## iter 160 value 5027.661285
## iter 170 value 5019.024390
## iter 180 value 5015.569691
## iter 190 value 5013.174901
## iter 200 value 5010.993969
## iter 210 value 5009.028166
## iter 220 value 5006.911494
## iter 230 value 5005.157760
## iter 240 value 5004.022831
## iter 250 value 5003.050368
## iter 260 value 5002.115770
## iter 270 value 5001.014556
```

```
## iter 280 value 4999.448245
## iter 290 value 4996.974166
## iter 300 value 4994.583974
## iter 310 value 4993.197798
## iter 320 value 4992.150727
## iter 330 value 4991.794967
## iter 340 value 4991.415080
## iter 350 value 4991.018198
## iter 360 value 4990.622781
## iter 370 value 4990.345856
## iter 380 value 4990.072549
## iter 390 value 4989.702938
## iter 400 value 4989.296152
## iter 410 value 4989.096541
## iter 420 value 4989.007535
## iter 430 value 4988.940979
## iter 440 value 4988.904250
## iter 450 value 4988.866082
## iter 460 value 4988.844909
## iter 470 value 4988.836655
## iter 480 value 4988.834056
## iter 490 value 4988.831919
## final  value 4988.831613
## converged
## # weights:  384
## initial  value 23731.112357
## iter  10 value 6342.572770
## iter  20 value 5531.127239
## iter  30 value 5419.652290
## iter  40 value 5345.638377
## iter  50 value 5266.848094
## iter  60 value 5224.010759
## iter  70 value 5188.842467
## iter  80 value 5160.990938
## iter  90 value 5132.920368
## iter 100 value 5116.470054
## iter 110 value 5106.246059
## iter 120 value 5099.483005
## iter 130 value 5094.105297
## iter 140 value 5089.680407
## iter 150 value 5086.131044
## iter 160 value 5081.150626
## iter 170 value 5078.016847
## iter 180 value 5075.021407
## iter 190 value 5070.813554
## iter 200 value 5066.797019
## iter 210 value 5062.980646
## iter 220 value 5060.151350
## iter 230 value 5057.698611
## iter 240 value 5055.684180
## iter 250 value 5053.775145
## iter 260 value 5052.447927
## iter 270 value 5051.510425
## iter 280 value 5050.496342
## iter 290 value 5049.443577
## iter 300 value 5047.967401
## iter 310 value 5045.819581
## iter 320 value 5044.070205
## iter 330 value 5042.706982
## iter 340 value 5041.345392
## iter 350 value 5038.769785
## iter 360 value 5036.442440
## iter 370 value 5035.032803
## iter 380 value 5034.468242
## iter 390 value 5034.244878
## iter 400 value 5034.075671
## iter 410 value 5033.921093
## iter 420 value 5033.775965
## iter 430 value 5033.680241
## iter 440 value 5033.617935
## iter 450 value 5033.548088
## iter 460 value 5033.461869
## iter 470 value 5033.422756
## iter 480 value 5033.410226
## iter 490 value 5033.404592
```

```
## iter 500 value 5033.403360
## final  value 5033.403360
## stopped after 500 iterations
## # weights:  574
## initial  value 15506.860880
## iter  10 value 6559.797459
## iter  20 value 5502.556902
## iter  30 value 5233.429586
## iter  40 value 5093.000596
## iter  50 value 4982.560744
## iter  60 value 4927.748211
## iter  70 value 4890.852028
## iter  80 value 4864.126777
## iter  90 value 4845.356233
## iter 100 value 4833.629472
## iter 110 value 4810.118262
## iter 120 value 4789.597261
## iter 130 value 4775.642485
## iter 140 value 4763.374477
## iter 150 value 4752.605963
## iter 160 value 4742.979850
## iter 170 value 4732.157811
## iter 180 value 4725.784618
## iter 190 value 4721.179219
## iter 200 value 4716.162288
## iter 210 value 4709.155085
## iter 220 value 4701.047976
## iter 230 value 4695.759603
## iter 240 value 4691.000028
## iter 250 value 4685.389393
## iter 260 value 4681.570637
## iter 270 value 4677.153192
## iter 280 value 4672.595880
## iter 290 value 4670.622143
## iter 300 value 4669.156865
## iter 310 value 4667.782616
## iter 320 value 4666.822876
## iter 330 value 4666.085875
## iter 340 value 4665.396819
## iter 350 value 4664.702229
## iter 360 value 4664.077391
## iter 370 value 4663.236235
## iter 380 value 4662.665632
## iter 390 value 4662.277114
## iter 400 value 4661.953044
## iter 410 value 4661.575622
## iter 420 value 4661.264607
## iter 430 value 4660.989928
## iter 440 value 4660.755727
## iter 450 value 4660.560687
## iter 460 value 4660.363201
## iter 470 value 4660.154876
## iter 480 value 4659.948937
## iter 490 value 4659.817621
## iter 500 value 4659.703093
## final  value 4659.703093
## stopped after 500 iterations
## # weights:  574
## initial  value 21363.914440
## iter  10 value 6030.006002
## iter  20 value 5325.085714
## iter  30 value 5197.636095
## iter  40 value 5087.276480
## iter  50 value 4998.553504
## iter  60 value 4952.978752
## iter  70 value 4926.207605
## iter  80 value 4909.228801
## iter  90 value 4895.972151
## iter 100 value 4888.318894
## iter 110 value 4881.230454
## iter 120 value 4873.948003
## iter 130 value 4869.787503
## iter 140 value 4864.374526
## iter 150 value 4858.819215
## iter 160 value 4853.096046
```

```
## iter 170 value 4847.616827
## iter 180 value 4842.890543
## iter 190 value 4839.944410
## iter 200 value 4838.176502
## iter 210 value 4836.970555
## iter 220 value 4836.067975
## iter 230 value 4835.319667
## iter 240 value 4834.140733
## iter 250 value 4832.984683
## iter 260 value 4832.166236
## iter 270 value 4831.391327
## iter 280 value 4830.850848
## iter 290 value 4830.520595
## iter 300 value 4830.214948
## iter 310 value 4829.919246
## iter 320 value 4829.735793
## iter 330 value 4829.639267
## iter 340 value 4829.537016
## iter 350 value 4829.404648
## iter 360 value 4829.287408
## iter 370 value 4829.185928
## iter 380 value 4829.096038
## iter 390 value 4829.001182
## iter 400 value 4828.925466
## iter 410 value 4828.869693
## iter 420 value 4828.758907
## iter 430 value 4828.269444
## iter 440 value 4827.350583
## iter 450 value 4826.121733
## iter 460 value 4824.857675
## iter 470 value 4823.629976
## iter 480 value 4821.660584
## iter 490 value 4819.615201
## iter 500 value 4817.686300
## final  value 4817.686300
## stopped after 500 iterations
## # weights:  574
## initial  value 25033.138699
## iter  10 value 6020.786068
## iter  20 value 5408.374123
## iter  30 value 5253.545292
## iter  40 value 5145.568600
## iter  50 value 5082.387314
## iter  60 value 5051.064307
## iter  70 value 5025.156085
## iter  80 value 5001.285844
## iter  90 value 4982.137378
## iter 100 value 4969.604315
## iter 110 value 4957.294016
## iter 120 value 4945.302942
## iter 130 value 4933.830658
## iter 140 value 4924.382202
## iter 150 value 4916.347270
## iter 160 value 4911.004276
## iter 170 value 4904.544904
## iter 180 value 4900.491299
## iter 190 value 4896.272112
## iter 200 value 4891.929067
## iter 210 value 4889.257434
## iter 220 value 4886.801160
## iter 230 value 4884.989221
## iter 240 value 4883.455403
## iter 250 value 4882.070549
## iter 260 value 4880.823187
## iter 270 value 4879.871370
## iter 280 value 4878.201428
## iter 290 value 4876.163453
## iter 300 value 4875.189735
## iter 310 value 4874.593830
## iter 320 value 4874.072034
## iter 330 value 4873.691704
## iter 340 value 4873.433169
## iter 350 value 4873.177506
## iter 360 value 4872.788697
## iter 370 value 4872.059850
```

```
## iter 380 value 4871.432209
## iter 390 value 4871.125719
## iter 400 value 4870.902187
## iter 410 value 4870.750041
## iter 420 value 4870.537044
## iter 430 value 4870.336911
## iter 440 value 4870.092324
## iter 450 value 4869.857126
## iter 460 value 4869.755936
## iter 470 value 4869.669369
## iter 480 value 4869.601179
## iter 490 value 4869.538353
## iter 500 value 4869.483107
## final  value 4869.483107
## stopped after 500 iterations
## # weights:  42
## initial  value 17211.432621
## iter  10 value 13164.738567
## iter  20 value 12397.148392
## iter  30 value 12079.642770
## iter  40 value 11824.542800
## iter  50 value 11559.013889
## iter  60 value 11150.971116
## iter  70 value 10515.216987
## iter  80 value 9914.032762
## iter  90 value 9432.088239
## iter 100 value 9302.448334
## iter 110 value 9206.237900
## iter 120 value 9151.065275
## iter 130 value 9063.380831
## iter 140 value 9053.611032
## iter 140 value 9053.611014
## iter 140 value 9053.611014
## final  value 9053.611014
## converged
## # weights:  42
## initial  value 19668.448235
## iter  10 value 13386.464864
## iter  20 value 12590.054573
## iter  30 value 11711.170802
## iter  40 value 11401.639239
## iter  50 value 10883.091762
## iter  60 value 10017.272093
## iter  70 value 9689.777667
## iter  80 value 9571.057719
## iter  90 value 9464.704136
## iter 100 value 9368.055503
## iter 110 value 9348.592652
## iter 120 value 9311.863698
## iter 130 value 9277.364119
## final  value 9277.216485
## converged
## # weights:  42
## initial  value 20020.694835
## iter  10 value 12908.978706
## iter  20 value 12266.542189
## iter  30 value 10970.024879
## iter  40 value 10638.548396
## iter  50 value 9773.924764
## iter  60 value 9164.724793
## iter  70 value 9151.840399
## iter  80 value 9144.810918
## iter  90 value 9144.721967
## iter 100 value 9144.592692
## iter 110 value 9144.467636
## iter 120 value 9144.413530
## iter 130 value 9144.379202
## final  value 9144.376517
## converged
## # weights:  194
## initial  value 22117.790611
## iter  10 value 7054.604378
## iter  20 value 5929.484510
## iter  30 value 5637.726532
## iter  40 value 5551.590897
```

```
## iter  50 value 5494.498871
## iter  60 value 5467.982304
## iter  70 value 5423.347218
## iter  80 value 5382.763016
## iter  90 value 5359.276231
## iter 100 value 5338.632321
## iter 110 value 5323.494166
## iter 120 value 5306.697024
## iter 130 value 5292.196943
## iter 140 value 5277.239419
## iter 150 value 5261.585526
## iter 160 value 5238.753596
## iter 170 value 5218.390899
## iter 180 value 5208.788250
## iter 190 value 5199.796442
## iter 200 value 5188.755592
## iter 210 value 5178.916135
## iter 220 value 5170.178804
## iter 230 value 5165.467034
## iter 240 value 5162.140087
## iter 250 value 5158.764964
## iter 260 value 5156.781892
## iter 270 value 5154.152050
## iter 280 value 5151.162966
## iter 290 value 5149.172936
## iter 300 value 5148.639356
## iter 310 value 5148.042958
## iter 320 value 5147.481132
## iter 330 value 5146.711545
## iter 340 value 5142.180683
## iter 350 value 5139.484574
## iter 360 value 5137.187507
## iter 370 value 5136.121643
## iter 380 value 5135.089275
## iter 390 value 5133.680279
## iter 400 value 5133.347974
## iter 410 value 5132.837699
## iter 420 value 5132.401276
## iter 430 value 5131.922152
## iter 440 value 5131.463515
## iter 450 value 5131.239648
## iter 460 value 5131.064696
## iter 470 value 5130.947657
## iter 480 value 5130.490902
## iter 490 value 5128.212475
## iter 500 value 5125.624650
## final  value 5125.624650
## stopped after 500 iterations
## # weights:  194
## initial  value 21153.487607
## iter  10 value 7360.677239
## iter  20 value 6034.369653
## iter  30 value 5853.442367
## iter  40 value 5737.323322
## iter  50 value 5658.667201
## iter  60 value 5609.510466
## iter  70 value 5546.224392
## iter  80 value 5506.143990
## iter  90 value 5469.686136
## iter 100 value 5448.136797
## iter 110 value 5423.527453
## iter 120 value 5404.705408
## iter 130 value 5381.324622
## iter 140 value 5354.216984
## iter 150 value 5340.011855
## iter 160 value 5320.034866
## iter 170 value 5290.663936
## iter 180 value 5269.578017
## iter 190 value 5256.508764
## iter 200 value 5248.383085
## iter 210 value 5238.792487
## iter 220 value 5229.146271
## iter 230 value 5221.211908
## iter 240 value 5215.840290
## iter 250 value 5212.760124
```

```
## iter 260 value 5210.971054
## iter 270 value 5210.126741
## iter 280 value 5209.464633
## iter 290 value 5208.573820
## iter 300 value 5207.202253
## iter 310 value 5206.746475
## iter 320 value 5206.395463
## iter 330 value 5206.199334
## iter 340 value 5205.885568
## iter 350 value 5205.478177
## iter 360 value 5204.902708
## iter 370 value 5204.592668
## iter 380 value 5204.407118
## iter 390 value 5204.325114
## iter 400 value 5204.312987
## iter 410 value 5204.295692
## iter 420 value 5204.279877
## iter 430 value 5204.262722
## iter 440 value 5204.254898
## iter 450 value 5204.252688
## final  value 5204.252242
## converged
## # weights:  194
## initial  value 22219.093951
## iter  10 value 7221.270545
## iter  20 value 6336.552348
## iter  30 value 6169.923339
## iter  40 value 5995.867581
## iter  50 value 5814.012375
## iter  60 value 5677.531077
## iter  70 value 5567.750501
## iter  80 value 5481.743531
## iter  90 value 5413.416466
## iter 100 value 5374.812150
## iter 110 value 5342.098804
## iter 120 value 5311.743175
## iter 130 value 5286.596945
## iter 140 value 5273.212248
## iter 150 value 5266.924094
## iter 160 value 5262.884830
## iter 170 value 5261.238738
## iter 180 value 5260.477059
## iter 190 value 5259.342513
## iter 200 value 5257.887302
## iter 210 value 5256.517662
## iter 220 value 5255.678509
## iter 230 value 5253.666695
## iter 240 value 5250.615667
## iter 250 value 5249.153485
## iter 260 value 5247.971404
## iter 270 value 5245.158655
## iter 280 value 5240.267490
## iter 290 value 5234.970516
## iter 300 value 5233.480395
## iter 310 value 5232.581547
## iter 320 value 5232.264257
## iter 330 value 5232.130698
## iter 340 value 5232.036057
## iter 350 value 5232.002668
## iter 360 value 5231.996443
## iter 370 value 5231.993299
## final  value 5231.992806
## converged
## # weights:  384
## initial  value 18748.219712
## iter  10 value 6348.078886
## iter  20 value 5339.041792
## iter  30 value 5213.889184
## iter  40 value 5145.721372
## iter  50 value 5092.031937
## iter  60 value 5049.360996
## iter  70 value 5021.444172
## iter  80 value 5007.307023
## iter  90 value 4999.205029
## iter 100 value 4988.678382
```

```
## iter 110 value 4981.217520
## iter 120 value 4970.991137
## iter 130 value 4963.974960
## iter 140 value 4957.713551
## iter 150 value 4951.589906
## iter 160 value 4944.563907
## iter 170 value 4938.303591
## iter 180 value 4934.455994
## iter 190 value 4931.231627
## iter 200 value 4929.313969
## iter 210 value 4927.889316
## iter 220 value 4925.101739
## iter 230 value 4919.914800
## iter 240 value 4914.131017
## iter 250 value 4909.486914
## iter 260 value 4905.888369
## iter 270 value 4903.477428
## iter 280 value 4901.679894
## iter 290 value 4900.140040
## iter 300 value 4898.728712
## iter 310 value 4897.691569
## iter 320 value 4895.921944
## iter 330 value 4892.426204
## iter 340 value 4887.835945
## iter 350 value 4882.059228
## iter 360 value 4878.765629
## iter 370 value 4876.664381
## iter 380 value 4872.823262
## iter 390 value 4865.315005
## iter 400 value 4859.846459
## iter 410 value 4855.359137
## iter 420 value 4853.637892
## iter 430 value 4852.643883
## iter 440 value 4851.777967
## iter 450 value 4850.713609
## iter 460 value 4849.825901
## iter 470 value 4848.913133
## iter 480 value 4848.304435
## iter 490 value 4848.025014
## iter 500 value 4847.778999
## final  value 4847.778999
## stopped after 500 iterations
## # weights:  384
## initial  value 20054.615006
## iter  10 value 7417.148762
## iter  20 value 5904.219714
## iter  30 value 5638.405933
## iter  40 value 5521.046955
## iter  50 value 5449.877352
## iter  60 value 5379.844034
## iter  70 value 5303.061623
## iter  80 value 5220.000960
## iter  90 value 5167.580342
## iter 100 value 5134.933375
## iter 110 value 5107.129976
## iter 120 value 5096.142899
## iter 130 value 5084.092866
## iter 140 value 5071.727951
## iter 150 value 5060.807921
## iter 160 value 5048.797023
## iter 170 value 5039.816542
## iter 180 value 5030.367536
## iter 190 value 5021.176223
## iter 200 value 5015.393830
## iter 210 value 5012.133817
## iter 220 value 5010.526220
## iter 230 value 5008.259391
## iter 240 value 5004.472437
## iter 250 value 5001.397531
## iter 260 value 4999.366536
## iter 270 value 4997.612057
## iter 280 value 4996.193371
## iter 290 value 4994.960958
## iter 300 value 4993.853956
## iter 310 value 4992.782508
```

```
## iter 320 value 4990.229824
## iter 330 value 4987.684439
## iter 340 value 4984.498728
## iter 350 value 4982.649299
## iter 360 value 4981.786923
## iter 370 value 4980.853975
## iter 380 value 4980.014324
## iter 390 value 4979.655735
## iter 400 value 4979.359552
## iter 410 value 4979.138204
## iter 420 value 4978.885756
## iter 430 value 4978.710168
## iter 440 value 4978.482416
## iter 450 value 4978.250273
## iter 460 value 4978.135193
## iter 470 value 4977.986865
## iter 480 value 4977.852269
## iter 490 value 4977.690711
## iter 500 value 4977.492698
## final  value 4977.492698
## stopped after 500 iterations
## # weights:  384
## initial  value 21630.262180
## iter  10 value 6486.341816
## iter  20 value 5563.369841
## iter  30 value 5444.021332
## iter  40 value 5372.259391
## iter  50 value 5316.182401
## iter  60 value 5268.887276
## iter  70 value 5214.151450
## iter  80 value 5157.934923
## iter  90 value 5132.067955
## iter 100 value 5120.180437
## iter 110 value 5108.538308
## iter 120 value 5100.037850
## iter 130 value 5090.365293
## iter 140 value 5082.852600
## iter 150 value 5076.612187
## iter 160 value 5071.746979
## iter 170 value 5067.958990
## iter 180 value 5063.719017
## iter 190 value 5058.577564
## iter 200 value 5055.761111
## iter 210 value 5053.989457
## iter 220 value 5051.707836
## iter 230 value 5050.187706
## iter 240 value 5049.004409
## iter 250 value 5047.633005
## iter 260 value 5046.261018
## iter 270 value 5045.166846
## iter 280 value 5043.897679
## iter 290 value 5042.053961
## iter 300 value 5040.387708
## iter 310 value 5038.864316
## iter 320 value 5037.339348
## iter 330 value 5035.668685
## iter 340 value 5034.365298
## iter 350 value 5033.851688
## iter 360 value 5033.481453
## iter 370 value 5033.278109
## iter 380 value 5033.123644
## iter 390 value 5032.988487
## iter 400 value 5032.933039
## iter 410 value 5032.902403
## iter 420 value 5032.886445
## iter 430 value 5032.877183
## final  value 5032.871232
## converged
## # weights:  574
## initial  value 25704.051009
## iter  10 value 6370.308032
## iter  20 value 5384.509797
## iter  30 value 5152.634570
## iter  40 value 5020.071786
## iter  50 value 4941.045425
```

```
## iter  60 value 4907.146125
## iter  70 value 4870.267244
## iter  80 value 4842.785343
## iter  90 value 4815.367861
## iter 100 value 4783.457506
## iter 110 value 4767.081800
## iter 120 value 4754.880612
## iter 130 value 4746.122168
## iter 140 value 4737.921603
## iter 150 value 4730.144562
## iter 160 value 4724.788207
## iter 170 value 4719.868318
## iter 180 value 4715.100055
## iter 190 value 4711.997906
## iter 200 value 4708.435511
## iter 210 value 4703.330611
## iter 220 value 4696.938515
## iter 230 value 4690.194761
## iter 240 value 4687.143636
## iter 250 value 4685.293742
## iter 260 value 4682.390765
## iter 270 value 4679.664762
## iter 280 value 4678.334524
## iter 290 value 4677.640827
## iter 300 value 4677.136653
## iter 310 value 4676.665725
## iter 320 value 4676.323819
## iter 330 value 4675.888411
## iter 340 value 4675.404123
## iter 350 value 4675.056349
## iter 360 value 4674.764510
## iter 370 value 4674.559971
## iter 380 value 4674.340273
## iter 390 value 4674.146046
## iter 400 value 4673.985788
## iter 410 value 4673.801362
## iter 420 value 4673.589318
## iter 430 value 4673.404886
## iter 440 value 4673.221544
## iter 450 value 4672.939799
## iter 460 value 4672.611626
## iter 470 value 4671.626499
## iter 480 value 4671.236965
## iter 490 value 4671.070463
## iter 500 value 4670.984754
## final  value 4670.984754
## stopped after 500 iterations
## # weights:  574
## initial  value 21789.382599
## iter  10 value 6467.705796
## iter  20 value 5526.117078
## iter  30 value 5327.477242
## iter  40 value 5233.595175
## iter  50 value 5154.262366
## iter  60 value 5093.885610
## iter  70 value 5056.883920
## iter  80 value 5020.917321
## iter  90 value 4971.596673
## iter 100 value 4947.948585
## iter 110 value 4923.343842
## iter 120 value 4904.420251
## iter 130 value 4891.167775
## iter 140 value 4878.697562
## iter 150 value 4868.480817
## iter 160 value 4861.466028
## iter 170 value 4855.251757
## iter 180 value 4850.818225
## iter 190 value 4847.050918
## iter 200 value 4844.147284
## iter 210 value 4841.460892
## iter 220 value 4839.118311
## iter 230 value 4836.414598
## iter 240 value 4833.929621
## iter 250 value 4831.822281
## iter 260 value 4829.831456
```

```
## iter 270 value 4828.097351
## iter 280 value 4826.522818
## iter 290 value 4824.397960
## iter 300 value 4822.022084
## iter 310 value 4820.926122
## iter 320 value 4820.372053
## iter 330 value 4819.954572
## iter 340 value 4819.649123
## iter 350 value 4819.444839
## iter 360 value 4819.244237
## iter 370 value 4819.080172
## iter 380 value 4818.898863
## iter 390 value 4818.668256
## iter 400 value 4818.476296
## iter 410 value 4818.359326
## iter 420 value 4818.228709
## iter 430 value 4818.135878
## iter 440 value 4818.018816
## iter 450 value 4817.911807
## iter 460 value 4817.831001
## iter 470 value 4817.785625
## iter 480 value 4817.751741
## iter 490 value 4817.708876
## iter 500 value 4817.657370
## final  value 4817.657370
## stopped after 500 iterations
## # weights:  574
## initial  value 20058.188485
## iter  10 value 6434.312950
## iter  20 value 5552.999313
## iter  30 value 5331.205249
## iter  40 value 5223.553591
## iter  50 value 5152.769461
## iter  60 value 5102.112966
## iter  70 value 5066.395065
## iter  80 value 5028.996859
## iter  90 value 5007.162106
## iter 100 value 4992.569756
## iter 110 value 4976.354537
## iter 120 value 4962.460851
## iter 130 value 4948.416905
## iter 140 value 4937.826993
## iter 150 value 4930.510704
## iter 160 value 4924.527640
## iter 170 value 4918.870209
## iter 180 value 4915.070110
## iter 190 value 4912.411023
## iter 200 value 4910.349254
## iter 210 value 4907.855376
## iter 220 value 4903.679872
## iter 230 value 4900.071533
## iter 240 value 4896.806117
## iter 250 value 4894.513306
## iter 260 value 4892.262188
## iter 270 value 4890.079433
## iter 280 value 4887.676647
## iter 290 value 4885.860180
## iter 300 value 4884.478500
## iter 310 value 4883.393674
## iter 320 value 4882.467684
## iter 330 value 4881.729664
## iter 340 value 4881.072604
## iter 350 value 4880.497969
## iter 360 value 4880.142643
## iter 370 value 4879.820041
## iter 380 value 4879.252615
## iter 390 value 4878.511838
## iter 400 value 4877.950570
## iter 410 value 4877.575958
## iter 420 value 4876.734340
## iter 430 value 4876.319442
## iter 440 value 4876.001780
## iter 450 value 4875.781226
## iter 460 value 4875.389161
## iter 470 value 4875.062806
```

```
## iter 480 value 4874.894060
## iter 490 value 4874.740343
## iter 500 value 4874.581642
## final  value 4874.581642
## stopped after 500 iterations
## # weights:  42
## initial  value 20922.005326
## iter  10 value 11650.167970
## iter  20 value 10912.864920
## iter  30 value 10418.760893
## iter  40 value 9791.718504
## iter  50 value 9223.335392
## iter  60 value 8737.671408
## iter  70 value 8681.462483
## iter  80 value 8662.238568
## iter  90 value 8659.221409
## iter 100 value 8657.021244
## iter 110 value 8656.216756
## iter 120 value 8653.054784
## final  value 8651.435854
## converged
## # weights:  42
## initial  value 17829.913368
## iter  10 value 12269.674782
## iter  20 value 11378.785208
## iter  30 value 11006.505091
## iter  40 value 10768.899090
## iter  50 value 10282.034583
## iter  60 value 9528.075656
## iter  70 value 9120.351646
## iter  80 value 9001.890831
## iter  90 value 8968.072626
## iter 100 value 8946.586914
## iter 110 value 8943.722203
## iter 120 value 8940.317393
## iter 130 value 8935.705066
## iter 130 value 8935.705060
## iter 130 value 8935.705060
## final  value 8935.705060
## converged
## # weights:  42
## initial  value 17783.668787
## iter  10 value 12829.571236
## iter  20 value 12012.529540
## iter  30 value 11385.450365
## iter  40 value 11078.430090
## iter  50 value 10797.254465
## iter  60 value 10170.776838
## iter  70 value 9660.381599
## iter  80 value 9384.631776
## iter  90 value 9264.283912
## iter 100 value 9172.257494
## iter 110 value 9156.158042
## iter 120 value 9142.973895
## iter 130 value 9117.285896
## final  value 9117.250723
## converged
## # weights:  194
## initial  value 18607.302300
## iter  10 value 7000.712606
## iter  20 value 5880.703739
## iter  30 value 5687.970430
## iter  40 value 5606.098209
## iter  50 value 5537.611292
## iter  60 value 5487.624152
## iter  70 value 5449.687860
## iter  80 value 5411.640563
## iter  90 value 5377.377588
## iter 100 value 5352.439835
## iter 110 value 5321.915946
## iter 120 value 5269.540559
## iter 130 value 5232.544606
## iter 140 value 5210.778080
## iter 150 value 5195.128405
## iter 160 value 5179.396652
```

```
## iter 170 value 5166.404617
## iter 180 value 5158.529973
## iter 190 value 5152.793997
## iter 200 value 5144.500235
## iter 210 value 5139.855299
## iter 220 value 5137.756929
## iter 230 value 5135.389185
## iter 240 value 5133.994992
## iter 250 value 5133.106392
## iter 260 value 5131.207678
## iter 270 value 5129.400015
## iter 280 value 5128.469641
## iter 290 value 5127.946123
## iter 300 value 5127.647523
## iter 310 value 5127.574410
## iter 320 value 5127.557732
## iter 330 value 5127.544270
## iter 340 value 5127.530180
## iter 350 value 5127.527981
## iter 360 value 5127.526241
## final  value 5127.526034
## converged
## # weights:  194
## initial  value 18167.155994
## iter  10 value 6258.176427
## iter  20 value 5629.044004
## iter  30 value 5520.034864
## iter  40 value 5442.434127
## iter  50 value 5409.365815
## iter  60 value 5377.905163
## iter  70 value 5350.994129
## iter  80 value 5324.998962
## iter  90 value 5306.567300
## iter 100 value 5292.442737
## iter 110 value 5279.952909
## iter 120 value 5269.537154
## iter 130 value 5262.172620
## iter 140 value 5254.885155
## iter 150 value 5246.907726
## iter 160 value 5234.268213
## iter 170 value 5217.380294
## iter 180 value 5205.747093
## iter 190 value 5196.708029
## iter 200 value 5190.948695
## iter 210 value 5187.157474
## iter 220 value 5184.836649
## iter 230 value 5182.970788
## iter 240 value 5181.643612
## iter 250 value 5180.956974
## iter 260 value 5179.276038
## iter 270 value 5178.186262
## iter 280 value 5177.850787
## iter 290 value 5177.764395
## iter 300 value 5177.636411
## iter 310 value 5177.615714
## iter 320 value 5177.612817
## final  value 5177.611019
## converged
## # weights:  194
## initial  value 22592.862807
## iter  10 value 8297.461076
## iter  20 value 6297.589020
## iter  30 value 6120.598835
## iter  40 value 5934.206657
## iter  50 value 5820.890568
## iter  60 value 5692.389413
## iter  70 value 5633.288680
## iter  80 value 5589.217285
## iter  90 value 5537.731556
## iter 100 value 5502.124883
## iter 110 value 5471.924122
## iter 120 value 5453.219772
## iter 130 value 5426.047772
## iter 140 value 5401.050595
## iter 150 value 5370.941687
```

```
## iter 160 value 5339.170595
## iter 170 value 5307.242474
## iter 180 value 5289.700159
## iter 190 value 5282.065000
## iter 200 value 5275.681359
## iter 210 value 5270.393221
## iter 220 value 5264.615214
## iter 230 value 5258.434568
## iter 240 value 5254.991182
## iter 250 value 5251.506610
## iter 260 value 5248.134565
## iter 270 value 5245.120849
## iter 280 value 5240.867934
## iter 290 value 5238.438144
## iter 300 value 5233.597676
## iter 310 value 5231.097318
## iter 320 value 5229.940845
## iter 330 value 5228.765096
## iter 340 value 5228.039617
## iter 350 value 5227.855170
## iter 360 value 5227.802312
## iter 370 value 5227.789850
## iter 380 value 5227.784372
## final  value 5227.782710
## converged
## # weights:  384
## initial  value 21582.778885
## iter  10 value 5934.149733
## iter  20 value 5287.870388
## iter  30 value 5137.295661
## iter  40 value 5043.399483
## iter  50 value 5004.310762
## iter  60 value 4977.809461
## iter  70 value 4949.583052
## iter  80 value 4930.691640
## iter  90 value 4920.515277
## iter 100 value 4912.412299
## iter 110 value 4905.111280
## iter 120 value 4900.746732
## iter 130 value 4897.851080
## iter 140 value 4894.780915
## iter 150 value 4890.782648
## iter 160 value 4886.478895
## iter 170 value 4882.429648
## iter 180 value 4877.092579
## iter 190 value 4873.503702
## iter 200 value 4871.727962
## iter 210 value 4870.556837
## iter 220 value 4869.573050
## iter 230 value 4868.913009
## iter 240 value 4868.244839
## iter 250 value 4867.483235
## iter 260 value 4866.963320
## iter 270 value 4866.374588
## iter 280 value 4865.544331
## iter 290 value 4864.752532
## iter 300 value 4864.135602
## iter 310 value 4863.661468
## iter 320 value 4863.301908
## iter 330 value 4862.916969
## iter 340 value 4862.666708
## iter 350 value 4862.490094
## iter 360 value 4862.393312
## iter 370 value 4862.297424
## iter 380 value 4862.224211
## iter 390 value 4862.152171
## iter 400 value 4862.035434
## iter 410 value 4861.866695
## iter 420 value 4861.738586
## iter 430 value 4861.680723
## iter 440 value 4861.627472
## iter 450 value 4861.578648
## iter 460 value 4861.491770
## iter 470 value 4861.436775
## iter 480 value 4861.405224
```

```
## iter 490 value 4861.393972
## iter 500 value 4861.391550
## final  value 4861.391550
## stopped after 500 iterations
## # weights:  384
## initial  value 32762.738820
## iter  10 value 5810.048017
## iter  20 value 5326.780600
## iter  30 value 5215.137913
## iter  40 value 5131.924889
## iter  50 value 5076.193313
## iter  60 value 5058.383098
## iter  70 value 5046.535843
## iter  80 value 5037.134578
## iter  90 value 5024.532685
## iter 100 value 5015.238205
## iter 110 value 5007.443735
## iter 120 value 5002.294227
## iter 130 value 4998.383650
## iter 140 value 4995.250080
## iter 150 value 4991.048406
## iter 160 value 4987.463292
## iter 170 value 4985.160573
## iter 180 value 4982.881002
## iter 190 value 4980.697388
## iter 200 value 4979.101819
## iter 210 value 4977.906344
## iter 220 value 4976.853540
## iter 230 value 4976.061757
## iter 240 value 4975.632962
## iter 250 value 4975.357830
## iter 260 value 4974.851735
## iter 270 value 4973.685812
## iter 280 value 4972.627184
## iter 290 value 4972.108204
## iter 300 value 4971.703874
## iter 310 value 4971.382487
## iter 320 value 4971.132253
## iter 330 value 4970.984606
## iter 340 value 4970.813611
## iter 350 value 4970.670622
## iter 360 value 4970.546289
## iter 370 value 4970.388918
## iter 380 value 4970.064826
## iter 390 value 4969.347433
## iter 400 value 4967.577078
## iter 410 value 4965.204204
## iter 420 value 4964.404630
## iter 430 value 4963.911068
## iter 440 value 4963.364921
## iter 450 value 4962.909671
## iter 460 value 4962.539116
## iter 470 value 4962.391719
## iter 480 value 4962.317512
## iter 490 value 4962.297242
## iter 500 value 4962.285426
## final  value 4962.285426
## stopped after 500 iterations
## # weights:  384
## initial  value 19103.059551
## iter  10 value 6501.962494
## iter  20 value 5463.993983
## iter  30 value 5329.069905
## iter  40 value 5262.905272
## iter  50 value 5214.338655
## iter  60 value 5181.539860
## iter  70 value 5160.514003
## iter  80 value 5141.771793
## iter  90 value 5119.647000
## iter 100 value 5103.554505
## iter 110 value 5090.423094
## iter 120 value 5082.181996
## iter 130 value 5074.279750
## iter 140 value 5068.238521
## iter 150 value 5062.329489
```

```
## iter 160 value 5057.899934
## iter 170 value 5053.665547
## iter 180 value 5050.100032
## iter 190 value 5047.592738
## iter 200 value 5044.917425
## iter 210 value 5040.930766
## iter 220 value 5037.520530
## iter 230 value 5033.291831
## iter 240 value 5029.156078
## iter 250 value 5026.096024
## iter 260 value 5023.700512
## iter 270 value 5021.876863
## iter 280 value 5020.487558
## iter 290 value 5019.427228
## iter 300 value 5018.520875
## iter 310 value 5017.720317
## iter 320 value 5017.027938
## iter 330 value 5016.209003
## iter 340 value 5015.616755
## iter 350 value 5015.144319
## iter 360 value 5014.613937
## iter 370 value 5013.806441
## iter 380 value 5013.131585
## iter 390 value 5012.713411
## iter 400 value 5012.349451
## iter 410 value 5011.900496
## iter 420 value 5011.567827
## iter 430 value 5011.274769
## iter 440 value 5011.075139
## iter 450 value 5010.950235
## iter 460 value 5010.871613
## iter 470 value 5010.663669
## iter 480 value 5010.509458
## iter 490 value 5010.441097
## iter 500 value 5010.408508
## final  value 5010.408508
## stopped after 500 iterations
## # weights:  574
## initial  value 33301.846775
## iter  10 value 5938.450270
## iter  20 value 5233.829328
## iter  30 value 5091.310072
## iter  40 value 4977.825619
## iter  50 value 4912.658816
## iter  60 value 4870.070075
## iter  70 value 4841.373030
## iter  80 value 4821.500817
## iter  90 value 4805.147242
## iter 100 value 4788.073522
## iter 110 value 4771.809769
## iter 120 value 4759.598198
## iter 130 value 4752.713797
## iter 140 value 4744.053324
## iter 150 value 4735.618410
## iter 160 value 4729.541899
## iter 170 value 4725.883375
## iter 180 value 4723.111799
## iter 190 value 4721.207916
## iter 200 value 4719.298371
## iter 210 value 4716.690790
## iter 220 value 4714.273509
## iter 230 value 4712.758215
## iter 240 value 4711.162533
## iter 250 value 4707.855083
## iter 260 value 4702.318340
## iter 270 value 4697.956056
## iter 280 value 4693.703337
## iter 290 value 4690.265662
## iter 300 value 4687.656809
## iter 310 value 4685.076271
## iter 320 value 4682.000573
## iter 330 value 4679.433445
## iter 340 value 4678.336610
## iter 350 value 4676.152947
## iter 360 value 4673.967323
```

```
## iter 370 value 4672.052968
## iter 380 value 4670.970566
## iter 390 value 4669.762068
## iter 400 value 4667.580018
## iter 410 value 4665.304405
## iter 420 value 4663.821470
## iter 430 value 4663.163626
## iter 440 value 4662.656460
## iter 450 value 4662.129316
## iter 460 value 4661.517770
## iter 470 value 4660.720160
## iter 480 value 4659.900013
## iter 490 value 4659.588654
## iter 500 value 4659.302129
## final  value 4659.302129
## stopped after 500 iterations
## # weights:  574
## initial  value 22302.940225
## iter  10 value 5901.710344
## iter  20 value 5266.453844
## iter  30 value 5136.215851
## iter  40 value 5074.737263
## iter  50 value 5002.325688
## iter  60 value 4932.002421
## iter  70 value 4895.319193
## iter  80 value 4878.393724
## iter  90 value 4869.562675
## iter 100 value 4862.045600
## iter 110 value 4851.131719
## iter 120 value 4843.365485
## iter 130 value 4837.949376
## iter 140 value 4832.634015
## iter 150 value 4828.910241
## iter 160 value 4824.272474
## iter 170 value 4819.321199
## iter 180 value 4814.671746
## iter 190 value 4812.211974
## iter 200 value 4810.134276
## iter 210 value 4806.834805
## iter 220 value 4801.765300
## iter 230 value 4797.465021
## iter 240 value 4794.187737
## iter 250 value 4791.605413
## iter 260 value 4790.127055
## iter 270 value 4789.097093
## iter 280 value 4788.403364
## iter 290 value 4787.898368
## iter 300 value 4787.557838
## iter 310 value 4787.227202
## iter 320 value 4786.928731
## iter 330 value 4786.647228
## iter 340 value 4786.310032
## iter 350 value 4785.986932
## iter 360 value 4785.690433
## iter 370 value 4785.408340
## iter 380 value 4785.186124
## iter 390 value 4784.932621
## iter 400 value 4784.745556
## iter 410 value 4784.552854
## iter 420 value 4784.407536
## iter 430 value 4784.319987
## iter 440 value 4784.252624
## iter 450 value 4784.182699
## iter 460 value 4784.082357
## iter 470 value 4783.968012
## iter 480 value 4783.881548
## iter 490 value 4783.824599
## iter 500 value 4783.758672
## final  value 4783.758672
## stopped after 500 iterations
## # weights:  574
## initial  value 27272.060479
## iter  10 value 5886.855453
## iter  20 value 5324.126569
## iter  30 value 5204.777679
```

```
## iter  40 value 5148.396333
## iter  50 value 5065.156249
## iter  60 value 5020.903879
## iter  70 value 4990.197305
## iter  80 value 4962.399015
## iter  90 value 4944.084828
## iter 100 value 4930.105363
## iter 110 value 4914.892612
## iter 120 value 4904.310905
## iter 130 value 4897.110398
## iter 140 value 4891.994912
## iter 150 value 4889.203823
## iter 160 value 4886.533442
## iter 170 value 4884.519005
## iter 180 value 4882.848696
## iter 190 value 4881.758855
## iter 200 value 4880.947186
## iter 210 value 4880.288214
## iter 220 value 4879.636358
## iter 230 value 4878.933632
## iter 240 value 4878.551683
## iter 250 value 4878.191782
## iter 260 value 4877.807511
## iter 270 value 4877.395685
## iter 280 value 4877.026169
## iter 290 value 4876.612208
## iter 300 value 4876.235494
## iter 310 value 4875.781405
## iter 320 value 4874.632000
## iter 330 value 4871.691577
## iter 340 value 4868.999968
## iter 350 value 4867.051289
## iter 360 value 4865.739299
## iter 370 value 4865.169601
## iter 380 value 4864.813506
## iter 390 value 4864.556637
## iter 400 value 4864.395051
## iter 410 value 4864.263105
## iter 420 value 4864.133899
## iter 430 value 4864.015376
## iter 440 value 4863.929791
## iter 450 value 4863.837435
## iter 460 value 4863.669387
## iter 470 value 4863.000041
## iter 480 value 4860.759823
## iter 490 value 4859.367515
## iter 500 value 4858.805216
## final  value 4858.805216
## stopped after 500 iterations
## # weights:  42
## initial  value 17720.348051
## iter  10 value 12302.252587
## iter  20 value 11645.591888
## iter  30 value 11306.125086
## iter  40 value 10951.626905
## iter  50 value 10429.060930
## iter  60 value 10215.639277
## iter  70 value 10200.775584
## iter  80 value 10199.081139
## iter  90 value 10196.920292
## iter 100 value 10195.229037
## iter 110 value 10192.900423
## iter 120 value 10192.431222
## iter 130 value 10191.462280
## iter 130 value 10191.462264
## iter 130 value 10191.462264
## final  value 10191.462264
## converged
## # weights:  42
## initial  value 17023.027691
## iter  10 value 12542.915116
## iter  20 value 12302.990111
## iter  30 value 12030.942524
## iter  40 value 11703.310939
## iter  50 value 11115.987953
```

```
## iter  60 value 10263.696051
## iter  70 value 9660.391606
## iter  80 value 9377.155509
## iter  90 value 9338.715830
## iter 100 value 9326.473111
## iter 110 value 9323.964737
## iter 120 value 9320.618998
## iter 130 value 9317.234612
## iter 130 value 9317.234602
## iter 130 value 9317.234602
## final  value 9317.234602
## converged
## # weights:  42
## initial  value 19425.304632
## iter  10 value 12325.790930
## iter  20 value 11775.621217
## iter  30 value 11189.046838
## iter  40 value 10693.399516
## iter  50 value 9969.388930
## iter  60 value 9475.155638
## iter  70 value 9442.290978
## iter  80 value 9439.536340
## iter  90 value 9439.205981
## iter 100 value 9439.129051
## iter 110 value 9439.023790
## iter 120 value 9438.990976
## iter 130 value 9438.984554
## iter 130 value 9438.984533
## final  value 9438.984139
## converged
## # weights:  194
## initial  value 19920.762974
## iter  10 value 6679.097074
## iter  20 value 5701.505555
## iter  30 value 5485.788118
## iter  40 value 5403.413593
## iter  50 value 5372.412628
## iter  60 value 5349.170688
## iter  70 value 5333.283846
## iter  80 value 5310.158273
## iter  90 value 5292.283681
## iter 100 value 5282.440154
## iter 110 value 5274.360617
## iter 120 value 5268.766559
## iter 130 value 5261.854574
## iter 140 value 5252.988364
## iter 150 value 5245.948794
## iter 160 value 5239.052031
## iter 170 value 5233.194934
## iter 180 value 5230.143525
## iter 190 value 5226.569662
## iter 200 value 5223.787216
## iter 210 value 5220.848797
## iter 220 value 5218.365686
## iter 230 value 5213.737987
## iter 240 value 5211.087055
## iter 250 value 5209.820774
## iter 260 value 5209.025776
## iter 270 value 5207.895631
## iter 280 value 5207.145837
## iter 290 value 5204.779391
## iter 300 value 5202.086508
## iter 310 value 5200.943409
## iter 320 value 5200.096987
## iter 330 value 5199.342272
## iter 340 value 5198.671694
## iter 350 value 5197.777686
## iter 360 value 5193.401749
## iter 370 value 5192.568803
## iter 380 value 5192.333582
## iter 390 value 5192.220115
## iter 400 value 5192.207115
## iter 410 value 5192.193049
## iter 420 value 5192.176071
## iter 430 value 5192.166614
```

```
## iter 440 value 5192.152092
## iter 450 value 5192.131630
## iter 460 value 5192.110064
## iter 470 value 5192.099123
## iter 480 value 5192.094326
## final  value 5192.093084
## converged
## # weights:  194
## initial  value 17325.673356
## iter  10 value 6662.836158
## iter  20 value 5749.574792
## iter  30 value 5600.726489
## iter  40 value 5546.207778
## iter  50 value 5507.613841
## iter  60 value 5479.796840
## iter  70 value 5448.084344
## iter  80 value 5416.577300
## iter  90 value 5380.554527
## iter 100 value 5356.867122
## iter 110 value 5319.783476
## iter 120 value 5297.909639
## iter 130 value 5286.612382
## iter 140 value 5278.551741
## iter 150 value 5271.951104
## iter 160 value 5266.659569
## iter 170 value 5263.273993
## iter 180 value 5259.809423
## iter 190 value 5256.324009
## iter 200 value 5253.818087
## iter 210 value 5251.139132
## iter 220 value 5247.265314
## iter 230 value 5246.219287
## iter 240 value 5245.239775
## iter 250 value 5244.412321
## iter 260 value 5243.753785
## iter 270 value 5243.558543
## iter 280 value 5243.548743
## iter 290 value 5243.539498
## iter 300 value 5243.532142
## final  value 5243.531455
## converged
## # weights:  194
## initial  value 22551.225934
## iter  10 value 7666.532251
## iter  20 value 6435.062351
## iter  30 value 6257.000883
## iter  40 value 6080.843711
## iter  50 value 5903.106143
## iter  60 value 5715.912663
## iter  70 value 5597.579671
## iter  80 value 5529.338761
## iter  90 value 5485.205361
## iter 100 value 5456.774496
## iter 110 value 5432.221146
## iter 120 value 5407.115031
## iter 130 value 5393.900235
## iter 140 value 5384.610985
## iter 150 value 5379.304885
## iter 160 value 5375.456503
## iter 170 value 5371.064717
## iter 180 value 5365.364829
## iter 190 value 5355.613583
## iter 200 value 5342.777836
## iter 210 value 5331.624841
## iter 220 value 5320.899625
## iter 230 value 5313.433833
## iter 240 value 5309.200256
## iter 250 value 5307.437435
## iter 260 value 5305.498123
## iter 270 value 5302.394883
## iter 280 value 5299.622869
## iter 290 value 5298.655093
## iter 300 value 5298.289038
## iter 310 value 5298.217863
## iter 320 value 5298.166317
```

```
## iter 330 value 5298.145738
## iter 340 value 5298.135529
## iter 350 value 5298.126667
## final  value 5298.126480
## converged
## # weights:  384
## initial  value 19032.158584
## iter  10 value 7038.519644
## iter  20 value 5521.988045
## iter  30 value 5320.885747
## iter  40 value 5198.514675
## iter  50 value 5133.216904
## iter  60 value 5096.691134
## iter  70 value 5076.991196
## iter  80 value 5061.933342
## iter  90 value 5047.560019
## iter 100 value 5040.098137
## iter 110 value 5030.274922
## iter 120 value 5019.375571
## iter 130 value 5008.525099
## iter 140 value 5001.238240
## iter 150 value 4997.118769
## iter 160 value 4994.806621
## iter 170 value 4992.307722
## iter 180 value 4988.405378
## iter 190 value 4983.901791
## iter 200 value 4979.903396
## iter 210 value 4976.126149
## iter 220 value 4973.397426
## iter 230 value 4971.198129
## iter 240 value 4968.619176
## iter 250 value 4965.414262
## iter 260 value 4961.375872
## iter 270 value 4958.603001
## iter 280 value 4956.486911
## iter 290 value 4955.177921
## iter 300 value 4954.277262
## iter 310 value 4953.462473
## iter 320 value 4952.395012
## iter 330 value 4951.684223
## iter 340 value 4951.142609
## iter 350 value 4949.988144
## iter 360 value 4948.248360
## iter 370 value 4947.287451
## iter 380 value 4946.712239
## iter 390 value 4946.034307
## iter 400 value 4945.046000
## iter 410 value 4943.338780
## iter 420 value 4942.260316
## iter 430 value 4941.759090
## iter 440 value 4941.064271
## iter 450 value 4940.551472
## iter 460 value 4940.266575
## iter 470 value 4939.935833
## iter 480 value 4939.460790
## iter 490 value 4938.971507
## iter 500 value 4938.693466
## final  value 4938.693466
## stopped after 500 iterations
## # weights:  384
## initial  value 21484.172368
## iter  10 value 6237.065655
## iter  20 value 5466.437656
## iter  30 value 5310.454616
## iter  40 value 5223.908233
## iter  50 value 5176.745582
## iter  60 value 5146.216641
## iter  70 value 5125.514308
## iter  80 value 5096.403829
## iter  90 value 5079.212449
## iter 100 value 5065.503256
## iter 110 value 5056.515683
## iter 120 value 5051.823570
## iter 130 value 5047.923105
## iter 140 value 5044.398215
```

```
## iter 150 value 5042.460691
## iter 160 value 5041.280824
## iter 170 value 5040.101617
## iter 180 value 5038.568742
## iter 190 value 5037.545214
## iter 200 value 5036.929857
## iter 210 value 5036.478206
## iter 220 value 5036.153369
## iter 230 value 5035.928021
## iter 240 value 5035.652274
## iter 250 value 5035.397509
## iter 260 value 5035.115058
## iter 270 value 5034.918995
## iter 280 value 5034.816716
## iter 290 value 5034.711523
## iter 300 value 5034.562780
## iter 310 value 5034.429324
## iter 320 value 5034.277066
## iter 330 value 5034.148548
## iter 340 value 5034.027552
## iter 350 value 5033.964551
## iter 360 value 5033.930757
## iter 370 value 5033.905331
## iter 380 value 5033.876345
## iter 390 value 5033.832631
## iter 400 value 5033.805749
## iter 410 value 5033.784363
## iter 420 value 5033.768100
## iter 430 value 5033.746185
## iter 440 value 5033.739760
## iter 450 value 5033.734974
## iter 460 value 5033.733893
## final  value 5033.733713
## converged
## # weights:  384
## initial  value 18194.697403
## iter  10 value 6327.596862
## iter  20 value 5656.864923
## iter  30 value 5482.054995
## iter  40 value 5393.730141
## iter  50 value 5333.658554
## iter  60 value 5290.431470
## iter  70 value 5251.262713
## iter  80 value 5197.344187
## iter  90 value 5173.269884
## iter 100 value 5147.940358
## iter 110 value 5131.241809
## iter 120 value 5119.847189
## iter 130 value 5110.204605
## iter 140 value 5103.335641
## iter 150 value 5099.034360
## iter 160 value 5096.109088
## iter 170 value 5093.924940
## iter 180 value 5092.501926
## iter 190 value 5091.140710
## iter 200 value 5089.932064
## iter 210 value 5088.718968
## iter 220 value 5087.017888
## iter 230 value 5084.918052
## iter 240 value 5083.495301
## iter 250 value 5082.836040
## iter 260 value 5082.296564
## iter 270 value 5081.855632
## iter 280 value 5081.519536
## iter 290 value 5081.175349
## iter 300 value 5080.725606
## iter 310 value 5080.067756
## iter 320 value 5079.080709
## iter 330 value 5078.084101
## iter 340 value 5077.247359
## iter 350 value 5076.587551
## iter 360 value 5075.841032
## iter 370 value 5075.074557
## iter 380 value 5074.623364
## iter 390 value 5074.213573
```

```
## iter 400 value 5073.756384
## iter 410 value 5073.203311
## iter 420 value 5072.430959
## iter 430 value 5071.373613
## iter 440 value 5071.042374
## iter 450 value 5070.813054
## iter 460 value 5070.627543
## iter 470 value 5070.339113
## iter 480 value 5070.217162
## iter 490 value 5070.071310
## iter 500 value 5069.907936
## final  value 5069.907936
## stopped after 500 iterations
## # weights:  574
## initial  value 22497.599136
## iter  10 value 6675.804270
## iter  20 value 5572.193091
## iter  30 value 5310.489745
## iter  40 value 5162.354215
## iter  50 value 5048.231341
## iter  60 value 4969.879699
## iter  70 value 4924.913670
## iter  80 value 4905.440331
## iter  90 value 4883.695649
## iter 100 value 4854.588499
## iter 110 value 4840.763093
## iter 120 value 4833.284234
## iter 130 value 4828.150986
## iter 140 value 4822.684088
## iter 150 value 4817.496914
## iter 160 value 4814.356731
## iter 170 value 4810.727757
## iter 180 value 4807.485925
## iter 190 value 4804.359888
## iter 200 value 4800.884803
## iter 210 value 4797.810364
## iter 220 value 4795.031142
## iter 230 value 4793.413169
## iter 240 value 4791.654511
## iter 250 value 4789.470502
## iter 260 value 4787.333808
## iter 270 value 4782.971575
## iter 280 value 4777.677169
## iter 290 value 4771.360205
## iter 300 value 4766.393560
## iter 310 value 4762.966564
## iter 320 value 4761.279308
## iter 330 value 4759.884174
## iter 340 value 4758.617318
## iter 350 value 4757.488804
## iter 360 value 4756.352120
## iter 370 value 4755.159301
## iter 380 value 4754.081199
## iter 390 value 4752.893895
## iter 400 value 4751.931368
## iter 410 value 4751.296551
## iter 420 value 4750.650054
## iter 430 value 4750.043215
## iter 440 value 4749.634534
## iter 450 value 4749.363958
## iter 460 value 4749.102701
## iter 470 value 4748.778709
## iter 480 value 4748.207007
## iter 490 value 4747.519130
## iter 500 value 4747.031629
## final  value 4747.031629
## stopped after 500 iterations
## # weights:  574
## initial  value 22805.171809
## iter  10 value 6252.153535
## iter  20 value 5466.761115
## iter  30 value 5243.135064
## iter  40 value 5149.197957
## iter  50 value 5092.721470
## iter  60 value 5058.165683
```

```
## iter  70 value 5030.862748
## iter  80 value 5003.541610
## iter  90 value 4984.891957
## iter 100 value 4969.287101
## iter 110 value 4958.682533
## iter 120 value 4946.975105
## iter 130 value 4937.382420
## iter 140 value 4929.768618
## iter 150 value 4921.544413
## iter 160 value 4913.993119
## iter 170 value 4907.872168
## iter 180 value 4901.053537
## iter 190 value 4897.435542
## iter 200 value 4892.243306
## iter 210 value 4887.262932
## iter 220 value 4882.135369
## iter 230 value 4877.683276
## iter 240 value 4874.011521
## iter 250 value 4871.328777
## iter 260 value 4869.263025
## iter 270 value 4867.344568
## iter 280 value 4865.319861
## iter 290 value 4863.650481
## iter 300 value 4862.196335
## iter 310 value 4860.764606
## iter 320 value 4859.678819
## iter 330 value 4858.700040
## iter 340 value 4857.857346
## iter 350 value 4856.965870
## iter 360 value 4855.714295
## iter 370 value 4854.383403
## iter 380 value 4853.431163
## iter 390 value 4852.683648
## iter 400 value 4852.007949
## iter 410 value 4851.342270
## iter 420 value 4850.835400
## iter 430 value 4850.469306
## iter 440 value 4850.107379
## iter 450 value 4849.703521
## iter 460 value 4849.415054
## iter 470 value 4849.074435
## iter 480 value 4848.749304
## iter 490 value 4848.372954
## iter 500 value 4847.955917
## final  value 4847.955917
## stopped after 500 iterations
## # weights:  574
## initial  value 26764.619216
## iter  10 value 6249.799029
## iter  20 value 5445.482962
## iter  30 value 5288.548851
## iter  40 value 5232.367173
## iter  50 value 5147.971356
## iter  60 value 5078.536036
## iter  70 value 5044.503935
## iter  80 value 5023.839555
## iter  90 value 5010.141405
## iter 100 value 4995.759505
## iter 110 value 4984.759655
## iter 120 value 4976.374302
## iter 130 value 4969.951053
## iter 140 value 4966.321593
## iter 150 value 4962.748934
## iter 160 value 4960.143040
## iter 170 value 4958.381625
## iter 180 value 4954.432044
## iter 190 value 4950.668002
## iter 200 value 4946.896588
## iter 210 value 4944.849045
## iter 220 value 4943.301528
## iter 230 value 4941.733083
## iter 240 value 4940.535421
## iter 250 value 4939.178474
## iter 260 value 4937.900487
## iter 270 value 4936.892067
```

```
## iter 280 value 4936.116898
## iter 290 value 4935.289858
## iter 300 value 4934.657889
## iter 310 value 4934.166581
## iter 320 value 4933.806709
## iter 330 value 4933.502955
## iter 340 value 4933.213934
## iter 350 value 4932.947508
## iter 360 value 4932.758498
## iter 370 value 4932.633312
## iter 380 value 4932.518290
## iter 390 value 4932.431844
## iter 400 value 4932.347024
## iter 410 value 4932.273254
## iter 420 value 4932.184856
## iter 430 value 4932.102844
## iter 440 value 4931.996361
## iter 450 value 4931.930592
## iter 460 value 4931.862206
## iter 470 value 4931.801346
## iter 480 value 4931.750186
## iter 490 value 4931.715052
## iter 500 value 4931.670544
## final  value 4931.670544
## stopped after 500 iterations
## # weights:  42
## initial  value 17161.302318
## iter  10 value 12639.174915
## iter  20 value 12070.739701
## iter  30 value 11546.252570
## iter  40 value 11041.558496
## iter  50 value 10326.276307
## iter  60 value 9071.496350
## iter  70 value 8726.994758
## iter  80 value 8685.431344
## iter  90 value 8679.363350
## iter 100 value 8675.831285
## iter 110 value 8664.469838
## iter 120 value 8655.054795
## iter 130 value 8647.226186
## final  value 8647.223838
## converged
## # weights:  42
## initial  value 19015.825159
## iter  10 value 13275.410761
## iter  20 value 12272.019040
## iter  30 value 12071.651101
## iter  40 value 11955.063777
## iter  50 value 11813.282198
## iter  60 value 11550.719884
## iter  70 value 11133.015801
## iter  80 value 10475.658582
## iter  90 value 10009.836710
## iter 100 value 9788.984327
## iter 110 value 9686.797386
## iter 120 value 9457.299836
## iter 130 value 9340.030035
## iter 140 value 9217.534958
## final  value 9217.529304
## converged
## # weights:  42
## initial  value 21874.113343
## iter  10 value 12756.033052
## iter  20 value 12203.492736
## iter  30 value 11752.270960
## iter  40 value 11416.360100
## iter  50 value 10868.515488
## iter  60 value 10139.904422
## iter  70 value 9619.330123
## iter  80 value 9460.038097
## iter  90 value 9412.704176
## iter 100 value 9365.661524
## iter 110 value 9361.216121
## iter 120 value 9353.142790
## iter 130 value 9343.588153
```

```
## final  value 9343.583258
## converged
## # weights:  194
## initial  value 20580.478342
## iter  10 value 6252.267297
## iter  20 value 5710.676195
## iter  30 value 5529.704106
## iter  40 value 5425.441727
## iter  50 value 5360.728971
## iter  60 value 5323.048002
## iter  70 value 5281.317643
## iter  80 value 5254.877973
## iter  90 value 5228.178490
## iter 100 value 5215.043807
## iter 110 value 5207.714467
## iter 120 value 5199.547918
## iter 130 value 5191.714494
## iter 140 value 5185.360498
## iter 150 value 5179.183474
## iter 160 value 5174.040863
## iter 170 value 5166.594056
## iter 180 value 5151.288672
## iter 190 value 5137.639930
## iter 200 value 5132.034313
## iter 210 value 5128.482439
## iter 220 value 5126.299228
## iter 230 value 5123.984491
## iter 240 value 5122.126464
## iter 250 value 5121.072316
## iter 260 value 5120.319234
## iter 270 value 5119.790260
## iter 280 value 5119.588805
## iter 290 value 5119.510991
## iter 300 value 5119.472993
## iter 310 value 5119.463323
## final  value 5119.462658
## converged
## # weights:  194
## initial  value 19454.375380
## iter  10 value 7294.962861
## iter  20 value 6139.843029
## iter  30 value 5864.641842
## iter  40 value 5711.931473
## iter  50 value 5560.415826
## iter  60 value 5465.764226
## iter  70 value 5393.826583
## iter  80 value 5360.767892
## iter  90 value 5332.169602
## iter 100 value 5307.792401
## iter 110 value 5287.935632
## iter 120 value 5271.362967
## iter 130 value 5252.175557
## iter 140 value 5231.231098
## iter 150 value 5221.986826
## iter 160 value 5214.238487
## iter 170 value 5206.680953
## iter 180 value 5201.207036
## iter 190 value 5197.640387
## iter 200 value 5194.171906
## iter 210 value 5191.064958
## iter 220 value 5186.617162
## iter 230 value 5181.426106
## iter 240 value 5178.341221
## iter 250 value 5174.971609
## iter 260 value 5173.003464
## iter 270 value 5171.381509
## iter 280 value 5170.480409
## iter 290 value 5170.104368
## iter 300 value 5169.712975
## iter 310 value 5169.350994
## iter 320 value 5169.022792
## iter 330 value 5168.735971
## iter 340 value 5168.609639
## iter 350 value 5168.599602
## final  value 5168.598310
```

```
## converged
## # weights:  194
## initial  value 15528.176334
## iter  10 value 6919.391220
## iter  20 value 5830.051677
## iter  30 value 5718.054921
## iter  40 value 5617.263609
## iter  50 value 5534.243450
## iter  60 value 5462.636206
## iter  70 value 5408.801425
## iter  80 value 5353.366037
## iter  90 value 5325.814690
## iter 100 value 5307.613195
## iter 110 value 5295.479815
## iter 120 value 5282.600330
## iter 130 value 5270.312568
## iter 140 value 5263.414716
## iter 150 value 5259.269365
## iter 160 value 5256.620631
## iter 170 value 5254.776986
## iter 180 value 5253.466972
## iter 190 value 5252.747814
## iter 200 value 5252.270269
## iter 210 value 5251.552817
## iter 220 value 5249.258722
## iter 230 value 5246.344083
## iter 240 value 5244.360202
## iter 250 value 5238.225606
## iter 260 value 5233.654408
## iter 270 value 5231.090637
## iter 280 value 5230.144767
## iter 290 value 5229.677540
## iter 300 value 5229.467460
## iter 310 value 5229.370073
## iter 320 value 5229.335351
## iter 330 value 5229.325153
## iter 330 value 5229.325114
## iter 330 value 5229.325113
## final  value 5229.325113
## converged
## # weights:  384
## initial  value 35162.620637
## iter  10 value 7236.196385
## iter  20 value 5691.283870
## iter  30 value 5377.952222
## iter  40 value 5256.353557
## iter  50 value 5203.011529
## iter  60 value 5142.147518
## iter  70 value 5094.219819
## iter  80 value 5063.848415
## iter  90 value 5044.887692
## iter 100 value 5028.746639
## iter 110 value 5012.742528
## iter 120 value 4998.000807
## iter 130 value 4985.995830
## iter 140 value 4970.294526
## iter 150 value 4955.988024
## iter 160 value 4942.786251
## iter 170 value 4935.433911
## iter 180 value 4928.418250
## iter 190 value 4922.782611
## iter 200 value 4917.226645
## iter 210 value 4908.416427
## iter 220 value 4899.635693
## iter 230 value 4892.490255
## iter 240 value 4887.141462
## iter 250 value 4882.408760
## iter 260 value 4878.071855
## iter 270 value 4874.830413
## iter 280 value 4872.486624
## iter 290 value 4870.313839
## iter 300 value 4868.554928
## iter 310 value 4867.283453
## iter 320 value 4866.448954
## iter 330 value 4865.759463
```

```
## iter 340 value 4865.070545
## iter 350 value 4864.562203
## iter 360 value 4864.012222
## iter 370 value 4863.225877
## iter 380 value 4861.953286
## iter 390 value 4860.937854
## iter 400 value 4859.735760
## iter 410 value 4859.218124
## iter 420 value 4858.963799
## iter 430 value 4858.572205
## iter 440 value 4858.294671
## iter 450 value 4858.175204
## iter 460 value 4858.121226
## iter 470 value 4858.070686
## iter 480 value 4858.047061
## iter 490 value 4858.035481
## iter 500 value 4858.026749
## final  value 4858.026749
## stopped after 500 iterations
## # weights:  384
## initial  value 27751.225591
## iter  10 value 6032.512255
## iter  20 value 5399.252500
## iter  30 value 5260.045826
## iter  40 value 5161.457880
## iter  50 value 5099.023572
## iter  60 value 5077.271289
## iter  70 value 5060.088862
## iter  80 value 5046.568939
## iter  90 value 5032.689582
## iter 100 value 5023.546738
## iter 110 value 5013.029891
## iter 120 value 5004.190418
## iter 130 value 4998.025347
## iter 140 value 4991.782631
## iter 150 value 4986.996773
## iter 160 value 4981.223954
## iter 170 value 4975.656893
## iter 180 value 4970.625614
## iter 190 value 4968.885767
## iter 200 value 4968.268379
## iter 210 value 4967.149058
## iter 220 value 4965.399865
## iter 230 value 4963.852161
## iter 240 value 4962.451352
## iter 250 value 4961.385120
## iter 260 value 4960.456773
## iter 270 value 4959.264136
## iter 280 value 4957.925387
## iter 290 value 4956.849358
## iter 300 value 4956.268251
## iter 310 value 4955.907691
## iter 320 value 4955.520178
## iter 330 value 4955.127384
## iter 340 value 4954.902936
## iter 350 value 4954.660430
## iter 360 value 4954.557510
## iter 370 value 4954.458876
## iter 380 value 4954.299394
## iter 390 value 4954.154049
## iter 400 value 4954.074591
## iter 410 value 4954.027192
## iter 420 value 4953.997516
## iter 430 value 4953.979074
## iter 440 value 4953.969220
## iter 450 value 4953.962106
## iter 460 value 4953.954466
## iter 470 value 4953.950858
## iter 480 value 4953.948497
## iter 490 value 4953.947024
## iter 500 value 4953.940779
## final  value 4953.940779
## stopped after 500 iterations
## # weights:  384
## initial  value 18162.233330
```

```
## iter  10 value 6256.219183
## iter  20 value 5349.573183
## iter  30 value 5245.280506
## iter  40 value 5168.249698
## iter  50 value 5096.747089
## iter  60 value 5060.223394
## iter  70 value 5047.258682
## iter  80 value 5038.374343
## iter  90 value 5031.839152
## iter 100 value 5026.779478
## iter 110 value 5023.180385
## iter 120 value 5020.728676
## iter 130 value 5017.543500
## iter 140 value 5014.481715
## iter 150 value 5012.724576
## iter 160 value 5010.778917
## iter 170 value 5008.260448
## iter 180 value 5006.573606
## iter 190 value 5005.207818
## iter 200 value 5004.126899
## iter 210 value 5003.344428
## iter 220 value 5002.935358
## iter 230 value 5002.709275
## iter 240 value 5002.474456
## iter 250 value 5002.326672
## iter 260 value 5002.252990
## iter 270 value 5002.192868
## iter 280 value 5002.136357
## iter 290 value 5002.071203
## iter 300 value 5001.948177
## iter 310 value 5001.583655
## iter 320 value 5001.271222
## iter 330 value 5000.552806
## iter 340 value 4999.502326
## iter 350 value 4998.795209
## iter 360 value 4998.301395
## iter 370 value 4998.049081
## iter 380 value 4997.952840
## iter 390 value 4997.870460
## iter 400 value 4997.812451
## iter 410 value 4997.793970
## iter 420 value 4997.777213
## iter 430 value 4997.752833
## iter 440 value 4997.742021
## iter 450 value 4997.724947
## iter 460 value 4997.716075
## iter 470 value 4997.714135
## iter 480 value 4997.712953
## final  value 4997.712380
## converged
## # weights:  574
## initial  value 21752.933747
## iter  10 value 6811.144391
## iter  20 value 5412.231353
## iter  30 value 5219.304591
## iter  40 value 5093.935569
## iter  50 value 4999.008515
## iter  60 value 4949.422904
## iter  70 value 4923.272367
## iter  80 value 4895.645414
## iter  90 value 4864.562220
## iter 100 value 4839.626177
## iter 110 value 4816.641708
## iter 120 value 4796.656773
## iter 130 value 4780.162037
## iter 140 value 4768.089168
## iter 150 value 4753.580592
## iter 160 value 4740.655532
## iter 170 value 4730.676694
## iter 180 value 4722.537096
## iter 190 value 4716.843997
## iter 200 value 4712.738026
## iter 210 value 4708.527782
## iter 220 value 4703.758512
## iter 230 value 4699.446576
```

```
## iter 240 value 4696.605151
## iter 250 value 4694.059582
## iter 260 value 4691.183968
## iter 270 value 4687.372760
## iter 280 value 4683.478946
## iter 290 value 4680.521949
## iter 300 value 4678.698232
## iter 310 value 4676.707297
## iter 320 value 4675.352030
## iter 330 value 4674.650828
## iter 340 value 4674.118821
## iter 350 value 4673.782172
## iter 360 value 4673.474095
## iter 370 value 4673.232649
## iter 380 value 4673.019200
## iter 390 value 4672.747273
## iter 400 value 4672.332818
## iter 410 value 4671.280366
## iter 420 value 4670.335297
## iter 430 value 4669.833611
## iter 440 value 4669.501628
## iter 450 value 4669.019210
## iter 460 value 4668.346902
## iter 470 value 4667.666736
## iter 480 value 4667.278168
## iter 490 value 4666.895196
## iter 500 value 4666.381172
## final  value 4666.381172
## stopped after 500 iterations
## # weights:  574
## initial  value 18873.465145
## iter  10 value 6218.363559
## iter  20 value 5342.827597
## iter  30 value 5222.223066
## iter  40 value 5091.708059
## iter  50 value 5028.043376
## iter  60 value 4983.934625
## iter  70 value 4955.768327
## iter  80 value 4927.621849
## iter  90 value 4901.849275
## iter 100 value 4884.595772
## iter 110 value 4869.470639
## iter 120 value 4856.820540
## iter 130 value 4842.503795
## iter 140 value 4833.000803
## iter 150 value 4823.485355
## iter 160 value 4817.444532
## iter 170 value 4811.107442
## iter 180 value 4807.694638
## iter 190 value 4802.557383
## iter 200 value 4799.644928
## iter 210 value 4797.261909
## iter 220 value 4795.439065
## iter 230 value 4793.293879
## iter 240 value 4790.892868
## iter 250 value 4788.472992
## iter 260 value 4785.741236
## iter 270 value 4783.225465
## iter 280 value 4781.313930
## iter 290 value 4779.641973
## iter 300 value 4777.843224
## iter 310 value 4775.785476
## iter 320 value 4774.236211
## iter 330 value 4772.778563
## iter 340 value 4771.785585
## iter 350 value 4771.134411
## iter 360 value 4770.621157
## iter 370 value 4770.181001
## iter 380 value 4769.835808
## iter 390 value 4769.515811
## iter 400 value 4769.284312
## iter 410 value 4769.129572
## iter 420 value 4768.994302
## iter 430 value 4768.921269
## iter 440 value 4768.797688
```

```
## iter 450 value 4768.530467
## iter 460 value 4768.324026
## iter 470 value 4768.154063
## iter 480 value 4768.062390
## iter 490 value 4767.982643
## iter 500 value 4767.855249
## final  value 4767.855249
## stopped after 500 iterations
## # weights:  574
## initial  value 15941.949861
## iter  10 value 6662.362242
## iter  20 value 5513.675319
## iter  30 value 5347.217634
## iter  40 value 5227.757560
## iter  50 value 5143.173037
## iter  60 value 5087.986091
## iter  70 value 5041.797257
## iter  80 value 5001.434829
## iter  90 value 4980.388439
## iter 100 value 4964.783177
## iter 110 value 4947.467388
## iter 120 value 4936.959684
## iter 130 value 4930.505224
## iter 140 value 4926.380677
## iter 150 value 4922.006191
## iter 160 value 4918.371287
## iter 170 value 4913.705595
## iter 180 value 4908.617871
## iter 190 value 4903.348345
## iter 200 value 4899.476254
## iter 210 value 4895.237303
## iter 220 value 4891.946203
## iter 230 value 4888.970530
## iter 240 value 4886.996296
## iter 250 value 4885.094117
## iter 260 value 4880.890790
## iter 270 value 4874.956855
## iter 280 value 4872.201168
## iter 290 value 4870.603062
## iter 300 value 4869.399581
## iter 310 value 4868.308010
## iter 320 value 4867.413741
## iter 330 value 4866.847679
## iter 340 value 4866.376027
## iter 350 value 4865.848583
## iter 360 value 4865.409440
## iter 370 value 4865.115694
## iter 380 value 4864.757797
## iter 390 value 4864.560696
## iter 400 value 4864.154457
## iter 410 value 4863.801045
## iter 420 value 4861.976505
## iter 430 value 4856.243594
## iter 440 value 4852.631214
## iter 450 value 4849.399594
## iter 460 value 4845.049505
## iter 470 value 4841.229681
## iter 480 value 4838.939065
## iter 490 value 4837.047559
## iter 500 value 4835.828963
## final  value 4835.828963
## stopped after 500 iterations
## # weights:  42
## initial  value 20491.253739
## iter  10 value 13034.813104
## iter  20 value 11925.898763
## iter  30 value 11594.110910
## iter  40 value 11354.211582
## iter  50 value 10991.538905
## iter  60 value 9813.623294
## iter  70 value 9380.292734
## iter  80 value 9167.134459
## iter  90 value 9096.834898
## iter 100 value 9072.303213
## iter 110 value 9048.091579
```

```
## iter 120 value 9035.333947
## iter 130 value 9021.450391
## iter 140 value 9008.790607
## final  value 9008.784231
## converged
## # weights:  42
## initial  value 18099.837043
## iter  10 value 12521.736084
## iter  20 value 11911.843557
## iter  30 value 11355.174695
## iter  40 value 10984.256085
## iter  50 value 10658.425458
## iter  60 value 9566.754366
## iter  70 value 9169.272552
## iter  80 value 9056.835128
## iter  90 value 9029.648727
## iter 100 value 8988.287356
## iter 110 value 8985.977824
## iter 120 value 8980.316280
## iter 130 value 8972.147588
## iter 130 value 8972.147523
## iter 130 value 8972.147523
## final  value 8972.147523
## converged
## # weights:  42
## initial  value 18376.895457
## iter  10 value 12623.430508
## iter  20 value 11723.188958
## iter  30 value 11408.839205
## iter  40 value 11201.468632
## iter  50 value 10874.954925
## iter  60 value 10140.019133
## iter  70 value 9558.220268
## iter  80 value 9337.679091
## iter  90 value 9271.933742
## iter 100 value 9206.450192
## iter 110 value 9182.859416
## iter 120 value 9152.466080
## iter 130 value 9128.643581
## final  value 9128.588804
## converged
## # weights:  194
## initial  value 18990.723886
## iter  10 value 8829.939244
## iter  20 value 6957.516091
## iter  30 value 6488.976842
## iter  40 value 6262.549928
## iter  50 value 6061.236860
## iter  60 value 5921.807877
## iter  70 value 5825.260263
## iter  80 value 5719.065956
## iter  90 value 5615.194018
## iter 100 value 5547.147975
## iter 110 value 5490.098823
## iter 120 value 5438.387284
## iter 130 value 5387.637974
## iter 140 value 5330.803011
## iter 150 value 5284.564911
## iter 160 value 5237.692338
## iter 170 value 5215.658847
## iter 180 value 5202.075418
## iter 190 value 5187.265461
## iter 200 value 5175.376797
## iter 210 value 5170.500666
## iter 220 value 5164.636235
## iter 230 value 5158.997043
## iter 240 value 5153.713358
## iter 250 value 5150.165227
## iter 260 value 5147.559787
## iter 270 value 5145.205979
## iter 280 value 5143.519968
## iter 290 value 5142.554177
## iter 300 value 5141.962856
## iter 310 value 5141.410689
## iter 320 value 5140.973301
```

```
## iter 330 value 5140.519084
## iter 340 value 5140.011443
## iter 350 value 5139.717080
## iter 360 value 5139.419945
## iter 370 value 5139.384328
## iter 380 value 5139.353820
## iter 390 value 5139.334779
## iter 400 value 5139.327606
## iter 410 value 5139.318210
## iter 420 value 5139.312789
## iter 430 value 5139.307552
## iter 440 value 5139.305371
## final  value 5139.304634
## converged
## # weights:  194
## initial  value 25102.068891
## iter  10 value 7744.103868
## iter  20 value 6597.900099
## iter  30 value 6151.143355
## iter  40 value 5963.651364
## iter  50 value 5769.513784
## iter  60 value 5664.576706
## iter  70 value 5621.331928
## iter  80 value 5574.401803
## iter  90 value 5537.702675
## iter 100 value 5480.005771
## iter 110 value 5437.500381
## iter 120 value 5406.971788
## iter 130 value 5375.161750
## iter 140 value 5343.103053
## iter 150 value 5316.647951
## iter 160 value 5297.303350
## iter 170 value 5283.179468
## iter 180 value 5272.274331
## iter 190 value 5265.057528
## iter 200 value 5259.711927
## iter 210 value 5253.617233
## iter 220 value 5244.030821
## iter 230 value 5231.023514
## iter 240 value 5221.070141
## iter 250 value 5215.608898
## iter 260 value 5213.150563
## iter 270 value 5212.062423
## iter 280 value 5210.670137
## iter 290 value 5209.605836
## iter 300 value 5209.082047
## iter 310 value 5208.818695
## iter 320 value 5208.770248
## iter 330 value 5208.732257
## iter 340 value 5208.697823
## iter 350 value 5208.684314
## final  value 5208.681755
## converged
## # weights:  194
## initial  value 17312.306610
## iter  10 value 6911.292581
## iter  20 value 6155.252399
## iter  30 value 5947.481907
## iter  40 value 5804.186338
## iter  50 value 5721.646853
## iter  60 value 5654.347885
## iter  70 value 5601.940597
## iter  80 value 5551.461479
## iter  90 value 5496.259844
## iter 100 value 5452.839252
## iter 110 value 5416.454352
## iter 120 value 5393.168907
## iter 130 value 5373.634101
## iter 140 value 5348.541781
## iter 150 value 5324.437550
## iter 160 value 5310.309032
## iter 170 value 5303.925768
## iter 180 value 5299.833197
## iter 190 value 5295.161963
## iter 200 value 5292.567867
```

```
## iter 210 value 5287.720056
## iter 220 value 5275.082620
## iter 230 value 5270.870788
## iter 240 value 5266.451264
## iter 250 value 5263.469572
## iter 260 value 5262.002151
## iter 270 value 5261.539800
## iter 280 value 5260.917353
## iter 290 value 5260.230997
## iter 300 value 5259.635870
## iter 310 value 5259.124400
## iter 320 value 5259.084822
## iter 330 value 5259.065298
## iter 340 value 5259.063355
## final  value 5259.062855
## converged
## # weights:  384
## initial  value 17765.725378
## iter  10 value 6520.393524
## iter  20 value 5469.119403
## iter  30 value 5268.062758
## iter  40 value 5174.066985
## iter  50 value 5131.518138
## iter  60 value 5106.080781
## iter  70 value 5088.024088
## iter  80 value 5069.041564
## iter  90 value 5041.424844
## iter 100 value 5011.576883
## iter 110 value 4990.236849
## iter 120 value 4973.632991
## iter 130 value 4960.520345
## iter 140 value 4954.513974
## iter 150 value 4949.157946
## iter 160 value 4941.753527
## iter 170 value 4937.103498
## iter 180 value 4934.345427
## iter 190 value 4930.989361
## iter 200 value 4927.637697
## iter 210 value 4924.760863
## iter 220 value 4923.245663
## iter 230 value 4922.376844
## iter 240 value 4921.894077
## iter 250 value 4921.556126
## iter 260 value 4921.219560
## iter 270 value 4920.821760
## iter 280 value 4920.416497
## iter 290 value 4919.999003
## iter 300 value 4919.649048
## iter 310 value 4919.365346
## iter 320 value 4918.837979
## iter 330 value 4918.369700
## iter 340 value 4918.054127
## iter 350 value 4916.792490
## iter 360 value 4915.804172
## iter 370 value 4915.499063
## iter 380 value 4915.248921
## iter 390 value 4914.883067
## iter 400 value 4914.675613
## iter 410 value 4914.172665
## iter 420 value 4913.812372
## iter 430 value 4913.723482
## iter 440 value 4913.681126
## final  value 4913.658511
## converged
## # weights:  384
## initial  value 19430.859158
## iter  10 value 5965.922904
## iter  20 value 5421.635087
## iter  30 value 5264.884177
## iter  40 value 5201.209197
## iter  50 value 5161.141354
## iter  60 value 5142.671515
## iter  70 value 5128.650422
## iter  80 value 5116.170076
## iter  90 value 5099.815721
```

```
## iter 100 value 5088.265022
## iter 110 value 5079.041131
## iter 120 value 5066.804557
## iter 130 value 5059.458627
## iter 140 value 5051.696084
## iter 150 value 5045.506212
## iter 160 value 5040.650890
## iter 170 value 5037.647640
## iter 180 value 5035.831941
## iter 190 value 5033.885845
## iter 200 value 5032.812274
## iter 210 value 5032.267406
## iter 220 value 5031.866140
## iter 230 value 5031.235703
## iter 240 value 5030.734274
## iter 250 value 5030.100194
## iter 260 value 5028.833444
## iter 270 value 5026.739889
## iter 280 value 5024.217962
## iter 290 value 5021.507539
## iter 300 value 5020.214094
## iter 310 value 5019.371416
## iter 320 value 5018.783118
## iter 330 value 5018.017206
## iter 340 value 5017.281405
## iter 350 value 5016.357749
## iter 360 value 5015.526614
## iter 370 value 5015.064750
## iter 380 value 5014.804903
## iter 390 value 5014.564333
## iter 400 value 5014.391389
## iter 410 value 5014.277878
## iter 420 value 5014.224489
## iter 430 value 5014.193717
## iter 440 value 5014.161313
## iter 450 value 5014.127046
## iter 460 value 5014.102507
## iter 470 value 5014.089639
## iter 480 value 5014.083324
## iter 490 value 5014.079959
## iter 500 value 5014.076847
## final  value 5014.076847
## stopped after 500 iterations
## # weights:  384
## initial  value 22450.494522
## iter  10 value 6638.792490
## iter  20 value 5731.588027
## iter  30 value 5595.342534
## iter  40 value 5509.744381
## iter  50 value 5446.822576
## iter  60 value 5403.097689
## iter  70 value 5341.969676
## iter  80 value 5304.141346
## iter  90 value 5282.873519
## iter 100 value 5266.098233
## iter 110 value 5251.522869
## iter 120 value 5236.176057
## iter 130 value 5219.614025
## iter 140 value 5200.701820
## iter 150 value 5183.089423
## iter 160 value 5165.439470
## iter 170 value 5152.355703
## iter 180 value 5140.629806
## iter 190 value 5131.018734
## iter 200 value 5121.754656
## iter 210 value 5112.304036
## iter 220 value 5102.250114
## iter 230 value 5095.238554
## iter 240 value 5092.040933
## iter 250 value 5088.989722
## iter 260 value 5085.624296
## iter 270 value 5081.156083
## iter 280 value 5077.984674
## iter 290 value 5074.827916
## iter 300 value 5070.627194
```

```
## iter 310 value 5067.072471
## iter 320 value 5064.697912
## iter 330 value 5063.454048
## iter 340 value 5062.366938
## iter 350 value 5061.391621
## iter 360 value 5059.999849
## iter 370 value 5058.897463
## iter 380 value 5058.130997
## iter 390 value 5057.172897
## iter 400 value 5056.345471
## iter 410 value 5055.829091
## iter 420 value 5055.511532
## iter 430 value 5055.367916
## iter 440 value 5055.278789
## iter 450 value 5055.206985
## iter 460 value 5055.146119
## iter 470 value 5055.119641
## iter 480 value 5055.100624
## iter 490 value 5055.084518
## iter 500 value 5055.078331
## final  value 5055.078331
## stopped after 500 iterations
## # weights:  574
## initial  value 22289.408533
## iter  10 value 7158.089298
## iter  20 value 5558.922859
## iter  30 value 5342.574502
## iter  40 value 5189.289305
## iter  50 value 5088.197313
## iter  60 value 5048.437564
## iter  70 value 5019.269408
## iter  80 value 4994.804848
## iter  90 value 4975.087839
## iter 100 value 4953.021244
## iter 110 value 4930.539386
## iter 120 value 4915.569020
## iter 130 value 4906.398881
## iter 140 value 4896.781758
## iter 150 value 4884.389645
## iter 160 value 4875.347985
## iter 170 value 4867.568151
## iter 180 value 4858.193359
## iter 190 value 4845.416684
## iter 200 value 4831.629097
## iter 210 value 4818.060035
## iter 220 value 4807.544993
## iter 230 value 4800.517508
## iter 240 value 4793.925870
## iter 250 value 4787.084698
## iter 260 value 4780.308126
## iter 270 value 4773.682902
## iter 280 value 4768.859863
## iter 290 value 4764.555737
## iter 300 value 4761.771386
## iter 310 value 4757.471893
## iter 320 value 4753.244332
## iter 330 value 4751.149326
## iter 340 value 4749.673805
## iter 350 value 4748.644797
## iter 360 value 4747.504922
## iter 370 value 4746.183717
## iter 380 value 4744.680566
## iter 390 value 4742.169254
## iter 400 value 4740.209829
## iter 410 value 4738.715863
## iter 420 value 4737.100189
## iter 430 value 4735.332246
## iter 440 value 4733.697474
## iter 450 value 4732.378787
## iter 460 value 4731.786267
## iter 470 value 4731.185280
## iter 480 value 4730.625491
## iter 490 value 4730.123081
## iter 500 value 4729.685054
## final  value 4729.685054
```

```
## stopped after 500 iterations
## # weights:  574
## initial  value 19232.937681
## iter  10 value 5805.179981
## iter  20 value 5339.926196
## iter  30 value 5167.127285
## iter  40 value 5088.434447
## iter  50 value 5032.377221
## iter  60 value 5007.340407
## iter  70 value 4991.334974
## iter  80 value 4977.410148
## iter  90 value 4964.254424
## iter 100 value 4954.348805
## iter 110 value 4944.754697
## iter 120 value 4935.692979
## iter 130 value 4926.524919
## iter 140 value 4918.554196
## iter 150 value 4913.631717
## iter 160 value 4906.836468
## iter 170 value 4900.697866
## iter 180 value 4896.031812
## iter 190 value 4891.132230
## iter 200 value 4886.188887
## iter 210 value 4881.560718
## iter 220 value 4877.147095
## iter 230 value 4871.686953
## iter 240 value 4865.217721
## iter 250 value 4860.158833
## iter 260 value 4857.507766
## iter 270 value 4855.168308
## iter 280 value 4851.626308
## iter 290 value 4847.502981
## iter 300 value 4843.726981
## iter 310 value 4839.974257
## iter 320 value 4836.839049
## iter 330 value 4835.255862
## iter 340 value 4834.263598
## iter 350 value 4833.390451
## iter 360 value 4832.577419
## iter 370 value 4831.861561
## iter 380 value 4831.160697
## iter 390 value 4830.304337
## iter 400 value 4829.549630
## iter 410 value 4828.809288
## iter 420 value 4827.790642
## iter 430 value 4826.412703
## iter 440 value 4825.820604
## iter 450 value 4825.548816
## iter 460 value 4825.375624
## iter 470 value 4825.231978
## iter 480 value 4825.116221
## iter 490 value 4825.015739
## iter 500 value 4824.898008
## final  value 4824.898008
## stopped after 500 iterations
## # weights:  574
## initial  value 22983.347570
## iter  10 value 6331.572926
## iter  20 value 5518.467289
## iter  30 value 5368.456039
## iter  40 value 5234.462200
## iter  50 value 5141.881671
## iter  60 value 5091.297794
## iter  70 value 5056.550385
## iter  80 value 5026.071273
## iter  90 value 5000.443131
## iter 100 value 4986.448878
## iter 110 value 4977.186922
## iter 120 value 4968.311040
## iter 130 value 4961.388442
## iter 140 value 4958.251858
## iter 150 value 4954.113282
## iter 160 value 4947.214510
## iter 170 value 4942.789295
## iter 180 value 4937.762113
```

```
## iter 190 value 4932.349983
## iter 200 value 4926.491883
## iter 210 value 4921.660951
## iter 220 value 4918.297110
## iter 230 value 4916.022186
## iter 240 value 4913.861825
## iter 250 value 4912.075059
## iter 260 value 4910.456712
## iter 270 value 4909.042819
## iter 280 value 4908.057917
## iter 290 value 4907.211689
## iter 300 value 4906.163338
## iter 310 value 4904.804030
## iter 320 value 4902.499860
## iter 330 value 4900.388792
## iter 340 value 4898.300700
## iter 350 value 4894.969542
## iter 360 value 4891.839424
## iter 370 value 4889.240767
## iter 380 value 4886.460160
## iter 390 value 4884.142435
## iter 400 value 4882.231187
## iter 410 value 4880.802952
## iter 420 value 4879.353572
## iter 430 value 4878.290659
## iter 440 value 4877.725578
## iter 450 value 4877.281035
## iter 460 value 4876.888837
## iter 470 value 4876.554988
## iter 480 value 4876.235439
## iter 490 value 4875.866266
## iter 500 value 4875.542815
## final  value 4875.542815
## stopped after 500 iterations
## # weights:  42
## initial  value 18303.272852
## iter  10 value 11544.003002
## iter  20 value 11176.022236
## iter  30 value 10997.193386
## iter  40 value 10786.021402
## iter  50 value 10402.462572
## iter  60 value 9224.143126
## iter  70 value 9100.752194
## iter  80 value 9081.647090
## iter  90 value 9056.508313
## iter 100 value 9046.125885
## iter 110 value 9028.609753
## iter 120 value 9016.745355
## iter 130 value 8999.296276
## final  value 8999.027719
## converged
## # weights:  42
## initial  value 17649.686530
## iter  10 value 12784.673307
## iter  20 value 12150.787429
## iter  30 value 11547.740044
## iter  40 value 11231.225464
## iter  50 value 11010.645494
## iter  60 value 10418.139837
## iter  70 value 9659.255864
## iter  80 value 9254.869923
## iter  90 value 9088.131069
## iter 100 value 8986.366510
## iter 110 value 8975.706502
## iter 120 value 8966.045810
## iter 130 value 8934.490286
## final  value 8934.482418
## converged
## # weights:  42
## initial  value 18762.597350
## iter  10 value 14588.653523
## iter  20 value 12668.926257
## iter  30 value 11653.901232
## iter  40 value 11280.533086
## iter  50 value 10750.295471
```

```
## iter  60 value 10077.868576
## iter  70 value 9486.076820
## iter  80 value 9332.689615
## iter  90 value 9251.754427
## iter 100 value 9162.019826
## iter 110 value 9151.611818
## iter 120 value 9135.155272
## iter 130 value 9115.603835
## final  value 9115.547606
## converged
## # weights:  194
## initial  value 17737.756788
## iter  10 value 7128.093147
## iter  20 value 5756.856912
## iter  30 value 5516.662247
## iter  40 value 5408.470679
## iter  50 value 5347.617809
## iter  60 value 5313.433880
## iter  70 value 5287.014831
## iter  80 value 5265.352400
## iter  90 value 5251.571525
## iter 100 value 5238.537118
## iter 110 value 5221.867405
## iter 120 value 5208.536251
## iter 130 value 5198.738322
## iter 140 value 5188.002210
## iter 150 value 5182.455824
## iter 160 value 5176.528134
## iter 170 value 5173.640886
## iter 180 value 5172.242060
## iter 190 value 5170.582541
## iter 200 value 5168.389143
## iter 210 value 5166.720949
## iter 220 value 5165.715397
## iter 230 value 5164.249105
## iter 240 value 5162.760996
## iter 250 value 5161.260549
## iter 260 value 5158.284420
## iter 270 value 5153.071432
## iter 280 value 5151.777595
## iter 290 value 5150.753480
## iter 300 value 5149.974820
## iter 310 value 5149.452370
## iter 320 value 5149.035980
## iter 330 value 5148.527117
## iter 340 value 5147.778416
## iter 350 value 5146.374930
## iter 360 value 5144.063586
## iter 370 value 5140.797044
## iter 380 value 5139.602049
## iter 390 value 5138.896731
## iter 400 value 5138.780457
## iter 410 value 5138.546009
## iter 420 value 5138.377716
## iter 430 value 5138.271429
## iter 440 value 5138.144332
## iter 450 value 5138.065337
## iter 460 value 5138.028172
## iter 470 value 5138.013238
## iter 480 value 5138.001800
## iter 490 value 5137.994337
## iter 500 value 5137.990320
## final  value 5137.990320
## stopped after 500 iterations
## # weights:  194
## initial  value 23595.787189
## iter  10 value 7435.629860
## iter  20 value 6377.109416
## iter  30 value 6075.340322
## iter  40 value 5922.596657
## iter  50 value 5804.880341
## iter  60 value 5723.255201
## iter  70 value 5627.633900
## iter  80 value 5546.955825
## iter  90 value 5483.741528
```

```
## iter 100 value 5428.942809
## iter 110 value 5394.518142
## iter 120 value 5357.779495
## iter 130 value 5329.643943
## iter 140 value 5315.118795
## iter 150 value 5307.238427
## iter 160 value 5301.051999
## iter 170 value 5292.106367
## iter 180 value 5279.639132
## iter 190 value 5270.677085
## iter 200 value 5264.158448
## iter 210 value 5259.158368
## iter 220 value 5249.207820
## iter 230 value 5244.295911
## iter 240 value 5240.487485
## iter 250 value 5234.721504
## iter 260 value 5230.056996
## iter 270 value 5225.263868
## iter 280 value 5222.133730
## iter 290 value 5220.890047
## iter 300 value 5220.329183
## iter 310 value 5220.155132
## iter 320 value 5220.054800
## iter 330 value 5219.955203
## iter 340 value 5219.930939
## iter 350 value 5219.913714
## iter 360 value 5219.902087
## iter 370 value 5219.899741
## final  value 5219.898645
## converged
## # weights:  194
## initial  value 17302.352510
## iter  10 value 7223.968598
## iter  20 value 6225.644984
## iter  30 value 6040.422036
## iter  40 value 5906.459626
## iter  50 value 5779.911711
## iter  60 value 5666.218631
## iter  70 value 5585.362528
## iter  80 value 5528.152748
## iter  90 value 5482.375543
## iter 100 value 5449.882335
## iter 110 value 5425.134471
## iter 120 value 5405.566533
## iter 130 value 5381.199303
## iter 140 value 5363.619340
## iter 150 value 5346.866470
## iter 160 value 5333.666964
## iter 170 value 5323.066925
## iter 180 value 5310.173579
## iter 190 value 5300.156656
## iter 200 value 5294.752746
## iter 210 value 5288.864117
## iter 220 value 5281.199964
## iter 230 value 5273.870768
## iter 240 value 5264.809860
## iter 250 value 5260.215377
## iter 260 value 5253.494990
## iter 270 value 5250.959143
## iter 280 value 5249.677946
## iter 290 value 5249.106979
## iter 300 value 5248.839928
## iter 310 value 5248.715482
## iter 320 value 5248.600101
## iter 330 value 5248.544899
## iter 340 value 5248.514233
## iter 350 value 5248.501747
## final  value 5248.498470
## converged
## # weights:  384
## initial  value 23248.989258
## iter  10 value 6226.211425
## iter  20 value 5411.637085
## iter  30 value 5321.027409
## iter  40 value 5253.025054
```

```
## iter  50 value 5176.627425
## iter  60 value 5127.527901
## iter  70 value 5102.704483
## iter  80 value 5089.123618
## iter  90 value 5080.234952
## iter 100 value 5069.505616
## iter 110 value 5059.492631
## iter 120 value 5050.849206
## iter 130 value 5045.405011
## iter 140 value 5040.132253
## iter 150 value 5035.273852
## iter 160 value 5030.532712
## iter 170 value 5023.278229
## iter 180 value 5016.513959
## iter 190 value 5012.182629
## iter 200 value 5005.894498
## iter 210 value 4996.216950
## iter 220 value 4988.979375
## iter 230 value 4983.749941
## iter 240 value 4978.096342
## iter 250 value 4973.741704
## iter 260 value 4969.812160
## iter 270 value 4964.505867
## iter 280 value 4960.986057
## iter 290 value 4959.178813
## iter 300 value 4957.918966
## iter 310 value 4956.505708
## iter 320 value 4955.142795
## iter 330 value 4953.635082
## iter 340 value 4952.455718
## iter 350 value 4951.708678
## iter 360 value 4950.835304
## iter 370 value 4949.957698
## iter 380 value 4949.245244
## iter 390 value 4948.457436
## iter 400 value 4947.543193
## iter 410 value 4946.415537
## iter 420 value 4945.509216
## iter 430 value 4944.653090
## iter 440 value 4944.144674
## iter 450 value 4943.931329
## iter 460 value 4943.820307
## iter 470 value 4943.728795
## iter 480 value 4943.637712
## iter 490 value 4943.555811
## iter 500 value 4943.479490
## final  value 4943.479490
## stopped after 500 iterations
## # weights:  384
## initial  value 25631.371995
## iter  10 value 7112.870257
## iter  20 value 5755.596454
## iter  30 value 5561.208234
## iter  40 value 5462.285708
## iter  50 value 5365.188827
## iter  60 value 5322.970291
## iter  70 value 5291.632188
## iter  80 value 5262.612452
## iter  90 value 5226.325404
## iter 100 value 5208.298238
## iter 110 value 5189.088970
## iter 120 value 5170.920268
## iter 130 value 5157.100365
## iter 140 value 5137.753164
## iter 150 value 5122.084694
## iter 160 value 5106.450038
## iter 170 value 5095.973075
## iter 180 value 5086.576215
## iter 190 value 5081.149488
## iter 200 value 5076.454063
## iter 210 value 5070.980271
## iter 220 value 5067.018706
## iter 230 value 5063.102878
## iter 240 value 5058.840402
## iter 250 value 5052.787606
```

```
## iter 260 value 5047.555585
## iter 270 value 5043.359324
## iter 280 value 5040.776331
## iter 290 value 5038.333956
## iter 300 value 5036.253286
## iter 310 value 5034.157718
## iter 320 value 5032.134239
## iter 330 value 5030.323051
## iter 340 value 5028.871628
## iter 350 value 5026.443192
## iter 360 value 5024.744862
## iter 370 value 5023.227946
## iter 380 value 5021.560473
## iter 390 value 5019.685728
## iter 400 value 5018.478576
## iter 410 value 5017.708773
## iter 420 value 5016.828919
## iter 430 value 5016.388214
## iter 440 value 5015.766225
## iter 450 value 5015.127401
## iter 460 value 5013.719637
## iter 470 value 5012.711686
## iter 480 value 5012.241858
## iter 490 value 5011.939143
## iter 500 value 5011.764318
## final  value 5011.764318
## stopped after 500 iterations
## # weights:  384
## initial  value 25026.696353
## iter  10 value 5980.633644
## iter  20 value 5530.496187
## iter  30 value 5388.580017
## iter  40 value 5290.929862
## iter  50 value 5224.965872
## iter  60 value 5194.936536
## iter  70 value 5170.562972
## iter  80 value 5153.016543
## iter  90 value 5137.170079
## iter 100 value 5126.658778
## iter 110 value 5116.341320
## iter 120 value 5109.321884
## iter 130 value 5101.418354
## iter 140 value 5096.968212
## iter 150 value 5092.887234
## iter 160 value 5088.216789
## iter 170 value 5083.607504
## iter 180 value 5078.642215
## iter 190 value 5075.103797
## iter 200 value 5072.569863
## iter 210 value 5069.937704
## iter 220 value 5067.455655
## iter 230 value 5066.013426
## iter 240 value 5064.831271
## iter 250 value 5063.692470
## iter 260 value 5062.735340
## iter 270 value 5062.087540
## iter 280 value 5061.670170
## iter 290 value 5061.274843
## iter 300 value 5061.005043
## iter 310 value 5060.837445
## iter 320 value 5060.661835
## iter 330 value 5060.448025
## iter 340 value 5060.114255
## iter 350 value 5059.757790
## iter 360 value 5059.030789
## iter 370 value 5057.341326
## iter 380 value 5055.807789
## iter 390 value 5054.723168
## iter 400 value 5053.671112
## iter 410 value 5052.799993
## iter 420 value 5052.069545
## iter 430 value 5051.474388
## iter 440 value 5050.750841
## iter 450 value 5050.284062
## iter 460 value 5049.868083
```

```
## iter 470 value 5049.654526
## iter 480 value 5049.514357
## iter 490 value 5049.292192
## iter 500 value 5047.411903
## final  value 5047.411903
## stopped after 500 iterations
## # weights:  574
## initial  value 19273.213307
## iter  10 value 5912.505362
## iter  20 value 5337.936779
## iter  30 value 5194.589509
## iter  40 value 5057.982729
## iter  50 value 4982.979781
## iter  60 value 4935.772101
## iter  70 value 4902.212832
## iter  80 value 4876.847462
## iter  90 value 4851.631991
## iter 100 value 4832.801670
## iter 110 value 4813.693917
## iter 120 value 4796.550586
## iter 130 value 4785.651188
## iter 140 value 4778.631198
## iter 150 value 4773.301499
## iter 160 value 4768.980876
## iter 170 value 4764.760666
## iter 180 value 4758.664854
## iter 190 value 4750.494699
## iter 200 value 4741.224187
## iter 210 value 4735.091044
## iter 220 value 4732.432067
## iter 230 value 4730.604746
## iter 240 value 4728.643917
## iter 250 value 4726.141995
## iter 260 value 4724.354407
## iter 270 value 4723.073984
## iter 280 value 4722.001887
## iter 290 value 4721.203504
## iter 300 value 4720.387689
## iter 310 value 4719.582294
## iter 320 value 4718.987062
## iter 330 value 4718.102153
## iter 340 value 4716.453962
## iter 350 value 4714.536716
## iter 360 value 4713.407831
## iter 370 value 4712.573599
## iter 380 value 4711.990578
## iter 390 value 4711.239702
## iter 400 value 4710.394955
## iter 410 value 4709.329241
## iter 420 value 4707.549571
## iter 430 value 4704.780640
## iter 440 value 4702.919223
## iter 450 value 4702.105781
## iter 460 value 4701.559703
## iter 470 value 4701.093027
## iter 480 value 4700.559079
## iter 490 value 4700.036331
## iter 500 value 4698.816309
## final  value 4698.816309
## stopped after 500 iterations
## # weights:  574
## initial  value 17047.108987
## iter  10 value 6273.249709
## iter  20 value 5444.419499
## iter  30 value 5268.844825
## iter  40 value 5162.696494
## iter  50 value 5095.816438
## iter  60 value 5051.332266
## iter  70 value 5018.944886
## iter  80 value 4995.152196
## iter  90 value 4971.508169
## iter 100 value 4952.545804
## iter 110 value 4933.416198
## iter 120 value 4919.661241
## iter 130 value 4912.157478
```

```
## iter 140 value 4905.861966
## iter 150 value 4899.789895
## iter 160 value 4894.329934
## iter 170 value 4889.484132
## iter 180 value 4883.877282
## iter 190 value 4880.074599
## iter 200 value 4877.789246
## iter 210 value 4874.758332
## iter 220 value 4871.367427
## iter 230 value 4867.967544
## iter 240 value 4865.620147
## iter 250 value 4863.444885
## iter 260 value 4861.293873
## iter 270 value 4859.040530
## iter 280 value 4857.621288
## iter 290 value 4856.827070
## iter 300 value 4856.242675
## iter 310 value 4855.564820
## iter 320 value 4854.788388
## iter 330 value 4854.285137
## iter 340 value 4853.928434
## iter 350 value 4853.554887
## iter 360 value 4853.246458
## iter 370 value 4852.915863
## iter 380 value 4852.365363
## iter 390 value 4850.869293
## iter 400 value 4846.182803
## iter 410 value 4839.785475
## iter 420 value 4835.290986
## iter 430 value 4832.277171
## iter 440 value 4829.267824
## iter 450 value 4827.064949
## iter 460 value 4825.633947
## iter 470 value 4824.620277
## iter 480 value 4824.034261
## iter 490 value 4823.487198
## iter 500 value 4823.106055
## final  value 4823.106055
## stopped after 500 iterations
## # weights:  574
## initial  value 19998.427824
## iter  10 value 5871.410613
## iter  20 value 5321.451753
## iter  30 value 5210.450003
## iter  40 value 5140.331255
## iter  50 value 5078.397909
## iter  60 value 5042.199525
## iter  70 value 5018.063554
## iter  80 value 5004.796866
## iter  90 value 4996.675307
## iter 100 value 4990.282843
## iter 110 value 4984.047603
## iter 120 value 4979.348363
## iter 130 value 4973.849825
## iter 140 value 4969.280117
## iter 150 value 4965.131103
## iter 160 value 4961.553189
## iter 170 value 4957.454345
## iter 180 value 4952.768968
## iter 190 value 4948.899948
## iter 200 value 4942.805642
## iter 210 value 4936.390598
## iter 220 value 4927.969718
## iter 230 value 4920.053809
## iter 240 value 4912.870820
## iter 250 value 4908.116964
## iter 260 value 4905.159913
## iter 270 value 4903.078986
## iter 280 value 4900.525690
## iter 290 value 4898.415691
## iter 300 value 4896.836610
## iter 310 value 4895.316092
## iter 320 value 4894.148232
## iter 330 value 4893.348279
## iter 340 value 4892.552118
```

```
## iter 350 value 4891.138507
## iter 360 value 4889.014739
## iter 370 value 4887.805302
## iter 380 value 4886.862987
## iter 390 value 4886.077884
## iter 400 value 4885.266848
## iter 410 value 4884.529633
## iter 420 value 4883.979188
## iter 430 value 4883.551172
## iter 440 value 4883.212698
## iter 450 value 4882.931459
## iter 460 value 4882.746413
## iter 470 value 4882.565397
## iter 480 value 4882.389976
## iter 490 value 4882.202334
## iter 500 value 4882.020914
## final  value 4882.020914
## stopped after 500 iterations
## # weights:  42
## initial  value 20807.406641
## iter  10 value 13736.704924
## iter  20 value 12977.128112
## iter  30 value 12486.573166
## iter  40 value 11797.342566
## iter  50 value 10945.722412
## iter  60 value 9677.290617
## iter  70 value 9326.621610
## iter  80 value 9217.058536
## iter  90 value 9167.497191
## iter 100 value 9108.477845
## iter 110 value 9073.183633
## iter 120 value 9023.236454
## iter 130 value 8989.256532
## final  value 8989.104642
## converged
## # weights:  42
## initial  value 20315.515997
## iter  10 value 14607.428334
## iter  20 value 13355.886572
## iter  30 value 12297.689019
## iter  40 value 11887.739380
## iter  50 value 11795.812659
## iter  60 value 11458.767946
## iter  70 value 10848.363250
## iter  80 value 10183.324727
## iter  90 value 9851.030802
## iter 100 value 9616.858801
## iter 110 value 9549.847070
## iter 120 value 9402.092488
## iter 130 value 9241.824269
## final  value 9222.528230
## converged
## # weights:  42
## initial  value 17437.168044
## iter  10 value 12664.256975
## iter  20 value 11975.355776
## iter  30 value 11712.442256
## iter  40 value 11370.818343
## iter  50 value 10822.639351
## iter  60 value 10341.036910
## iter  70 value 9847.247253
## iter  80 value 9496.301484
## iter  90 value 9402.946914
## iter 100 value 9369.650878
## iter 110 value 9363.549630
## iter 120 value 9352.579036
## iter 130 value 9348.256224
## iter 130 value 9348.256166
## iter 130 value 9348.256166
## final  value 9348.256166
## converged
## # weights:  194
## initial  value 20139.879663
## iter  10 value 8639.176099
## iter  20 value 6394.980287
```

```
## iter  30 value 6009.109758
## iter  40 value 5853.279902
## iter  50 value 5746.595362
## iter  60 value 5669.948412
## iter  70 value 5602.548775
## iter  80 value 5513.256003
## iter  90 value 5459.012949
## iter 100 value 5418.662598
## iter 110 value 5383.591050
## iter 120 value 5357.797080
## iter 130 value 5327.229715
## iter 140 value 5302.942118
## iter 150 value 5282.484451
## iter 160 value 5265.162731
## iter 170 value 5251.364159
## iter 180 value 5241.514870
## iter 190 value 5230.466088
## iter 200 value 5211.018521
## iter 210 value 5188.198204
## iter 220 value 5176.750458
## iter 230 value 5172.260410
## iter 240 value 5168.654092
## iter 250 value 5166.792476
## iter 260 value 5166.201043
## iter 270 value 5165.579071
## iter 280 value 5165.178815
## iter 290 value 5164.709105
## iter 300 value 5164.309390
## iter 310 value 5164.175433
## iter 320 value 5162.711488
## iter 330 value 5160.748454
## iter 340 value 5160.370548
## iter 350 value 5160.308394
## iter 360 value 5160.275159
## iter 370 value 5160.273008
## final  value 5160.271983
## converged
## # weights:  194
## initial  value 19642.824276
## iter  10 value 7909.745372
## iter  20 value 6364.147574
## iter  30 value 6108.346220
## iter  40 value 5975.708824
## iter  50 value 5853.196569
## iter  60 value 5717.447556
## iter  70 value 5635.243218
## iter  80 value 5573.611375
## iter  90 value 5524.828821
## iter 100 value 5476.589737
## iter 110 value 5429.468760
## iter 120 value 5383.536277
## iter 130 value 5355.614776
## iter 140 value 5336.640034
## iter 150 value 5325.293209
## iter 160 value 5317.664571
## iter 170 value 5312.643120
## iter 180 value 5309.183640
## iter 190 value 5304.510723
## iter 200 value 5300.880002
## iter 210 value 5290.281640
## iter 220 value 5276.606451
## iter 230 value 5270.583675
## iter 240 value 5267.627009
## iter 250 value 5262.805563
## iter 260 value 5259.043059
## iter 270 value 5256.601779
## iter 280 value 5252.298705
## iter 290 value 5250.377034
## iter 300 value 5249.538975
## iter 310 value 5249.157544
## iter 320 value 5249.108505
## iter 330 value 5249.076937
## iter 340 value 5249.016547
## iter 350 value 5248.986682
## iter 360 value 5248.977416
```

```
## iter 370 value 5248.974986
## iter 380 value 5248.974204
## iter 390 value 5248.972469
## iter 390 value 5248.972452
## final  value 5248.972452
## converged
## # weights:  194
## initial  value 19133.662882
## iter  10 value 6686.089444
## iter  20 value 5788.105364
## iter  30 value 5696.842881
## iter  40 value 5650.215474
## iter  50 value 5570.791231
## iter  60 value 5537.673207
## iter  70 value 5519.282011
## iter  80 value 5499.648838
## iter  90 value 5475.488102
## iter 100 value 5442.159668
## iter 110 value 5410.950114
## iter 120 value 5390.038446
## iter 130 value 5372.108893
## iter 140 value 5360.697618
## iter 150 value 5355.612374
## iter 160 value 5351.797835
## iter 170 value 5349.763943
## iter 180 value 5348.099254
## iter 190 value 5345.966432
## iter 200 value 5344.192917
## iter 210 value 5342.143814
## iter 220 value 5341.196725
## iter 230 value 5337.879013
## iter 240 value 5329.678919
## iter 250 value 5323.368597
## iter 260 value 5317.638600
## iter 270 value 5316.237521
## iter 280 value 5313.303581
## iter 290 value 5302.273186
## iter 300 value 5296.389056
## iter 310 value 5287.738634
## iter 320 value 5281.252591
## iter 330 value 5279.588954
## iter 340 value 5277.919115
## iter 350 value 5277.282517
## iter 360 value 5276.945350
## iter 370 value 5276.734920
## iter 380 value 5276.693341
## iter 390 value 5276.681865
## iter 390 value 5276.681833
## final  value 5276.681833
## converged
## # weights:  384
## initial  value 18221.395954
## iter  10 value 6985.210308
## iter  20 value 5748.574838
## iter  30 value 5476.089388
## iter  40 value 5295.679949
## iter  50 value 5232.139038
## iter  60 value 5164.797599
## iter  70 value 5134.375127
## iter  80 value 5099.370238
## iter  90 value 5072.125018
## iter 100 value 5052.147651
## iter 110 value 5037.010676
## iter 120 value 5021.193666
## iter 130 value 5002.550501
## iter 140 value 4986.930315
## iter 150 value 4973.500389
## iter 160 value 4964.842281
## iter 170 value 4955.409781
## iter 180 value 4946.110444
## iter 190 value 4937.269231
## iter 200 value 4930.702814
## iter 210 value 4927.352555
## iter 220 value 4925.146989
## iter 230 value 4922.664642
```

```
## iter 240 value 4920.492460
## iter 250 value 4918.426282
## iter 260 value 4916.217838
## iter 270 value 4913.595067
## iter 280 value 4911.663594
## iter 290 value 4910.395442
## iter 300 value 4909.224263
## iter 310 value 4908.033123
## iter 320 value 4907.069644
## iter 330 value 4906.375981
## iter 340 value 4905.252961
## iter 350 value 4904.669693
## iter 360 value 4904.186916
## iter 370 value 4903.678892
## iter 380 value 4903.214066
## iter 390 value 4902.751495
## iter 400 value 4902.447928
## iter 410 value 4902.160656
## iter 420 value 4901.875452
## iter 430 value 4901.375020
## iter 440 value 4900.449102
## iter 450 value 4899.803263
## iter 460 value 4899.324449
## iter 470 value 4898.915511
## iter 480 value 4898.485551
## iter 490 value 4897.770432
## iter 500 value 4897.420708
## final  value 4897.420708
## stopped after 500 iterations
## # weights:  384
## initial  value 20132.256234
## iter  10 value 7323.282381
## iter  20 value 5777.184213
## iter  30 value 5550.575556
## iter  40 value 5446.099817
## iter  50 value 5379.826775
## iter  60 value 5286.823150
## iter  70 value 5234.990057
## iter  80 value 5205.677402
## iter  90 value 5182.913182
## iter 100 value 5159.766225
## iter 110 value 5139.340352
## iter 120 value 5122.375186
## iter 130 value 5109.732623
## iter 140 value 5100.209661
## iter 150 value 5091.100008
## iter 160 value 5084.606885
## iter 170 value 5078.074980
## iter 180 value 5072.431523
## iter 190 value 5067.638709
## iter 200 value 5059.758060
## iter 210 value 5048.162101
## iter 220 value 5040.947978
## iter 230 value 5036.880699
## iter 240 value 5032.925879
## iter 250 value 5028.097564
## iter 260 value 5023.324961
## iter 270 value 5019.456816
## iter 280 value 5017.047293
## iter 290 value 5015.657743
## iter 300 value 5014.043585
## iter 310 value 5012.061826
## iter 320 value 5010.418620
## iter 330 value 5009.340893
## iter 340 value 5008.093395
## iter 350 value 5007.027801
## iter 360 value 5006.179083
## iter 370 value 5005.306466
## iter 380 value 5004.867162
## iter 390 value 5004.599347
## iter 400 value 5004.333798
## iter 410 value 5004.152099
## iter 420 value 5004.030067
## iter 430 value 5003.951147
## iter 440 value 5003.876590
```

```
## iter 450 value 5003.850375
## iter 460 value 5003.805106
## iter 470 value 5003.747988
## iter 480 value 5003.720564
## iter 490 value 5003.706257
## iter 500 value 5003.700221
## final  value 5003.700221
## stopped after 500 iterations
## # weights:  384
## initial  value 19311.488619
## iter  10 value 7316.495555
## iter  20 value 5887.354013
## iter  30 value 5652.699659
## iter  40 value 5482.467414
## iter  50 value 5384.774091
## iter  60 value 5327.429195
## iter  70 value 5278.569233
## iter  80 value 5235.829553
## iter  90 value 5205.195243
## iter 100 value 5186.586378
## iter 110 value 5170.135889
## iter 120 value 5156.238710
## iter 130 value 5141.520841
## iter 140 value 5134.283250
## iter 150 value 5128.874684
## iter 160 value 5123.678660
## iter 170 value 5116.316046
## iter 180 value 5110.498242
## iter 190 value 5105.285352
## iter 200 value 5101.584077
## iter 210 value 5098.962795
## iter 220 value 5096.483506
## iter 230 value 5093.333719
## iter 240 value 5090.219776
## iter 250 value 5087.101211
## iter 260 value 5084.406078
## iter 270 value 5082.718496
## iter 280 value 5081.457163
## iter 290 value 5080.258196
## iter 300 value 5079.082366
## iter 310 value 5077.270475
## iter 320 value 5076.126751
## iter 330 value 5075.212493
## iter 340 value 5074.486833
## iter 350 value 5073.755580
## iter 360 value 5073.249062
## iter 370 value 5072.819328
## iter 380 value 5072.308252
## iter 390 value 5071.876782
## iter 400 value 5071.524267
## iter 410 value 5071.236449
## iter 420 value 5070.873684
## iter 430 value 5070.245926
## iter 440 value 5069.886846
## iter 450 value 5069.714241
## iter 460 value 5069.482066
## iter 470 value 5069.280465
## iter 480 value 5069.039607
## iter 490 value 5068.902440
## iter 500 value 5068.869803
## final  value 5068.869803
## stopped after 500 iterations
## # weights:  574
## initial  value 24468.443256
## iter  10 value 7440.841825
## iter  20 value 5592.762670
## iter  30 value 5323.740210
## iter  40 value 5207.728565
## iter  50 value 5125.100983
## iter  60 value 5056.975430
## iter  70 value 5010.884312
## iter  80 value 4977.216424
## iter  90 value 4952.062364
## iter 100 value 4928.494769
## iter 110 value 4906.693740
```

```
## iter 120 value 4888.413547
## iter 130 value 4875.405746
## iter 140 value 4861.938864
## iter 150 value 4847.170518
## iter 160 value 4832.183730
## iter 170 value 4821.958304
## iter 180 value 4809.597666
## iter 190 value 4795.345844
## iter 200 value 4786.329915
## iter 210 value 4776.500571
## iter 220 value 4769.286438
## iter 230 value 4764.955833
## iter 240 value 4760.825916
## iter 250 value 4756.654372
## iter 260 value 4753.291334
## iter 270 value 4750.944338
## iter 280 value 4747.863966
## iter 290 value 4742.915246
## iter 300 value 4737.392035
## iter 310 value 4732.859997
## iter 320 value 4730.741188
## iter 330 value 4729.710850
## iter 340 value 4729.127900
## iter 350 value 4728.638540
## iter 360 value 4727.883950
## iter 370 value 4726.147284
## iter 380 value 4722.537529
## iter 390 value 4717.979310
## iter 400 value 4714.574737
## iter 410 value 4712.626247
## iter 420 value 4711.755162
## iter 430 value 4710.867605
## iter 440 value 4710.459521
## iter 450 value 4709.936606
## iter 460 value 4707.803541
## iter 470 value 4704.978871
## iter 480 value 4703.325338
## iter 490 value 4701.846966
## iter 500 value 4700.879312
## final  value 4700.879312
## stopped after 500 iterations
## # weights:  574
## initial  value 22393.840164
## iter  10 value 5915.605331
## iter  20 value 5291.494621
## iter  30 value 5172.728854
## iter  40 value 5128.360097
## iter  50 value 5059.208054
## iter  60 value 4991.844313
## iter  70 value 4955.533085
## iter  80 value 4930.427057
## iter  90 value 4908.250566
## iter 100 value 4889.861055
## iter 110 value 4879.138908
## iter 120 value 4869.900566
## iter 130 value 4864.477024
## iter 140 value 4859.155170
## iter 150 value 4854.344705
## iter 160 value 4850.458891
## iter 170 value 4847.913016
## iter 180 value 4845.477807
## iter 190 value 4843.049952
## iter 200 value 4840.664962
## iter 210 value 4837.147727
## iter 220 value 4834.479342
## iter 230 value 4832.410205
## iter 240 value 4830.528398
## iter 250 value 4828.436229
## iter 260 value 4826.563859
## iter 270 value 4824.704715
## iter 280 value 4823.190239
## iter 290 value 4821.990658
## iter 300 value 4820.923856
## iter 310 value 4820.131677
## iter 320 value 4819.598229
```

```
## iter 330 value 4819.101607
## iter 340 value 4818.689459
## iter 350 value 4818.396547
## iter 360 value 4818.178107
## iter 370 value 4817.947463
## iter 380 value 4817.665416
## iter 390 value 4817.469968
## iter 400 value 4817.301755
## iter 410 value 4817.199196
## iter 420 value 4816.992925
## iter 430 value 4816.803602
## iter 440 value 4816.707808
## iter 450 value 4816.667161
## iter 460 value 4816.601200
## iter 470 value 4816.542199
## iter 480 value 4816.503874
## iter 490 value 4816.479156
## iter 500 value 4816.457919
## final  value 4816.457919
## stopped after 500 iterations
## # weights:  574
## initial  value 24538.236901
## iter  10 value 6533.022821
## iter  20 value 5485.684394
## iter  30 value 5293.179560
## iter  40 value 5213.509561
## iter  50 value 5125.370614
## iter  60 value 5055.165545
## iter  70 value 5017.484714
## iter  80 value 4993.245842
## iter  90 value 4975.075789
## iter 100 value 4962.749146
## iter 110 value 4949.068313
## iter 120 value 4939.332400
## iter 130 value 4933.547111
## iter 140 value 4929.765142
## iter 150 value 4927.464015
## iter 160 value 4925.568940
## iter 170 value 4924.469278
## iter 180 value 4923.037389
## iter 190 value 4921.732830
## iter 200 value 4920.441023
## iter 210 value 4918.787877
## iter 220 value 4917.281355
## iter 230 value 4916.057998
## iter 240 value 4915.037645
## iter 250 value 4914.367470
## iter 260 value 4913.894724
## iter 270 value 4913.481042
## iter 280 value 4913.188888
## iter 290 value 4912.955794
## iter 300 value 4912.725627
## iter 310 value 4912.474465
## iter 320 value 4912.239084
## iter 330 value 4911.995809
## iter 340 value 4911.772317
## iter 350 value 4911.569423
## iter 360 value 4911.379583
## iter 370 value 4911.173549
## iter 380 value 4910.947156
## iter 390 value 4910.634241
## iter 400 value 4910.298535
## iter 410 value 4909.765774
## iter 420 value 4908.230635
## iter 430 value 4906.263123
## iter 440 value 4905.273147
## iter 450 value 4904.528815
## iter 460 value 4904.054008
## iter 470 value 4903.663414
## iter 480 value 4903.380420
## iter 490 value 4903.102075
## iter 500 value 4902.842107
## final  value 4902.842107
## stopped after 500 iterations
## # weights:  42
```

```
## initial  value 20905.516350
## iter  10 value 11820.164632
## iter  20 value 11287.129545
## iter  30 value 10819.402364
## iter  40 value 10500.530393
## iter  50 value 9697.101078
## iter  60 value 9014.962388
## iter  70 value 8742.101935
## iter  80 value 8687.108000
## iter  90 value 8662.280118
## iter 100 value 8653.618929
## iter 110 value 8651.914038
## iter 120 value 8643.937367
## iter 130 value 8641.502707
## iter 130 value 8641.502703
## iter 130 value 8641.502703
## final  value 8641.502703
## converged
## # weights:  42
## initial  value 16651.763409
## iter  10 value 12268.584351
## iter  20 value 11236.979167
## iter  30 value 10742.221812
## iter  40 value 10518.505542
## iter  50 value 9842.400637
## iter  60 value 9040.420019
## iter  70 value 8976.863611
## iter  80 value 8953.688687
## iter  90 value 8946.862258
## iter 100 value 8944.932712
## iter 110 value 8944.367410
## iter 120 value 8943.780613
## final  value 8943.308666
## converged
## # weights:  42
## initial  value 17593.899962
## iter  10 value 12391.024008
## iter  20 value 11771.272662
## iter  30 value 11321.100026
## iter  40 value 11091.611296
## iter  50 value 10678.870973
## iter  60 value 10034.360771
## iter  70 value 9558.120305
## iter  80 value 9384.321478
## iter  90 value 9269.560617
## iter 100 value 9185.948202
## iter 110 value 9169.078368
## iter 120 value 9144.019706
## iter 130 value 9126.124381
## final  value 9126.120661
## converged
## # weights:  194
## initial  value 18727.097091
## iter  10 value 7065.268411
## iter  20 value 5818.370370
## iter  30 value 5575.943467
## iter  40 value 5509.186104
## iter  50 value 5457.126361
## iter  60 value 5402.719318
## iter  70 value 5338.166137
## iter  80 value 5291.253210
## iter  90 value 5259.382541
## iter 100 value 5234.055741
## iter 110 value 5210.369774
## iter 120 value 5193.429611
## iter 130 value 5185.761043
## iter 140 value 5180.925427
## iter 150 value 5177.427010
## iter 160 value 5174.694961
## iter 170 value 5173.059751
## iter 180 value 5170.744750
## iter 190 value 5165.944298
## iter 200 value 5161.683271
## iter 210 value 5159.367578
## iter 220 value 5156.765533
```

```
## iter 230 value 5153.428475
## iter 240 value 5149.717755
## iter 250 value 5143.514980
## iter 260 value 5138.492171
## iter 270 value 5132.432035
## iter 280 value 5123.671724
## iter 290 value 5119.689928
## iter 300 value 5117.450070
## iter 310 value 5116.380806
## iter 320 value 5115.340291
## iter 330 value 5113.477980
## iter 340 value 5111.982929
## iter 350 value 5110.676225
## iter 360 value 5109.589313
## iter 370 value 5108.940642
## iter 380 value 5108.752575
## iter 390 value 5108.668038
## iter 400 value 5108.637048
## iter 410 value 5108.567306
## iter 420 value 5108.524357
## iter 430 value 5108.494710
## iter 440 value 5108.456444
## iter 450 value 5108.435478
## iter 460 value 5108.428815
## iter 470 value 5108.427168
## final  value 5108.426773
## converged
## # weights:  194
## initial  value 17050.050508
## iter  10 value 7118.793264
## iter  20 value 6041.126700
## iter  30 value 5866.493623
## iter  40 value 5807.045361
## iter  50 value 5659.732919
## iter  60 value 5555.281161
## iter  70 value 5483.181488
## iter  80 value 5425.225854
## iter  90 value 5369.983134
## iter 100 value 5292.508357
## iter 110 value 5252.156575
## iter 120 value 5236.699799
## iter 130 value 5225.844178
## iter 140 value 5218.296569
## iter 150 value 5214.211689
## iter 160 value 5211.516294
## iter 170 value 5209.545887
## iter 180 value 5207.643296
## iter 190 value 5205.647754
## iter 200 value 5203.740766
## iter 210 value 5202.782518
## iter 220 value 5201.702506
## iter 230 value 5199.818084
## iter 240 value 5198.889682
## iter 250 value 5198.414116
## iter 260 value 5198.191679
## iter 270 value 5198.151935
## iter 280 value 5198.141925
## iter 290 value 5198.138772
## iter 300 value 5198.136080
## iter 300 value 5198.136042
## iter 300 value 5198.136041
## final  value 5198.136041
## converged
## # weights:  194
## initial  value 19097.773669
## iter  10 value 6854.753872
## iter  20 value 5951.958652
## iter  30 value 5769.320342
## iter  40 value 5659.190988
## iter  50 value 5577.151849
## iter  60 value 5498.645374
## iter  70 value 5437.632694
## iter  80 value 5387.278976
## iter  90 value 5349.396777
## iter 100 value 5327.208845
```

```
## iter 110 value 5310.160513
## iter 120 value 5296.950339
## iter 130 value 5281.585719
## iter 140 value 5270.323147
## iter 150 value 5264.443130
## iter 160 value 5261.065332
## iter 170 value 5258.298669
## iter 180 value 5255.464294
## iter 190 value 5253.110490
## iter 200 value 5249.609394
## iter 210 value 5245.777092
## iter 220 value 5241.633485
## iter 230 value 5237.911968
## iter 240 value 5236.179736
## iter 250 value 5234.308244
## iter 260 value 5233.209351
## iter 270 value 5232.909412
## iter 280 value 5232.873485
## iter 290 value 5232.868274
## iter 300 value 5232.859601
## final  value 5232.858287
## converged
## # weights:  384
## initial  value 19094.601912
## iter  10 value 6110.367246
## iter  20 value 5343.359291
## iter  30 value 5176.431889
## iter  40 value 5105.751198
## iter  50 value 5077.869987
## iter  60 value 5060.018305
## iter  70 value 5041.041677
## iter  80 value 5028.830250
## iter  90 value 5016.009721
## iter 100 value 5003.553340
## iter 110 value 4991.382808
## iter 120 value 4971.603982
## iter 130 value 4954.866947
## iter 140 value 4937.658347
## iter 150 value 4923.073542
## iter 160 value 4909.355834
## iter 170 value 4895.526700
## iter 180 value 4890.447556
## iter 190 value 4886.843448
## iter 200 value 4883.090499
## iter 210 value 4880.269609
## iter 220 value 4878.489851
## iter 230 value 4877.227530
## iter 240 value 4875.729506
## iter 250 value 4874.273868
## iter 260 value 4873.291980
## iter 270 value 4872.169557
## iter 280 value 4871.005070
## iter 290 value 4869.872108
## iter 300 value 4869.346919
## iter 310 value 4868.969496
## iter 320 value 4868.586051
## iter 330 value 4868.257378
## iter 340 value 4868.039699
## iter 350 value 4867.879797
## iter 360 value 4867.670860
## iter 370 value 4867.435046
## iter 380 value 4867.217878
## iter 390 value 4867.019646
## iter 400 value 4866.793236
## iter 410 value 4866.655709
## iter 420 value 4866.577207
## iter 430 value 4866.509962
## iter 440 value 4866.431068
## iter 450 value 4866.363075
## iter 460 value 4866.334796
## iter 470 value 4866.313375
## iter 480 value 4866.293340
## iter 490 value 4866.284737
## iter 500 value 4866.279631
## final  value 4866.279631
```

```
## stopped after 500 iterations
## # weights:  384
## initial  value 18613.507991
## iter  10 value 6378.500211
## iter  20 value 5430.863131
## iter  30 value 5307.909262
## iter  40 value 5198.472375
## iter  50 value 5129.485675
## iter  60 value 5098.687528
## iter  70 value 5084.796775
## iter  80 value 5073.520683
## iter  90 value 5062.329362
## iter 100 value 5054.791665
## iter 110 value 5045.798000
## iter 120 value 5037.799001
## iter 130 value 5031.899474
## iter 140 value 5028.046315
## iter 150 value 5025.478110
## iter 160 value 5021.654398
## iter 170 value 5015.185422
## iter 180 value 5008.765368
## iter 190 value 4999.274987
## iter 200 value 4990.056533
## iter 210 value 4980.964154
## iter 220 value 4975.646955
## iter 230 value 4972.787403
## iter 240 value 4970.512217
## iter 250 value 4968.599590
## iter 260 value 4967.256752
## iter 270 value 4966.445095
## iter 280 value 4965.665973
## iter 290 value 4964.963275
## iter 300 value 4964.413890
## iter 310 value 4964.127898
## iter 320 value 4963.724794
## iter 330 value 4963.023985
## iter 340 value 4962.479791
## iter 350 value 4962.123008
## iter 360 value 4961.659444
## iter 370 value 4961.445990
## iter 380 value 4961.372494
## iter 390 value 4961.288588
## iter 400 value 4961.187722
## iter 410 value 4961.100081
## iter 420 value 4961.006899
## iter 430 value 4960.910885
## iter 440 value 4960.765891
## iter 450 value 4960.650519
## iter 460 value 4960.617855
## iter 470 value 4960.605349
## iter 480 value 4960.597465
## iter 490 value 4960.593184
## iter 500 value 4960.591789
## final  value 4960.591789
## stopped after 500 iterations
## # weights:  384
## initial  value 20070.968039
## iter  10 value 6510.011882
## iter  20 value 5470.648160
## iter  30 value 5356.526707
## iter  40 value 5278.951764
## iter  50 value 5234.026528
## iter  60 value 5206.727579
## iter  70 value 5184.946907
## iter  80 value 5168.112196
## iter  90 value 5154.515567
## iter 100 value 5141.023947
## iter 110 value 5129.197484
## iter 120 value 5113.233414
## iter 130 value 5095.711781
## iter 140 value 5078.871693
## iter 150 value 5062.717019
## iter 160 value 5053.341610
## iter 170 value 5047.790956
## iter 180 value 5045.421760
```

```
## iter 190 value 5043.925658
## iter 200 value 5042.328851
## iter 210 value 5040.971161
## iter 220 value 5039.829720
## iter 230 value 5038.034068
## iter 240 value 5033.519182
## iter 250 value 5029.480862
## iter 260 value 5027.541838
## iter 270 value 5026.226172
## iter 280 value 5024.642203
## iter 290 value 5023.010400
## iter 300 value 5022.039255
## iter 310 value 5021.573700
## iter 320 value 5021.187183
## iter 330 value 5020.941132
## iter 340 value 5020.695174
## iter 350 value 5020.538711
## iter 360 value 5020.408820
## iter 370 value 5020.317936
## iter 380 value 5020.258098
## iter 390 value 5020.201342
## iter 400 value 5020.151223
## iter 410 value 5020.134093
## iter 420 value 5020.125730
## iter 430 value 5020.117587
## iter 440 value 5020.111075
## iter 450 value 5020.103585
## iter 460 value 5020.096381
## iter 470 value 5020.069699
## iter 480 value 5020.036029
## iter 490 value 5020.027997
## iter 500 value 5020.023899
## final  value 5020.023899
## stopped after 500 iterations
## # weights:  574
## initial  value 20353.193306
## iter  10 value 6514.280244
## iter  20 value 5405.961871
## iter  30 value 5210.489291
## iter  40 value 5048.186950
## iter  50 value 4955.168888
## iter  60 value 4922.637048
## iter  70 value 4884.943220
## iter  80 value 4853.371449
## iter  90 value 4822.413995
## iter 100 value 4801.582737
## iter 110 value 4786.296764
## iter 120 value 4774.003747
## iter 130 value 4764.584852
## iter 140 value 4755.744065
## iter 150 value 4746.611172
## iter 160 value 4739.272237
## iter 170 value 4733.802537
## iter 180 value 4728.131084
## iter 190 value 4723.872907
## iter 200 value 4719.116996
## iter 210 value 4713.054999
## iter 220 value 4705.676793
## iter 230 value 4699.094500
## iter 240 value 4694.706781
## iter 250 value 4692.285800
## iter 260 value 4689.487795
## iter 270 value 4685.995032
## iter 280 value 4683.856117
## iter 290 value 4681.992089
## iter 300 value 4680.355510
## iter 310 value 4679.005348
## iter 320 value 4675.972098
## iter 330 value 4671.023657
## iter 340 value 4668.078117
## iter 350 value 4666.951690
## iter 360 value 4666.165887
## iter 370 value 4665.285992
## iter 380 value 4663.708194
## iter 390 value 4662.563377
```

```
## iter 400 value 4661.985418
## iter 410 value 4661.420706
## iter 420 value 4660.347656
## iter 430 value 4658.882288
## iter 440 value 4657.692294
## iter 450 value 4657.248156
## iter 460 value 4657.058721
## iter 470 value 4656.916972
## iter 480 value 4656.713171
## iter 490 value 4656.425618
## iter 500 value 4656.156462
## final  value 4656.156462
## stopped after 500 iterations
## # weights:  574
## initial  value 27189.703989
## iter  10 value 5841.328333
## iter  20 value 5293.331117
## iter  30 value 5191.532979
## iter  40 value 5097.597118
## iter  50 value 5033.473816
## iter  60 value 4990.669365
## iter  70 value 4954.227638
## iter  80 value 4930.543698
## iter  90 value 4913.390500
## iter 100 value 4896.911517
## iter 110 value 4882.341461
## iter 120 value 4874.541032
## iter 130 value 4868.165083
## iter 140 value 4859.435252
## iter 150 value 4851.908049
## iter 160 value 4845.323395
## iter 170 value 4837.673731
## iter 180 value 4828.662813
## iter 190 value 4823.375425
## iter 200 value 4820.436080
## iter 210 value 4818.105368
## iter 220 value 4815.273518
## iter 230 value 4812.454959
## iter 240 value 4810.490306
## iter 250 value 4808.824395
## iter 260 value 4806.812335
## iter 270 value 4804.809459
## iter 280 value 4802.984607
## iter 290 value 4801.658025
## iter 300 value 4800.561577
## iter 310 value 4799.656969
## iter 320 value 4799.064190
## iter 330 value 4798.591326
## iter 340 value 4798.195657
## iter 350 value 4797.729221
## iter 360 value 4797.244579
## iter 370 value 4796.836366
## iter 380 value 4796.583118
## iter 390 value 4796.357396
## iter 400 value 4796.128257
## iter 410 value 4795.966762
## iter 420 value 4795.727232
## iter 430 value 4795.546650
## iter 440 value 4795.397643
## iter 450 value 4795.287534
## iter 460 value 4795.141724
## iter 470 value 4794.857855
## iter 480 value 4794.673418
## iter 490 value 4794.535454
## iter 500 value 4794.459064
## final  value 4794.459064
## stopped after 500 iterations
## # weights:  574
## initial  value 24686.793243
## iter  10 value 6303.866334
## iter  20 value 5369.708721
## iter  30 value 5230.534972
## iter  40 value 5148.789975
## iter  50 value 5066.492251
## iter  60 value 5029.446917
```

```
## iter  70 value 5005.507873
## iter  80 value 4985.092773
## iter  90 value 4969.492936
## iter 100 value 4957.932805
## iter 110 value 4947.362775
## iter 120 value 4941.296267
## iter 130 value 4934.354140
## iter 140 value 4929.519173
## iter 150 value 4925.616555
## iter 160 value 4922.665583
## iter 170 value 4920.425012
## iter 180 value 4917.864596
## iter 190 value 4915.092030
## iter 200 value 4912.328715
## iter 210 value 4907.361240
## iter 220 value 4898.700750
## iter 230 value 4893.545319
## iter 240 value 4890.149108
## iter 250 value 4886.387730
## iter 260 value 4883.383643
## iter 270 value 4881.390518
## iter 280 value 4879.767660
## iter 290 value 4878.509715
## iter 300 value 4877.459948
## iter 310 value 4876.767456
## iter 320 value 4876.222812
## iter 330 value 4875.512942
## iter 340 value 4874.692944
## iter 350 value 4873.974329
## iter 360 value 4873.207587
## iter 370 value 4872.572787
## iter 380 value 4872.133294
## iter 390 value 4871.831006
## iter 400 value 4871.553957
## iter 410 value 4871.193873
## iter 420 value 4870.797550
## iter 430 value 4870.521562
## iter 440 value 4870.295612
## iter 450 value 4870.012426
## iter 460 value 4869.545032
## iter 470 value 4868.756414
## iter 480 value 4866.709196
## iter 490 value 4864.354400
## iter 500 value 4862.244899
## final  value 4862.244899
## stopped after 500 iterations
## # weights:  42
## initial  value 17932.062899
## iter  10 value 11701.948778
## iter  20 value 11104.568134
## iter  30 value 10824.552567
## iter  40 value 10547.928920
## iter  50 value 9958.517769
## iter  60 value 9117.334075
## iter  70 value 8808.678547
## iter  80 value 8719.959453
## iter  90 value 8690.481126
## iter 100 value 8685.305353
## iter 110 value 8680.676972
## iter 120 value 8678.460911
## iter 130 value 8676.443276
## iter 130 value 8676.443253
## iter 130 value 8676.443253
## final  value 8676.443253
## converged
## # weights:  42
## initial  value 19248.556761
## iter  10 value 12730.631146
## iter  20 value 11783.285730
## iter  30 value 11349.112778
## iter  40 value 10911.686152
## iter  50 value 10279.724934
## iter  60 value 9478.488209
## iter  70 value 9376.112238
## iter  80 value 9355.000921
```

```
## iter  90 value 9342.124389
## iter 100 value 9305.101301
## iter 110 value 9300.866440
## iter 120 value 9294.136649
## iter 130 value 9286.364282
## final  value 9286.364096
## converged
## # weights:  42
## initial  value 18793.315712
## iter  10 value 12701.217840
## iter  20 value 12005.707085
## iter  30 value 11699.912308
## iter  40 value 11541.639145
## iter  50 value 11197.546600
## iter  60 value 10090.317603
## iter  70 value 9578.956370
## iter  80 value 9427.305144
## iter  90 value 9413.944509
## iter 100 value 9411.045013
## iter 110 value 9410.655118
## iter 120 value 9410.158180
## iter 130 value 9409.491615
## iter 130 value 9409.491615
## iter 130 value 9409.491615
## final  value 9409.491615
## converged
## # weights:  194
## initial  value 19256.580924
## iter  10 value 6990.071591
## iter  20 value 5883.360961
## iter  30 value 5684.130254
## iter  40 value 5580.738489
## iter  50 value 5489.916134
## iter  60 value 5440.989779
## iter  70 value 5394.270864
## iter  80 value 5358.569907
## iter  90 value 5335.151247
## iter 100 value 5309.975567
## iter 110 value 5284.754184
## iter 120 value 5256.823981
## iter 130 value 5233.574977
## iter 140 value 5209.103602
## iter 150 value 5183.676334
## iter 160 value 5172.121826
## iter 170 value 5166.083840
## iter 180 value 5161.209284
## iter 190 value 5157.765530
## iter 200 value 5153.267271
## iter 210 value 5148.740007
## iter 220 value 5146.544339
## iter 230 value 5144.797594
## iter 240 value 5143.694933
## iter 250 value 5143.100587
## iter 260 value 5142.540959
## iter 270 value 5142.066357
## iter 280 value 5141.613095
## iter 290 value 5140.961630
## iter 300 value 5140.726711
## iter 310 value 5140.619582
## iter 320 value 5140.542264
## iter 330 value 5140.521670
## iter 340 value 5140.485143
## iter 350 value 5140.463960
## iter 360 value 5140.455019
## final  value 5140.454734
## converged
## # weights:  194
## initial  value 18528.595140
## iter  10 value 5962.979987
## iter  20 value 5482.005219
## iter  30 value 5406.529629
## iter  40 value 5361.560530
## iter  50 value 5342.009140
## iter  60 value 5331.114897
## iter  70 value 5321.685413
```

```
## iter  80 value 5310.070603
## iter  90 value 5299.789039
## iter 100 value 5290.907527
## iter 110 value 5284.163782
## iter 120 value 5278.507179
## iter 130 value 5274.365648
## iter 140 value 5269.567644
## iter 150 value 5265.964095
## iter 160 value 5262.388305
## iter 170 value 5258.703878
## iter 180 value 5256.013942
## iter 190 value 5253.903133
## iter 200 value 5251.961027
## iter 210 value 5249.579586
## iter 220 value 5246.229689
## iter 230 value 5244.011177
## iter 240 value 5241.821673
## iter 250 value 5240.284259
## iter 260 value 5238.951909
## iter 270 value 5238.635883
## iter 280 value 5238.482200
## iter 290 value 5238.004845
## iter 300 value 5237.616142
## iter 310 value 5237.409551
## iter 320 value 5236.801775
## iter 330 value 5235.191472
## iter 340 value 5232.369263
## iter 350 value 5229.740923
## iter 360 value 5227.962712
## iter 370 value 5227.288967
## iter 380 value 5226.982661
## iter 390 value 5226.622625
## iter 400 value 5226.495433
## iter 410 value 5226.400321
## iter 420 value 5226.304113
## iter 430 value 5226.217496
## iter 440 value 5226.139000
## iter 450 value 5226.096075
## iter 460 value 5226.084516
## iter 470 value 5226.081388
## final  value 5226.080374
## converged
## # weights:  194
## initial  value 22956.310067
## iter  10 value 8094.157175
## iter  20 value 6848.848112
## iter  30 value 6437.347855
## iter  40 value 6142.973826
## iter  50 value 5903.899921
## iter  60 value 5758.528010
## iter  70 value 5670.151437
## iter  80 value 5597.961102
## iter  90 value 5551.330882
## iter 100 value 5517.387080
## iter 110 value 5481.305017
## iter 120 value 5446.648213
## iter 130 value 5427.309818
## iter 140 value 5393.290247
## iter 150 value 5351.064565
## iter 160 value 5333.651248
## iter 170 value 5327.664874
## iter 180 value 5322.838746
## iter 190 value 5317.092890
## iter 200 value 5311.948115
## iter 210 value 5303.263865
## iter 220 value 5294.445609
## iter 230 value 5288.806134
## iter 240 value 5285.243871
## iter 250 value 5282.502596
## iter 260 value 5280.293799
## iter 270 value 5277.661035
## iter 280 value 5274.085472
## iter 290 value 5272.739903
## iter 300 value 5272.431711
## iter 310 value 5272.156628
```

```
## iter 320 value 5272.067276
## iter 330 value 5272.058930
## iter 340 value 5272.054733
## iter 350 value 5272.048343
## final  value 5272.048035
## converged
## # weights:  384
## initial  value 19771.656642
## iter  10 value 6345.995277
## iter  20 value 5395.693475
## iter  30 value 5276.486840
## iter  40 value 5224.636796
## iter  50 value 5174.760076
## iter  60 value 5131.933300
## iter  70 value 5111.051133
## iter  80 value 5092.984859
## iter  90 value 5078.236754
## iter 100 value 5060.649010
## iter 110 value 5045.741198
## iter 120 value 5035.497360
## iter 130 value 5026.695180
## iter 140 value 5020.257001
## iter 150 value 5013.373892
## iter 160 value 5006.235432
## iter 170 value 4997.856270
## iter 180 value 4989.752433
## iter 190 value 4984.594305
## iter 200 value 4980.982416
## iter 210 value 4979.156839
## iter 220 value 4977.853294
## iter 230 value 4976.077516
## iter 240 value 4971.738986
## iter 250 value 4964.897023
## iter 260 value 4959.251706
## iter 270 value 4954.138692
## iter 280 value 4949.987803
## iter 290 value 4946.170626
## iter 300 value 4943.408680
## iter 310 value 4941.326584
## iter 320 value 4939.734503
## iter 330 value 4938.783664
## iter 340 value 4937.882574
## iter 350 value 4935.818598
## iter 360 value 4934.305039
## iter 370 value 4933.534065
## iter 380 value 4933.028627
## iter 390 value 4932.527344
## iter 400 value 4932.216336
## iter 410 value 4931.460699
## iter 420 value 4929.935494
## iter 430 value 4928.361351
## iter 440 value 4927.167785
## iter 450 value 4926.690790
## iter 460 value 4926.261979
## iter 470 value 4925.923137
## iter 480 value 4925.671508
## iter 490 value 4925.523061
## iter 500 value 4925.447294
## final  value 4925.447294
## stopped after 500 iterations
## # weights:  384
## initial  value 20249.167717
## iter  10 value 6810.219351
## iter  20 value 5708.228771
## iter  30 value 5495.835235
## iter  40 value 5420.031578
## iter  50 value 5363.532229
## iter  60 value 5289.456710
## iter  70 value 5231.226052
## iter  80 value 5161.983832
## iter  90 value 5117.156975
## iter 100 value 5089.778687
## iter 110 value 5074.549504
## iter 120 value 5063.198379
## iter 130 value 5053.211564
```

```
## iter 140 value 5047.660118
## iter 150 value 5043.786056
## iter 160 value 5040.899400
## iter 170 value 5038.156933
## iter 180 value 5033.169166
## iter 190 value 5026.797368
## iter 200 value 5022.813143
## iter 210 value 5020.660170
## iter 220 value 5017.754838
## iter 230 value 5014.699383
## iter 240 value 5013.020286
## iter 250 value 5011.920656
## iter 260 value 5010.919134
## iter 270 value 5010.143341
## iter 280 value 5009.564554
## iter 290 value 5008.834393
## iter 300 value 5008.200017
## iter 310 value 5007.834163
## iter 320 value 5007.443075
## iter 330 value 5007.045516
## iter 340 value 5006.766222
## iter 350 value 5006.539600
## iter 360 value 5006.307181
## iter 370 value 5005.838886
## iter 380 value 5003.456305
## iter 390 value 5001.321269
## iter 400 value 4997.915603
## iter 410 value 4995.680099
## iter 420 value 4990.046948
## iter 430 value 4988.643579
## iter 440 value 4988.005892
## iter 450 value 4987.621448
## iter 460 value 4987.505328
## iter 470 value 4987.432678
## iter 480 value 4987.393748
## iter 490 value 4987.381582
## iter 500 value 4987.375865
## final  value 4987.375865
## stopped after 500 iterations
## # weights:  384
## initial  value 17823.037484
## iter  10 value 6842.090443
## iter  20 value 5627.193212
## iter  30 value 5461.918604
## iter  40 value 5346.262872
## iter  50 value 5274.407552
## iter  60 value 5239.894458
## iter  70 value 5218.235860
## iter  80 value 5191.622180
## iter  90 value 5171.418137
## iter 100 value 5158.736382
## iter 110 value 5147.802115
## iter 120 value 5135.983973
## iter 130 value 5124.160510
## iter 140 value 5113.767462
## iter 150 value 5105.604451
## iter 160 value 5096.790469
## iter 170 value 5088.745010
## iter 180 value 5083.462255
## iter 190 value 5078.266921
## iter 200 value 5071.938457
## iter 210 value 5065.866887
## iter 220 value 5062.152750
## iter 230 value 5060.012123
## iter 240 value 5058.602724
## iter 250 value 5057.618838
## iter 260 value 5057.042117
## iter 270 value 5056.579987
## iter 280 value 5056.044237
## iter 290 value 5055.376539
## iter 300 value 5054.694337
## iter 310 value 5054.111141
## iter 320 value 5053.550386
## iter 330 value 5053.048246
## iter 340 value 5052.708916
```

```
## iter 350 value 5052.037514
## iter 360 value 5051.462121
## iter 370 value 5051.093188
## iter 380 value 5050.925496
## iter 390 value 5050.852114
## iter 400 value 5050.777669
## iter 410 value 5050.673892
## iter 420 value 5050.600509
## iter 430 value 5050.486153
## iter 440 value 5050.407293
## iter 450 value 5050.347224
## iter 460 value 5050.309695
## iter 470 value 5050.289698
## iter 480 value 5050.286535
## iter 490 value 5050.283673
## iter 500 value 5050.281759
## final  value 5050.281759
## stopped after 500 iterations
## # weights:  574
## initial  value 23701.669498
## iter  10 value 6296.596792
## iter  20 value 5266.010263
## iter  30 value 5122.522163
## iter  40 value 5023.122717
## iter  50 value 4930.594813
## iter  60 value 4873.712514
## iter  70 value 4839.523269
## iter  80 value 4812.297905
## iter  90 value 4798.971786
## iter 100 value 4779.164867
## iter 110 value 4758.967345
## iter 120 value 4746.180632
## iter 130 value 4735.727968
## iter 140 value 4729.077325
## iter 150 value 4724.527309
## iter 160 value 4720.715016
## iter 170 value 4717.448393
## iter 180 value 4715.019338
## iter 190 value 4712.628397
## iter 200 value 4708.646232
## iter 210 value 4702.698231
## iter 220 value 4699.304849
## iter 230 value 4696.452101
## iter 240 value 4692.770041
## iter 250 value 4688.724638
## iter 260 value 4686.681863
## iter 270 value 4685.442432
## iter 280 value 4684.231109
## iter 290 value 4683.104973
## iter 300 value 4681.881268
## iter 310 value 4680.766468
## iter 320 value 4679.965898
## iter 330 value 4679.294310
## iter 340 value 4678.832428
## iter 350 value 4678.583985
## iter 360 value 4678.352028
## iter 370 value 4677.991278
## iter 380 value 4677.496215
## iter 390 value 4677.081515
## iter 400 value 4676.860103
## iter 410 value 4676.560346
## iter 420 value 4676.316397
## iter 430 value 4676.069517
## iter 440 value 4675.819098
## iter 450 value 4675.587978
## iter 460 value 4675.353620
## iter 470 value 4675.136337
## iter 480 value 4674.742611
## iter 490 value 4674.311619
## iter 500 value 4673.930998
## final  value 4673.930998
## stopped after 500 iterations
## # weights:  574
## initial  value 27688.688068
## iter  10 value 6358.637009
```

```
## iter  20 value 5470.136522
## iter  30 value 5245.948044
## iter  40 value 5149.018027
## iter  50 value 5085.561242
## iter  60 value 5043.566438
## iter  70 value 5010.987224
## iter  80 value 4985.770999
## iter  90 value 4966.393784
## iter 100 value 4953.980248
## iter 110 value 4939.876960
## iter 120 value 4923.015945
## iter 130 value 4916.614961
## iter 140 value 4905.654981
## iter 150 value 4901.239184
## iter 160 value 4893.573788
## iter 170 value 4888.083868
## iter 180 value 4884.186136
## iter 190 value 4880.659061
## iter 200 value 4876.062286
## iter 210 value 4871.039837
## iter 220 value 4868.012722
## iter 230 value 4864.956339
## iter 240 value 4860.126294
## iter 250 value 4856.290020
## iter 260 value 4853.698027
## iter 270 value 4850.587784
## iter 280 value 4847.399240
## iter 290 value 4845.057576
## iter 300 value 4843.601473
## iter 310 value 4842.616076
## iter 320 value 4841.859389
## iter 330 value 4841.198768
## iter 340 value 4840.554767
## iter 350 value 4839.995033
## iter 360 value 4839.522271
## iter 370 value 4839.157685
## iter 380 value 4838.769665
## iter 390 value 4838.334076
## iter 400 value 4838.020265
## iter 410 value 4837.711213
## iter 420 value 4837.473705
## iter 430 value 4837.329851
## iter 440 value 4837.158472
## iter 450 value 4836.976737
## iter 460 value 4836.678176
## iter 470 value 4836.321055
## iter 480 value 4835.897852
## iter 490 value 4835.054421
## iter 500 value 4834.526152
## final  value 4834.526152
## stopped after 500 iterations
## # weights:  574
## initial  value 18839.358265
## iter  10 value 6136.137613
## iter  20 value 5502.677257
## iter  30 value 5376.714319
## iter  40 value 5266.954512
## iter  50 value 5170.283872
## iter  60 value 5115.149833
## iter  70 value 5085.945264
## iter  80 value 5060.103373
## iter  90 value 5039.608815
## iter 100 value 5023.101774
## iter 110 value 5003.722355
## iter 120 value 4990.156853
## iter 130 value 4978.342358
## iter 140 value 4969.300899
## iter 150 value 4963.051745
## iter 160 value 4957.529165
## iter 170 value 4953.647850
## iter 180 value 4950.657981
## iter 190 value 4946.670475
## iter 200 value 4943.443219
## iter 210 value 4939.693360
## iter 220 value 4936.522643
```

```
## iter 230 value 4933.443282
## iter 240 value 4929.255709
## iter 250 value 4925.178222
## iter 260 value 4922.078197
## iter 270 value 4919.864134
## iter 280 value 4917.386648
## iter 290 value 4915.459410
## iter 300 value 4914.020738
## iter 310 value 4912.441638
## iter 320 value 4910.854196
## iter 330 value 4909.590488
## iter 340 value 4908.561347
## iter 350 value 4907.158504
## iter 360 value 4905.430110
## iter 370 value 4904.315804
## iter 380 value 4903.551226
## iter 390 value 4902.995909
## iter 400 value 4902.309194
## iter 410 value 4901.515695
## iter 420 value 4900.906123
## iter 430 value 4900.516061
## iter 440 value 4899.575814
## iter 450 value 4898.182993
## iter 460 value 4897.345394
## iter 470 value 4896.763846
## iter 480 value 4896.523230
## iter 490 value 4896.422111
## iter 500 value 4896.368288
## final  value 4896.368288
## stopped after 500 iterations
## # weights:  42
## initial  value 20332.046135
## iter  10 value 12529.462700
## iter  20 value 11473.576624
## iter  30 value 10803.746596
## iter  40 value 10466.227309
## iter  50 value 10046.691359
## iter  60 value 9388.885756
## iter  70 value 8936.580107
## iter  80 value 8727.400596
## iter  90 value 8696.931036
## iter 100 value 8681.534378
## iter 110 value 8672.511192
## iter 120 value 8658.785097
## iter 130 value 8646.221332
## final  value 8646.219864
## converged
## # weights:  42
## initial  value 17612.522280
## iter  10 value 12730.980611
## iter  20 value 11608.355560
## iter  30 value 11287.681762
## iter  40 value 11074.412268
## iter  50 value 10417.569723
## iter  60 value 9697.515499
## iter  70 value 9112.843055
## iter  80 value 8978.290875
## iter  90 value 8951.813367
## iter 100 value 8944.902277
## iter 110 value 8935.166421
## iter 120 value 8931.457362
## final  value 8926.795439
## converged
## # weights:  42
## initial  value 19301.100255
## iter  10 value 14322.975924
## iter  20 value 12409.386151
## iter  30 value 11846.657079
## iter  40 value 11383.174266
## iter  50 value 11194.397619
## iter  60 value 10795.645050
## iter  70 value 10410.795775
## iter  80 value 9709.660137
## iter  90 value 9439.317579
## iter 100 value 9220.855988
```

```
## iter 110 value 9178.056674
## iter 120 value 9134.917872
## iter 130 value 9085.933604
## final  value 9085.387958
## converged
## # weights:  194
## initial  value 17172.840277
## iter  10 value 6462.075830
## iter  20 value 5528.348210
## iter  30 value 5400.661089
## iter  40 value 5335.089863
## iter  50 value 5303.630026
## iter  60 value 5274.563754
## iter  70 value 5248.329496
## iter  80 value 5228.928451
## iter  90 value 5209.644091
## iter 100 value 5196.756364
## iter 110 value 5189.303984
## iter 120 value 5184.772269
## iter 130 value 5178.380294
## iter 140 value 5174.247010
## iter 150 value 5171.346096
## iter 160 value 5169.399487
## iter 170 value 5168.243216
## iter 180 value 5166.344151
## iter 190 value 5165.508260
## iter 200 value 5165.190270
## iter 210 value 5164.866643
## iter 220 value 5164.559957
## iter 230 value 5164.269642
## iter 240 value 5163.950572
## iter 250 value 5163.605834
## iter 260 value 5162.994572
## iter 270 value 5162.444468
## iter 280 value 5162.055773
## iter 290 value 5161.821981
## iter 300 value 5161.542152
## iter 310 value 5161.263093
## iter 320 value 5161.048755
## iter 330 value 5160.156497
## iter 340 value 5157.920619
## iter 350 value 5154.108020
## iter 360 value 5150.797078
## iter 370 value 5147.924594
## iter 380 value 5146.067079
## iter 390 value 5143.950589
## iter 400 value 5142.484303
## iter 410 value 5141.032658
## iter 420 value 5139.791863
## iter 430 value 5138.807732
## iter 440 value 5138.078477
## iter 450 value 5137.533228
## iter 460 value 5137.229172
## iter 470 value 5137.116262
## iter 480 value 5137.075813
## iter 490 value 5137.056109
## iter 500 value 5137.038302
## final  value 5137.038302
## stopped after 500 iterations
## # weights:  194
## initial  value 20359.696531
## iter  10 value 8376.803274
## iter  20 value 6703.190324
## iter  30 value 6418.171824
## iter  40 value 6219.168507
## iter  50 value 6062.588340
## iter  60 value 5941.597057
## iter  70 value 5807.816588
## iter  80 value 5677.233475
## iter  90 value 5576.831954
## iter 100 value 5466.737398
## iter 110 value 5371.589996
## iter 120 value 5320.780073
## iter 130 value 5295.500006
## iter 140 value 5284.750725
```

```
## iter 150 value 5279.655759
## iter 160 value 5274.829887
## iter 170 value 5267.671300
## iter 180 value 5259.616306
## iter 190 value 5253.201593
## iter 200 value 5248.754041
## iter 210 value 5244.142352
## iter 220 value 5240.960466
## iter 230 value 5238.639133
## iter 240 value 5237.898399
## iter 250 value 5236.300815
## iter 260 value 5235.000300
## iter 270 value 5233.843787
## iter 280 value 5231.119619
## iter 290 value 5229.175966
## iter 300 value 5228.161460
## iter 310 value 5227.705580
## iter 320 value 5226.692238
## iter 330 value 5225.552072
## iter 340 value 5224.803747
## iter 350 value 5224.029585
## iter 360 value 5222.602524
## iter 370 value 5220.036970
## iter 380 value 5217.634173
## iter 390 value 5216.742409
## iter 400 value 5216.248636
## iter 410 value 5215.460154
## iter 420 value 5214.780641
## iter 430 value 5213.642994
## iter 440 value 5212.071054
## iter 450 value 5210.990097
## iter 460 value 5210.323383
## iter 470 value 5209.899898
## iter 480 value 5209.668347
## iter 490 value 5209.597227
## iter 500 value 5209.577242
## final  value 5209.577242
## stopped after 500 iterations
## # weights:  194
## initial  value 19275.421187
## iter  10 value 7511.689070
## iter  20 value 6407.544405
## iter  30 value 6155.803436
## iter  40 value 5959.570539
## iter  50 value 5818.198836
## iter  60 value 5666.618056
## iter  70 value 5564.424978
## iter  80 value 5478.564003
## iter  90 value 5420.449290
## iter 100 value 5378.875414
## iter 110 value 5349.786776
## iter 120 value 5332.832312
## iter 130 value 5316.671776
## iter 140 value 5304.514726
## iter 150 value 5296.651651
## iter 160 value 5291.663237
## iter 170 value 5287.801840
## iter 180 value 5281.490544
## iter 190 value 5274.688757
## iter 200 value 5268.492422
## iter 210 value 5263.254215
## iter 220 value 5260.091918
## iter 230 value 5257.370076
## iter 240 value 5256.582974
## iter 250 value 5256.476712
## iter 260 value 5256.428715
## iter 270 value 5256.384644
## iter 280 value 5256.372035
## final  value 5256.363814
## converged
## # weights:  384
## initial  value 19553.780988
## iter  10 value 6036.895317
## iter  20 value 5383.561672
## iter  30 value 5263.298901
```

```
## iter  40 value 5179.069840
## iter  50 value 5129.218337
## iter  60 value 5099.257532
## iter  70 value 5077.383086
## iter  80 value 5054.282330
## iter  90 value 5036.962690
## iter 100 value 5018.939948
## iter 110 value 4999.722145
## iter 120 value 4987.194319
## iter 130 value 4979.070044
## iter 140 value 4973.504410
## iter 150 value 4969.484543
## iter 160 value 4964.074379
## iter 170 value 4958.579057
## iter 180 value 4952.528141
## iter 190 value 4947.702935
## iter 200 value 4944.676888
## iter 210 value 4941.263663
## iter 220 value 4939.163867
## iter 230 value 4935.972717
## iter 240 value 4930.758020
## iter 250 value 4926.154795
## iter 260 value 4922.862816
## iter 270 value 4920.934444
## iter 280 value 4918.626717
## iter 290 value 4915.698776
## iter 300 value 4913.727928
## iter 310 value 4912.019081
## iter 320 value 4911.127776
## iter 330 value 4910.442248
## iter 340 value 4909.731857
## iter 350 value 4909.038674
## iter 360 value 4908.724119
## iter 370 value 4908.550339
## iter 380 value 4908.397750
## iter 390 value 4908.272449
## iter 400 value 4908.113539
## iter 410 value 4907.940782
## iter 420 value 4907.716592
## iter 430 value 4907.558279
## iter 440 value 4907.397420
## iter 450 value 4907.145866
## iter 460 value 4907.055883
## iter 470 value 4907.043081
## iter 480 value 4907.038800
## iter 490 value 4907.036626
## iter 500 value 4907.035176
## final  value 4907.035176
## stopped after 500 iterations
## # weights:  384
## initial  value 24187.970053
## iter  10 value 6783.095917
## iter  20 value 5567.759993
## iter  30 value 5409.500939
## iter  40 value 5354.102487
## iter  50 value 5282.929198
## iter  60 value 5242.570363
## iter  70 value 5219.393961
## iter  80 value 5187.087953
## iter  90 value 5164.491091
## iter 100 value 5148.428315
## iter 110 value 5128.125214
## iter 120 value 5111.076646
## iter 130 value 5100.476638
## iter 140 value 5089.316477
## iter 150 value 5080.969083
## iter 160 value 5073.541380
## iter 170 value 5067.778793
## iter 180 value 5062.384266
## iter 190 value 5058.588409
## iter 200 value 5054.771692
## iter 210 value 5050.803060
## iter 220 value 5046.110677
## iter 230 value 5040.666990
## iter 240 value 5033.869345
```

```
## iter 250 value 5029.929784
## iter 260 value 5027.272927
## iter 270 value 5024.399946
## iter 280 value 5021.703740
## iter 290 value 5018.376559
## iter 300 value 5015.799717
## iter 310 value 5014.221162
## iter 320 value 5013.391675
## iter 330 value 5012.826560
## iter 340 value 5012.317447
## iter 350 value 5011.789475
## iter 360 value 5011.260230
## iter 370 value 5010.495338
## iter 380 value 5009.679077
## iter 390 value 5008.868899
## iter 400 value 5007.710020
## iter 410 value 5005.490710
## iter 420 value 5003.834883
## iter 430 value 5002.564795
## iter 440 value 5001.287239
## iter 450 value 5000.037484
## iter 460 value 4999.066940
## iter 470 value 4998.300577
## iter 480 value 4997.591033
## iter 490 value 4997.058200
## iter 500 value 4996.386042
## final  value 4996.386042
## stopped after 500 iterations
## # weights:  384
## initial  value 22309.011633
## iter  10 value 6403.626362
## iter  20 value 5588.308543
## iter  30 value 5459.347301
## iter  40 value 5382.907626
## iter  50 value 5342.372540
## iter  60 value 5309.689475
## iter  70 value 5274.794799
## iter  80 value 5242.518938
## iter  90 value 5215.619375
## iter 100 value 5196.399424
## iter 110 value 5180.446774
## iter 120 value 5168.104534
## iter 130 value 5158.205020
## iter 140 value 5150.882883
## iter 150 value 5144.133802
## iter 160 value 5138.963044
## iter 170 value 5132.956847
## iter 180 value 5126.051972
## iter 190 value 5116.228834
## iter 200 value 5108.264174
## iter 210 value 5101.119840
## iter 220 value 5094.579907
## iter 230 value 5088.573067
## iter 240 value 5082.479375
## iter 250 value 5078.379053
## iter 260 value 5075.607748
## iter 270 value 5072.776101
## iter 280 value 5071.152159
## iter 290 value 5069.608232
## iter 300 value 5067.216059
## iter 310 value 5064.808803
## iter 320 value 5063.078650
## iter 330 value 5061.336512
## iter 340 value 5059.843177
## iter 350 value 5057.553009
## iter 360 value 5055.602102
## iter 370 value 5054.395671
## iter 380 value 5051.010096
## iter 390 value 5048.469909
## iter 400 value 5047.598495
## iter 410 value 5047.076401
## iter 420 value 5046.705509
## iter 430 value 5046.297081
## iter 440 value 5046.097633
## iter 450 value 5046.010477
```

```
## iter 460 value 5045.962504
## iter 470 value 5045.933937
## iter 480 value 5045.906141
## iter 490 value 5045.890363
## iter 500 value 5045.882076
## final  value 5045.882076
## stopped after 500 iterations
## # weights:  574
## initial  value 22906.614078
## iter  10 value 6403.224593
## iter  20 value 5349.323183
## iter  30 value 5180.470663
## iter  40 value 5062.159946
## iter  50 value 4988.847611
## iter  60 value 4928.567334
## iter  70 value 4887.504106
## iter  80 value 4862.377258
## iter  90 value 4850.550756
## iter 100 value 4833.492119
## iter 110 value 4817.834471
## iter 120 value 4807.895468
## iter 130 value 4800.196187
## iter 140 value 4791.234583
## iter 150 value 4782.708549
## iter 160 value 4776.716530
## iter 170 value 4769.129689
## iter 180 value 4764.269196
## iter 190 value 4759.667719
## iter 200 value 4754.177967
## iter 210 value 4749.107548
## iter 220 value 4741.672017
## iter 230 value 4736.064709
## iter 240 value 4729.550696
## iter 250 value 4723.726611
## iter 260 value 4718.630184
## iter 270 value 4712.395866
## iter 280 value 4705.490985
## iter 290 value 4699.656130
## iter 300 value 4695.000075
## iter 310 value 4692.548489
## iter 320 value 4690.942573
## iter 330 value 4689.399244
## iter 340 value 4687.747259
## iter 350 value 4686.686951
## iter 360 value 4685.773071
## iter 370 value 4684.796200
## iter 380 value 4683.834740
## iter 390 value 4683.171362
## iter 400 value 4682.516243
## iter 410 value 4681.923640
## iter 420 value 4681.446851
## iter 430 value 4681.188029
## iter 440 value 4680.656828
## iter 450 value 4680.358751
## iter 460 value 4680.091138
## iter 470 value 4679.817117
## iter 480 value 4679.649365
## iter 490 value 4679.540782
## iter 500 value 4679.488663
## final  value 4679.488663
## stopped after 500 iterations
## # weights:  574
## initial  value 21072.611073
## iter  10 value 6022.720780
## iter  20 value 5332.547576
## iter  30 value 5202.621310
## iter  40 value 5123.277285
## iter  50 value 5040.447944
## iter  60 value 4982.953974
## iter  70 value 4948.006293
## iter  80 value 4924.438322
## iter  90 value 4908.261831
## iter 100 value 4894.295262
## iter 110 value 4879.503370
## iter 120 value 4868.713974
```

```
## iter 130 value 4861.208916
## iter 140 value 4855.271353
## iter 150 value 4850.431209
## iter 160 value 4846.491972
## iter 170 value 4843.079850
## iter 180 value 4839.694091
## iter 190 value 4836.801905
## iter 200 value 4833.807695
## iter 210 value 4831.056445
## iter 220 value 4827.847549
## iter 230 value 4825.315126
## iter 240 value 4823.082553
## iter 250 value 4820.266592
## iter 260 value 4818.145476
## iter 270 value 4816.867843
## iter 280 value 4815.788195
## iter 290 value 4814.988938
## iter 300 value 4814.438203
## iter 310 value 4813.804378
## iter 320 value 4812.847274
## iter 330 value 4811.953351
## iter 340 value 4811.256052
## iter 350 value 4810.678249
## iter 360 value 4809.871494
## iter 370 value 4809.065362
## iter 380 value 4808.182635
## iter 390 value 4807.301926
## iter 400 value 4806.742947
## iter 410 value 4806.398543
## iter 420 value 4806.081337
## iter 430 value 4805.510497
## iter 440 value 4804.957256
## iter 450 value 4804.490544
## iter 460 value 4804.100827
## iter 470 value 4803.823724
## iter 480 value 4803.530143
## iter 490 value 4803.318096
## iter 500 value 4803.126628
## final  value 4803.126628
## stopped after 500 iterations
## # weights:  574
## initial  value 24588.437231
## iter  10 value 6220.472665
## iter  20 value 5438.937675
## iter  30 value 5274.943304
## iter  40 value 5175.612361
## iter  50 value 5093.467747
## iter  60 value 5053.844060
## iter  70 value 5029.527595
## iter  80 value 5010.874208
## iter  90 value 4996.632104
## iter 100 value 4988.379571
## iter 110 value 4980.235307
## iter 120 value 4974.539642
## iter 130 value 4966.089254
## iter 140 value 4957.807158
## iter 150 value 4951.087403
## iter 160 value 4943.092098
## iter 170 value 4938.422689
## iter 180 value 4934.061068
## iter 190 value 4931.058184
## iter 200 value 4927.683199
## iter 210 value 4925.845463
## iter 220 value 4924.182064
## iter 230 value 4921.924086
## iter 240 value 4918.239156
## iter 250 value 4914.408621
## iter 260 value 4909.803402
## iter 270 value 4903.227264
## iter 280 value 4899.688632
## iter 290 value 4897.940280
## iter 300 value 4896.964496
## iter 310 value 4896.108809
## iter 320 value 4894.842085
## iter 330 value 4892.769275
```

```
## iter 340 value 4890.201499
## iter 350 value 4888.775471
## iter 360 value 4887.910748
## iter 370 value 4887.285286
## iter 380 value 4886.855380
## iter 390 value 4886.579548
## iter 400 value 4886.386081
## iter 410 value 4886.220715
## iter 420 value 4886.105892
## iter 430 value 4886.000857
## iter 440 value 4885.921174
## iter 450 value 4885.840017
## iter 460 value 4885.775847
## iter 470 value 4885.711810
## iter 480 value 4885.652121
## iter 490 value 4885.569381
## iter 500 value 4885.457168
## final  value 4885.457168
## stopped after 500 iterations
## # weights:  42
## initial  value 18353.437435
## iter  10 value 11545.615971
## iter  20 value 11240.696037
## iter  30 value 11079.615170
## iter  40 value 11024.276268
## iter  50 value 10801.769352
## iter  60 value 10407.904675
## iter  70 value 9581.471205
## iter  80 value 8991.487537
## iter  90 value 8802.552289
## iter 100 value 8760.186018
## iter 110 value 8744.231767
## iter 120 value 8701.375978
## iter 130 value 8661.672234
## final  value 8661.080291
## converged
## # weights:  42
## initial  value 18070.569974
## iter  10 value 11712.352497
## iter  20 value 11534.285777
## iter  30 value 11302.655734
## iter  40 value 11003.103175
## iter  50 value 10670.855040
## iter  60 value 10289.602521
## iter  70 value 9916.390016
## iter  80 value 9433.820775
## iter  90 value 9294.291212
## iter 100 value 9265.791659
## iter 110 value 9258.722383
## iter 120 value 9248.997342
## iter 130 value 9244.148659
## final  value 9244.147887
## converged
## # weights:  42
## initial  value 18738.405672
## iter  10 value 12534.202547
## iter  20 value 11913.957368
## iter  30 value 11407.058593
## iter  40 value 11017.655643
## iter  50 value 10700.791090
## iter  60 value 10280.510833
## iter  70 value 9765.178513
## iter  80 value 9305.572313
## iter  90 value 9235.090487
## iter 100 value 9168.126412
## iter 110 value 9163.231504
## iter 120 value 9153.099756
## iter 130 value 9144.380757
## final  value 9144.378252
## converged
## # weights:  194
## initial  value 20801.174222
## iter  10 value 6220.429280
## iter  20 value 5577.902694
## iter  30 value 5493.925452
```

```
## iter  40 value 5415.722113
## iter  50 value 5338.181305
## iter  60 value 5301.975242
## iter  70 value 5273.823906
## iter  80 value 5257.203936
## iter  90 value 5245.227149
## iter 100 value 5230.358385
## iter 110 value 5221.110735
## iter 120 value 5213.822109
## iter 130 value 5208.593470
## iter 140 value 5204.101462
## iter 150 value 5199.705579
## iter 160 value 5197.504271
## iter 170 value 5196.190000
## iter 180 value 5193.859832
## iter 190 value 5189.586265
## iter 200 value 5186.833093
## iter 210 value 5184.845413
## iter 220 value 5181.155264
## iter 230 value 5178.202583
## iter 240 value 5176.350527
## iter 250 value 5171.175959
## iter 260 value 5164.833216
## iter 270 value 5160.113096
## iter 280 value 5156.078214
## iter 290 value 5153.227868
## iter 300 value 5149.992076
## iter 310 value 5148.318928
## iter 320 value 5147.414306
## iter 330 value 5146.921468
## iter 340 value 5146.768017
## iter 350 value 5146.661221
## iter 360 value 5146.574863
## iter 370 value 5146.510979
## iter 380 value 5146.447167
## iter 390 value 5146.401677
## iter 400 value 5146.387090
## iter 410 value 5146.351490
## iter 420 value 5146.331267
## iter 430 value 5146.311053
## iter 440 value 5146.296230
## iter 450 value 5146.290167
## iter 460 value 5146.287920
## final  value 5146.287573
## converged
## # weights:  194
## initial  value 20323.232175
## iter  10 value 6927.265218
## iter  20 value 6202.078608
## iter  30 value 5927.833729
## iter  40 value 5728.173364
## iter  50 value 5615.436255
## iter  60 value 5541.279285
## iter  70 value 5475.488206
## iter  80 value 5415.095855
## iter  90 value 5370.711603
## iter 100 value 5342.748627
## iter 110 value 5322.579292
## iter 120 value 5313.476620
## iter 130 value 5293.990923
## iter 140 value 5278.695783
## iter 150 value 5268.668695
## iter 160 value 5263.285593
## iter 170 value 5258.145710
## iter 180 value 5253.535073
## iter 190 value 5250.898997
## iter 200 value 5249.381389
## iter 210 value 5248.827682
## iter 220 value 5247.561353
## iter 230 value 5244.442432
## iter 240 value 5239.997016
## iter 250 value 5238.885337
## iter 260 value 5237.134355
## iter 270 value 5236.411546
## iter 280 value 5236.136415
```

```
## iter 290 value 5235.991308
## iter 300 value 5235.962875
## iter 310 value 5235.955182
## iter 320 value 5235.951135
## final  value 5235.950440
## converged
## # weights:  194
## initial  value 22887.561680
## iter  10 value 7732.076198
## iter  20 value 6943.749941
## iter  30 value 6434.446072
## iter  40 value 6177.208067
## iter  50 value 6063.809985
## iter  60 value 5974.912258
## iter  70 value 5852.386139
## iter  80 value 5703.003567
## iter  90 value 5584.990572
## iter 100 value 5484.252691
## iter 110 value 5441.015397
## iter 120 value 5412.434026
## iter 130 value 5387.278948
## iter 140 value 5371.395228
## iter 150 value 5353.755519
## iter 160 value 5342.725558
## iter 170 value 5331.036555
## iter 180 value 5321.736739
## iter 190 value 5317.063494
## iter 200 value 5314.579711
## iter 210 value 5312.563211
## iter 220 value 5310.411909
## iter 230 value 5306.833575
## iter 240 value 5304.429372
## iter 250 value 5302.393313
## iter 260 value 5299.693681
## iter 270 value 5296.452502
## iter 280 value 5294.603939
## iter 290 value 5293.991314
## iter 300 value 5293.694566
## iter 310 value 5293.550766
## iter 320 value 5293.530826
## iter 330 value 5293.527563
## final  value 5293.527188
## converged
## # weights:  384
## initial  value 21415.493241
## iter  10 value 6270.418765
## iter  20 value 5518.750985
## iter  30 value 5292.273770
## iter  40 value 5201.253365
## iter  50 value 5123.461931
## iter  60 value 5086.059644
## iter  70 value 5047.318795
## iter  80 value 5025.633426
## iter  90 value 5008.181163
## iter 100 value 5000.004652
## iter 110 value 4990.230525
## iter 120 value 4979.577200
## iter 130 value 4972.345979
## iter 140 value 4966.864564
## iter 150 value 4963.294200
## iter 160 value 4960.957838
## iter 170 value 4959.304526
## iter 180 value 4957.745847
## iter 190 value 4956.170106
## iter 200 value 4955.178996
## iter 210 value 4953.854322
## iter 220 value 4952.760357
## iter 230 value 4951.921306
## iter 240 value 4951.207651
## iter 250 value 4950.162807
## iter 260 value 4948.567794
## iter 270 value 4946.562923
## iter 280 value 4945.085123
## iter 290 value 4943.556162
## iter 300 value 4942.524827
```

```
## iter 310 value 4941.379686
## iter 320 value 4939.592850
## iter 330 value 4937.654406
## iter 340 value 4934.732196
## iter 350 value 4932.616118
## iter 360 value 4931.108560
## iter 370 value 4930.297717
## iter 380 value 4929.561778
## iter 390 value 4928.983817
## iter 400 value 4927.193512
## iter 410 value 4923.091548
## iter 420 value 4919.000526
## iter 430 value 4916.762744
## iter 440 value 4915.593193
## iter 450 value 4914.785828
## iter 460 value 4913.672824
## iter 470 value 4912.538320
## iter 480 value 4912.122967
## iter 490 value 4911.962500
## iter 500 value 4911.807029
## final  value 4911.807029
## stopped after 500 iterations
## # weights:  384
## initial  value 24264.018861
## iter  10 value 6306.629892
## iter  20 value 5647.257489
## iter  30 value 5452.429620
## iter  40 value 5335.424140
## iter  50 value 5270.100931
## iter  60 value 5229.108125
## iter  70 value 5185.034477
## iter  80 value 5154.519562
## iter  90 value 5122.671190
## iter 100 value 5099.221988
## iter 110 value 5083.129928
## iter 120 value 5066.643815
## iter 130 value 5057.719722
## iter 140 value 5052.022033
## iter 150 value 5048.585370
## iter 160 value 5046.947957
## iter 170 value 5045.747336
## iter 180 value 5044.912364
## iter 190 value 5044.262906
## iter 200 value 5043.510758
## iter 210 value 5042.151502
## iter 220 value 5040.789486
## iter 230 value 5039.891181
## iter 240 value 5039.115277
## iter 250 value 5038.602982
## iter 260 value 5038.233922
## iter 270 value 5037.976666
## iter 280 value 5037.788145
## iter 290 value 5037.582216
## iter 300 value 5037.403145
## iter 310 value 5037.245015
## iter 320 value 5037.064025
## iter 330 value 5036.849093
## iter 340 value 5036.709392
## iter 350 value 5036.630508
## iter 360 value 5036.594632
## iter 370 value 5036.576656
## iter 380 value 5036.548249
## iter 390 value 5036.519719
## iter 400 value 5036.493524
## iter 410 value 5036.442588
## iter 420 value 5036.414675
## iter 430 value 5036.399416
## iter 440 value 5036.385195
## iter 450 value 5036.375149
## iter 460 value 5036.364917
## iter 470 value 5036.356191
## iter 480 value 5036.348665
## iter 490 value 5036.341724
## final  value 5036.340424
## converged
```

```
## # weights:  384
## initial  value 27743.949860
## iter  10 value 6800.082610
## iter  20 value 5950.200477
## iter  30 value 5753.557891
## iter  40 value 5615.519211
## iter  50 value 5523.895236
## iter  60 value 5473.321688
## iter  70 value 5423.184377
## iter  80 value 5372.217447
## iter  90 value 5327.556269
## iter 100 value 5279.786419
## iter 110 value 5246.873007
## iter 120 value 5221.475305
## iter 130 value 5202.370619
## iter 140 value 5185.090902
## iter 150 value 5159.825681
## iter 160 value 5142.377537
## iter 170 value 5135.427996
## iter 180 value 5130.572281
## iter 190 value 5126.252699
## iter 200 value 5122.421444
## iter 210 value 5117.953827
## iter 220 value 5113.070633
## iter 230 value 5106.264112
## iter 240 value 5102.086531
## iter 250 value 5098.440426
## iter 260 value 5095.172611
## iter 270 value 5092.708507
## iter 280 value 5089.870953
## iter 290 value 5087.562506
## iter 300 value 5086.184670
## iter 310 value 5085.186312
## iter 320 value 5084.207813
## iter 330 value 5083.629353
## iter 340 value 5083.140741
## iter 350 value 5082.873334
## iter 360 value 5082.647647
## iter 370 value 5082.497384
## iter 380 value 5082.425721
## iter 390 value 5082.383945
## iter 400 value 5082.344756
## iter 410 value 5082.292805
## iter 420 value 5082.250720
## iter 430 value 5082.230016
## iter 440 value 5082.224665
## iter 450 value 5082.222522
## iter 460 value 5082.220073
## iter 470 value 5082.218978
## final  value 5082.218571
## converged
## # weights:  574
## initial  value 20716.332981
## iter  10 value 6686.154034
## iter  20 value 5379.024775
## iter  30 value 5174.898580
## iter  40 value 5037.329037
## iter  50 value 4974.572925
## iter  60 value 4939.108223
## iter  70 value 4906.969701
## iter  80 value 4883.955310
## iter  90 value 4863.703333
## iter 100 value 4848.046647
## iter 110 value 4837.522854
## iter 120 value 4823.132011
## iter 130 value 4811.080918
## iter 140 value 4800.026101
## iter 150 value 4794.217211
## iter 160 value 4791.124117
## iter 170 value 4787.727030
## iter 180 value 4784.478097
## iter 190 value 4780.116006
## iter 200 value 4776.268877
## iter 210 value 4768.657723
## iter 220 value 4758.713089
```

```
## iter 230 value 4753.670107
## iter 240 value 4746.927453
## iter 250 value 4739.756029
## iter 260 value 4735.178241
## iter 270 value 4732.828658
## iter 280 value 4731.387218
## iter 290 value 4730.130107
## iter 300 value 4729.189708
## iter 310 value 4728.356769
## iter 320 value 4726.447973
## iter 330 value 4723.371625
## iter 340 value 4721.461204
## iter 350 value 4719.971725
## iter 360 value 4718.119565
## iter 370 value 4716.814814
## iter 380 value 4716.018907
## iter 390 value 4715.393682
## iter 400 value 4714.882229
## iter 410 value 4714.528384
## iter 420 value 4714.207888
## iter 430 value 4714.004636
## iter 440 value 4713.717190
## iter 450 value 4713.252274
## iter 460 value 4712.911140
## iter 470 value 4712.639140
## iter 480 value 4712.308439
## iter 490 value 4712.032500
## iter 500 value 4711.770194
## final  value 4711.770194
## stopped after 500 iterations
## # weights:  574
## initial  value 21357.487410
## iter  10 value 7705.364826
## iter  20 value 5894.739929
## iter  30 value 5651.345363
## iter  40 value 5527.371962
## iter  50 value 5386.933226
## iter  60 value 5308.208010
## iter  70 value 5263.835562
## iter  80 value 5214.584034
## iter  90 value 5160.080748
## iter 100 value 5109.724863
## iter 110 value 5064.266501
## iter 120 value 5036.251773
## iter 130 value 5007.053161
## iter 140 value 4991.958904
## iter 150 value 4971.431742
## iter 160 value 4959.942211
## iter 170 value 4951.784293
## iter 180 value 4942.771319
## iter 190 value 4936.589818
## iter 200 value 4930.016755
## iter 210 value 4923.897137
## iter 220 value 4919.594899
## iter 230 value 4917.246721
## iter 240 value 4915.074618
## iter 250 value 4913.147584
## iter 260 value 4911.674062
## iter 270 value 4909.952336
## iter 280 value 4907.566266
## iter 290 value 4904.826697
## iter 300 value 4899.202695
## iter 310 value 4894.243637
## iter 320 value 4890.481561
## iter 330 value 4887.984629
## iter 340 value 4886.501130
## iter 350 value 4884.580464
## iter 360 value 4882.251137
## iter 370 value 4878.110736
## iter 380 value 4873.980863
## iter 390 value 4872.433224
## iter 400 value 4871.800857
## iter 410 value 4871.204203
## iter 420 value 4870.562890
## iter 430 value 4870.044623
```

```
## iter 440 value 4869.677085
## iter 450 value 4869.390675
## iter 460 value 4869.205529
## iter 470 value 4868.990606
## iter 480 value 4868.794545
## iter 490 value 4868.558566
## iter 500 value 4868.124201
## final  value 4868.124201
## stopped after 500 iterations
## # weights:  574
## initial  value 25452.659662
## iter  10 value 6094.402222
## iter  20 value 5350.127240
## iter  30 value 5196.819121
## iter  40 value 5137.784792
## iter  50 value 5063.711214
## iter  60 value 5025.693000
## iter  70 value 5000.493429
## iter  80 value 4982.917431
## iter  90 value 4968.097552
## iter 100 value 4957.194243
## iter 110 value 4949.961217
## iter 120 value 4944.247881
## iter 130 value 4938.782126
## iter 140 value 4934.970366
## iter 150 value 4930.080046
## iter 160 value 4927.834424
## iter 170 value 4926.006945
## iter 180 value 4924.362993
## iter 190 value 4923.027029
## iter 200 value 4922.162785
## iter 210 value 4921.561358
## iter 220 value 4921.004598
## iter 230 value 4920.493072
## iter 240 value 4920.179724
## iter 250 value 4919.760370
## iter 260 value 4919.280972
## iter 270 value 4918.931196
## iter 280 value 4918.659752
## iter 290 value 4918.309713
## iter 300 value 4917.943764
## iter 310 value 4917.733592
## iter 320 value 4917.560158
## iter 330 value 4917.410639
## iter 340 value 4917.257488
## iter 350 value 4917.071341
## iter 360 value 4916.930089
## iter 370 value 4916.831126
## iter 380 value 4916.755719
## iter 390 value 4916.698492
## iter 400 value 4916.646674
## iter 410 value 4916.598843
## iter 420 value 4916.567594
## iter 430 value 4916.547740
## iter 440 value 4916.512478
## iter 450 value 4916.457583
## iter 460 value 4916.362574
## iter 470 value 4916.222149
## iter 480 value 4916.117832
## iter 490 value 4916.048864
## iter 500 value 4916.018159
## final  value 4916.018159
## stopped after 500 iterations
## # weights:  42
## initial  value 18706.800005
## iter  10 value 13203.941007
## iter  20 value 11780.428540
## iter  30 value 11580.178762
## iter  40 value 11239.370679
## iter  50 value 10699.249829
## iter  60 value 9651.854203
## iter  70 value 9309.700185
## iter  80 value 9188.455412
## iter  90 value 9168.797317
## iter 100 value 9133.716358
```

```
## iter 110 value 9107.433254
## iter 120 value 9061.422920
## iter 130 value 9025.245507
## final  value 9024.312226
## converged
## # weights:  42
## initial  value 19817.763742
## iter  10 value 13390.745531
## iter  20 value 11783.449454
## iter  30 value 11468.790349
## iter  40 value 11094.394160
## iter  50 value 10630.988018
## iter  60 value 9871.459386
## iter  70 value 9379.123219
## iter  80 value 9268.659049
## iter  90 value 9257.986399
## iter 100 value 9254.862439
## iter 110 value 9254.702020
## iter 120 value 9254.669480
## iter 130 value 9254.614376
## iter 140 value 9254.591012
## final  value 9254.589982
## converged
## # weights:  42
## initial  value 17444.928077
## iter  10 value 12200.317910
## iter  20 value 11587.565249
## iter  30 value 11334.282399
## iter  40 value 11111.120902
## iter  50 value 10626.305683
## iter  60 value 10373.644642
## iter  70 value 10334.116493
## iter  80 value 10298.685939
## iter  90 value 10285.943385
## iter 100 value 10285.219639
## iter 110 value 10284.270556
## iter 120 value 10283.972181
## final  value 10283.313624
## converged
## # weights:  194
## initial  value 21208.200930
## iter  10 value 7069.445732
## iter  20 value 5918.898639
## iter  30 value 5762.392616
## iter  40 value 5659.467202
## iter  50 value 5564.637659
## iter  60 value 5478.573825
## iter  70 value 5408.196619
## iter  80 value 5344.309543
## iter  90 value 5291.435416
## iter 100 value 5264.306299
## iter 110 value 5250.721543
## iter 120 value 5237.155986
## iter 130 value 5225.630372
## iter 140 value 5209.721851
## iter 150 value 5196.838928
## iter 160 value 5187.050188
## iter 170 value 5179.567185
## iter 180 value 5172.579435
## iter 190 value 5163.863817
## iter 200 value 5158.250907
## iter 210 value 5153.495758
## iter 220 value 5148.563728
## iter 230 value 5143.411259
## iter 240 value 5137.953416
## iter 250 value 5134.332112
## iter 260 value 5132.151811
## iter 270 value 5130.786529
## iter 280 value 5129.388993
## iter 290 value 5128.777726
## iter 300 value 5128.016086
## iter 310 value 5126.624707
## iter 320 value 5125.561811
## iter 330 value 5124.999485
## iter 340 value 5124.036392
```

```
## iter 350 value 5122.854064
## iter 360 value 5122.474339
## iter 370 value 5122.348789
## iter 380 value 5122.231362
## iter 390 value 5122.080393
## iter 400 value 5122.059802
## iter 410 value 5122.025182
## iter 420 value 5121.997001
## iter 430 value 5121.984563
## iter 440 value 5121.973746
## iter 450 value 5121.967937
## iter 460 value 5121.966421
## final  value 5121.966293
## converged
## # weights:  194
## initial  value 17825.797056
## iter  10 value 6542.262968
## iter  20 value 5735.792872
## iter  30 value 5586.665430
## iter  40 value 5496.537263
## iter  50 value 5426.257257
## iter  60 value 5378.318682
## iter  70 value 5344.695341
## iter  80 value 5309.450253
## iter  90 value 5295.070935
## iter 100 value 5283.774530
## iter 110 value 5274.997684
## iter 120 value 5265.450024
## iter 130 value 5256.632920
## iter 140 value 5248.697254
## iter 150 value 5242.036769
## iter 160 value 5233.404020
## iter 170 value 5223.545807
## iter 180 value 5218.972202
## iter 190 value 5215.645928
## iter 200 value 5212.063759
## iter 210 value 5209.137972
## iter 220 value 5205.647096
## iter 230 value 5201.484370
## iter 240 value 5198.956559
## iter 250 value 5197.235203
## iter 260 value 5196.420923
## iter 270 value 5195.741953
## iter 280 value 5195.297136
## iter 290 value 5195.211971
## iter 300 value 5195.147729
## iter 310 value 5195.113960
## final  value 5195.090259
## converged
## # weights:  194
## initial  value 19522.802566
## iter  10 value 7313.832481
## iter  20 value 6114.144288
## iter  30 value 5881.033892
## iter  40 value 5820.203971
## iter  50 value 5758.046161
## iter  60 value 5687.735482
## iter  70 value 5596.742396
## iter  80 value 5495.149615
## iter  90 value 5451.988031
## iter 100 value 5416.944146
## iter 110 value 5391.169417
## iter 120 value 5366.904037
## iter 130 value 5348.174013
## iter 140 value 5333.788478
## iter 150 value 5321.428636
## iter 160 value 5313.354882
## iter 170 value 5306.045476
## iter 180 value 5297.605695
## iter 190 value 5289.679186
## iter 200 value 5281.430384
## iter 210 value 5275.560549
## iter 220 value 5268.095529
## iter 230 value 5260.231038
## iter 240 value 5257.475882
```

```
## iter 250 value 5255.392773
## iter 260 value 5253.714852
## iter 270 value 5252.857300
## iter 280 value 5251.860725
## iter 290 value 5251.382338
## iter 300 value 5250.720399
## iter 310 value 5250.592957
## iter 320 value 5250.557496
## iter 330 value 5250.536085
## iter 340 value 5250.532203
## final  value 5250.532103
## converged
## # weights:  384
## initial  value 27233.198508
## iter  10 value 6291.682665
## iter  20 value 5393.888162
## iter  30 value 5234.266977
## iter  40 value 5157.963258
## iter  50 value 5082.874155
## iter  60 value 5040.239732
## iter  70 value 5012.481010
## iter  80 value 4995.810226
## iter  90 value 4975.361327
## iter 100 value 4960.466893
## iter 110 value 4949.859545
## iter 120 value 4939.434449
## iter 130 value 4934.016413
## iter 140 value 4928.599102
## iter 150 value 4925.393213
## iter 160 value 4923.976783
## iter 170 value 4922.963459
## iter 180 value 4922.030378
## iter 190 value 4921.207162
## iter 200 value 4919.892799
## iter 210 value 4918.551519
## iter 220 value 4917.582884
## iter 230 value 4916.422501
## iter 240 value 4914.927361
## iter 250 value 4913.692526
## iter 260 value 4912.408944
## iter 270 value 4911.364323
## iter 280 value 4910.274971
## iter 290 value 4909.533590
## iter 300 value 4909.030128
## iter 310 value 4908.480957
## iter 320 value 4908.146827
## iter 330 value 4907.849551
## iter 340 value 4907.272854
## iter 350 value 4905.726007
## iter 360 value 4902.990416
## iter 370 value 4900.646406
## iter 380 value 4898.178009
## iter 390 value 4894.871522
## iter 400 value 4892.503997
## iter 410 value 4890.496400
## iter 420 value 4889.001604
## iter 430 value 4887.982891
## iter 440 value 4886.850546
## iter 450 value 4886.357809
## iter 460 value 4885.953798
## iter 470 value 4885.535744
## iter 480 value 4885.181879
## iter 490 value 4884.955296
## iter 500 value 4884.727383
## final  value 4884.727383
## stopped after 500 iterations
## # weights:  384
## initial  value 16835.559462
## iter  10 value 6415.549625
## iter  20 value 5413.747690
## iter  30 value 5242.613928
## iter  40 value 5172.395436
## iter  50 value 5146.961133
## iter  60 value 5121.824266
## iter  70 value 5106.896350
```

```
## iter  80 value 5092.330627
## iter  90 value 5079.981169
## iter 100 value 5065.370903
## iter 110 value 5050.185512
## iter 120 value 5040.000171
## iter 130 value 5032.808710
## iter 140 value 5025.527321
## iter 150 value 5019.319072
## iter 160 value 5015.436901
## iter 170 value 5013.598757
## iter 180 value 5012.633698
## iter 190 value 5011.739085
## iter 200 value 5010.624132
## iter 210 value 5009.201661
## iter 220 value 5007.411699
## iter 230 value 5005.823097
## iter 240 value 5004.321523
## iter 250 value 5002.212058
## iter 260 value 4999.878423
## iter 270 value 4998.485158
## iter 280 value 4997.326009
## iter 290 value 4996.248447
## iter 300 value 4995.326553
## iter 310 value 4994.220302
## iter 320 value 4993.426710
## iter 330 value 4992.720345
## iter 340 value 4991.957525
## iter 350 value 4991.357119
## iter 360 value 4990.912532
## iter 370 value 4990.500369
## iter 380 value 4990.153576
## iter 390 value 4989.911094
## iter 400 value 4989.709523
## iter 410 value 4989.431156
## iter 420 value 4989.314520
## iter 430 value 4989.258318
## iter 440 value 4989.177214
## iter 450 value 4989.100357
## iter 460 value 4989.069427
## iter 470 value 4989.033439
## iter 480 value 4989.022385
## iter 490 value 4989.013551
## iter 500 value 4989.006450
## final  value 4989.006450
## stopped after 500 iterations
## # weights:  384
## initial  value 19062.718780
## iter  10 value 6175.097268
## iter  20 value 5551.524603
## iter  30 value 5377.787610
## iter  40 value 5267.977877
## iter  50 value 5209.484924
## iter  60 value 5178.910911
## iter  70 value 5164.419827
## iter  80 value 5141.907397
## iter  90 value 5119.766058
## iter 100 value 5101.904104
## iter 110 value 5091.107348
## iter 120 value 5082.129378
## iter 130 value 5075.732726
## iter 140 value 5072.137585
## iter 150 value 5068.982202
## iter 160 value 5066.888743
## iter 170 value 5065.199201
## iter 180 value 5063.821438
## iter 190 value 5062.697224
## iter 200 value 5061.863249
## iter 210 value 5061.041366
## iter 220 value 5060.501500
## iter 230 value 5059.758427
## iter 240 value 5058.734652
## iter 250 value 5057.700154
## iter 260 value 5056.923128
## iter 270 value 5056.258164
## iter 280 value 5055.623963
```

```
## iter 290 value 5054.871629
## iter 300 value 5053.839905
## iter 310 value 5053.137986
## iter 320 value 5052.514263
## iter 330 value 5052.055425
## iter 340 value 5051.703696
## iter 350 value 5051.477346
## iter 360 value 5051.317330
## iter 370 value 5051.231674
## iter 380 value 5051.170438
## iter 390 value 5051.114846
## iter 400 value 5051.092711
## iter 410 value 5051.069767
## iter 420 value 5051.057194
## iter 430 value 5051.045759
## iter 440 value 5051.037740
## final  value 5051.036249
## converged
## # weights:  574
## initial  value 19549.713081
## iter  10 value 6757.933390
## iter  20 value 5269.508940
## iter  30 value 5098.218113
## iter  40 value 4995.529155
## iter  50 value 4928.315351
## iter  60 value 4883.178597
## iter  70 value 4856.428502
## iter  80 value 4834.035882
## iter  90 value 4808.766650
## iter 100 value 4791.894509
## iter 110 value 4766.582798
## iter 120 value 4752.373305
## iter 130 value 4742.733254
## iter 140 value 4737.251099
## iter 150 value 4730.876830
## iter 160 value 4725.310070
## iter 170 value 4720.743440
## iter 180 value 4714.178295
## iter 190 value 4708.147974
## iter 200 value 4704.299623
## iter 210 value 4701.537958
## iter 220 value 4699.151696
## iter 230 value 4695.641563
## iter 240 value 4692.560300
## iter 250 value 4690.443416
## iter 260 value 4688.256463
## iter 270 value 4686.011096
## iter 280 value 4682.901745
## iter 290 value 4676.881439
## iter 300 value 4670.209153
## iter 310 value 4664.549218
## iter 320 value 4660.283275
## iter 330 value 4657.302612
## iter 340 value 4654.747656
## iter 350 value 4652.380624
## iter 360 value 4650.656898
## iter 370 value 4649.088963
## iter 380 value 4648.059781
## iter 390 value 4647.271325
## iter 400 value 4646.471386
## iter 410 value 4645.794062
## iter 420 value 4645.256466
## iter 430 value 4644.742337
## iter 440 value 4644.274899
## iter 450 value 4643.974870
## iter 460 value 4642.905585
## iter 470 value 4641.509448
## iter 480 value 4640.070229
## iter 490 value 4639.198093
## iter 500 value 4638.556564
## final  value 4638.556564
## stopped after 500 iterations
## # weights:  574
## initial  value 30263.858711
## iter  10 value 6290.032981
```

```
## iter  20 value 5501.241261
## iter  30 value 5307.542512
## iter  40 value 5151.530296
## iter  50 value 5070.941465
## iter  60 value 5035.610185
## iter  70 value 5007.670081
## iter  80 value 4991.559747
## iter  90 value 4977.659601
## iter 100 value 4970.267645
## iter 110 value 4961.023638
## iter 120 value 4940.898049
## iter 130 value 4925.560019
## iter 140 value 4908.609732
## iter 150 value 4894.283717
## iter 160 value 4882.204343
## iter 170 value 4870.141675
## iter 180 value 4860.950259
## iter 190 value 4856.308776
## iter 200 value 4850.418357
## iter 210 value 4847.020387
## iter 220 value 4844.680602
## iter 230 value 4842.420699
## iter 240 value 4839.897214
## iter 250 value 4837.063119
## iter 260 value 4835.207933
## iter 270 value 4833.521738
## iter 280 value 4831.333818
## iter 290 value 4829.864383
## iter 300 value 4828.820513
## iter 310 value 4827.811211
## iter 320 value 4826.863089
## iter 330 value 4826.090427
## iter 340 value 4825.288994
## iter 350 value 4822.732724
## iter 360 value 4819.951073
## iter 370 value 4818.454720
## iter 380 value 4817.482891
## iter 390 value 4816.505750
## iter 400 value 4815.545683
## iter 410 value 4814.487367
## iter 420 value 4813.438610
## iter 430 value 4812.423803
## iter 440 value 4811.593856
## iter 450 value 4810.971419
## iter 460 value 4810.292022
## iter 470 value 4809.710269
## iter 480 value 4809.320920
## iter 490 value 4808.875559
## iter 500 value 4808.246921
## final  value 4808.246921
## stopped after 500 iterations
## # weights:  574
## initial  value 22972.064530
## iter  10 value 6093.091013
## iter  20 value 5345.142200
## iter  30 value 5224.702490
## iter  40 value 5147.534790
## iter  50 value 5060.747677
## iter  60 value 5017.426875
## iter  70 value 4986.445728
## iter  80 value 4962.789035
## iter  90 value 4945.216839
## iter 100 value 4930.978054
## iter 110 value 4919.807653
## iter 120 value 4912.922106
## iter 130 value 4904.952476
## iter 140 value 4897.679307
## iter 150 value 4893.371943
## iter 160 value 4888.195720
## iter 170 value 4884.211073
## iter 180 value 4881.946050
## iter 190 value 4878.809799
## iter 200 value 4876.197917
## iter 210 value 4874.698745
## iter 220 value 4872.572429
```

```
## iter 230 value 4870.151902
## iter 240 value 4868.389730
## iter 250 value 4867.114045
## iter 260 value 4865.921401
## iter 270 value 4864.611077
## iter 280 value 4863.210291
## iter 290 value 4861.166187
## iter 300 value 4859.554308
## iter 310 value 4858.417159
## iter 320 value 4857.723929
## iter 330 value 4857.240263
## iter 340 value 4856.892935
## iter 350 value 4856.412213
## iter 360 value 4855.863561
## iter 370 value 4855.394839
## iter 380 value 4854.999294
## iter 390 value 4854.678376
## iter 400 value 4854.408295
## iter 410 value 4854.142055
## iter 420 value 4853.851878
## iter 430 value 4853.584968
## iter 440 value 4853.411219
## iter 450 value 4853.193502
## iter 460 value 4852.981777
## iter 470 value 4852.697495
## iter 480 value 4852.493326
## iter 490 value 4852.321116
## iter 500 value 4852.154601
## final  value 4852.154601
## stopped after 500 iterations
## # weights:  42
## initial  value 17239.664108
## iter  10 value 11713.822889
## iter  20 value 11099.002970
## iter  30 value 10697.751458
## iter  40 value 10460.119147
## iter  50 value 10009.968784
## iter  60 value 9075.566676
## iter  70 value 8775.694049
## iter  80 value 8713.044797
## iter  90 value 8687.386896
## iter 100 value 8674.597409
## iter 110 value 8671.035500
## iter 120 value 8666.745195
## iter 130 value 8660.056090
## final  value 8660.052736
## converged
## # weights:  42
## initial  value 18184.584207
## iter  10 value 13647.591996
## iter  20 value 12570.983368
## iter  30 value 11986.934774
## iter  40 value 11389.284217
## iter  50 value 11130.387213
## iter  60 value 10789.352867
## iter  70 value 10404.830074
## iter  80 value 9655.237891
## iter  90 value 9255.079116
## iter 100 value 9162.298658
## iter 110 value 9089.196847
## iter 120 value 8971.131227
## iter 130 value 8941.800264
## final  value 8941.612863
## converged
## # weights:  42
## initial  value 19098.693032
## iter  10 value 13513.282771
## iter  20 value 11951.534517
## iter  30 value 11469.047379
## iter  40 value 11158.769183
## iter  50 value 10681.444384
## iter  60 value 9853.539747
## iter  70 value 9559.440753
## iter  80 value 9426.210173
## iter  90 value 9393.032293
```

```
## iter 100 value 9370.481263
## iter 110 value 9365.697195
## iter 120 value 9359.185192
## iter 130 value 9356.797301
## iter 130 value 9356.797278
## iter 130 value 9356.797278
## final  value 9356.797278
## converged
## # weights:  194
## initial  value 18945.694539
## iter  10 value 6267.638203
## iter  20 value 5688.323106
## iter  30 value 5599.020383
## iter  40 value 5502.587207
## iter  50 value 5391.165902
## iter  60 value 5342.996120
## iter  70 value 5302.787771
## iter  80 value 5264.881398
## iter  90 value 5231.123186
## iter 100 value 5204.393961
## iter 110 value 5183.033851
## iter 120 value 5170.947174
## iter 130 value 5162.222814
## iter 140 value 5159.636548
## iter 150 value 5156.976599
## iter 160 value 5155.296415
## iter 170 value 5154.072435
## iter 180 value 5153.394256
## iter 190 value 5153.025100
## iter 200 value 5152.757470
## iter 210 value 5152.535190
## iter 220 value 5152.155537
## iter 230 value 5151.901697
## iter 240 value 5151.676026
## iter 250 value 5151.617556
## iter 260 value 5151.612185
## iter 270 value 5151.610461
## final  value 5151.609738
## converged
## # weights:  194
## initial  value 19415.615377
## iter  10 value 6826.485974
## iter  20 value 5890.845633
## iter  30 value 5783.394177
## iter  40 value 5691.944099
## iter  50 value 5643.355812
## iter  60 value 5609.613535
## iter  70 value 5574.032529
## iter  80 value 5534.887272
## iter  90 value 5510.984029
## iter 100 value 5483.451265
## iter 110 value 5467.343857
## iter 120 value 5437.361833
## iter 130 value 5398.342593
## iter 140 value 5366.625517
## iter 150 value 5327.846929
## iter 160 value 5288.803731
## iter 170 value 5269.015982
## iter 180 value 5255.692135
## iter 190 value 5245.395708
## iter 200 value 5235.579327
## iter 210 value 5229.343702
## iter 220 value 5223.938608
## iter 230 value 5217.735499
## iter 240 value 5214.859626
## iter 250 value 5213.583495
## iter 260 value 5212.447751
## iter 270 value 5211.611451
## iter 280 value 5210.983595
## iter 290 value 5209.790666
## iter 300 value 5206.193544
## iter 310 value 5203.636687
## iter 320 value 5202.211113
## iter 330 value 5201.817081
## iter 340 value 5201.743447
```

```
## iter 350 value 5201.700192
## iter 360 value 5201.693944
## iter 370 value 5201.690622
## final  value 5201.690525
## converged
## # weights:  194
## initial  value 20965.115726
## iter  10 value 6604.132516
## iter  20 value 6001.005457
## iter  30 value 5910.208694
## iter  40 value 5816.441921
## iter  50 value 5716.442794
## iter  60 value 5653.999612
## iter  70 value 5590.701184
## iter  80 value 5547.246527
## iter  90 value 5519.986189
## iter 100 value 5498.564984
## iter 110 value 5475.609972
## iter 120 value 5452.323634
## iter 130 value 5437.136806
## iter 140 value 5422.223724
## iter 150 value 5410.266304
## iter 160 value 5400.593479
## iter 170 value 5389.117174
## iter 180 value 5379.284549
## iter 190 value 5362.030921
## iter 200 value 5349.527693
## iter 210 value 5340.385153
## iter 220 value 5325.738248
## iter 230 value 5309.638702
## iter 240 value 5287.771605
## iter 250 value 5277.461650
## iter 260 value 5265.820565
## iter 270 value 5258.049705
## iter 280 value 5255.702836
## iter 290 value 5254.320558
## iter 300 value 5252.699528
## iter 310 value 5251.739328
## iter 320 value 5248.710528
## iter 330 value 5241.802405
## iter 340 value 5238.272354
## iter 350 value 5236.014227
## iter 360 value 5234.766809
## iter 370 value 5234.316359
## iter 380 value 5233.674612
## iter 390 value 5233.200820
## iter 400 value 5233.172865
## iter 410 value 5233.137728
## iter 420 value 5233.118316
## iter 430 value 5233.102172
## iter 440 value 5233.089691
## iter 450 value 5233.087477
## final  value 5233.085721
## converged
## # weights:  384
## initial  value 18659.251407
## iter  10 value 6814.324368
## iter  20 value 5556.462319
## iter  30 value 5325.147522
## iter  40 value 5182.724368
## iter  50 value 5091.566344
## iter  60 value 5047.642831
## iter  70 value 5015.392707
## iter  80 value 4996.492880
## iter  90 value 4983.422424
## iter 100 value 4965.780036
## iter 110 value 4952.461471
## iter 120 value 4943.768117
## iter 130 value 4937.681415
## iter 140 value 4932.811979
## iter 150 value 4927.817499
## iter 160 value 4924.108416
## iter 170 value 4921.648465
## iter 180 value 4919.794317
## iter 190 value 4917.687646
```

```
## iter 200 value 4914.883933
## iter 210 value 4912.193061
## iter 220 value 4909.974493
## iter 230 value 4907.281964
## iter 240 value 4904.891967
## iter 250 value 4903.316413
## iter 260 value 4901.555924
## iter 270 value 4900.091992
## iter 280 value 4899.192487
## iter 290 value 4897.785870
## iter 300 value 4895.918721
## iter 310 value 4894.229408
## iter 320 value 4892.606895
## iter 330 value 4889.603596
## iter 340 value 4887.379928
## iter 350 value 4884.020374
## iter 360 value 4882.976045
## iter 370 value 4881.494937
## iter 380 value 4880.490631
## iter 390 value 4879.393568
## iter 400 value 4876.951754
## iter 410 value 4873.273032
## iter 420 value 4870.359953
## iter 430 value 4868.052452
## iter 440 value 4866.101485
## iter 450 value 4864.677284
## iter 460 value 4864.185107
## iter 470 value 4863.611882
## iter 480 value 4862.988725
## iter 490 value 4862.322334
## iter 500 value 4861.721721
## final  value 4861.721721
## stopped after 500 iterations
## # weights:  384
## initial  value 21669.339492
## iter  10 value 6934.417430
## iter  20 value 5789.161997
## iter  30 value 5576.646720
## iter  40 value 5442.940834
## iter  50 value 5367.145497
## iter  60 value 5310.736593
## iter  70 value 5255.665145
## iter  80 value 5201.699490
## iter  90 value 5166.202468
## iter 100 value 5135.842833
## iter 110 value 5104.938711
## iter 120 value 5081.613340
## iter 130 value 5061.315879
## iter 140 value 5048.148438
## iter 150 value 5036.734158
## iter 160 value 5024.444756
## iter 170 value 5012.811978
## iter 180 value 5005.885981
## iter 190 value 5002.400792
## iter 200 value 4999.226648
## iter 210 value 4995.531996
## iter 220 value 4991.378625
## iter 230 value 4987.929660
## iter 240 value 4985.143377
## iter 250 value 4983.050295
## iter 260 value 4981.471628
## iter 270 value 4980.365832
## iter 280 value 4979.507468
## iter 290 value 4978.603516
## iter 300 value 4977.446844
## iter 310 value 4976.233639
## iter 320 value 4974.540900
## iter 330 value 4972.618649
## iter 340 value 4971.248164
## iter 350 value 4970.176251
## iter 360 value 4969.456523
## iter 370 value 4968.771124
## iter 380 value 4968.143717
## iter 390 value 4967.895830
## iter 400 value 4967.769828
```

```
## iter 410 value 4967.664848
## iter 420 value 4967.527318
## iter 430 value 4967.392881
## iter 440 value 4967.301118
## iter 450 value 4967.207260
## iter 460 value 4967.165794
## iter 470 value 4967.143128
## iter 480 value 4967.135266
## iter 490 value 4967.130524
## iter 500 value 4967.128578
## final  value 4967.128578
## stopped after 500 iterations
## # weights:  384
## initial  value 20347.639292
## iter  10 value 6338.563673
## iter  20 value 5460.800713
## iter  30 value 5333.325016
## iter  40 value 5259.150151
## iter  50 value 5204.222349
## iter  60 value 5166.204113
## iter  70 value 5144.325555
## iter  80 value 5127.912451
## iter  90 value 5115.732552
## iter 100 value 5104.854143
## iter 110 value 5090.127380
## iter 120 value 5079.353676
## iter 130 value 5071.396066
## iter 140 value 5060.476009
## iter 150 value 5049.973222
## iter 160 value 5041.502302
## iter 170 value 5035.239527
## iter 180 value 5030.339978
## iter 190 value 5027.270617
## iter 200 value 5025.229449
## iter 210 value 5023.321549
## iter 220 value 5020.833807
## iter 230 value 5018.655963
## iter 240 value 5017.246215
## iter 250 value 5016.321402
## iter 260 value 5015.718932
## iter 270 value 5015.175052
## iter 280 value 5013.998035
## iter 290 value 5011.935663
## iter 300 value 5010.198235
## iter 310 value 5008.423483
## iter 320 value 5006.412594
## iter 330 value 5004.804201
## iter 340 value 5003.421632
## iter 350 value 5002.880271
## iter 360 value 5002.427212
## iter 370 value 5001.885201
## iter 380 value 5001.102827
## iter 390 value 5000.307089
## iter 400 value 4999.473099
## iter 410 value 4998.864556
## iter 420 value 4998.458062
## iter 430 value 4998.050996
## iter 440 value 4996.982161
## iter 450 value 4995.706950
## iter 460 value 4994.722448
## iter 470 value 4993.934587
## iter 480 value 4993.195031
## iter 490 value 4992.493002
## iter 500 value 4991.962931
## final  value 4991.962931
## stopped after 500 iterations
## # weights:  574
## initial  value 31471.493482
## iter  10 value 6226.816005
## iter  20 value 5240.717782
## iter  30 value 5040.271945
## iter  40 value 4933.439620
## iter  50 value 4860.053697
## iter  60 value 4815.678168
## iter  70 value 4785.540156
```

```
## iter  80 value 4763.002423
## iter  90 value 4748.023695
## iter 100 value 4737.015671
## iter 110 value 4726.466571
## iter 120 value 4718.084023
## iter 130 value 4713.041498
## iter 140 value 4707.960011
## iter 150 value 4703.939921
## iter 160 value 4699.054277
## iter 170 value 4693.814786
## iter 180 value 4688.552311
## iter 190 value 4685.115130
## iter 200 value 4682.363368
## iter 210 value 4680.273544
## iter 220 value 4678.295777
## iter 230 value 4676.426539
## iter 240 value 4674.946949
## iter 250 value 4673.851481
## iter 260 value 4672.730913
## iter 270 value 4671.263333
## iter 280 value 4669.510465
## iter 290 value 4668.051052
## iter 300 value 4667.174977
## iter 310 value 4666.551140
## iter 320 value 4665.769349
## iter 330 value 4665.100169
## iter 340 value 4664.170620
## iter 350 value 4663.192726
## iter 360 value 4662.412500
## iter 370 value 4661.200947
## iter 380 value 4660.360904
## iter 390 value 4659.918896
## iter 400 value 4659.168216
## iter 410 value 4657.116354
## iter 420 value 4653.634793
## iter 430 value 4649.180818
## iter 440 value 4646.694406
## iter 450 value 4644.431742
## iter 460 value 4642.951360
## iter 470 value 4641.730516
## iter 480 value 4641.069239
## iter 490 value 4640.518207
## iter 500 value 4640.056164
## final  value 4640.056164
## stopped after 500 iterations
## # weights:  574
## initial  value 25756.535870
## iter  10 value 6619.128643
## iter  20 value 5462.356175
## iter  30 value 5274.713251
## iter  40 value 5153.892183
## iter  50 value 5074.444796
## iter  60 value 5016.691109
## iter  70 value 4985.153116
## iter  80 value 4960.012522
## iter  90 value 4942.446281
## iter 100 value 4928.685371
## iter 110 value 4914.002100
## iter 120 value 4900.464232
## iter 130 value 4889.889152
## iter 140 value 4881.005912
## iter 150 value 4869.927583
## iter 160 value 4858.657486
## iter 170 value 4848.447367
## iter 180 value 4840.109782
## iter 190 value 4832.456015
## iter 200 value 4825.367428
## iter 210 value 4820.942157
## iter 220 value 4815.663700
## iter 230 value 4810.603127
## iter 240 value 4806.807571
## iter 250 value 4803.556559
## iter 260 value 4799.690404
## iter 270 value 4795.841247
## iter 280 value 4793.097694
```

```
## iter 290 value 4790.857959
## iter 300 value 4787.598048
## iter 310 value 4782.629555
## iter 320 value 4778.649834
## iter 330 value 4776.223529
## iter 340 value 4774.262385
## iter 350 value 4772.548817
## iter 360 value 4771.051081
## iter 370 value 4769.987071
## iter 380 value 4769.179483
## iter 390 value 4768.355175
## iter 400 value 4767.540523
## iter 410 value 4766.606022
## iter 420 value 4765.673286
## iter 430 value 4765.007455
## iter 440 value 4764.469969
## iter 450 value 4763.836926
## iter 460 value 4762.957078
## iter 470 value 4762.427878
## iter 480 value 4762.011272
## iter 490 value 4761.538085
## iter 500 value 4760.917375
## final  value 4760.917375
## stopped after 500 iterations
## # weights:  574
## initial  value 18563.257579
## iter  10 value 6287.486762
## iter  20 value 5515.952192
## iter  30 value 5348.877986
## iter  40 value 5215.450054
## iter  50 value 5117.416027
## iter  60 value 5069.808210
## iter  70 value 5035.884052
## iter  80 value 5009.250732
## iter  90 value 4985.544698
## iter 100 value 4962.670610
## iter 110 value 4948.795700
## iter 120 value 4938.310126
## iter 130 value 4930.620962
## iter 140 value 4925.901352
## iter 150 value 4922.426902
## iter 160 value 4919.116813
## iter 170 value 4913.096731
## iter 180 value 4908.346201
## iter 190 value 4902.594378
## iter 200 value 4896.918923
## iter 210 value 4889.681314
## iter 220 value 4884.349424
## iter 230 value 4879.545156
## iter 240 value 4874.626015
## iter 250 value 4870.852341
## iter 260 value 4866.890612
## iter 270 value 4863.497124
## iter 280 value 4860.513918
## iter 290 value 4858.662662
## iter 300 value 4857.219251
## iter 310 value 4855.917356
## iter 320 value 4854.964277
## iter 330 value 4854.210562
## iter 340 value 4853.656596
## iter 350 value 4853.132222
## iter 360 value 4852.632665
## iter 370 value 4852.200147
## iter 380 value 4851.795892
## iter 390 value 4851.471265
## iter 400 value 4851.239090
## iter 410 value 4851.010056
## iter 420 value 4850.810480
## iter 430 value 4850.670054
## iter 440 value 4850.566698
## iter 450 value 4850.468784
## iter 460 value 4850.389509
## iter 470 value 4850.296085
## iter 480 value 4850.206067
## iter 490 value 4850.119807
```

```
## iter 500 value 4850.053458
## final  value 4850.053458
## stopped after 500 iterations
## # weights:  42
## initial  value 18943.619099
## iter  10 value 11506.553047
## iter  20 value 10992.816591
## iter  30 value 10643.495335
## iter  40 value 10312.685561
## iter  50 value 9705.172593
## iter  60 value 9076.204005
## iter  70 value 8869.942200
## iter  80 value 8801.622426
## iter  90 value 8774.763111
## iter 100 value 8762.428707
## iter 110 value 8752.324598
## iter 120 value 8734.491935
## iter 130 value 8692.504930
## final  value 8692.362757
## converged
## # weights:  42
## initial  value 20057.993576
## iter  10 value 15072.646795
## iter  20 value 13442.068939
## iter  30 value 12067.858015
## iter  40 value 11841.726151
## iter  50 value 11742.483078
## iter  60 value 11502.553215
## iter  70 value 10845.151247
## iter  80 value 10464.520597
## iter  90 value 10261.994660
## iter 100 value 9872.520731
## iter 110 value 9833.717892
## iter 120 value 9546.854459
## iter 130 value 9292.435473
## iter 140 value 9248.726934
## final  value 9248.685557
## converged
## # weights:  42
## initial  value 18115.703425
## iter  10 value 12861.311776
## iter  20 value 12076.100809
## iter  30 value 11512.069823
## iter  40 value 10995.987389
## iter  50 value 10643.688147
## iter  60 value 9936.947128
## iter  70 value 9710.574178
## iter  80 value 9557.375410
## iter  90 value 9410.912918
## iter 100 value 9286.022606
## iter 110 value 9252.577042
## iter 120 value 9222.461508
## iter 130 value 9154.516220
## final  value 9154.438461
## converged
## # weights:  194
## initial  value 20028.011744
## iter  10 value 6657.581189
## iter  20 value 5689.900193
## iter  30 value 5473.090522
## iter  40 value 5390.315438
## iter  50 value 5338.933075
## iter  60 value 5314.649638
## iter  70 value 5303.759934
## iter  80 value 5296.360108
## iter  90 value 5289.246333
## iter 100 value 5282.064768
## iter 110 value 5273.711339
## iter 120 value 5263.844390
## iter 130 value 5253.870857
## iter 140 value 5245.734593
## iter 150 value 5237.939161
## iter 160 value 5232.005416
## iter 170 value 5224.896160
## iter 180 value 5214.887949
```

```
## iter 190 value 5204.392552
## iter 200 value 5194.218806
## iter 210 value 5186.841348
## iter 220 value 5182.743585
## iter 230 value 5179.472988
## iter 240 value 5174.637266
## iter 250 value 5171.010241
## iter 260 value 5169.711279
## iter 270 value 5167.970119
## iter 280 value 5167.003049
## iter 290 value 5165.733814
## iter 300 value 5163.710153
## iter 310 value 5161.531228
## iter 320 value 5158.739543
## iter 330 value 5156.174046
## iter 340 value 5153.628334
## iter 350 value 5151.255609
## iter 360 value 5150.007670
## iter 370 value 5149.393716
## iter 380 value 5148.881806
## iter 390 value 5148.291383
## iter 400 value 5148.201048
## iter 410 value 5148.072993
## iter 420 value 5147.955025
## iter 430 value 5147.866633
## iter 440 value 5147.754818
## iter 450 value 5147.651459
## iter 460 value 5147.606122
## iter 470 value 5147.571312
## iter 480 value 5147.554961
## iter 480 value 5147.554920
## iter 490 value 5147.547555
## iter 500 value 5147.545768
## final  value 5147.545768
## stopped after 500 iterations
## # weights:  194
## initial  value 17742.678492
## iter  10 value 7562.661981
## iter  20 value 6407.079800
## iter  30 value 6161.438394
## iter  40 value 6024.435720
## iter  50 value 5856.075029
## iter  60 value 5652.009834
## iter  70 value 5488.463992
## iter  80 value 5396.872788
## iter  90 value 5333.468716
## iter 100 value 5301.614195
## iter 110 value 5284.314935
## iter 120 value 5271.763847
## iter 130 value 5258.653282
## iter 140 value 5249.343614
## iter 150 value 5240.237157
## iter 160 value 5233.330092
## iter 170 value 5230.637975
## iter 180 value 5229.665581
## iter 190 value 5228.757039
## iter 200 value 5227.929017
## iter 210 value 5227.077370
## iter 220 value 5225.667233
## iter 230 value 5223.975468
## iter 240 value 5222.892751
## iter 250 value 5221.993572
## iter 260 value 5221.499187
## iter 270 value 5221.192404
## iter 280 value 5220.975725
## iter 290 value 5220.845116
## iter 300 value 5220.806018
## final  value 5220.805023
## converged
## # weights:  194
## initial  value 18259.024092
## iter  10 value 7337.289578
## iter  20 value 6209.227443
## iter  30 value 5973.163583
## iter  40 value 5818.865971
```

```
## iter  50 value 5710.630802
## iter  60 value 5637.791590
## iter  70 value 5592.819893
## iter  80 value 5513.113565
## iter  90 value 5463.297539
## iter 100 value 5432.709716
## iter 110 value 5413.392208
## iter 120 value 5400.278548
## iter 130 value 5385.506490
## iter 140 value 5368.322082
## iter 150 value 5352.604310
## iter 160 value 5339.331432
## iter 170 value 5330.751014
## iter 180 value 5325.066943
## iter 190 value 5320.209004
## iter 200 value 5314.281272
## iter 210 value 5308.138242
## iter 220 value 5301.769711
## iter 230 value 5298.801305
## iter 240 value 5296.132489
## iter 250 value 5293.530070
## iter 260 value 5292.234824
## iter 270 value 5291.362068
## iter 280 value 5286.633139
## iter 290 value 5283.792146
## iter 300 value 5282.891785
## iter 310 value 5282.661728
## iter 320 value 5282.614557
## iter 330 value 5282.581323
## iter 340 value 5282.561630
## iter 350 value 5282.546679
## iter 360 value 5282.538137
## final  value 5282.537381
## converged
## # weights:  384
## initial  value 25602.916212
## iter  10 value 6285.054150
## iter  20 value 5420.255807
## iter  30 value 5268.296866
## iter  40 value 5147.323699
## iter  50 value 5088.087767
## iter  60 value 5064.500819
## iter  70 value 5049.435782
## iter  80 value 5028.476560
## iter  90 value 5015.301554
## iter 100 value 4999.486866
## iter 110 value 4982.038999
## iter 120 value 4970.661039
## iter 130 value 4963.849050
## iter 140 value 4961.084345
## iter 150 value 4958.624353
## iter 160 value 4955.534156
## iter 170 value 4952.178020
## iter 180 value 4947.260840
## iter 190 value 4940.816593
## iter 200 value 4933.243805
## iter 210 value 4922.019703
## iter 220 value 4911.139679
## iter 230 value 4902.796610
## iter 240 value 4896.863885
## iter 250 value 4893.333386
## iter 260 value 4891.417486
## iter 270 value 4890.362073
## iter 280 value 4889.704846
## iter 290 value 4888.841046
## iter 300 value 4888.162945
## iter 310 value 4887.335061
## iter 320 value 4886.258414
## iter 330 value 4880.570816
## iter 340 value 4878.504789
## iter 350 value 4877.120257
## iter 360 value 4875.795087
## iter 370 value 4874.719942
## iter 380 value 4874.139859
## iter 390 value 4873.819815
```

```
## iter 400 value 4873.532089
## iter 410 value 4873.299519
## iter 420 value 4873.029178
## iter 430 value 4872.265535
## iter 440 value 4870.253546
## iter 450 value 4868.966609
## iter 460 value 4868.197591
## iter 470 value 4867.853032
## iter 480 value 4867.460883
## iter 490 value 4867.190319
## iter 500 value 4867.044751
## final  value 4867.044751
## stopped after 500 iterations
## # weights:  384
## initial  value 19595.385281
## iter  10 value 6488.619996
## iter  20 value 5755.601266
## iter  30 value 5597.789430
## iter  40 value 5519.838038
## iter  50 value 5462.826928
## iter  60 value 5424.564086
## iter  70 value 5381.022394
## iter  80 value 5344.383190
## iter  90 value 5305.935297
## iter 100 value 5277.828490
## iter 110 value 5256.556136
## iter 120 value 5228.336785
## iter 130 value 5212.261641
## iter 140 value 5198.027575
## iter 150 value 5183.847082
## iter 160 value 5170.586026
## iter 170 value 5155.022084
## iter 180 value 5142.810697
## iter 190 value 5130.211831
## iter 200 value 5123.218474
## iter 210 value 5114.411424
## iter 220 value 5105.931164
## iter 230 value 5099.757023
## iter 240 value 5095.491157
## iter 250 value 5092.080791
## iter 260 value 5088.792645
## iter 270 value 5085.223076
## iter 280 value 5082.400574
## iter 290 value 5080.633798
## iter 300 value 5078.110822
## iter 310 value 5076.574168
## iter 320 value 5075.008793
## iter 330 value 5072.963693
## iter 340 value 5069.887249
## iter 350 value 5067.731788
## iter 360 value 5065.609760
## iter 370 value 5063.993724
## iter 380 value 5062.414734
## iter 390 value 5060.683218
## iter 400 value 5059.062297
## iter 410 value 5058.234823
## iter 420 value 5057.642831
## iter 430 value 5057.203797
## iter 440 value 5056.656860
## iter 450 value 5056.397502
## iter 460 value 5055.043739
## iter 470 value 5051.253299
## iter 480 value 5049.016942
## iter 490 value 5047.062254
## iter 500 value 5043.330568
## final  value 5043.330568
## stopped after 500 iterations
## # weights:  384
## initial  value 18435.193822
## iter  10 value 6322.965824
## iter  20 value 5527.708366
## iter  30 value 5398.716029
## iter  40 value 5316.137691
## iter  50 value 5264.265774
## iter  60 value 5232.599668
```

```
## iter  70 value 5196.747827
## iter  80 value 5165.552765
## iter  90 value 5142.763922
## iter 100 value 5129.273174
## iter 110 value 5117.969580
## iter 120 value 5107.208397
## iter 130 value 5099.570865
## iter 140 value 5088.301758
## iter 150 value 5082.731208
## iter 160 value 5078.216495
## iter 170 value 5074.876787
## iter 180 value 5071.625771
## iter 190 value 5068.146028
## iter 200 value 5063.821956
## iter 210 value 5061.060474
## iter 220 value 5059.338726
## iter 230 value 5057.956419
## iter 240 value 5056.438565
## iter 250 value 5055.627337
## iter 260 value 5055.144649
## iter 270 value 5054.837407
## iter 280 value 5054.575651
## iter 290 value 5054.323064
## iter 300 value 5054.129981
## iter 310 value 5053.894010
## iter 320 value 5053.662078
## iter 330 value 5053.386057
## iter 340 value 5053.128610
## iter 350 value 5052.912861
## iter 360 value 5052.687183
## iter 370 value 5052.588407
## iter 380 value 5052.442679
## iter 390 value 5052.249602
## iter 400 value 5051.980337
## iter 410 value 5051.724586
## iter 420 value 5051.548574
## iter 430 value 5051.445838
## iter 440 value 5051.376513
## iter 450 value 5051.353865
## iter 460 value 5051.321331
## iter 470 value 5051.295254
## iter 480 value 5051.278096
## iter 490 value 5051.275075
## final  value 5051.274323
## converged
## # weights:  574
## initial  value 17303.751769
## iter  10 value 5975.583213
## iter  20 value 5319.334357
## iter  30 value 5163.462005
## iter  40 value 5048.328348
## iter  50 value 4918.919375
## iter  60 value 4851.667410
## iter  70 value 4813.123773
## iter  80 value 4788.320900
## iter  90 value 4773.843408
## iter 100 value 4758.417491
## iter 110 value 4747.853503
## iter 120 value 4741.481521
## iter 130 value 4734.076462
## iter 140 value 4725.559913
## iter 150 value 4716.899759
## iter 160 value 4710.451932
## iter 170 value 4706.783103
## iter 180 value 4703.629917
## iter 190 value 4701.993773
## iter 200 value 4700.379967
## iter 210 value 4698.516495
## iter 220 value 4697.348440
## iter 230 value 4696.438156
## iter 240 value 4695.621293
## iter 250 value 4694.931142
## iter 260 value 4694.159647
## iter 270 value 4693.026423
## iter 280 value 4691.860829
```

```
## iter 290 value 4691.222420
## iter 300 value 4690.742249
## iter 310 value 4690.232027
## iter 320 value 4689.794491
## iter 330 value 4689.439275
## iter 340 value 4688.873486
## iter 350 value 4688.623826
## iter 360 value 4688.306561
## iter 370 value 4687.990039
## iter 380 value 4687.625827
## iter 390 value 4687.326704
## iter 400 value 4686.811228
## iter 410 value 4686.092386
## iter 420 value 4685.453868
## iter 430 value 4684.831435
## iter 440 value 4683.677741
## iter 450 value 4682.797673
## iter 460 value 4680.627786
## iter 470 value 4679.558961
## iter 480 value 4678.666348
## iter 490 value 4677.805340
## iter 500 value 4677.051804
## final  value 4677.051804
## stopped after 500 iterations
## # weights:  574
## initial  value 22099.817392
## iter  10 value 6030.857413
## iter  20 value 5441.770170
## iter  30 value 5250.681039
## iter  40 value 5148.872512
## iter  50 value 5090.364145
## iter  60 value 5044.380720
## iter  70 value 5005.140323
## iter  80 value 4972.262929
## iter  90 value 4945.315749
## iter 100 value 4920.314822
## iter 110 value 4897.919924
## iter 120 value 4884.279672
## iter 130 value 4875.023055
## iter 140 value 4867.872892
## iter 150 value 4863.927209
## iter 160 value 4861.862898
## iter 170 value 4859.097498
## iter 180 value 4855.702790
## iter 190 value 4849.411143
## iter 200 value 4840.976257
## iter 210 value 4835.638301
## iter 220 value 4832.426826
## iter 230 value 4830.050972
## iter 240 value 4827.730313
## iter 250 value 4826.202359
## iter 260 value 4824.974112
## iter 270 value 4823.643839
## iter 280 value 4822.301568
## iter 290 value 4820.635440
## iter 300 value 4818.822936
## iter 310 value 4817.130071
## iter 320 value 4815.253987
## iter 330 value 4813.143230
## iter 340 value 4810.862512
## iter 350 value 4808.606346
## iter 360 value 4806.288705
## iter 370 value 4803.807469
## iter 380 value 4800.820746
## iter 390 value 4798.177869
## iter 400 value 4796.826559
## iter 410 value 4796.029749
## iter 420 value 4795.344824
## iter 430 value 4794.895049
## iter 440 value 4794.590491
## iter 450 value 4794.042689
## iter 460 value 4791.974593
## iter 470 value 4788.051853
## iter 480 value 4785.537836
## iter 490 value 4783.917086
```

```
## iter 500 value 4782.791258
## final  value 4782.791258
## stopped after 500 iterations
## # weights:  574
## initial  value 25244.386672
## iter  10 value 6506.868887
## iter  20 value 5508.561441
## iter  30 value 5297.602473
## iter  40 value 5206.657419
## iter  50 value 5145.311051
## iter  60 value 5110.575968
## iter  70 value 5082.014547
## iter  80 value 5049.485811
## iter  90 value 5021.879362
## iter 100 value 4996.502201
## iter 110 value 4977.748788
## iter 120 value 4964.026741
## iter 130 value 4952.622066
## iter 140 value 4942.695078
## iter 150 value 4935.284858
## iter 160 value 4931.229080
## iter 170 value 4927.788957
## iter 180 value 4924.688580
## iter 190 value 4922.181333
## iter 200 value 4919.512167
## iter 210 value 4913.868616
## iter 220 value 4910.417937
## iter 230 value 4908.038929
## iter 240 value 4905.813374
## iter 250 value 4902.872092
## iter 260 value 4900.815562
## iter 270 value 4899.142600
## iter 280 value 4898.023846
## iter 290 value 4897.128112
## iter 300 value 4896.085223
## iter 310 value 4894.373930
## iter 320 value 4891.025832
## iter 330 value 4886.400892
## iter 340 value 4882.830472
## iter 350 value 4880.424927
## iter 360 value 4878.691183
## iter 370 value 4877.350200
## iter 380 value 4876.086835
## iter 390 value 4875.023824
## iter 400 value 4873.974977
## iter 410 value 4872.735575
## iter 420 value 4871.133294
## iter 430 value 4868.802996
## iter 440 value 4866.842722
## iter 450 value 4865.356577
## iter 460 value 4863.915414
## iter 470 value 4862.945802
## iter 480 value 4862.242417
## iter 490 value 4861.367596
## iter 500 value 4860.547616
## final  value 4860.547616
## stopped after 500 iterations
## # weights:  42
## initial  value 18367.754931
## iter  10 value 12355.419358
## iter  20 value 11953.103605
## iter  30 value 11765.169922
## iter  40 value 11650.032873
## iter  50 value 11501.768803
## iter  60 value 10709.138645
## iter  70 value 9999.830537
## iter  80 value 9364.933388
## iter  90 value 9196.622086
## iter 100 value 9113.113735
## iter 110 value 9074.334992
## iter 120 value 9052.145864
## iter 130 value 9028.251160
## final  value 9027.220260
## converged
## # weights:  42
```

```
## initial  value 18916.614761
## iter  10 value 15252.274186
## iter  20 value 13219.710839
## iter  30 value 12355.771730
## iter  40 value 11969.765029
## iter  50 value 11799.692287
## iter  60 value 11226.335789
## iter  70 value 10526.016740
## iter  80 value 10101.387463
## iter  90 value 9781.804224
## iter 100 value 9581.979676
## iter 110 value 9462.320742
## iter 120 value 9309.470159
## iter 130 value 9259.896469
## final  value 9256.442584
## converged
## # weights:  42
## initial  value 17721.429138
## iter  10 value 13509.731410
## iter  20 value 12523.679719
## iter  30 value 12351.987275
## iter  40 value 12232.472320
## iter  50 value 12093.790582
## iter  60 value 11196.679468
## iter  70 value 10467.033024
## iter  80 value 9727.313872
## iter  90 value 9345.829719
## iter 100 value 9218.129744
## iter 110 value 9182.666649
## iter 120 value 9152.871874
## iter 130 value 9118.425083
## final  value 9118.380828
## converged
## # weights:  194
## initial  value 20915.043781
## iter  10 value 6629.749063
## iter  20 value 5934.082834
## iter  30 value 5707.100745
## iter  40 value 5588.311722
## iter  50 value 5527.013200
## iter  60 value 5503.682572
## iter  70 value 5476.845337
## iter  80 value 5452.066333
## iter  90 value 5413.953695
## iter 100 value 5384.712472
## iter 110 value 5342.867279
## iter 120 value 5299.480511
## iter 130 value 5259.852878
## iter 140 value 5239.711455
## iter 150 value 5226.309505
## iter 160 value 5214.715124
## iter 170 value 5199.050777
## iter 180 value 5185.529684
## iter 190 value 5177.236939
## iter 200 value 5172.200095
## iter 210 value 5168.063705
## iter 220 value 5165.650726
## iter 230 value 5163.275203
## iter 240 value 5159.590745
## iter 250 value 5158.322002
## iter 260 value 5157.249008
## iter 270 value 5156.599676
## iter 280 value 5156.008615
## iter 290 value 5155.591163
## iter 300 value 5155.293426
## iter 310 value 5154.874279
## iter 320 value 5154.603307
## iter 330 value 5154.204705
## iter 340 value 5153.626006
## iter 350 value 5153.345607
## iter 360 value 5153.095655
## iter 370 value 5152.790507
## iter 380 value 5152.677045
## iter 390 value 5152.599400
## iter 400 value 5152.574802
```

```
## iter 400 value 5152.574772
## iter 410 value 5152.561882
## iter 420 value 5152.496733
## iter 430 value 5152.461671
## iter 440 value 5152.441679
## iter 450 value 5152.418249
## iter 460 value 5152.388508
## iter 470 value 5152.350498
## iter 480 value 5152.311022
## iter 490 value 5152.268099
## iter 500 value 5152.235547
## final  value 5152.235547
## stopped after 500 iterations
## # weights:  194
## initial  value 20202.239706
## iter  10 value 6476.510670
## iter  20 value 5752.808933
## iter  30 value 5675.785018
## iter  40 value 5588.423258
## iter  50 value 5495.646824
## iter  60 value 5451.191669
## iter  70 value 5428.217673
## iter  80 value 5407.643717
## iter  90 value 5385.044187
## iter 100 value 5364.605297
## iter 110 value 5344.855118
## iter 120 value 5331.323789
## iter 130 value 5320.306863
## iter 140 value 5310.772502
## iter 150 value 5301.068402
## iter 160 value 5293.958814
## iter 170 value 5289.296387
## iter 180 value 5283.961496
## iter 190 value 5279.264972
## iter 200 value 5276.023571
## iter 210 value 5272.121764
## iter 220 value 5267.643687
## iter 230 value 5264.096949
## iter 240 value 5254.754740
## iter 250 value 5229.462579
## iter 260 value 5222.816568
## iter 270 value 5219.037808
## iter 280 value 5216.988661
## iter 290 value 5215.843031
## iter 300 value 5215.454817
## iter 310 value 5215.177077
## iter 320 value 5215.064640
## iter 330 value 5214.938221
## iter 340 value 5214.882553
## iter 350 value 5214.874223
## final  value 5214.873803
## converged
## # weights:  194
## initial  value 17979.396504
## iter  10 value 6805.515415
## iter  20 value 5882.602743
## iter  30 value 5621.338838
## iter  40 value 5516.097238
## iter  50 value 5465.328395
## iter  60 value 5431.288832
## iter  70 value 5394.518414
## iter  80 value 5377.058479
## iter  90 value 5361.290099
## iter 100 value 5344.138473
## iter 110 value 5332.940449
## iter 120 value 5321.891100
## iter 130 value 5314.697269
## iter 140 value 5309.127620
## iter 150 value 5303.831441
## iter 160 value 5298.465512
## iter 170 value 5294.300828
## iter 180 value 5291.391473
## iter 190 value 5287.941946
## iter 200 value 5284.797588
## iter 210 value 5282.759521
```

```
## iter 220 value 5279.836707
## iter 230 value 5278.541505
## iter 240 value 5278.318721
## iter 250 value 5278.314277
## iter 260 value 5278.308126
## final  value 5278.302928
## converged
## # weights:  384
## initial  value 17639.469412
## iter  10 value 6537.091926
## iter  20 value 5435.472695
## iter  30 value 5256.719221
## iter  40 value 5122.938915
## iter  50 value 5053.245891
## iter  60 value 5023.055026
## iter  70 value 5010.111425
## iter  80 value 4988.730692
## iter  90 value 4971.657430
## iter 100 value 4958.726314
## iter 110 value 4951.345389
## iter 120 value 4944.774256
## iter 130 value 4940.587591
## iter 140 value 4938.186407
## iter 150 value 4934.699536
## iter 160 value 4927.979714
## iter 170 value 4923.437746
## iter 180 value 4921.246492
## iter 190 value 4919.436736
## iter 200 value 4917.938901
## iter 210 value 4916.642832
## iter 220 value 4915.234213
## iter 230 value 4913.893617
## iter 240 value 4912.910876
## iter 250 value 4911.618110
## iter 260 value 4910.662089
## iter 270 value 4910.050211
## iter 280 value 4909.567020
## iter 290 value 4908.885652
## iter 300 value 4908.490737
## iter 310 value 4908.194933
## iter 320 value 4907.278613
## iter 330 value 4905.578595
## iter 340 value 4902.633275
## iter 350 value 4900.388170
## iter 360 value 4898.273919
## iter 370 value 4896.712260
## iter 380 value 4895.637428
## iter 390 value 4894.668780
## iter 400 value 4894.107137
## iter 410 value 4893.174072
## iter 420 value 4892.226689
## iter 430 value 4891.303811
## iter 440 value 4890.444735
## iter 450 value 4889.148989
## iter 460 value 4887.467559
## iter 470 value 4886.854074
## iter 480 value 4886.327121
## iter 490 value 4885.634287
## iter 500 value 4884.410003
## final  value 4884.410003
## stopped after 500 iterations
## # weights:  384
## initial  value 21463.969628
## iter  10 value 7454.371726
## iter  20 value 5930.257481
## iter  30 value 5671.307232
## iter  40 value 5561.593564
## iter  50 value 5469.792468
## iter  60 value 5395.903142
## iter  70 value 5325.272318
## iter  80 value 5255.028423
## iter  90 value 5197.024403
## iter 100 value 5141.550899
## iter 110 value 5110.629885
## iter 120 value 5084.324286
```

```
## iter 130 value 5067.407669
## iter 140 value 5056.340910
## iter 150 value 5045.660212
## iter 160 value 5036.985568
## iter 170 value 5027.258544
## iter 180 value 5018.083354
## iter 190 value 5011.845510
## iter 200 value 5007.229953
## iter 210 value 5004.387855
## iter 220 value 5001.588696
## iter 230 value 4999.749540
## iter 240 value 4998.815436
## iter 250 value 4998.192243
## iter 260 value 4997.530664
## iter 270 value 4996.527868
## iter 280 value 4995.582247
## iter 290 value 4994.909680
## iter 300 value 4994.375776
## iter 310 value 4993.879408
## iter 320 value 4993.579477
## iter 330 value 4993.397353
## iter 340 value 4993.254492
## iter 350 value 4993.062724
## iter 360 value 4992.782463
## iter 370 value 4992.530915
## iter 380 value 4992.303692
## iter 390 value 4992.133937
## iter 400 value 4992.035108
## iter 410 value 4991.970581
## iter 420 value 4991.889005
## iter 430 value 4991.780426
## iter 440 value 4991.565722
## iter 450 value 4991.145428
## iter 460 value 4990.796418
## iter 470 value 4990.335202
## iter 480 value 4989.846775
## iter 490 value 4989.097964
## iter 500 value 4987.331447
## final  value 4987.331447
## stopped after 500 iterations
## # weights:  384
## initial  value 21809.679025
## iter  10 value 7001.470589
## iter  20 value 5865.140121
## iter  30 value 5666.432989
## iter  40 value 5513.540281
## iter  50 value 5413.341631
## iter  60 value 5356.864125
## iter  70 value 5317.866793
## iter  80 value 5263.552715
## iter  90 value 5227.751962
## iter 100 value 5201.082165
## iter 110 value 5174.058856
## iter 120 value 5156.292685
## iter 130 value 5141.286714
## iter 140 value 5130.409524
## iter 150 value 5118.278211
## iter 160 value 5106.748577
## iter 170 value 5098.653163
## iter 180 value 5091.798814
## iter 190 value 5086.616385
## iter 200 value 5080.693333
## iter 210 value 5075.666592
## iter 220 value 5070.720636
## iter 230 value 5068.082024
## iter 240 value 5065.941700
## iter 250 value 5063.431473
## iter 260 value 5059.273897
## iter 270 value 5054.851443
## iter 280 value 5052.204069
## iter 290 value 5050.698507
## iter 300 value 5049.638244
## iter 310 value 5048.703375
## iter 320 value 5048.169774
## iter 330 value 5047.900630
```

```
## iter 340 value 5047.650982
## iter 350 value 5047.372530
## iter 360 value 5047.015948
## iter 370 value 5046.735009
## iter 380 value 5046.453269
## iter 390 value 5046.274033
## iter 400 value 5046.165310
## iter 410 value 5046.016571
## iter 420 value 5045.901363
## iter 430 value 5045.849721
## iter 440 value 5045.816903
## iter 450 value 5045.785369
## iter 460 value 5045.741204
## iter 470 value 5045.717652
## iter 480 value 5045.712567
## iter 490 value 5045.710024
## final  value 5045.709460
## converged
## # weights:  574
## initial  value 19850.906234
## iter  10 value 5994.671040
## iter  20 value 5304.813420
## iter  30 value 5154.558394
## iter  40 value 5024.392797
## iter  50 value 4941.503933
## iter  60 value 4894.311093
## iter  70 value 4865.010027
## iter  80 value 4844.870908
## iter  90 value 4830.675613
## iter 100 value 4816.633751
## iter 110 value 4798.114364
## iter 120 value 4780.620370
## iter 130 value 4768.433967
## iter 140 value 4758.294101
## iter 150 value 4751.378624
## iter 160 value 4743.041691
## iter 170 value 4736.760835
## iter 180 value 4730.635233
## iter 190 value 4725.100484
## iter 200 value 4719.497864
## iter 210 value 4715.076833
## iter 220 value 4712.460803
## iter 230 value 4710.557537
## iter 240 value 4709.361559
## iter 250 value 4708.349311
## iter 260 value 4707.627199
## iter 270 value 4707.054949
## iter 280 value 4706.666123
## iter 290 value 4706.303016
## iter 300 value 4705.981898
## iter 310 value 4705.565914
## iter 320 value 4705.131646
## iter 330 value 4704.771289
## iter 340 value 4704.415713
## iter 350 value 4704.093720
## iter 360 value 4703.748260
## iter 370 value 4703.469232
## iter 380 value 4703.170410
## iter 390 value 4702.990313
## iter 400 value 4702.693563
## iter 410 value 4702.473784
## iter 420 value 4701.993307
## iter 430 value 4699.726332
## iter 440 value 4698.337106
## iter 450 value 4697.798089
## iter 460 value 4697.203595
## iter 470 value 4695.913482
## iter 480 value 4694.788447
## iter 490 value 4692.917498
## iter 500 value 4690.648293
## final  value 4690.648293
## stopped after 500 iterations
## # weights:  574
## initial  value 35143.480677
## iter  10 value 6689.487439
```

```
## iter  20 value 5441.160019
## iter  30 value 5267.429870
## iter  40 value 5184.809140
## iter  50 value 5084.982744
## iter  60 value 5018.685275
## iter  70 value 4982.650095
## iter  80 value 4959.279104
## iter  90 value 4940.114131
## iter 100 value 4924.895717
## iter 110 value 4910.821996
## iter 120 value 4897.581882
## iter 130 value 4892.261930
## iter 140 value 4883.916382
## iter 150 value 4875.746933
## iter 160 value 4870.588716
## iter 170 value 4862.618501
## iter 180 value 4856.519325
## iter 190 value 4850.939071
## iter 200 value 4846.918145
## iter 210 value 4844.470104
## iter 220 value 4842.483436
## iter 230 value 4840.772699
## iter 240 value 4839.018607
## iter 250 value 4836.991659
## iter 260 value 4834.681880
## iter 270 value 4832.030592
## iter 280 value 4829.651141
## iter 290 value 4827.218226
## iter 300 value 4824.792030
## iter 310 value 4822.325334
## iter 320 value 4820.461869
## iter 330 value 4818.677140
## iter 340 value 4816.748806
## iter 350 value 4815.401062
## iter 360 value 4814.445663
## iter 370 value 4813.810800
## iter 380 value 4813.271527
## iter 390 value 4812.791408
## iter 400 value 4812.314363
## iter 410 value 4811.967005
## iter 420 value 4811.748996
## iter 430 value 4811.564883
## iter 440 value 4811.385555
## iter 450 value 4811.072727
## iter 460 value 4810.376420
## iter 470 value 4810.017705
## iter 480 value 4809.766101
## iter 490 value 4809.398723
## iter 500 value 4809.177931
## final  value 4809.177931
## stopped after 500 iterations
## # weights:  574
## initial  value 33141.537130
## iter  10 value 6279.690967
## iter  20 value 5363.124537
## iter  30 value 5187.728140
## iter  40 value 5121.479981
## iter  50 value 5051.373697
## iter  60 value 5019.205853
## iter  70 value 4998.729900
## iter  80 value 4983.031204
## iter  90 value 4972.110879
## iter 100 value 4962.462674
## iter 110 value 4956.910506
## iter 120 value 4952.750010
## iter 130 value 4949.266487
## iter 140 value 4944.100702
## iter 150 value 4940.087316
## iter 160 value 4936.292205
## iter 170 value 4932.967614
## iter 180 value 4930.322434
## iter 190 value 4928.438194
## iter 200 value 4927.034895
## iter 210 value 4925.191356
## iter 220 value 4923.166797
```

```
## iter 230 value 4920.978401
## iter 240 value 4919.424918
## iter 250 value 4918.384984
## iter 260 value 4917.497286
## iter 270 value 4916.735501
## iter 280 value 4915.718564
## iter 290 value 4914.449759
## iter 300 value 4913.694690
## iter 310 value 4913.110230
## iter 320 value 4912.654768
## iter 330 value 4912.468465
## iter 340 value 4912.396333
## iter 350 value 4912.348341
## iter 360 value 4912.293699
## iter 370 value 4912.239332
## iter 380 value 4912.192945
## iter 390 value 4912.136323
## iter 400 value 4912.066801
## iter 410 value 4911.966093
## iter 420 value 4911.905639
## iter 430 value 4911.862060
## iter 440 value 4911.811563
## iter 450 value 4911.763310
## iter 460 value 4911.693441
## iter 470 value 4911.633163
## iter 480 value 4911.578933
## iter 490 value 4911.130837
## iter 500 value 4910.581133
## final  value 4910.581133
## stopped after 500 iterations
## # weights:  42
## initial  value 19312.773466
## iter  10 value 12580.538575
## iter  20 value 11893.609944
## iter  30 value 11614.558989
## iter  40 value 11451.429274
## iter  50 value 10808.821804
## iter  60 value 9900.786013
## iter  70 value 9345.763755
## iter  80 value 9190.752498
## iter  90 value 9132.116833
## iter 100 value 9088.117474
## iter 110 value 9080.757097
## iter 120 value 9050.069734
## iter 130 value 9026.604962
## final  value 9026.406197
## converged
## # weights:  42
## initial  value 17953.031243
## iter  10 value 13040.070592
## iter  20 value 12153.783620
## iter  30 value 11836.627764
## iter  40 value 11766.956829
## iter  50 value 11582.768178
## iter  60 value 10928.869511
## iter  70 value 10275.318335
## iter  80 value 9763.944201
## iter  90 value 9483.145023
## iter 100 value 9370.376981
## iter 110 value 9327.866074
## iter 120 value 9280.286952
## iter 130 value 9257.575361
## final  value 9257.191082
## converged
## # weights:  42
## initial  value 18529.853191
## iter  10 value 12667.229592
## iter  20 value 12072.305091
## iter  30 value 11242.201514
## iter  40 value 10917.728051
## iter  50 value 10535.988391
## iter  60 value 10047.162836
## iter  70 value 9502.257395
## iter  80 value 9294.449034
## iter  90 value 9246.883181
```

```
## iter 100 value 9197.409998
## iter 110 value 9147.740314
## iter 120 value 9137.572093
## iter 130 value 9122.516498
## final  value 9122.515815
## converged
## # weights:  194
## initial  value 20325.883118
## iter  10 value 7494.230176
## iter  20 value 6137.644358
## iter  30 value 5880.124948
## iter  40 value 5700.912535
## iter  50 value 5569.423115
## iter  60 value 5501.027158
## iter  70 value 5431.266371
## iter  80 value 5382.224326
## iter  90 value 5348.259413
## iter 100 value 5308.527925
## iter 110 value 5273.952244
## iter 120 value 5256.769894
## iter 130 value 5247.512747
## iter 140 value 5236.974033
## iter 150 value 5225.871431
## iter 160 value 5215.541882
## iter 170 value 5208.255337
## iter 180 value 5201.843229
## iter 190 value 5196.456401
## iter 200 value 5188.338387
## iter 210 value 5181.351124
## iter 220 value 5176.525254
## iter 230 value 5174.078612
## iter 240 value 5171.015227
## iter 250 value 5169.531855
## iter 260 value 5167.610082
## iter 270 value 5162.907664
## iter 280 value 5158.184665
## iter 290 value 5155.826134
## iter 300 value 5154.585765
## iter 310 value 5153.819267
## iter 320 value 5152.853737
## iter 330 value 5151.830826
## iter 340 value 5150.629281
## iter 350 value 5149.917975
## iter 360 value 5149.223371
## iter 370 value 5148.002251
## iter 380 value 5147.470514
## iter 390 value 5146.951555
## iter 400 value 5146.851456
## iter 410 value 5146.656770
## iter 420 value 5146.479952
## iter 430 value 5146.363736
## iter 440 value 5146.254164
## iter 450 value 5146.178442
## iter 460 value 5146.132679
## iter 470 value 5146.089248
## iter 480 value 5146.058940
## iter 490 value 5146.040063
## iter 500 value 5146.029085
## final  value 5146.029085
## stopped after 500 iterations
## # weights:  194
## initial  value 18802.728969
## iter  10 value 7614.883679
## iter  20 value 6575.171154
## iter  30 value 6234.812969
## iter  40 value 6000.982441
## iter  50 value 5885.637939
## iter  60 value 5759.240041
## iter  70 value 5626.968310
## iter  80 value 5551.447574
## iter  90 value 5483.391967
## iter 100 value 5428.353237
## iter 110 value 5381.948960
## iter 120 value 5350.478373
## iter 130 value 5327.994057
```

```
## iter 140 value 5311.184799
## iter 150 value 5296.202543
## iter 160 value 5290.896850
## iter 170 value 5287.856473
## iter 180 value 5283.743328
## iter 190 value 5280.645150
## iter 200 value 5276.272230
## iter 210 value 5270.050401
## iter 220 value 5265.977482
## iter 230 value 5261.564754
## iter 240 value 5258.988418
## iter 250 value 5252.920990
## iter 260 value 5250.587185
## iter 270 value 5247.425580
## iter 280 value 5233.388493
## iter 290 value 5226.323587
## iter 300 value 5222.752327
## iter 310 value 5220.482193
## iter 320 value 5220.166757
## iter 330 value 5220.093257
## iter 340 value 5219.987073
## iter 350 value 5219.937657
## iter 360 value 5219.902937
## iter 370 value 5219.898981
## final  value 5219.898726
## converged
## # weights:  194
## initial  value 18406.882832
## iter  10 value 6557.833368
## iter  20 value 5991.315410
## iter  30 value 5861.136413
## iter  40 value 5693.891409
## iter  50 value 5602.454719
## iter  60 value 5561.213971
## iter  70 value 5507.395239
## iter  80 value 5458.160771
## iter  90 value 5407.402255
## iter 100 value 5368.526408
## iter 110 value 5345.244399
## iter 120 value 5330.726409
## iter 130 value 5321.560304
## iter 140 value 5315.310620
## iter 150 value 5310.859139
## iter 160 value 5304.997515
## iter 170 value 5299.120058
## iter 180 value 5296.565000
## iter 190 value 5294.973712
## iter 200 value 5293.132569
## iter 210 value 5290.593379
## iter 220 value 5287.781169
## iter 230 value 5285.013744
## iter 240 value 5283.796980
## iter 250 value 5283.658497
## iter 260 value 5283.560722
## iter 270 value 5283.525915
## iter 280 value 5283.466135
## iter 290 value 5283.451980
## final  value 5283.451887
## converged
## # weights:  384
## initial  value 20604.517840
## iter  10 value 6343.037069
## iter  20 value 5489.163839
## iter  30 value 5314.539569
## iter  40 value 5205.072937
## iter  50 value 5147.104209
## iter  60 value 5112.324757
## iter  70 value 5082.363091
## iter  80 value 5056.022190
## iter  90 value 5033.317901
## iter 100 value 5013.328293
## iter 110 value 5003.223846
## iter 120 value 4994.306912
## iter 130 value 4985.519058
## iter 140 value 4981.165206
```

```
## iter 150 value 4978.303038
## iter 160 value 4975.867692
## iter 170 value 4973.221358
## iter 180 value 4970.111294
## iter 190 value 4966.996886
## iter 200 value 4963.160560
## iter 210 value 4959.338296
## iter 220 value 4955.272617
## iter 230 value 4950.902225
## iter 240 value 4946.381801
## iter 250 value 4942.738326
## iter 260 value 4940.787942
## iter 270 value 4938.907878
## iter 280 value 4936.389747
## iter 290 value 4933.775963
## iter 300 value 4930.719502
## iter 310 value 4927.266661
## iter 320 value 4924.920415
## iter 330 value 4923.401447
## iter 340 value 4922.585546
## iter 350 value 4921.991537
## iter 360 value 4921.395668
## iter 370 value 4920.922848
## iter 380 value 4920.707821
## iter 390 value 4920.610075
## iter 400 value 4920.544447
## iter 410 value 4920.442454
## iter 420 value 4920.229283
## iter 430 value 4920.177200
## iter 440 value 4920.153435
## iter 450 value 4920.121288
## iter 460 value 4920.091252
## iter 470 value 4920.071531
## iter 480 value 4920.054237
## iter 490 value 4920.033303
## iter 500 value 4920.026483
## final  value 4920.026483
## stopped after 500 iterations
## # weights:  384
## initial  value 19252.590536
## iter  10 value 6404.488921
## iter  20 value 5701.300849
## iter  30 value 5495.229940
## iter  40 value 5376.416410
## iter  50 value 5304.410462
## iter  60 value 5264.015277
## iter  70 value 5224.928210
## iter  80 value 5188.658895
## iter  90 value 5162.376113
## iter 100 value 5130.167493
## iter 110 value 5106.063960
## iter 120 value 5090.142725
## iter 130 value 5079.616893
## iter 140 value 5073.470678
## iter 150 value 5068.365162
## iter 160 value 5064.041284
## iter 170 value 5059.763110
## iter 180 value 5053.515336
## iter 190 value 5047.992468
## iter 200 value 5044.103476
## iter 210 value 5041.563130
## iter 220 value 5038.901497
## iter 230 value 5033.875506
## iter 240 value 5028.879364
## iter 250 value 5026.051737
## iter 260 value 5023.071181
## iter 270 value 5019.143823
## iter 280 value 5014.435971
## iter 290 value 5011.639724
## iter 300 value 5009.530720
## iter 310 value 5007.498230
## iter 320 value 5006.005681
## iter 330 value 5005.063928
## iter 340 value 5003.789704
## iter 350 value 5002.539701
```

```
## iter 360 value 5001.534451
## iter 370 value 5000.718123
## iter 380 value 5000.083875
## iter 390 value 4999.682043
## iter 400 value 4999.377536
## iter 410 value 4999.188931
## iter 420 value 4999.014552
## iter 430 value 4998.838675
## iter 440 value 4998.738731
## iter 450 value 4998.681191
## iter 460 value 4998.623307
## iter 470 value 4998.555292
## iter 480 value 4998.530957
## iter 490 value 4998.526712
## iter 500 value 4998.525158
## final  value 4998.525158
## stopped after 500 iterations
## # weights:  384
## initial  value 29933.913672
## iter  10 value 6551.137007
## iter  20 value 5802.576066
## iter  30 value 5607.273616
## iter  40 value 5457.232694
## iter  50 value 5333.640362
## iter  60 value 5284.210002
## iter  70 value 5235.485464
## iter  80 value 5194.836358
## iter  90 value 5170.788876
## iter 100 value 5134.609064
## iter 110 value 5115.536214
## iter 120 value 5102.080021
## iter 130 value 5090.709859
## iter 140 value 5083.812505
## iter 150 value 5077.719309
## iter 160 value 5073.064033
## iter 170 value 5069.950585
## iter 180 value 5068.021790
## iter 190 value 5066.160890
## iter 200 value 5063.968481
## iter 210 value 5062.237767
## iter 220 value 5060.770911
## iter 230 value 5059.478020
## iter 240 value 5057.643012
## iter 250 value 5056.142534
## iter 260 value 5055.325236
## iter 270 value 5054.563040
## iter 280 value 5053.932139
## iter 290 value 5053.284418
## iter 300 value 5052.610266
## iter 310 value 5052.030486
## iter 320 value 5051.580046
## iter 330 value 5051.191988
## iter 340 value 5050.863389
## iter 350 value 5050.584127
## iter 360 value 5050.315489
## iter 370 value 5049.969068
## iter 380 value 5049.530348
## iter 390 value 5049.193304
## iter 400 value 5048.939840
## iter 410 value 5048.625341
## iter 420 value 5047.638177
## iter 430 value 5046.568843
## iter 440 value 5045.944413
## iter 450 value 5045.242588
## iter 460 value 5044.953497
## iter 470 value 5044.673078
## iter 480 value 5044.392776
## iter 490 value 5043.782553
## iter 500 value 5043.092584
## final  value 5043.092584
## stopped after 500 iterations
## # weights:  574
## initial  value 26560.321412
## iter  10 value 6115.174842
## iter  20 value 5369.189247
```

```
## iter  30 value 5226.334334
## iter  40 value 5115.784713
## iter  50 value 5027.932918
## iter  60 value 4967.927660
## iter  70 value 4922.857283
## iter  80 value 4892.194244
## iter  90 value 4873.047237
## iter 100 value 4862.917200
## iter 110 value 4850.689353
## iter 120 value 4836.963383
## iter 130 value 4824.716178
## iter 140 value 4817.000755
## iter 150 value 4808.790897
## iter 160 value 4799.482128
## iter 170 value 4791.531487
## iter 180 value 4783.767274
## iter 190 value 4774.972650
## iter 200 value 4765.081141
## iter 210 value 4757.623090
## iter 220 value 4752.587162
## iter 230 value 4747.823821
## iter 240 value 4745.147428
## iter 250 value 4742.893669
## iter 260 value 4738.905663
## iter 270 value 4733.024132
## iter 280 value 4728.039294
## iter 290 value 4724.481248
## iter 300 value 4721.864699
## iter 310 value 4719.886590
## iter 320 value 4718.156407
## iter 330 value 4715.975835
## iter 340 value 4714.096717
## iter 350 value 4712.567318
## iter 360 value 4711.338628
## iter 370 value 4710.385348
## iter 380 value 4709.475351
## iter 390 value 4708.308204
## iter 400 value 4707.069140
## iter 410 value 4706.187109
## iter 420 value 4705.773776
## iter 430 value 4705.307867
## iter 440 value 4704.848462
## iter 450 value 4704.249808
## iter 460 value 4703.433398
## iter 470 value 4702.329449
## iter 480 value 4701.887559
## iter 490 value 4701.421776
## iter 500 value 4700.712358
## final  value 4700.712358
## stopped after 500 iterations
## # weights:  574
## initial  value 24644.789071
## iter  10 value 6126.007045
## iter  20 value 5386.402231
## iter  30 value 5251.715258
## iter  40 value 5152.499468
## iter  50 value 5095.360373
## iter  60 value 5062.544667
## iter  70 value 5035.876508
## iter  80 value 5012.977562
## iter  90 value 4993.052702
## iter 100 value 4970.931554
## iter 110 value 4950.110606
## iter 120 value 4932.475796
## iter 130 value 4916.851885
## iter 140 value 4910.783439
## iter 150 value 4901.900635
## iter 160 value 4896.610610
## iter 170 value 4892.544325
## iter 180 value 4888.366839
## iter 190 value 4883.313948
## iter 200 value 4878.820265
## iter 210 value 4873.648391
## iter 220 value 4869.782159
## iter 230 value 4867.129640
```

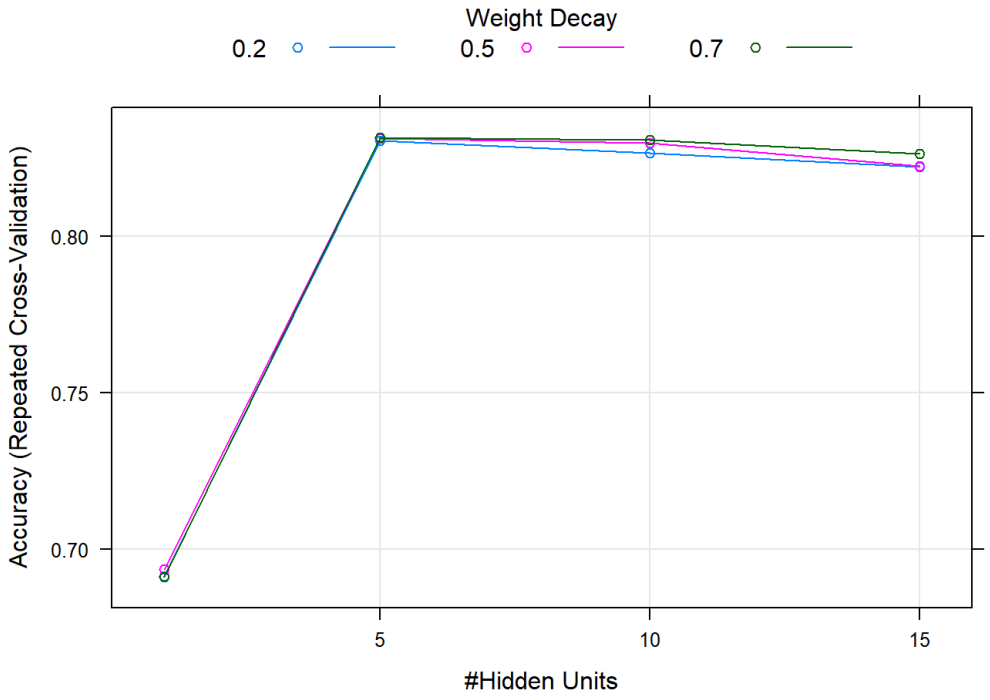
```
## iter 240 value 4865.150182
## iter 250 value 4863.016040
## iter 260 value 4860.431026
## iter 270 value 4855.454592
## iter 280 value 4849.523568
## iter 290 value 4846.139187
## iter 300 value 4842.814381
## iter 310 value 4837.659287
## iter 320 value 4833.684517
## iter 330 value 4830.594814
## iter 340 value 4828.927398
## iter 350 value 4827.895044
## iter 360 value 4827.087784
## iter 370 value 4826.323104
## iter 380 value 4825.510609
## iter 390 value 4824.883326
## iter 400 value 4824.470951
## iter 410 value 4824.147025
## iter 420 value 4823.821033
## iter 430 value 4823.491149
## iter 440 value 4823.239706
## iter 450 value 4823.103186
## iter 460 value 4822.980383
## iter 470 value 4822.860983
## iter 480 value 4822.744359
## iter 490 value 4822.610316
## iter 500 value 4822.463425
## final  value 4822.463425
## stopped after 500 iterations
## # weights:  574
## initial  value 20315.984024
## iter  10 value 6142.245663
## iter  20 value 5375.266389
## iter  30 value 5263.438207
## iter  40 value 5214.651326
## iter  50 value 5127.334110
## iter  60 value 5051.347788
## iter  70 value 5006.903784
## iter  80 value 4981.785288
## iter  90 value 4964.414018
## iter 100 value 4951.197949
## iter 110 value 4942.049820
## iter 120 value 4935.787382
## iter 130 value 4930.791203
## iter 140 value 4927.486261
## iter 150 value 4924.455337
## iter 160 value 4922.773975
## iter 170 value 4921.581189
## iter 180 value 4920.437506
## iter 190 value 4919.616568
## iter 200 value 4919.094124
## iter 210 value 4918.635839
## iter 220 value 4917.964822
## iter 230 value 4917.407272
## iter 240 value 4916.875048
## iter 250 value 4916.240427
## iter 260 value 4915.604262
## iter 270 value 4914.305387
## iter 280 value 4912.067979
## iter 290 value 4910.237617
## iter 300 value 4908.980120
## iter 310 value 4907.927906
## iter 320 value 4906.910692
## iter 330 value 4905.685695
## iter 340 value 4904.433994
## iter 350 value 4903.459086
## iter 360 value 4902.860260
## iter 370 value 4902.387971
## iter 380 value 4901.919659
## iter 390 value 4901.424986
## iter 400 value 4901.066945
## iter 410 value 4900.854443
## iter 420 value 4900.627382
## iter 430 value 4900.509973
## iter 440 value 4900.446775
```

```
## iter 450 value 4900.364539
## iter 460 value 4900.275498
## iter 470 value 4900.164214
## iter 480 value 4900.066041
## iter 490 value 4899.949378
## iter 500 value 4899.782701
## final  value 4899.782701
## stopped after 500 iterations
## # weights:  194
## initial  value 24385.817176
## iter  10 value 7831.047589
## iter  20 value 6750.348025
## iter  30 value 6556.820144
## iter  40 value 6448.553945
## iter  50 value 6307.769882
## iter  60 value 6256.238295
## iter  70 value 6194.108425
## iter  80 value 6109.747056
## iter  90 value 6049.919805
## iter 100 value 6010.914460
## iter 110 value 5985.661180
## iter 120 value 5964.280039
## iter 130 value 5940.853002
## iter 140 value 5919.715143
## iter 150 value 5904.398598
## iter 160 value 5896.803615
## iter 170 value 5893.000736
## iter 180 value 5888.424645
## iter 190 value 5882.453099
## iter 200 value 5873.795859
## iter 210 value 5867.912370
## iter 220 value 5862.591630
## iter 230 value 5858.469447
## iter 240 value 5856.493713
## iter 250 value 5855.734332
## iter 260 value 5855.205071
## iter 270 value 5854.366111
## iter 280 value 5851.577757
## iter 290 value 5850.266029
## iter 300 value 5849.359272
## iter 310 value 5845.647484
## iter 320 value 5844.505925
## iter 330 value 5843.729201
## iter 340 value 5843.463956
## iter 350 value 5843.301139
## iter 360 value 5843.254517
## iter 370 value 5841.956918
## iter 380 value 5841.080281
## iter 390 value 5841.049551
## iter 390 value 5841.049526
## final  value 5841.049526
## converged
```

```
fifa_nnet
```

```
## Neural Network
##
## 14387 samples
##    34 predictor
##     4 classes: 'GK', 'D', 'M', 'O'
##
## Pre-processing: centered (33), scaled (33)
## Resampling: Cross-Validated (10 fold, repeated 3 times)
## Summary of sample sizes: 12948, 12948, 12947, 12949, 12948, 12949, ...
## Resampling results across tuning parameters:
##
##   decay  size  Accuracy   Kappa
##   0.2     1    0.6911792  0.5572071
##   0.2     5    0.8305629  0.7577570
##   0.2    10    0.8265096  0.7521543
##   0.2    15    0.8220831  0.7460049
##   0.5     1    0.6934489  0.5605824
##   0.5     5    0.8313517  0.7588653
##   0.5    10    0.8297526  0.7567495
##   0.5    15    0.8224545  0.7464027
##   0.7     1    0.6909712  0.5570723
##   0.7     5    0.8314444  0.7589793
##   0.7    10    0.8307024  0.7580272
##   0.7    15    0.8263940  0.7519871
##
## Accuracy was used to select the optimal model using the largest value.
## The final values used for the model were size = 5 and decay = 0.7.
```

```
plot(fifa_nnet)
```




```
fifa_nnet_predict <- predict(fifa_nnet,newdata = test_data)
confusionMatrix(fifa_nnet_predict,test_data$position2)
```

```
## Confusion Matrix and Statistics
##
##           Reference
## Prediction   GK    D    M    O
##         GK  404    0    0    1
##         D     1  956  169    7
##         M     0  130 1133  186
##         O     0    2  132  473
##
## Overall Statistics
##
##                Accuracy : 0.8253
##                  95% CI : (0.8124, 0.8376)
##     No Information Rate : 0.399
##     P-Value [Acc > NIR] : < 2.2e-16
##
##                   Kappa : 0.7503
##  Mcnemar's Test P-Value : NA
##
## Statistics by Class:
##
##                      Class: GK Class: D Class: M Class: O
## Sensitivity             0.9975   0.8787   0.7901   0.7091
## Specificity             0.9997   0.9294   0.8537   0.9542
## Pos Pred Value          0.9975   0.8438   0.7819   0.7792
## Neg Pred Value          0.9997   0.9464   0.8597   0.9351
## Prevalence              0.1127   0.3027   0.3990   0.1856
## Detection Rate          0.1124   0.2660   0.3152   0.1316
## Detection Prevalence    0.1127   0.3152   0.4032   0.1689
## Balanced Accuracy       0.9986   0.9040   0.8219   0.8317
```

```
#best training performances
train_performance <- t(rbind(knn = apply(fifa_knn$results[,2:3],2,max),
                             rf  = apply(fifa_rf$results[,2:3],2,max),
                             svm = apply(fifa_svm_linear$results[,2:3],2,max),
                             nnet= apply(fifa_nnet$results[,3:4],2,max)))
predicted <-  tibble(knn = fifa_knn_predict,
                     rf  = fifa_rf_predict,
                     svm = fifa_svm_linear_predict,
                     nnet= fifa_nnet_predict)

#test performance
test_performance <- apply(predicted, 2, postResample, obs = test_data$position2)

train_performance
```

```
##               knn        rf       svm      nnet
## Accuracy 0.8182393 0.8383495 0.8333206 0.8314444
## Kappa    0.7384190 0.7687453 0.7616415 0.7589793
```

```
test_performance
```

```
##               knn        rf       svm      nnet
## Accuracy 0.8158041 0.8327769 0.8249861 0.8252643
## Kappa    0.7347323 0.7608072 0.7492823 0.7502557
```