R_File_Young_Survey

R Markdown

This is an R Markdown document. Markdown is a simple formatting syntax for authoring HTML, PDF, and MS Word documents. For more details on using R Markdown see http://rmarkdown.rstudio.com.

When you click the **Knit** button a document will be generated that includes both content as well as the output of any embedded R code chunks within the document. You can embed an R code chunk like this:

```r
data <- read.csv("G:/Rutgers/MVA/Project/responses.csv")
View(data)

# The structure of the datasets
dim(data)

## [1] 1010  150

## Separate out numeric variables and categoric variables
data_cat <- data[,sapply(data, is.factor)]
data_num <- data[,!sapply(data, is.factor)]
dim(data_cat) # 11 features

## [1] 1010    11

dim(data_num) # 139 features

## [1] 1010  139

# Grouping of columns accoring to the preferences
music_data = data[,1:19]
movie_data = data[,20:31]
hobbies_data = data[,32:63]
phobia_data =  data[,64:73]
health_data = data[,74:76]
traits_data = data[,77:133]
spend_data = data[,134:140]
demo_data = data[,141:150]
```

MISSING VALUES ANALYSIS

```r
sum(is.na(data))

## [1] 571

colSums(is.na(data)) #suming the na values as per the column level
```

```
##                            Music       Slow.songs.or.fast.songs
##                                3                              2
##                            Dance                           Folk
##                                4                              5
##                          Country                Classical.music
##                                5                              7
##                          Musical                            Pop
##                                2                              3
##                             Rock               Metal.or.Hardrock
##                                6                              3
##                             Punk                    Hiphop..Rap
##                                8                              4
##                      Reggae..Ska                     Swing..Jazz
##                                7                              6
##                      Rock.n.roll                    Alternative
##                                7                              7
##                           Latino                Techno..Trance
##                                8                              7
##                            Opera                         Movies
##                                1                              6
##                           Horror                       Thriller
##                                2                              1
##                           Comedy                       Romantic
##                                3                              3
##                            Sci.fi                           War
##                                2                              2
##              Fantasy.Fairy.tales                       Animated
##                                3                              3
##                      Documentary                        Western
##                                8                              4
##                           Action                        History
##                                2                              2
##                       Psychology                       Politics
##                                5                              1
##                      Mathematics                        Physics
##                                3                              3
##                         Internet                             PC
##                                4                              6
##              Economy.Management                        Biology
##                                5                              6
##                        Chemistry                        Reading
##                               10                              6
##                        Geography              Foreign.languages
##                                9                              5
##                         Medicine                            Law
##                                5                              1
##                             Cars                Art.exhibitions
##                                4                              6
##                         Religion            Countryside..outdoors
##                                3                              7
```

```
##                     Dancing        Musical.instruments
##                           3                          1
##                     Writing               Passive.sport
##                           6                         15
##                Active.sport                  Gardening
##                           4                          7
##                  Celebrities                   Shopping
##                           2                          2
##        Science.and.technology                    Theatre
##                           6                          8
##             Fun.with.friends         Adrenaline.sports
##                           4                          3
##                         Pets                     Flying
##                           4                          3
##                        Storm                   Darkness
##                           1                          2
##                      Heights                    Spiders
##                           3                          5
##                       Snakes                       Rats
##                           0                          3
##                       Ageing             Dangerous.dogs
##                           1                          1
##      Fear.of.public.speaking                    Smoking
##                           1                          0
##                      Alcohol            Healthy.eating
##                           0                          3
##                 Daily.events       Prioritising.workload
##                           7                          5
##                Writing.notes               Workaholism
##                           3                          5
##               Thinking.ahead           Final.judgement
##                           3                          7
##                  Reliability          Keeping.promises
##                           4                          1
##              Loss.of.interest      Friends.versus.money
##                           4                          6
##                    Funniness                       Fake
##                           4                          1
##              Criminal.damage           Decision.making
##                           7                          4
##                    Elections            Self.criticism
##                           3                          5
##                Judgment.calls               Hypochondria
##                           4                          4
##                      Empathy          Eating.to.survive
##                           5                          0
##                       Giving      Compassion.to.animals
##                           6                          7
##                Borrowed.stuff                 Loneliness
##                           2                          1
```

```
##             Cheating.in.school                         Health
##                          4                                  1
##             Changing.the.past                            God
##                          2                                  2
##                     Dreams                            Charity
##                          0                                  3
##            Number.of.friends                        Punctuality
##                          0                                  0
##                      Lying                            Waiting
##                          0                                  3
##             New.environment                        Mood.swings
##                          2                                  4
##       Appearence.and.gestures                       Socializing
##                          3                                  5
##                Achievements   Responding.to.a.serious.letter
##                          2                                  6
##                   Children                       Assertiveness
##                          4                                  2
##                Getting.angry        Knowing.the.right.people
##                          4                                  2
##             Public.speaking                       Unpopularity
##                          2                                  3
##               Life.struggles              Happiness.in.life
##                          3                                  4
##                Energy.levels                   Small...big.dogs
##                          5                                  4
##                 Personality         Finding.lost.valuables
##                          4                                  4
##                   Getting.up            Interests.or.hobbies
##                          5                                  3
##               Parents..advice        Questionnaires.or.polls
##                          2                                  4
##                Internet.usage                        Finances
##                          0                                  3
##             Shopping.centres             Branded.clothing
##                          2                                  2
##        Entertainment.spending            Spending.on.looks
##                          3                                  3
##           Spending.on.gadgets   Spending.on.healthy.eating
##                          0                                  2
##                        Age                            Height
##                          7                                 20
##                     Weight              Number.of.siblings
##                         20                                  6
##                     Gender            Left...right.handed
##                          0                                  0
##                  Education                       Only.child
##                          0                                  0
##                Village...town        House...block.of.flats
##                          0                                  0
```

```
# Finding missing values with more than 1%
# Create a function
pMiss <- function(x){sum(is.na(x))/length(x)*100}

perc_cat <- apply(data_cat, 2, pMiss)
perc_num <- apply(data_num, 2, pMiss)
perc_cat # this shows the percentage of missing value in the categorial data
sat
```

```
##              Smoking              Alcohol          Punctuality
##                    0                    0                    0
##                Lying       Internet.usage               Gender
##                    0                    0                    0
##   Left...right.handed            Education           Only.child
##                    0                    0                    0
##      Village...town House...block.of.flats
##                    0                    0
```

```
# this shows the percentage of missing value in the numerical data
perc_num
```

```
##                    Music      Slow.songs.or.fast.songs
##                0.2970297                     0.1980198
##                    Dance                          Folk
##                0.3960396                     0.4950495
##                  Country               Classical.music
##                0.4950495                     0.6930693
##                  Musical                           Pop
##                0.1980198                     0.2970297
##                     Rock              Metal.or.Hardrock
##                0.5940594                     0.2970297
##                     Punk                   Hiphop..Rap
##                0.7920792                     0.3960396
##               Reggae..Ska                   Swing..Jazz
##                0.6930693                     0.5940594
##               Rock.n.roll                  Alternative
##                0.6930693                     0.6930693
##                   Latino                Techno..Trance
##                0.7920792                     0.6930693
##                    Opera                        Movies
##                0.0990099                     0.5940594
##                   Horror                      Thriller
##                0.1980198                     0.0990099
##                   Comedy                      Romantic
##                0.2970297                     0.2970297
##                   Sci.fi                           War
##                0.1980198                     0.1980198
##        Fantasy.Fairy.tales                     Animated
##                0.2970297                     0.2970297
##               Documentary                       Western
##                0.7920792                     0.3960396
```

```
##                      Action                   History
##                   0.1980198                0.1980198
##                  Psychology                 Politics
##                   0.4950495                0.0990099
##                 Mathematics                  Physics
##                   0.2970297                0.2970297
##                    Internet                       PC
##                   0.3960396                0.5940594
##          Economy.Management                  Biology
##                   0.4950495                0.5940594
##                   Chemistry                  Reading
##                   0.9900990                0.5940594
##                   Geography        Foreign.languages
##                   0.8910891                0.4950495
##                    Medicine                      Law
##                   0.4950495                0.0990099
##                        Cars          Art.exhibitions
##                   0.3960396                0.5940594
##                    Religion       Countryside..outdoors
##                   0.2970297                0.6930693
##                     Dancing       Musical.instruments
##                   0.2970297                0.0990099
##                     Writing            Passive.sport
##                   0.5940594                1.4851485
##                Active.sport                 Gardening
##                   0.3960396                0.6930693
##                 Celebrities                 Shopping
##                   0.1980198                0.1980198
##        Science.and.technology                 Theatre
##                   0.5940594                0.7920792
##             Fun.with.friends         Adrenaline.sports
##                   0.3960396                0.2970297
##                        Pets                   Flying
##                   0.3960396                0.2970297
##                       Storm                 Darkness
##                   0.0990099                0.1980198
##                     Heights                  Spiders
##                   0.2970297                0.4950495
##                      Snakes                     Rats
##                   0.0000000                0.2970297
##                      Ageing           Dangerous.dogs
##                   0.0990099                0.0990099
##      Fear.of.public.speaking           Healthy.eating
##                   0.0990099                0.2970297
##                 Daily.events      Prioritising.workload
##                   0.6930693                0.4950495
##                Writing.notes              Workaholism
##                   0.2970297                0.4950495
##               Thinking.ahead           Final.judgement
##                   0.2970297                0.6930693
```

```
##                 Reliability          Keeping.promises
##                 0.3960396                0.0990099
##           Loss.of.interest       Friends.versus.money
##                 0.3960396                0.5940594
##                 Funniness                     Fake
##                 0.3960396                0.0990099
##           Criminal.damage           Decision.making
##                 0.6930693                0.3960396
##                 Elections            Self.criticism
##                 0.2970297                0.4950495
##           Judgment.calls               Hypochondria
##                 0.3960396                0.3960396
##                 Empathy           Eating.to.survive
##                 0.4950495                0.0000000
##                    Giving       Compassion.to.animals
##                 0.5940594                0.6930693
##           Borrowed.stuff                 Loneliness
##                 0.1980198                0.0990099
##         Cheating.in.school                   Health
##                 0.3960396                0.0990099
##           Changing.the.past                     God
##                 0.1980198                0.1980198
##                    Dreams                   Charity
##                 0.0000000                0.2970297
##          Number.of.friends                  Waiting
##                 0.0000000                0.2970297
##           New.environment               Mood.swings
##                 0.1980198                0.3960396
##     Appearence.and.gestures              Socializing
##                 0.2970297                0.4950495
##              Achievements Responding.to.a.serious.letter
##                 0.1980198                0.5940594
##                  Children              Assertiveness
##                 0.3960396                0.1980198
##              Getting.angry     Knowing.the.right.people
##                 0.3960396                0.1980198
##            Public.speaking                Unpopularity
##                 0.1980198                0.2970297
##            Life.struggles           Happiness.in.life
##                 0.2970297                0.3960396
##              Energy.levels             Small...big.dogs
##                 0.4950495                0.3960396
##               Personality       Finding.lost.valuables
##                 0.3960396                0.3960396
##                 Getting.up          Interests.or.hobbies
##                 0.4950495                0.2970297
##             Parents..advice     Questionnaires.or.polls
##                 0.1980198                0.3960396
##                  Finances           Shopping.centres
##                 0.2970297                0.1980198
```

```
##                Branded.clothing        Entertainment.spending
##                        0.1980198                     0.2970297
##                 Spending.on.looks           Spending.on.gadgets
##                        0.2970297                     0.0000000
##        Spending.on.healthy.eating                           Age
##                        0.1980198                     0.6930693
##                           Height                        Weight
##                        1.9801980                     1.9801980
##                Number.of.siblings
##                        0.5940594
```

IMPUTE MISSING VALUES : Imputation based on predictive method using features

```r
# Numeric variable imputation
library(mice)
```

```
## Warning: package 'mice' was built under R version 3.6.2
```

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

```
## Warning: package 'lattice' was built under R version 3.6.2
```

```
##
## Attaching package: 'mice'
```

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

```r
# methods(mice)
```

```r
impu_num = mice(data_num, m=1, method = 'pmm', maxit = 1, seed = 200)
```

```
##
##  iter imp variable
##   1   1  Music  Slow.songs.or.fast.songs  Dance  Folk  Country
Classical.music  Musical  Pop  Rock  Metal.or.Hardrock  Punk  Hiphop..Rap
Reggae..Ska  Swing..Jazz  Rock.n.roll  Alternative  Latino  Techno..Trance
Opera  Movies  Horror  Thriller  Comedy  Romantic  Sci.fi  War
Fantasy.Fairy.tales  Animated  Documentary  Western  Action  History
Psychology  Politics  Mathematics  Physics  Internet  PC  Economy.Management
Biology  Chemistry  Reading  Geography  Foreign.languages  Medicine  Law
Cars  Art.exhibitions  Religion  Countryside..outdoors  Dancing
Musical.instruments  Writing  Passive.sport  Active.sport  Gardening
Celebrities  Shopping  Science.and.technology  Theatre  Fun.with.friends
Adrenaline.sports  Pets  Flying  Storm  Darkness  Heights  Spiders  Rats
Ageing  Dangerous.dogs  Fear.of.public.speaking  Healthy.eating  Daily.events
Prioritising.workload  Writing.notes  Workaholism  Thinking.ahead
Final.judgement  Reliability  Keeping.promises  Loss.of.interest
Friends.versus.money  Funniness  Fake  Criminal.damage  Decision.making
Elections  Self.criticism  Judgment.calls  Hypochondria  Empathy  Giving
Compassion.to.animals  Borrowed.stuff  Loneliness  Cheating.in.school  Health
```

```
Changing.the.past  God  Charity  Waiting  New.environment  Mood.swings
Appearence.and.gestures  Socializing  Achievements
Responding.to.a.serious.letter  Children  Assertiveness  Getting.angry
Knowing.the.right.people  Public.speaking  Unpopularity  Life.struggles
Happiness.in.life  Energy.levels  Small...big.dogs  Personality
Finding.lost.valuables  Getting.up  Interests.or.hobbies  Parents..advice
Questionnaires.or.polls  Finances  Shopping.centres  Branded.clothing
Entertainment.spending  Spending.on.looks  Spending.on.healthy.eating  Age
Height  Weight  Number.of.siblings
```

```
# summary(impu_num)
impu_num$imp$Age # Imputed data at each iterations

##      1
## 138 20
## 143 22
## 463 19
## 550 22
## 736 25
## 903 18
## 961 20

impu_num$imp$Weight

##      1
## 138 74
## 143 55
## 165 92
## 210 89
## 277 65
## 406 63
## 454 64
## 496 51
## 510 57
## 552 70
## 559 58
## 647 68
## 704 76
## 713 64
## 791 57
## 843 50
## 876 88
## 890 60
## 903 58
## 961 60
```

Parameters: 'pmm' - predictive mean matching method m=5 - no.of multiple imputed datasets maxit = 10 - no.of iterations The computational time is dependent on the 'maxit' - for me it took more than 20 min

```
# Get the numeirc imputed data
impu_num_compl = complete(impu_num,action = 1)
```

Imputing categorical missing variables

```
impu_cat = mice(data_cat, m=5, maxit = 10, seed = 200, method = 'pmm')

##
##  iter imp variable
##    1   1
##    1   2
##    1   3
##    1   4
##    1   5
##    2   1
##    2   2
##    2   3
##    2   4
##    2   5
##    3   1
##    3   2
##    3   3
##    3   4
##    3   5
##    4   1
##    4   2
##    4   3
##    4   4
##    4   5
##    5   1
##    5   2
##    5   3
##    5   4
##    5   5
##    6   1
##    6   2
##    6   3
##    6   4
##    6   5
##    7   1
##    7   2
##    7   3
##    7   4
##    7   5
##    8   1
##    8   2
##    8   3
##    8   4
##    8   5
##    9   1
```

```
##    9    2
##    9    3
##    9    4
##    9    5
##   10    1
##   10    2
##   10    3
##   10    4
##   10    5
```

```
# Get categoric imputed data
impu_cat_compl = complete(impu_cat, 1)

sum(is.na(impu_num_compl)) # No missing values
```

```
## [1] 0
```

```
sum(is.na(impu_cat_compl)) # No missing values
```

```
## [1] 0
```

Outlier detection:

```
library(outliers)
```

```
outlier(data_num)
```

```
##                        Music          Slow.songs.or.fast.songs
##                            1                                 1
##                        Dance                              Folk
##                            1                                 5
##                      Country                   Classical.music
##                            5                                 5
##                      Musical                               Pop
##                            5                                 1
##                         Rock                   Metal.or.Hardrock
##                            1                                 5
##                         Punk                         Hiphop..Rap
##                            5                                 5
##                  Reggae..Ska                         Swing..Jazz
##                            5                                 5
##                  Rock.n.roll                         Alternative
##                            1                                 5
##                       Latino                     Techno..Trance
##                            5                                 5
##                        Opera                            Movies
##                            5                                 1
##                       Horror                           Thriller
##                            5                                 1
##                       Comedy                          Romantic
##                            1                                 1
##                       Sci.fi                               War
```

```
##                           1                             1
##         Fantasy.Fairy.tales                      Animated
##                           1                             1
##                 Documentary                       Western
##                           1                             5
##                      Action                       History
##                           1                             1
##                  Psychology                      Politics
##                           1                             5
##                 Mathematics                       Physics
##                           5                             5
##                    Internet                            PC
##                           1                             1
##          Economy.Management                       Biology
##                           5                             5
##                   Chemistry                       Reading
##                           5                             1
##                   Geography             Foreign.languages
##                           1                             1
##                    Medicine                           Law
##                           5                             5
##                        Cars               Art.exhibitions
##                           5                             5
##                    Religion         Countryside..outdoors
##                           5                             1
##                     Dancing           Musical.instruments
##                           5                             5
##                     Writing                 Passive.sport
##                           5                             1
##                 Active.sport                     Gardening
##                           1                             5
##                 Celebrities                      Shopping
##                           5                             1
##      Science.and.technology                       Theatre
##                           1                             1
##            Fun.with.friends             Adrenaline.sports
##                           2                             5
##                        Pets                        Flying
##                           1                             5
##                       Storm                      Darkness
##                           5                             5
##                     Heights                       Spiders
##                           5                             5
##                      Snakes                          Rats
##                           1                             5
##                       Ageing                Dangerous.dogs
##                           5                             1
##     Fear.of.public.speaking                Healthy.eating
##                           5                             1
##                 Daily.events         Prioritising.workload
```

```
##                             1                                   5
##               Writing.notes                         Workaholism
##                             1                                   5
##               Thinking.ahead                     Final.judgement
##                             1                                   5
##                   Reliability                   Keeping.promises
##                             1                                   1
##              Loss.of.interest              Friends.versus.money
##                             5                                   1
##                     Funniness                                Fake
##                             1                                   5
##               Criminal.damage                   Decision.making
##                             5                                   1
##                     Elections                     Self.criticism
##                             1                                   1
##                 Judgment.calls                        Hypochondria
##                             1                                   5
##                       Empathy                   Eating.to.survive
##                             1                                   5
##                        Giving               Compassion.to.animals
##                             5                                   1
##                 Borrowed.stuff                         Loneliness
##                             1                                   5
##              Cheating.in.school                             Health
##                             1                                   1
##               Changing.the.past                                God
##                             5                                   1
##                        Dreams                            Charity
##                             1                                   5
##               Number.of.friends                           Waiting
##                             1                                   5
##               New.environment                       Mood.swings
##                             1                                   1
##        Appearence.and.gestures                         Socializing
##                             1                                   1
##                  Achievements Responding.to.a.serious.letter
##                             5                                   1
##                      Children                       Assertiveness
##                             1                                   1
##                 Getting.angry     Knowing.the.right.people
##                             1                                   1
##               Public.speaking                       Unpopularity
##                             1                                   1
##                 Life.struggles                  Happiness.in.life
##                             1                                   1
##                 Energy.levels                   Small...big.dogs
##                             1                                   5
##                   Personality            Finding.lost.valuables
##                             1                                   5
##                    Getting.up              Interests.or.hobbies
```

```
##                                  1                                   1
##               Parents..advice         Questionnaires.or.polls
##                                  1                                   5
##                       Finances               Shopping.centres
##                                  1                                   1
##               Branded.clothing         Entertainment.spending
##                                  1                                   1
##               Spending.on.looks            Spending.on.gadgets
##                                  1                                   5
##      Spending.on.healthy.eating                            Age
##                                  1                                  30
##                         Height                          Weight
##                                 62                                 165
##             Number.of.siblings
##                                 10
```

Demographic category - Height, Weight, Age, No.of siblings have maximum no.of outliers

```
library(ggplot2)
```

The boxplot.stats function; is a ancillary function that produces statistics for drawing boxplots. It returns among other information a vector stats with five elements: the extreme of the lower whisker, the lower 'hinge', the median, the upper 'hinge' and the extreme of the upper whisker, the extreme of the whiskers are the adjacent values (last non-missing value, i.e. every value beyond is an outlier.

```
id1 = boxplot.stats(impu_num_compl$Weight)

id1$stats

## [1]  41  55  64  75 105

id1$stats[1] #The lower adjacent value

## [1] 41

id1$stats[5] # The upper adjacent value

## [1] 105

id2 = boxplot.stats(impu_num_compl$Height)

id2$stats[1] #The lower adjacent value

## [1] 148

id2$stats[5] # The upper adjacent value

## [1] 197
```

```
id3 = boxplot.stats(impu_num_compl$Age)

id3$stats[1] #The lower adjacent value

## [1] 15

id3$stats[5] # The upper adjacent value

## [1] 26

id4 = boxplot.stats(impu_num_compl$Number.of.siblings)

id4$stats[1] #The lower adjacent value

## [1] 0

id4$stats[5] # The upper adjacent value

## [1] 3

# Boxplot
par(mfrow=c(1,2))
boxplot(impu_num_compl$Weight, main = 'Outliers in Weight', ylab = 'Weight')
boxplot(impu_num_compl$Height, main = 'Otliers in Height', ylab = 'Height')
```
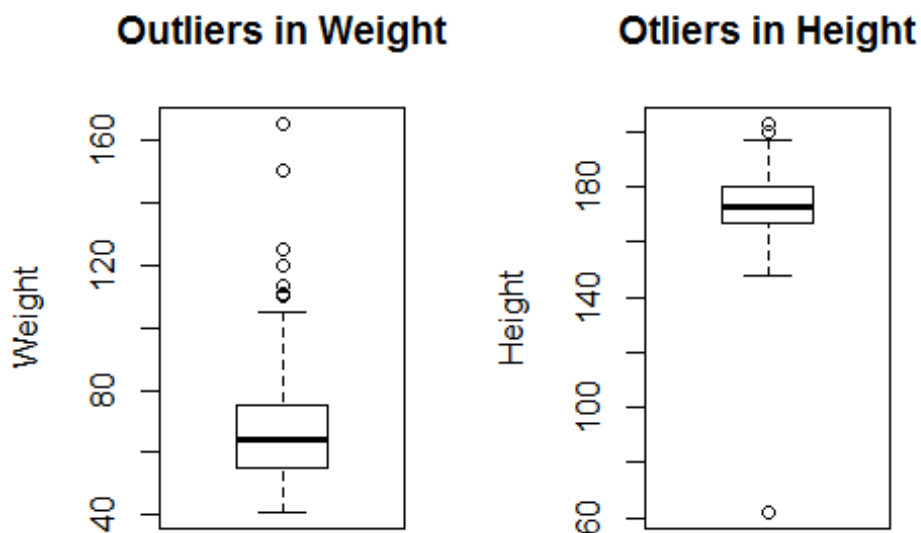


```
boxplot(impu_num_compl$Age, main = 'Outliers in Age', ylab = 'Age')
```

Outliers in Age
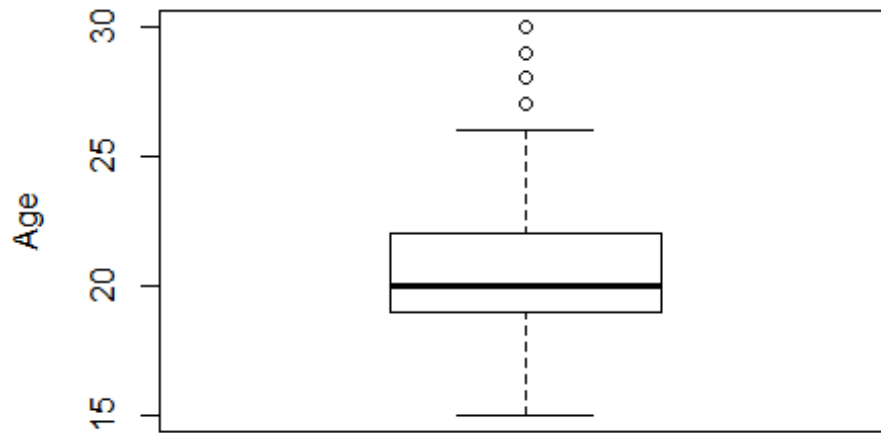

```
boxplot(impu_num_compl$Number.of.siblings , main = 'Otliers in
Number.of.siblings', ylab  ='Number.of.siblings')
```

Otliers in Number.of.siblings
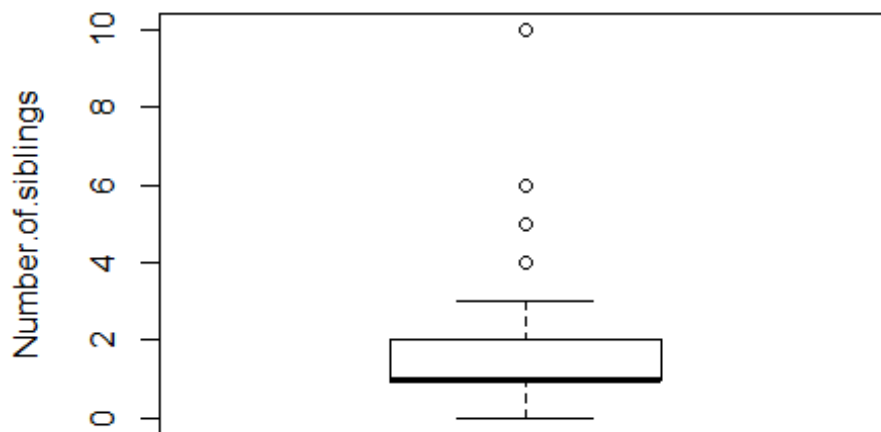
```r
# You can get the actual values of the outliers with this

boxplot(impu_num_compl$Weight, plot=FALSE)$out

## [1] 120 110 111 120 113 125 165 120 150

boxplot(impu_num_compl$Height, plot=FALSE)$out

## [1] 200 200 203  62 203 200

# no of rows having outliers
Outlier_height = boxplot(impu_num_compl$Height, plot=FALSE)$out
impu_num_compl[which(impu_num_compl$Height %in% Outlier_height),]
```

```
##      Music Slow.songs.or.fast.songs Dance Folk Country Classical.music
Musical
## 98      5                              3    2    1       1
1
## 221     5                              3    4    3       3
2
## 548     5                              4    1    4       2
3
## 677     5                              4    2    2       1
2
## 800     5                              3    1    2       3
5
## 993     4                              4    4    1       4
1
##      Pop Rock Metal.or.Hardrock Punk Hiphop..Rap Reggae..Ska Swing..Jazz
## 98     2    1                 1    1           5           2           2
## 221    1    3                 1    2           5           4           4
## 548    1    4                 5    2           2           2           1
## 677    1    2                 2    1           2           1           2
## 800    2    4                 5    4           1           1           2
## 993    3    4                 4    3           2           3           2
##      Rock.n.roll Alternative Latino Techno..Trance Opera Movies Horror
Thriller
## 98             1           1      1                2     1      5      2
3
## 221            2           5      3                1     3      5      3
3
## 548            4           3      1                1     5      5      3
5
## 677            1           5      2                2     2      5      1
2
## 800            4           4      2                2     4      5      1
1
## 993            1           1      2                5     2      4      4
4
##      Comedy Romantic Sci.fi War Fantasy.Fairy.tales Animated Documentary
Western
```

```
## 98      5        3        5  5                3        5                5
3
## 221     5        3        2  3                4        5                4
3
## 548     5        2        2  4                4        4                5
3
## 677     2        3        1  2                3        4                5
1
## 800     4        3        4  4                3        4                5
3
## 993     4        3        5  3                4        4                4
3
```

	Action	History	Psychology	Politics	Mathematics	Physics	Internet	PC
## 98	5	3	2	2	4	1	5	5
## 221	4	3	3	1	1	1	3	4
## 548	4	5	3	5	1	1	3	3
## 677	3	3	1	1	1	1	5	1
## 800	3	4	2	3	4	3	5	5
## 993	4	5	2	3	5	5	4	3

	Economy.Management	Biology	Chemistry	Reading	Geography	Foreign.languages
## 98	2	1	1	3	1	4
## 221	1	5	5	3	1	5
## 548	1	2	1	5	5	5
## 677	1	1	1	1	3	4
## 800	2	3	2	5	3	4
## 993	1	4	4	2	4	2

	Medicine	Law	Cars	Art.exhibitions	Religion	Countryside..outdoors	Dancing
## 98	1	2	2	1	4	4	1
## 221	3	2	4	3	2	4	2
## 548	2	2	1	4	4	3	1
## 677	1	5	2	3	1	4	1
## 800	3	2	3	4	2	4	2
## 993	1	1	2	1	1	1	1

	Musical.instruments	Writing	Passive.sport	Active.sport	Gardening
## 98	1	1	1	5	2
## 221	5	1	5	5	3

```
## 548                   5      4           5         5         2
## 677                   1      1           5         5         2
## 800                   3      3           3         2         4
## 993                   1      5           4         1         1
##       Celebrities Shopping Science.and.technology Theatre Fun.with.friends
## 98              1        1                       4       1                3
## 221             1        3                       4       2                5
## 548             1        1                       2       5                5
## 677             4        3                       3       5                5
## 800             3        3                       4       5                4
## 993             1        1                       5       2                5
##       Adrenaline.sports Pets Flying Storm Darkness Heights Spiders Snakes
## Rats
## 98                    3    5      1     1        2       3       2      4
## 1
## 221                   3    5      1     3        2       2       2      3
## 2
## 548                   5    4      1     1        2       3       1      1
## 1
## 677                   2    3      1     2        2       2       3      3
## 4
## 800                   3    5      2     1        3       2       3      3
## 2
## 993                   1    1      3     1        1       5       5      3
## 2
##       Ageing Dangerous.dogs Fear.of.public.speaking Healthy.eating
## Daily.events
## 98         1              1                       2              3
## 1
## 221        1              4                       3              4
## 2
## 548        1              4                       1              2
## 5
## 677        3              3                       3              4
## 2
## 800        2              2                       4              3
## 3
## 993        2              3                       4              1
## 3
##       Prioritising.workload Writing.notes Workaholism Thinking.ahead
## 98                        1             1           3              2
## 221                       2             2           1              2
## 548                       2             1           2              2
## 677                       1             2           1              2
## 800                       3             2           4              3
## 993                       1             1           1              3
##       Final.judgement Reliability Keeping.promises Loss.of.interest
## 98                  1           4                5                5
## 221                 2           3                5                2
## 548                 1           4                4                1
```

```
## 677                   3           3                  3              4
## 800                   1           4                  4              2
## 993                   3           3                  5              1
##      Friends.versus.money Funniness Fake Criminal.damage Decision.making
## 98                      3         4    4               5               1
## 221                     4         4    2               5               4
## 548                     5         5    1               1               3
## 677                     4         2    2               5               2
## 800                     4         3    3               2               3
## 993                     1         2    1               1               3
##      Elections Self.criticism Judgment.calls Hypochondria Empathy
## 98           5              4              3            1       4
## 221          4              2              4            1       4
## 548          5              5              5            1       4
## 677          1              2              4            2       4
## 800          2              4              4            2       4
## 993          5              2              3            1       4
##      Eating.to.survive Giving Compassion.to.animals Borrowed.stuff
## Loneliness
## 98                   4      1                     2              5
## 5
## 221                  2      3                     5              5
## 2
## 548                  1      1                     5              5
## 1
## 677                  1      2                     1              2
## 2
## 800                  2      3                     5              4
## 4
## 993                  1      4                     2              4
## 3
##      Cheating.in.school Health Changing.the.past God Dreams Charity
## 98                    5      1                 5   5      4       2
## 221                   5      3                 1   2      3       1
## 548                   5      2                 2   1      3       2
## 677                   5      3                 4   4      3       2
## 800                   3      3                 2   2      4       3
## 993                   1      3                 4   5      3       3
##      Number.of.friends Waiting New.environment Mood.swings
## 98                   2       4               5           5
## 221                  4       2               4           3
## 548                  3       5               5           1
## 677                  3       3               3           5
## 800                  2       4               2           2
## 993                  3       2               2           4
##      Appearence.and.gestures Socializing Achievements
## 98                         2           3            4
## 221                        3           4            3
## 548                        1           4            2
## 677                        3           3            3
```

```
## 800                                          3              2                   3
## 993                                          2              1                   3
##     Responding.to.a.serious.letter Children Assertiveness Getting.angry
## 98                                3        5             5             2
## 221                               4        3             3             2
## 548                               3        4             2             1
## 677                               4        4             1             2
## 800                               4        3             3             2
## 993                               3        3             5             3
##     Knowing.the.right.people Public.speaking Unpopularity Life.struggles
## 98                         4               2            3              1
## 221                        4               5            3              1
## 548                        3               1            3              1
## 677                        4               2            3              3
## 800                        4               4            3              4
## 993                        3               5            3              1
##     Happiness.in.life Energy.levels Small...big.dogs Personality
## 98                  3             3                3           3
## 221                 5             4                3           4
## 548                 4             4                3           3
## 677                 3             2                2           4
## 800                 3             2                2           3
## 993                 2             3                4           3
##     Finding.lost.valuables Getting.up Interests.or.hobbies Parents..advice
## 98                       1          1                    5               3
## 221                      3          4                    5               4
## 548                      4          4                    5               4
## 677                      4          2                    3               3
## 800                      4          2                    2               3
## 993                      1          5                    3               3
##     Questionnaires.or.polls Finances Shopping.centres Branded.clothing
## 98                        1        2                1                1
## 221                       3        2                3                2
## 548                       3        3                2                1
## 677                       1        3                4                2
## 800                       3        4                3                3
## 993                       2        1                1                1
##     Entertainment.spending Spending.on.looks Spending.on.gadgets
## 98                       5                1                   5
## 221                      5                4                   2
## 548                      3                1                   1
## 677                      2                4                   2
## 800                      2                3                   4
## 993                      5                1                   1
##     Spending.on.healthy.eating Age Height Weight Number.of.siblings
## 98                           2  19    200     75                  1
## 221                          3  18    200     90                  2
## 548                          4  21    203     80                  2
## 677                          4  20     62     55                  2
```

```
## 800                              4  18   203    89                    2
## 993                              4  30   200   150                    1
```

```r
outlier_siblings = boxplot(impu_num_compl$Number.of.siblings, plot=FALSE)$out
impu_num_compl[which(impu_num_compl$Number.of.siblings %in%
outlier_siblings),]
```

```
##       Music Slow.songs.or.fast.songs Dance Folk Country Classical.music
## Musical
```

	Music	Slow.songs.or.fast.songs	Dance	Folk	Country	Classical.music	Musical
## 13	5	3	1	2	1	4	3
## 33	5	5	3	1	3	2	3
## 35	5	4	3	2	1	3	4
## 54	5	3	4	4	3	4	5
## 92	5	5	1	5	1	2	5
## 125	4	4	1	4	5	5	5
## 139	5	3	2	3	3	4	5
## 150	2	3	1	3	1	3	4
## 230	4	3	4	2	4	1	1
## 260	2	3	3	3	3	2	2
## 366	5	3	2	2	3	4	2
## 372	5	3	5	5	5	5	5
## 443	5	3	4	2	4	3	3
## 476	5	3	3	2	5	4	5
## 503	5	4	4	3	2	4	2
## 525	5	3	2	1	2	4	2
## 571	5	3	3	1	1	2	1
## 620	5	1	3	3	1	5	4
## 683	4	4	4	2	3	3	3
## 695	5	3	3	3	4	5	2
## 743	5	3	1	3	4	5	

```
3
## 751         5                        3     5     5     2                 5
3
## 804         5                        5     2     1     1                 2
4
## 847         5                        3     5     2     2                 3
3
## 849         5                        2     2     1     1                 3
1
## 854         5                        3     4     4     2                 3
4
## 931         5                        3     3     2     1                 2
3
## 938         5                        3     4     1     1                 5
4
## 941         5                        3     2     1     1                 3
3
## 958         5                        4     2     1     1                 1
2
## 1007        4                        4     5     1     3                 4
1
##         Pop Rock Metal.or.Hardrock Punk Hiphop..Rap Reggae..Ska Swing..Jazz
## 13       3    5                  4    2           3           1           1
## 33       3    4                  3    4           4           2           2
## 35       4    5                  3    4           2           3           3
## 54       4    3                  2    2           3           3           3
## 92       3    5                  5    5           1           5           1
## 125      3    5                  3    3           1           2           4
## 139      2    1                  1    1           3           3           4
## 150      1    2                  2    2           3           2           1
## 230      4    3                  1    4           2           5           3
## 260      3    4                  2    2           2           1           3
## 366      1    5                  4    5           1           5           4
## 372      5    5                  3    3           2           2           5
## 443      5    4                  1    4           3           4           4
## 476      3    5                  4    4           3           4           3
## 503      2    5                  3    4           3           3           4
## 525      2    5                  5    5           2           5           2
## 571      3    3                  1    2           2           1           1
## 620      3    3                  2    2           3           2           3
## 683      4    4                  3    4           3           4           3
## 695      3    5                  4    2           3           3           5
## 743      2    4                  2    1           3           4           2
## 751      3    3                  1    1           5           1           5
## 804      3    5                  4    5           1           1           2
## 847      4    2                  1    1           4           2           4
## 849      3    5                  3    4           1           4           2
## 854      3    3                  1    1           2           3           2
## 931      3    2                  2    3           5           3           1
## 938      5    5                  4    5           4           5           5
```

```
## 941     3     3                 1     1         4              4              5
## 958     2     2                 1     1         5              1              2
## 1007    4     1                 1     4         1              1              2
##       Rock.n.roll Alternative Latino Techno..Trance Opera Movies Horror
## Thriller
## 13              4           3      2              1     2      5      1
## 5
## 33              4           4      2              3     1      5      5
## 5
## 35              4           4      2              1     1      5      2
## 3
## 54              3           3      5              2     5      5      3
## 3
## 92              3           1      1              1     1      5      4
## 4
## 125             5           2      3              1     3      4      5
## 5
## 139             4           2      3              1     2      5      1
## 2
## 150             1           1      1              1     2      3      2
## 2
## 230             3           2      2              3     3      3      1
## 3
## 260             5           2      5              1     5      3      1
## 1
## 366             5           5      1              2     4      5      1
## 5
## 372             5           3      5              2     5      5      1
## 2
## 443             4           2      2              2     1      5      5
## 4
## 476             5           3      4              1     2      4      4
## 3
## 503             5           3      1              3     3      5      3
## 5
## 525             3           5      2              1     3      5      3
## 4
## 571             3           2      2              1     1      5      4
## 2
## 620             3           2      3              2     5      5      2
## 4
## 683             4           3      2              5     2      5      2
## 4
## 695             5           1      5              4     3      5      4
## 5
## 743             3           4      5              5     2      5      2
## 3
## 751             4           5      5              1     4      4      3
## 4
## 804             3           2      1              1     2      5      3
```

```
4
## 847            2         2     3             5      3      5      3
3
## 849            3         5     1             2      1      3      1
2
## 854            2         2     3             1      4      5      3
3
## 931            1         1     3             3      2      5      3
2
## 938            5         5     5             2      5      5      1
3
## 941            2         2     1             5      1      4      4
2
## 958            1         1     2             2      1      4      4
4
## 1007           3         1     3             4      1      5      2
5
##       Comedy Romantic Sci.fi War Fantasy.Fairy.tales Animated Documentary
## 13         4        3      1   4                   5        3           3
## 33         5        5      2   3                   5        5           3
## 35         5        4      4   2                   2        5           3
## 54         5        5      1   5                   5        3           3
## 92         5        5      3   1                   5        5           1
## 125        5        4      5   5                   5        5           5
## 139        5        5      1   3                   5        4           4
## 150        4        2      5   5                   4        4           4
## 230        4        1      2   2                   3        2           3
## 260        5        1      1   4                   3        1           5
## 366        2        2      1   5                   2        2           5
## 372        5        5      3   2                   5        5           3
## 443        5        4      3   3                   5        5           4
## 476        5        5      2   3                   5        5           3
## 503        4        2      5   5                   5        5           3
## 525        3        3      3   3                   4        5           4
## 571        5        3      1   5                   3        3           3
## 620        4        2      2   5                   3        3           5
## 683        4        2      4   5                   5        4           4
## 695        5        3      4   5                   4        4           5
## 743        5        4      3   5                   5        5           4
## 751        5        4      4   4                   5        5           5
## 804        5        4      1   2                   3        2           2
## 847        5        5      5   2                   2        4           4
## 849        3        4      4   2                   1        2           1
## 854        5        5      1   3                   5        3           4
## 931        5        5      2   3                   5        5           3
## 938        5        5      4   2                   4        5           3
## 941        5        3      5   5                   4        3           5
## 958        5        4      4   4                   3        2           3
## 1007       5        1      5   5                   1        5           5
##      Western Action History Psychology Politics Mathematics Physics
```

								Internet	PC
## 13	1	1	4	4	4	1	1	3	2
## 33	2	4	4	5	3	1	1	5	4
## 35	1	5	4	5	4	3	1	5	4
## 54	1	5	3	3	4	1	1	3	2
## 92	1	3	1	1	1	1	1	5	5
## 125	5	4	4	4	4	1	3	4	5
## 139	3	2	2	3	2	1	1	3	1
## 150	2	2	2	3	1	5	5	3	5
## 230	3	5	2	1	1	4	2	5	5
## 260	1	1	5	4	4	1	2	2	2
## 366	3	4	5	5	4	1	1	3	2
## 372	3	2	2	5	1	5	3	3	3
## 443	3	3	2	2	3	3	2	3	4
## 476	1	2	4	5	3	3	2	4	2
## 503	5	5	2	1	4	3	1	5	5
## 525	1	1	3	4	1	3	2	5	2
## 571	1	5	4	3	2	1	1	5	3
## 620	2	4	3	2	2	5	5	5	4
## 683	3	5	3	3	2	4	2	4	4
## 695	2	4	5	5	5	5	3	5	5
## 743	5	5	3	5	3	4	3	5	4
## 751	3	3	4	5	2	4	3	3	3
## 804	1	2	3	3	3	1	1	5	3
## 847	2	3	2	1	1	2	2	5	4
## 849	1	3	1	5	2	1	2		

```
5   3
## 854        4       3         3           3         2           3         3
4   3
## 931        2       3         3           2         2           1         2
5   4
## 938        5       5         3           5         1           5         4
5   3
## 941        4       5         4           3         2           3         3
5   5
## 958        2       5         3           3         3           1         1
4   4
## 1007       2       5         4           1         1           5         4
5   5
##       Economy.Management Biology Chemistry Reading Geography
Foreign.languages
## 13                     1       5         5         5         3
5
## 33                     3       1         1         3         3
3
## 35                     4       3         1         3         2
5
## 54                     2       4         2         4         5
5
## 92                     1       5         1         1         1
5
## 125                    3       2         2         4         4
4
## 139                    2       5         4         5         3
5
## 150                    3       2         3         2         3
3
## 230                    2       3         2         1         5
3
## 260                    2       4         3         5         4
4
## 366                    4       4         4         4         5
5
## 372                    3       5         5         5         2
3
## 443                    2       3         3         2         3
3
## 476                    2       3         2         5         3
3
## 503                    4       1         1         1         1
4
## 525                    1       5         4         3         4
3
## 571                    2       2         1         1         4
5
## 620                    2       3         2         1         5
```

```
4
## 683                2       2       1       3       4
3
## 695                3       2       2       2       4
5
## 743                5       4       1       5       4
5
## 751                2       3       2       2       2
2
## 804                2       2       1       2       2
3
## 847                3       1       1       3       2
5
## 849                5       2       2       1       2
3
## 854                3       3       3       4       4
3
## 931                3       2       1       1       3
3
## 938                2       4       2       5       5
4
## 941                1       2       1       2       1
3
## 958                1       1       1       1       1
1
## 1007               2       2       1       1       2
2
##      Medicine Law Cars Art.exhibitions Religion Countryside..outdoors
Dancing
## 13          5   2    3               1        1                     5
3
## 33          1   2    3               4        2                     2
1
## 35          3   2    5               3        5                     5
2
## 54          4   3    5               5        5                     4
5
## 92          5   1    1               1        1                     5
5
## 125         4   4    4               5        3                     5
2
## 139         5   1    1               1        5                     5
2
## 150         2   1    2               1        3                     4
1
## 230         2   2    2               2        2                     5
2
## 260         3   4    4               2        3                     5
5
## 366         4   4    5               4        4                     5
```

```
1
## 372          5   2   2           3       5                   5
5
## 443          2   2   2           4       3                   3
2
## 476          2   3   1           2       2                   4
2
## 503          1   2   5           1       1                   2
1
## 525          5   1   1           3       3                   5
2
## 571          1   1   5           1       1                   5
1
## 620          2   3   4           1       1                   2
1
## 683          2   2   4           2       4                   4
1
## 695          1   3   4           3       5                   4
3
## 743          4   4   2           3       5                   5
4
## 751          5   3   5           5       5                   2
5
## 804          1   1   3           3       2                   4
1
## 847          2   1   3           2       2                   3
5
## 849          1   2   1           2       1                   2
2
## 854          3   3   3           3       3                   5
3
## 931          3   2   4           3       3                   4
2
## 938          3   2   3           3       3                   2
2
## 941          1   1   1           2       4                   5
1
## 958          1   1   5           1       1                   3
1
## 1007         1   1   5           1       5                   5
5
##      Musical.instruments Writing Passive.sport Active.sport Gardening
## 13                     4       1             5            3         4
## 33                     2       1             2            2         1
## 35                     3       2             5            3         1
## 54                     4       1             5            5         3
## 92                     1       1             5            3         1
## 125                    5       3             4            5         1
## 139                    5       3             2            4         1
## 150                    1       1             2            3         1
```

```
## 230                    4     1        5             3      2
## 260                    2     2        5             2      1
## 366                    3     2        4             3      1
## 372                    5     3        2             5      3
## 443                    5     2        3             4      2
## 476                    5     3        3             3      1
## 503                    3     1        2             3      1
## 525                    1     1        5             1      1
## 571                    2     1        5             5      1
## 620                    1     1        2             1      1
## 683                    1     1        4             1      1
## 695                    5     1        4             5      1
## 743                    3     4        3             5      1
## 751                    1     3        2             5      4
## 804                    4     1        4             5      3
## 847                    2     1        2             2      2
## 849                    2     1        5             1      2
## 854                    3     4        5             3      4
## 931                    4     1        3             1      1
## 938                    5     1        5             2      1
## 941                    5     1        5             1      1
## 958                    1     1        2             1      1
## 1007                   5     1        1             5      5
##      Celebrities Shopping Science.and.technology Theatre Fun.with.friends
## 13             3        2                       3       2               4
## 33             4        5                       3       3               5
## 35             1        3                       5       3               5
## 54             1        3                       3       5               5
## 92             3        3                       1       3               5
## 125            1        1                       5       4               4
## 139            2        3                       2       2               4
## 150            1        2                       4       2               3
## 230            1        2                       4       2               4
## 260            1        1                       3       5               5
## 366            1        3                       2       3               4
## 372            1        3                       3       3               5
## 443            4        3                       4       4               5
## 476            4        2                       2       3               5
## 503            1        4                       5       1               5
## 525            5        3                       1       4               5
## 571            3        5                       4       3               4
## 620            1        1                       5       1               5
## 683            2        3                       4       3               4
## 695            2        2                       5       2               5
## 743            1        3                       4       4               5
## 751            2        5                       5       5               5
## 804            3        3                       1       3               5
## 847            1        5                       2       2               5
## 849            1        4                       3       1               5
## 854            3        4                       3       5               5
```

	Adrenaline.sports	Pets	Flying	Storm	Darkness	Heights	Spiders	Snakes	Rats
## 931	3	5			3	2			5
## 938	1	3			3	4			5
## 941	1	3			2	2			5
## 958	1	2			4	2			4
## 1007	1	2			5	1			5
## 13	1	2	1	1	1	1	1	3	1
## 33	1	5	3	5	5	5	5	5	5
## 35	5	1	1	2	2	1	2	2	2
## 54	3	1	3	1	1	1	5	1	3
## 92	4	1	1	3	1	1	5	5	5
## 125	5	4	1	1	1	2	1	1	1
## 139	1	3	1	1	1	1	1	2	2
## 150	3	1	1	1	2	3	1	2	1
## 230	5	1	1	1	1	1	1	2	1
## 260	1	1	1	1	1	3	1	1	1
## 366	5	1	1	1	1	1	1	1	1
## 372	2	3	2	4	1	3	2	3	2
## 443	2	5	2	1	2	2	2	4	3
## 476	2	5	2	3	5	1	1	4	3
## 503	3	1	2	1	1	2	3	3	1
## 525	5	5	1	2	3	2	2	1	1
## 571	4	3	1	1	1	4	1	5	4
## 620	3	1	1	1	2	2	3	5	2
## 683	3	5	3	1	1	2	2	5	3
## 695	3	1	2	2	1	1	3	5	2
## 743	4	1	1	1	2	4	2	2	3
## 751	5	1	1	1	1	1	1	1	

```
1
## 804                     5      3      1      1      1      2      5      5
4
## 847                     2      5      5      2      2      4      5      5
5
## 849                     4      2      1      1      1      1      1      1
1
## 854                     3      5      1      1      1      1      1      2
3
## 931                     2      1      3      3      3      4      5      5
5
## 938                     4      5      1      3      4      2      3      5
4
## 941                     3      4      1      3      4      5      3      5
1
## 958                     1      1      1      1      1      3      3      3
1
## 1007                    1      5      1      1      1      1      1      1
1
##        Ageing Dangerous.dogs Fear.of.public.speaking Healthy.eating
Daily.events
## 13        5        2                     2                 3
4
## 33        1        5                     2                 3
3
## 35        1        2                     3                 3
5
## 54        1        3                     5                 3
3
## 92        5        5                     1                 3
3
## 125       1        2                     1                 4
4
## 139       1        4                     3                 1
4
## 150       2        3                     4                 2
2
## 230       3        2                     2                 2
2
## 260       1        5                     1                 4
4
## 366       3        1                     1                 4
4
## 372       1        5                     1                 1
2
## 443       3        3                     2                 3
3
## 476       1        2                     3                 2
3
## 503       2        3                     2                 3
```

```
2
## 525           3               2                   5               2
3
## 571           5               4                   1               5
3
## 620           4               3                   1               1
3
## 683           2               4                   3               2
3
## 695           1               2                   1               4
3
## 743           1               3                   2               3
5
## 751           1               2                   1               4
5
## 804           3               3                   1               2
3
## 847           4               5                   3               3
3
## 849           1               1                   1               4
3
## 854           3               4                   1               3
3
## 931           3               5                   4               4
3
## 938           4               3                   4               3
3
## 941           5               3                   4               1
3
## 958           1               2                   3               1
1
## 1007          2               5                   5               3
1
##       Prioritising.workload Writing.notes Workaholism Thinking.ahead
## 13                        3             5           4              5
## 33                        1             1           1              2
## 35                        3             1           5              3
## 54                        3             5           2              5
## 92                        3             5           5              5
## 125                       2             2           3              4
## 139                       2             2           1              5
## 150                       3             2           3              2
## 230                       1             2           1              3
## 260                       5             3           4              2
## 366                       3             1           3              4
## 372                       3             3           4              4
## 443                       3             4           3              2
## 476                       1             2           2              3
## 503                       4             2           5              4
## 525                       3             2           3              4
```

##				
## 571	3	2	3	3
## 620	3	5	5	4
## 683	1	1	2	2
## 695	3	4	3	5
## 743	2	5	2	2
## 751	3	4	4	3
## 804	1	4	1	4
## 847	3	4	3	3
## 849	3	3	4	2
## 854	5	5	3	3
## 931	2	3	2	2
## 938	2	4	1	2
## 941	2	1	1	3
## 958	2	1	1	3
## 1007	3	1	5	5

##	Final.judgement	Reliability	Keeping.promises	Loss.of.interest
## 13	1	5	5	4
## 33	1	1	1	1
## 35	5	4	4	4
## 54	3	5	5	1
## 92	5	3	5	3
## 125	2	4	4	1
## 139	2	5	5	5
## 150	3	2	2	2
## 230	3	3	5	2
## 260	4	3	3	1
## 366	5	4	5	2
## 372	3	4	5	1
## 443	3	4	5	2
## 476	3	2	4	2
## 503	3	5	5	2
## 525	3	4	5	1
## 571	1	4	4	5
## 620	1	4	3	1
## 683	3	1	2	3
## 695	5	5	4	2
## 743	5	2	5	5
## 751	2	4	4	2
## 804	5	5	5	2
## 847	5	5	3	3
## 849	3	3	1	1
## 854	3	4	4	2
## 931	3	4	3	1
## 938	3	4	5	2
## 941	5	1	1	4
## 958	4	3	3	2
## 1007	5	5	4	1

##	Friends.versus.money	Funniness	Fake	Criminal.damage	Decision.making
## 13	4	3	1	2	5
## 33	1	1	1	3	1

```
## 35                     5         5  1             1                   3
## 54                     5         1  1             1                   3
## 92                     5         3  1             1                   5
## 125                    2         3  1             1                   2
## 139                    4         3  1             1                   4
## 150                    5         3  3             3                   2
## 230                    4         3  3             3                   3
## 260                    5         3  1             1                   3
## 366                    5         4  2             2                   2
## 372                    4         1  1             1                   2
## 443                    5         3  1             2                   2
## 476                    4         5  2             1                   2
## 503                    2         4  2             1                   4
## 525                    4         4  2             3                   3
## 571                    1         3  2             5                   4
## 620                    3         3  2             3                   4
## 683                    2         3  3             2                   1
## 695                    5         5  1             2                   3
## 743                    5         5  2             3                   2
## 751                    5         2  2             2                   3
## 804                    3         3  1             5                   3
## 847                    5         4  2             5                   3
## 849                    4         3  2             4                   2
## 854                    3         3  1             1                   3
## 931                    4         4  2             5                   4
## 938                    4         2  1             1                   3
## 941                    4         5  2             5                   2
## 958                    4         3  1             4                   4
## 1007                   2         1  1             3                   5
##       Elections Self.criticism Judgment.calls Hypochondria Empathy
## 13            5              5              2            5       5
## 33            1              1              5            1       5
## 35            5              4              3            1       2
## 54            5              3              5            1       5
## 92            1              3              3            3       5
## 125           3              5              3            1       3
## 139           5              4              5            1       5
## 150           3              1              2            1       2
## 230           4              4              4            1       5
## 260           4              5              5            5       5
## 366           5              2              4            1       2
## 372           5              1              5            1       4
## 443           1              4              4            1       4
## 476           5              4              4            2       5
## 503           5              2              5            2       4
## 525           5              5              4            2       4
## 571           3              2              5            1       3
## 620           1              3              4            1       3
## 683           1              1              1            5       4
## 695           1              5              5            1       5
```

```
## 743            2              2            5            2      5
## 751            5              3            4            2      5
## 804            3              3            2            3      5
## 847            2              2            2            3      3
## 849            3              5            4            1      2
## 854            3              4            3            1      3
## 931            1              3            5            3      5
## 938            4              2            5            4      4
## 941            1              2            4            2      4
## 958            5              4            3            2      5
## 1007           5              5            5            1      2
##       Eating.to.survive Giving Compassion.to.animals Borrowed.stuff
## Loneliness
## 13                    3      2                     5              5
## 5
## 33                    1      1                     5              5
## 1
## 35                    2      3                     1              3
## 2
## 54                    5      5                     3              5
## 3
## 92                    3      3                     1              2
## 2
## 125                   2      4                     2              4
## 2
## 139                   2      1                     2              5
## 4
## 150                   3      2                     1              2
## 3
## 230                   5      3                     3              4
## 2
## 260                   1      1                     5              5
## 3
## 366                   2      3                     4              4
## 2
## 372                   3      3                     4              4
## 1
## 443                   1      3                     4              4
## 4
## 476                   2      2                     5              4
## 3
## 503                   1      3                     2              4
## 2
## 525                   1      1                     5              3
## 3
## 571                   1      3                     3              3
## 3
## 620                   2      3                     5              4
## 2
## 683                   2      2                     4              4
```

```
3
## 695                 4          1                     3                     5
5
## 743                 4          1                     4                     2
1
## 751                 3          4                     3                     4
2
## 804                 1          5                     5                     5
3
## 847                 4          3                     5                     5
4
## 849                 1          2                     3                     1
1
## 854                 3          5                     5                     5
3
## 931                 2          5                     2                     4
5
## 938                 2          1                     4                     5
5
## 941                 2          2                     3                     2
2
## 958                 3          1                     5                     4
3
## 1007                1          4                     3                     4
1
```

##	Cheating.in.school	Health	Changing.the.past	God	Dreams	Charity
## 13	2	5	3	1	3	2
## 33	5	1	1	3	3	1
## 35	2	2	4	5	4	4
## 54	5	3	5	5	3	1
## 92	5	3	3	5	3	2
## 125	2	2	2	1	4	4
## 139	4	3	5	5	3	3
## 150	2	2	1	4	3	2
## 230	5	2	2	5	3	1
## 260	3	5	5	5	4	3
## 366	3	1	3	5	4	3
## 372	2	3	1	5	4	3
## 443	5	3	2	5	4	2
## 476	5	3	2	5	3	2
## 503	5	2	2	4	4	1
## 525	4	3	4	5	3	1
## 571	5	4	4	3	4	3
## 620	3	5	2	1	3	1
## 683	3	2	4	5	3	2
## 695	4	3	3	5	2	2
## 743	5	1	2	5	4	3
## 751	3	3	2	5	3	5
## 804	5	5	5	5	3	3
## 847	4	4	5	5	3	2

```
## 849                    5        3                   1   5        4        1
## 854                    3        5                   3   5        4        3
## 931                    4        4                   3   4        3        2
## 938                    4        4                   1   3        4        2
## 941                    5        4                   5   4        2        1
## 958                    5        3                   3   4        3        1
## 1007                   1        3                   4   5        3        3
##       Number.of.friends Waiting New.environment Mood.swings
## 13                    3       2               1           4
## 33                    5       2               5           2
## 35                    4       4               3           2
## 54                    5       1               4           2
## 92                    3       1               4           4
## 125                   4       4               4           2
## 139                   4       5               5           2
## 150                   2       2               4           3
## 230                   4       3               4           2
## 260                   4       1               5           2
## 366                   3       4               4           2
## 372                   5       3               4           2
## 443                   3       4               4           3
## 476                   5       3               2           3
## 503                   4       3               5           1
## 525                   2       1               3           3
## 571                   5       3               5           3
## 620                   4       3               3           3
## 683                   3       3               5           4
## 695                   4       2               5           4
## 743                   5       2               5           4
## 751                   3       3               4           2
## 804                   3       2               5           2
## 847                   2       2               4           4
## 849                   5       5               4           2
## 854                   5       4               4           4
## 931                   2       3               4           5
## 938                   1       2               4           4
## 941                   4       2               4           4
## 958                   2       3               3           3
## 1007                  3       5               5           1
##       Appearence.and.gestures Socializing Achievements
## 13                          4           2            3
## 33                          2           4            2
## 35                          3           4            3
## 54                          1           5            2
## 92                          3           5            3
## 125                         3           2            3
## 139                         3           5            3
## 150                         2           3            4
## 230                         4           4            3
## 260                         2           4            3
```

```
## 366                                4          3          3
## 372                                4          5          3
## 443                                4          3          3
## 476                                2          1          4
## 503                                3          3          4
## 525                                2          3          1
## 571                                5          4          3
## 620                                4          3          3
## 683                                2          3          4
## 695                                4          5          3
## 743                                1          5          4
## 751                                4          3          2
## 804                                4          3          3
## 847                                3          2          4
## 849                                5          3          2
## 854                                4          4          4
## 931                                4          3          3
## 938                                2          3          1
## 941                                4          1          5
## 958                                3          3          3
## 1007                               3          3          3
##      Responding.to.a.serious.letter Children Assertiveness Getting.angry
## 13                                4        5             5             5
## 33                                3        3             4             1
## 35                                3        3             4             1
## 54                                1        5             5             2
## 92                                3        4             4             5
## 125                               1        4             4             1
## 139                               5        5             4             1
## 150                               3        5             2             2
## 230                               4        4             4             1
## 260                               2        3             3             3
## 366                               3        4             4             1
## 372                               2        5             4             1
## 443                               2        5             5             3
## 476                               4        4             4             2
## 503                               2        3             5             1
## 525                               4        3             2             2
## 571                               3        5             4             4
## 620                               2        3             5             3
## 683                               4        5             3             3
## 695                               5        4             3             1
## 743                               3        4             4             2
## 751                               1        5             3             3
## 804                               1        4             3             3
## 847                               2        5             4             3
## 849                               4        4             4             1
## 854                               2        5             3             3
## 931                               2        4             3             4
## 938                               2        5             3             4
```

```
## 941                                      3            3          4             3
## 958                                      4            3          2             4
## 1007                                     5            5          4             1
##      Knowing.the.right.people Public.speaking Unpopularity Life.struggles
## 13                          3               3            2              5
## 33                          3               4            3              3
## 35                          4               4            4              1
## 54                          2               2            5              2
## 92                          5               5            5              2
## 125                         3               2            4              1
## 139                         2               5            5              5
## 150                         3               5            4              2
## 230                         3               4            3              2
## 260                         3               3            3              2
## 366                         1               1            3              2
## 372                         3               2            3              2
## 443                         4               4            4              4
## 476                         3               3            3              4
## 503                         5               2            2              1
## 525                         4               4            4              3
## 571                         3               5            5              3
## 620                         5               1            3              1
## 683                         3               3            4              1
## 695                         4               1            3              1
## 743                         4               2            2              1
## 751                         5               1            3              2
## 804                         3               3            3              3
## 847                         3               5            5              4
## 849                         5               2            5              2
## 854                         4               4            3              5
## 931                         3               4            4              5
## 938                         4               3            5              5
## 941                         2               2            4              4
## 958                         2               5            4              3
## 1007                        2               5            1              1
##      Happiness.in.life Energy.levels Small...big.dogs Personality
## 13                   4             3                4           3
## 33                   4             5                1           4
## 35                   3             5                3           3
## 54                   4             5                4           3
## 92                   5             5                1           3
## 125                  3             4                5           3
## 139                  4             4                3           3
## 150                  3             2                3           2
## 230                  5             4                3           3
## 260                  4             5                3           3
## 366                  4             4                4           3
## 372                  5             4                2           4
## 443                  4             3                5           3
## 476                  4             3                3           3
```

```
## 503                 4           4           3           4
## 525                 3           2           3           3
## 571                 4           4           3           3
## 620                 4           4           3           4
## 683                 4           3           3           3
## 695                 4           4           5           3
## 743                 4           5           5           4
## 751                 4           4           5           3
## 804                 3           4           3           4
## 847                 4           3           1           3
## 849                 5           5           3           5
## 854                 3           4           3           3
## 931                 3           3           3           3
## 938                 4           3           3           2
## 941                 4           4           4           3
## 958                 3           2           4           3
## 1007                4           4           3           5
##       Finding.lost.valuables Getting.up Interests.or.hobbies
## Parents..advice
## 13                         1          3                    2
## 4
## 33                         1          5                    5
## 3
## 35                         5          2                    3
## 2
## 54                         3          5                    5
## 4
## 92                         3          5                    4
## 4
## 125                        3          3                    4
## 3
## 139                        4          3                    3
## 5
## 150                        3          2                    3
## 3
## 230                        1          3                    4
## 4
## 260                        5          3                    5
## 3
## 366                        2          2                    4
## 3
## 372                        3          3                    5
## 3
## 443                        3          2                    4
## 3
## 476                        3          5                    5
## 3
## 503                        1          2                    4
## 4
## 525                        3          3                    3
```

```
4
## 571                                1          3                    3
3
## 620                                3          3                    1
3
## 683                                3          5                    2
3
## 695                                5          5                    5
3
## 743                                3          5                    4
1
## 751                                1          3                    3
3
## 804                                2          5                    4
4
## 847                                5          4                    4
4
## 849                                1          4                    5
2
## 854                                4          1                    5
5
## 931                                4          3                    4
3
## 938                                2          5                    5
2
## 941                                2          5                    3
4
## 958                                4          4                    2
4
## 1007                               3          1                    3
4
##      Questionnaires.or.polls Finances Shopping.centres Branded.clothing
## 13                         2        4                1                1
## 33                         3        1                3                1
## 35                         2        3                3                4
## 54                         4        3                5                3
## 92                         3        5                5                5
## 125                        2        3                3                3
## 139                        5        4                1                1
## 150                        3        3                2                1
## 230                        2        1                2                2
## 260                        5        4                1                3
## 366                        1        3                3                3
## 372                        3        3                3                2
## 443                        1        2                4                2
## 476                        2        1                2                2
## 503                        3        2                5                5
## 525                        5        4                2                5
## 571                        1        3                5                5
## 620                        1        2                2                4
```

```
## 683                          3              1                    4                4
## 695                          3              3                    2                3
## 743                          3              1                    4                5
## 751                          3              4                    3                3
## 804                          1              3                    3                2
## 847                          5              4                    4                3
## 849                          2              3                    4                5
## 854                          3              4                    2                1
## 931                          3              3                    5                2
## 938                          4              5                    2                2
## 941                          3              2                    5                5
## 958                          3              3                    2                5
## 1007                         3              3                    1                1
##      Entertainment.spending Spending.on.looks Spending.on.gadgets
## 13                        2                 3                   2
## 33                        4                 5                   1
## 35                        3                 3                   1
## 54                        3                 1                   2
## 92                        5                 3                   2
## 125                       3                 4                   3
## 139                       1                 1                   1
## 150                       2                 1                   2
## 230                       4                 1                   2
## 260                       4                 3                   1
## 366                       3                 4                   2
## 372                       3                 3                   4
## 443                       4                 5                   3
## 476                       5                 2                   1
## 503                       4                 4                   5
## 525                       3                 2                   2
## 571                       3                 5                   5
## 620                       3                 2                   4
## 683                       4                 4                   4
## 695                       3                 2                   4
## 743                       5                 4                   4
## 751                       3                 3                   3
## 804                       3                 3                   3
## 847                       4                 4                   4
## 849                       5                 5                   5
## 854                       1                 3                   2
## 931                       2                 3                   2
## 938                       4                 2                   3
## 941                       4                 4                   4
## 958                       3                 3                   3
## 1007                      1                 1                   5
##      Spending.on.healthy.eating Age Height Weight Number.of.siblings
## 13                            3  24    168     55                 10
## 33                            1  20    158     46                  4
## 35                            2  20    177     67                  5
## 54                            1  18    164     51                  4
```

```
## 92                              2   18    168      50                 4
## 125                             5   20    176      69                 4
## 139                             1   20    168      50                 4
## 150                             4   19    184      85                 5
## 230                             2   21    173      73                 5
## 260                             3   19    175      72                 4
## 366                             4   24    175      70                 5
## 372                             3   19    164      53                 4
## 443                             3   18    163      58                 6
## 476                             3   18    172      60                 4
## 503                             5   22    193      86                 6
## 525                             2   19    171      60                 4
## 571                             5   23    189      88                 4
## 620                             5   27    175      83                 4
## 683                             1   19    172      75                 4
## 695                             4   21    187      73                 4
## 743                             5   26    183      90                 5
## 751                             3   22    175      86                 6
## 804                             3   27    173      79                 5
## 847                             4   23    171      54                 4
## 849                             5   19    184      60                 4
## 854                             2   30    175      68                 4
## 931                             4   18    165      45                 5
## 938                             5   18    167      62                 4
## 941                             4   16    172      59                 4
## 958                             3   20    175      65                 5
## 1007                            3   27    183      80                 5
```

```r
# Function for outlier treatment
# Capping and Flooring function
treat_outlier <- function(x){
  qnt <- quantile(x, probs=c(.25, .75), na.rm = T)
  caps <- quantile(x, probs=c(.05, .95), na.rm = T)
  H <- 1.5 * IQR(x, na.rm = T)
  x[x < (qnt[1] - H)]  <- caps[1]
  x[x > (qnt[2] + H)] <- caps[2]
  return(as.data.frame(x))
}

impu_num_compl$Age <- treat_outlier(impu_num_compl$Age)$x
impu_num_compl$Height <- treat_outlier(impu_num_compl$Height)$x
impu_num_compl$Weight <- treat_outlier(impu_num_compl$Weight)$x

dim(impu_num_compl)
```

```
## [1] 1010   139
```

```r
dim(impu_cat_compl)
```

```
## [1] 1010    11
```

```
boxplot(impu_num_compl$Height)
```
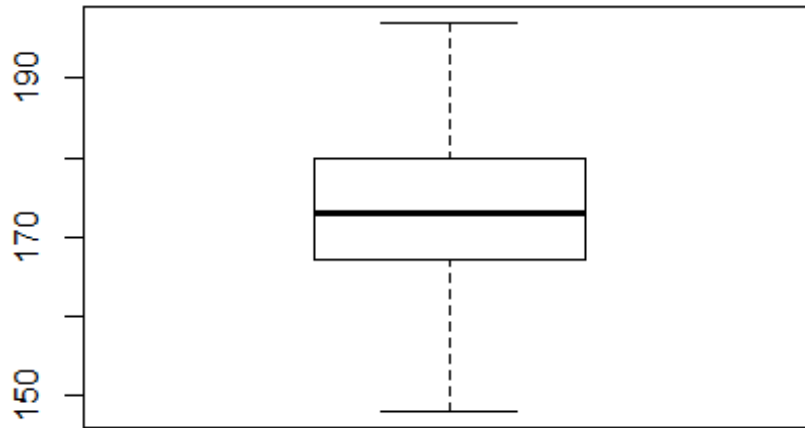


```
boxplot(impu_num_compl$Weight)
```
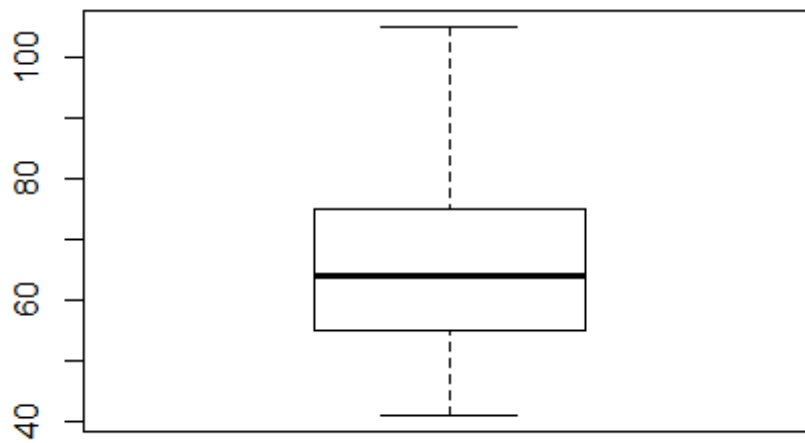
```
data_transformed = cbind(impu_num_compl, impu_cat_compl)
dim(data_transformed)
```

[1] 1010 150

Corelation Analysis:

```
data_num_trans <- data_transformed[,!sapply(data_transformed, is.factor)]
dim(data_num_trans)
```

[1] 1010 139

```
music_trans = data_transformed[,names(music_data)]
dim(music_trans)
```

[1] 1010   19

```
library(corrgram)
```

Warning: package 'corrgram' was built under R version 3.6.2

Registered S3 method overwritten by 'seriation':
method   from
reorder.hclust gclus

##
Attaching package: 'corrgram'

The following object is masked from 'package:lattice':
##
panel.fill

```
corrgram(music_trans)
```
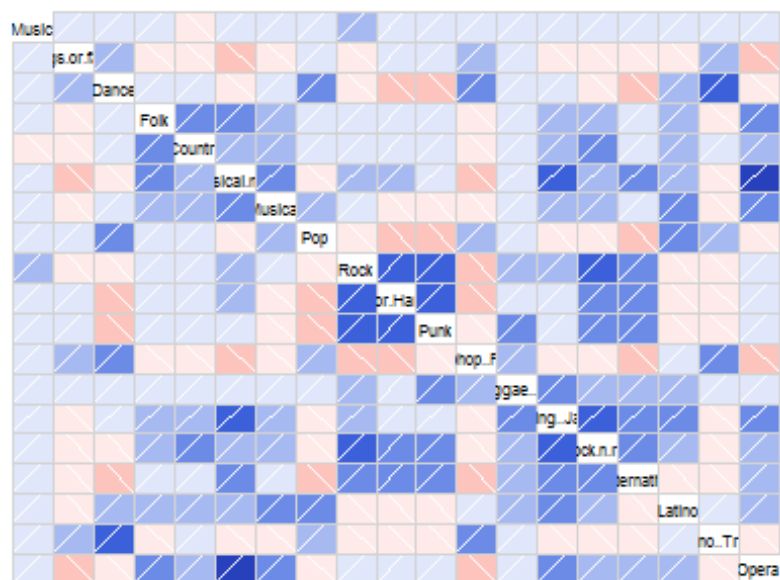
```
library(corrplot)

## Warning: package 'corrplot' was built under R version 3.6.2

## corrplot 0.84 loaded

music_cor = cor(music_trans)
corrplot(music_cor)
```
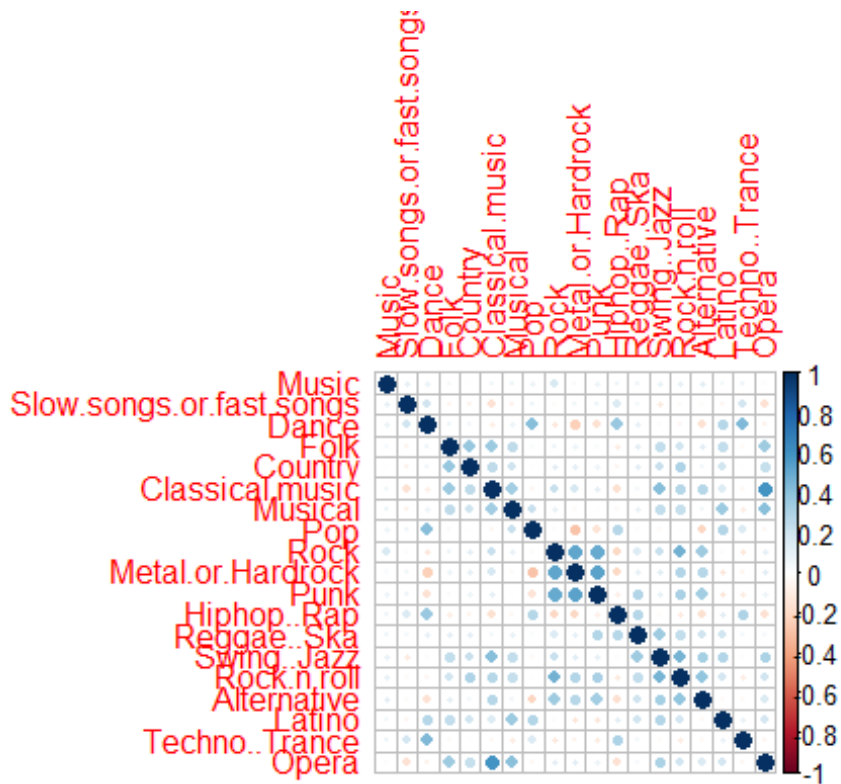
```
movie_trans = data_transformed[,names(movie_data)]
dim(movie_trans)

## [1] 1010    12

movie_cor = cor(movie_trans)
corrplot(movie_cor,type="upper")
```
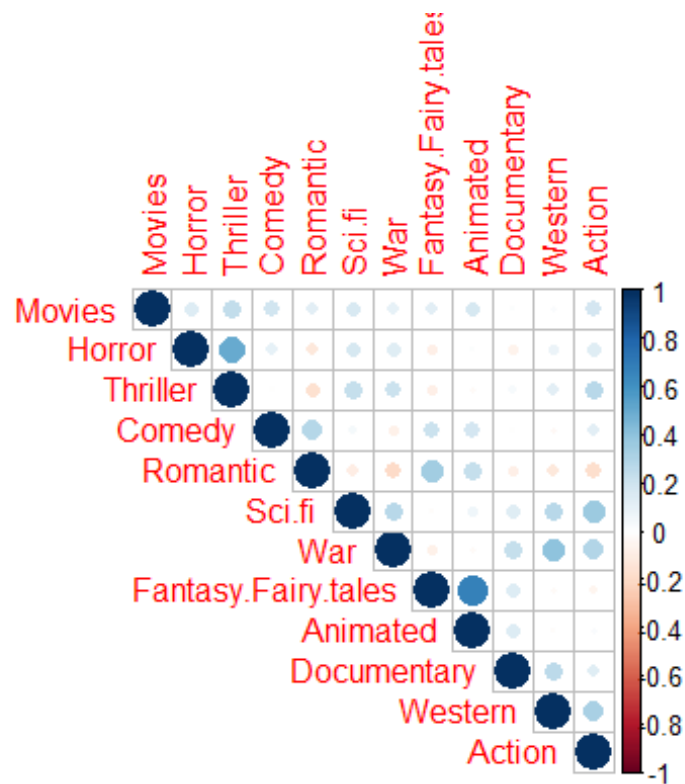
```
demo_cor <- cor(data_transformed[,c('Age','Weight','Height')])
corrplot(demo_cor, method="shade", shade.col=NA, tl.col="black", tl.srt=45,
tl.cex =0.7)
```
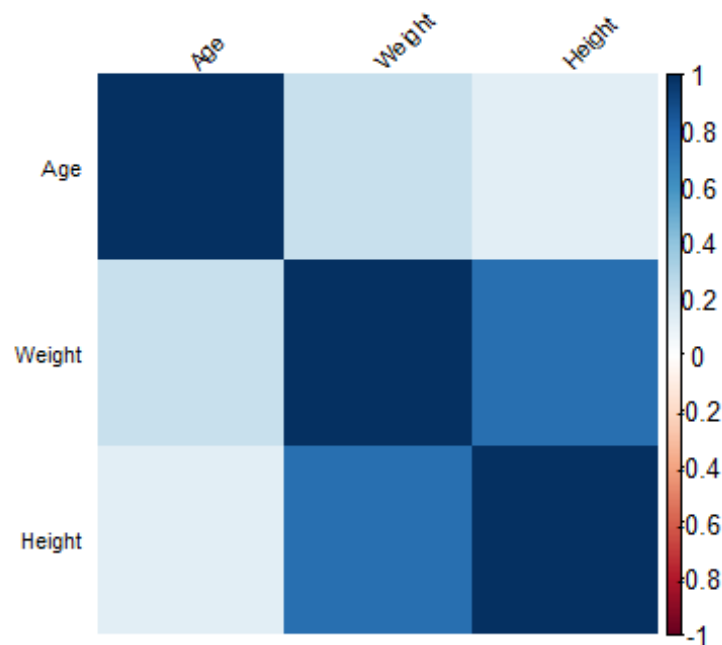
```
phobia_cor = cor(data_transformed[,names(phobia_data)])
corrplot(phobia_cor,type = "lower")
```
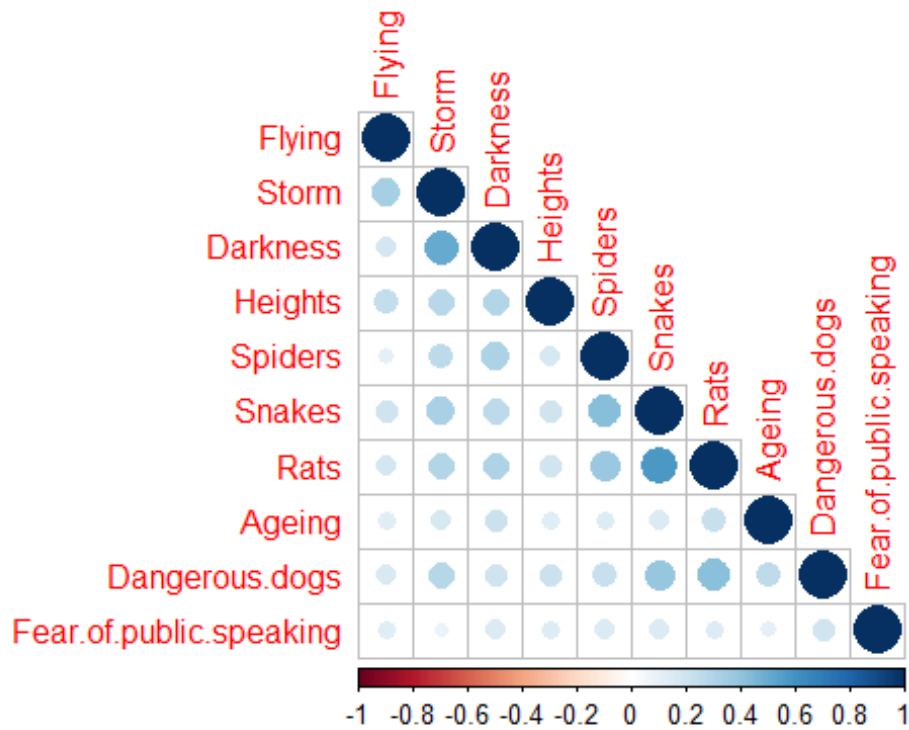


```
spend_cor = cor(data_transformed[,names(spend_data)])
corrplot(spend_cor)
```

Heat map

```
heatmap(phobia_cor, scale="column", col = terrain.colors(256))
```

Exploratory Data Analysis

```
data_transformed$Gender
```

```
##    [1] female female female female female male   female male   female
female
##   [11] female female female female female male   female female male   male
##   [21] male   male   female female female female female female male
female
##   [31] male   female female female male   female female male   female
female
##   [41] female male   female female female male   female female female
female
##   [51] female female female female female female female female male   male
##   [61] male   male   male   male   female male   male   female female
female
##   [71] male   male   female male   male   male   male   female female
female
##   [81] female male   female female female male   male   female female
female
##   [91] female female female male   male   male   male   male   male
female
##  [101] female male   female male   male   male   male   female female male
##  [111] male   female female female female female female female male
female
##  [121] male   male   female female male   female female female female
female
##  [131] female male   female female female male   male           female
female
##  [141] female female male   female male   female male   male   male   male
##  [151] female male   male   female male   female male   male   female male
##  [161] male   female male   male   male   female female male   female
female
##  [171] male   male   male   male   male   female male   male   female male
##  [181] male   male   female male   female female female female female
female
##  [191] female female female male   male   male   female female male   male
##  [201] male           male   female female female male   female female male
##  [211] male   female male   female female male   female female male   male
##  [221] male   male   female female male   male           female female male
##  [231] female female female female female female female female female
female
##  [241] male   female female female female female male   female female
female
##  [251] female female female female female female female male   female male
##  [261] male   female female female female female female female female
female
##  [271] female male   female female female female female male   male
female
##  [281] female male   female male   male   female female female male   male
```

```
##  [291] female male    female female female female male    male    female
female
##  [301] female male    female female female female female female female
female
##  [311] male    female male    female male    male    female male    female
female
##  [321] male    female female male    female male    female female male
female
##  [331] female male    female female female male    male    male    female
female
##  [341] female male    female female female female male    male    male
female
##  [351] male    female male    female female male    male    male    male
female
##  [361] female female female female male    male    male    male    female male
##  [371] female female male    male    female female female female female male
##  [381] female female female male    female male    female female female
female
##  [391] male    female female male    male    male    female female female
female
##  [401] male    female male    male    female female female female female
female
##  [411] male    female female male    male    female female male    female
female
##  [421] female female female female female female female male    female
female
##  [431] female male    male    female male    female male    female female male
##  [441] female female female female female female male    female female
female
##  [451] male    male    female female female female male    male    female
female
##  [461] male    male    female female female female male    female female male
##  [471] female male    male    male    male    female female female male
female
##  [481] female male    male    female female female female female male
female
##  [491] female female female male    female female female female female male
##  [501] female female male    female female male    male    female male
female
##  [511] male    male    female male    male    male    male    female female male
##  [521] female female female male    female female male    female male    male
##  [531] female male    female male    female male    female male    female male
##  [541] male    female         male    male    male    male    male    female
female
##  [551] female female female female male    female female female female
female
##  [561] female male    male    male    male    female female male    female
female
##  [571] male    male    female male    female female male    female female male
##  [581] male    female male    male    female male    male    female female
```

```
female
##  [591] male    female female female male    male    male    male    male    male
##  [601] female female male    female female male    male    female male    male
##  [611] male    female male    female female male    male    female female male
##  [621] male            female male    female female female female male
female
##  [631] female female male    male    female female male    male    female male
##  [641] female male    male    female female male    male    female female
female
##  [651] male    male    male    female male    female female female male    male
##  [661] female female female male    female female female male    male    male
##  [671] female female female female male    female female female female
female
##  [681] female female male    female female female male    male    female male
##  [691] male    female male    female male    female female female female
female
##  [701] female female male    male    female female male    female male
female
##  [711] female female female female female male    male    female female male
##  [721] female female female female female male    male    male    female male
##  [731] female female female female female female female female male    male
##  [741] male    female male    male    male    male    female female female male
##  [751] female female female female male    female male    female male    male
##  [761] female male    male    male    female male    female male    male
female
##  [771] female male    female female female female male    male    female
female
##  [781] male    female female male    male    male    male    male    female male
##  [791] female female male    male    male    female male    male    female male
##  [801] male    female female female female female male    male    male    male
##  [811] male    male    female male    female male    male    male    male
female
##  [821] female male    female male    female female female female male
female
##  [831] female female female male    male    male    male    male    female
female
##  [841] female male    female female male    female female female male
female
##  [851] female male    male    female male    male    female male    male    male
##  [861] male    female male    male    male    female male    female male
female
##  [871] female male    male    male    female female male    male    male    male
##  [881] female female female female female female male    male    female
female
##  [891] male    male    male    female female male    male    male    female male
##  [901] male    female male    male    female male    female female male
female
##  [911] female female female female female female male    male    female
female
##  [921] female male    female female female female male    female female
```

```
female
## [931] female male    female female      female female female female
female
## [941] male    female male    female female male    male    female female
female
## [951] male    male    male    female female female male    male    female
female
## [961] female male    female male    male    female female male    male    male
## [971] male    male    female female female female female male    female male
## [981] female female male    female female female female male    male
female
## [991] male    male    male    female female female male    female male    male
## [1001] female female male    female male    female male    female female male
## Levels:  female male
```

```r
a = split(data_transformed$Gender, 3, drop =TRUE)

str(data_transformed$Gender)
```

```
##  Factor w/ 3 levels "","female","male": 2 2 2 2 2 3 2 3 2 2 ...
```

```r
library(ggplot2)
library(gridExtra)
```

```
## Warning: package 'gridExtra' was built under R version 3.6.2
```

```r
library(magrittr) # needs to be run every time you start R and want to use
%>%
library(dplyr)
```

```
##
## Attaching package: 'dplyr'
```

```
## The following object is masked from 'package:gridExtra':
##
##     combine
```

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

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

```r
library(reshape2)
```

```
## Warning: package 'reshape2' was built under R version 3.6.2
```

```r
p1 =ggplot(na.omit(data), aes(x=Age)) + geom_bar(fill = "#23b0db") +
theme_bw() + theme(panel.border = element_blank(), panel.grid.major =
element_blank(),
```

```r
      panel.grid.minor = element_blank(), axis.line = element_line(colour =
      "black"))

age = data %>% select(Age) %>% group_by(Age) %>% summarize(count = n()) %>%
      arrange(desc(count))
age = tableGrob(as.data.frame(age))
grid.arrange(p1, head(age, 7), ncol=2)
```
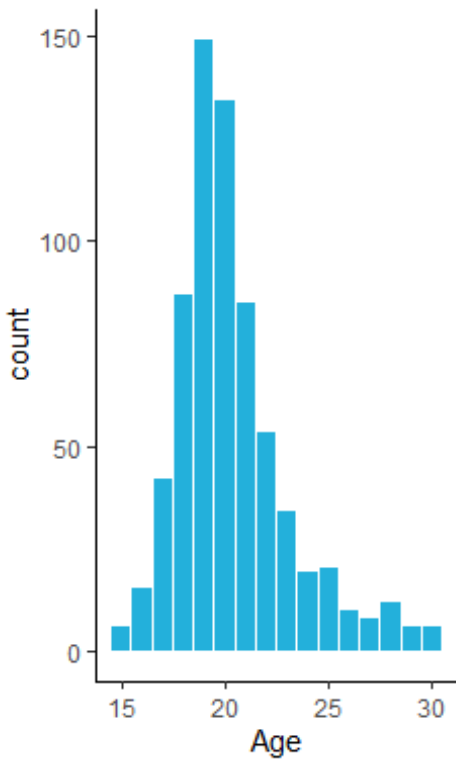

	Age	count
1	19	210
2	20	194
3	21	127
4	18	123
5	22	84
6	17	53

```r
counts <- table(data_transformed$Gender, data_transformed$Music)
barplot(counts, main="RATING",
        xlab="Music Rating", ylab = "Count of people", col=c("blue","red"),
        legend = rownames(counts))
```

RATING

Count of people
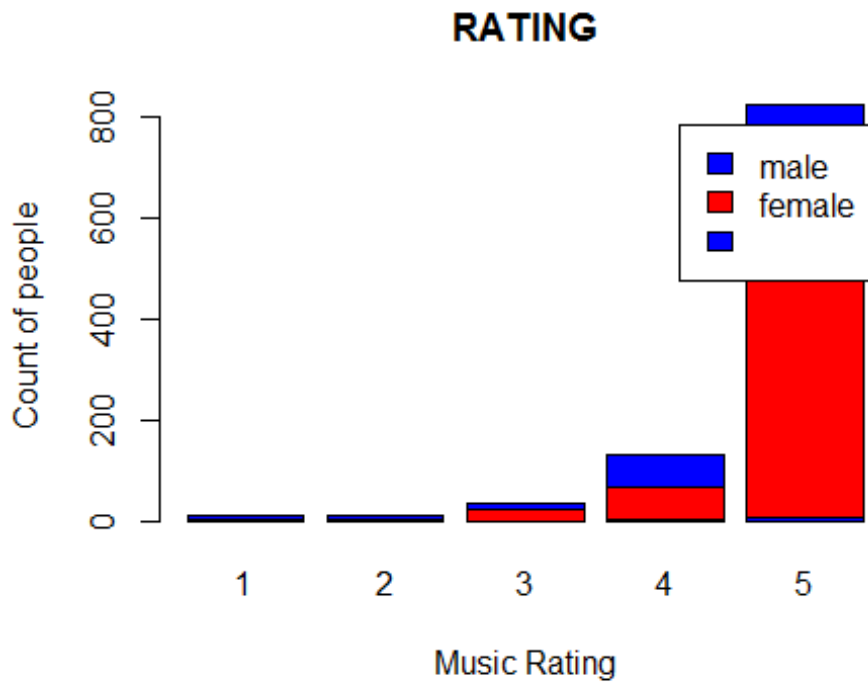
Music Rating

```r
counts <- table(data_transformed$Gender, data_transformed$Movies)
barplot(counts, main="RATING",
        xlab="Music Rating", ylab = "Count of people", col=c("Yellow","red"),
        legend = rownames(counts))
```
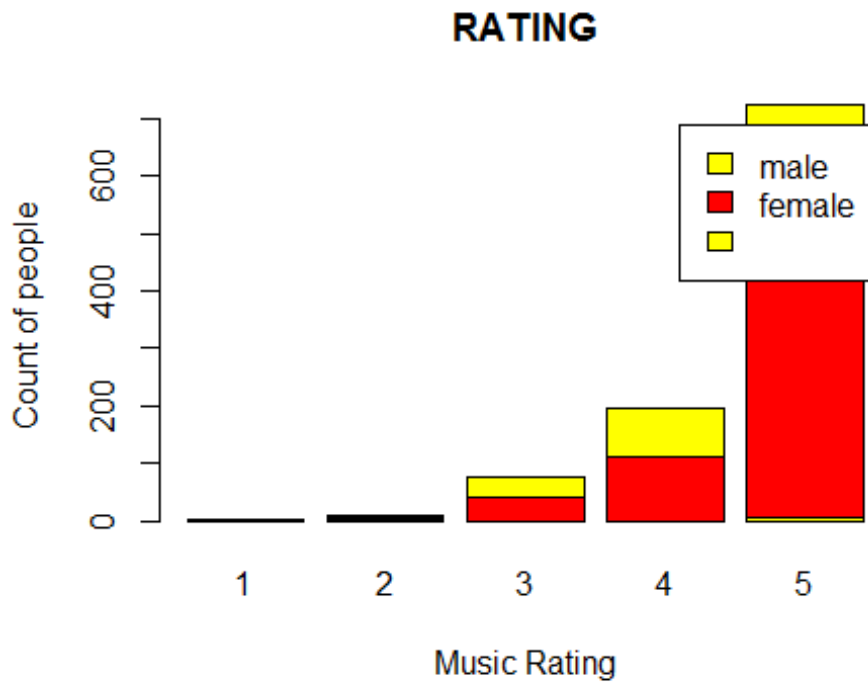
RATING


```
#Health
counts <- table(data_transformed$Health, data_transformed$Gender)
barplot(counts, main="RATING",
        xlab="Gender", col=c("purple1","red"),
        legend = rownames(counts), beside=TRUE)
```
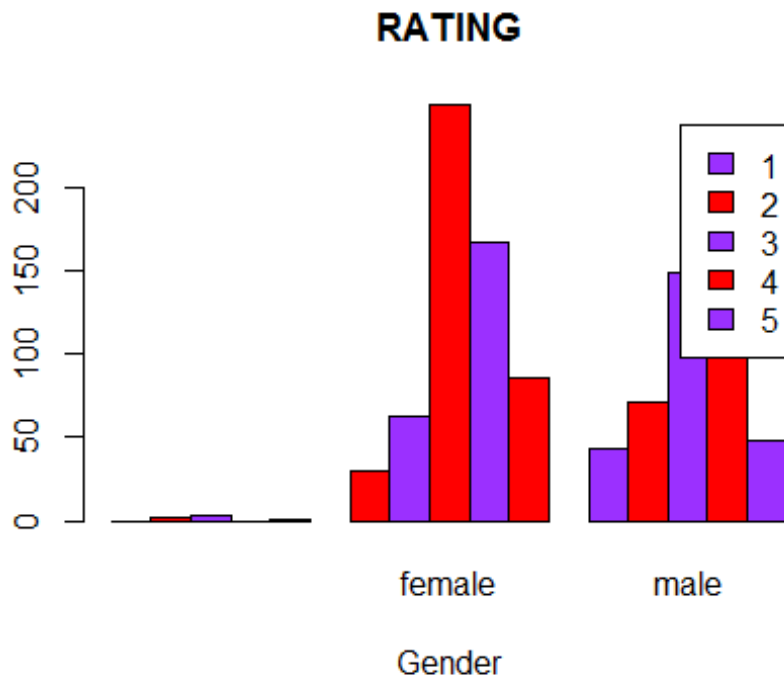
RATING


```r
#Flying_----- Phobias
counts <- table(data_transformed$Flying, data_transformed$Gender)
barplot(counts, main="RATING",
        xlab="Gender", col=c("#56B4E9","seagreen2"),
        legend = rownames(counts), beside=TRUE)
```
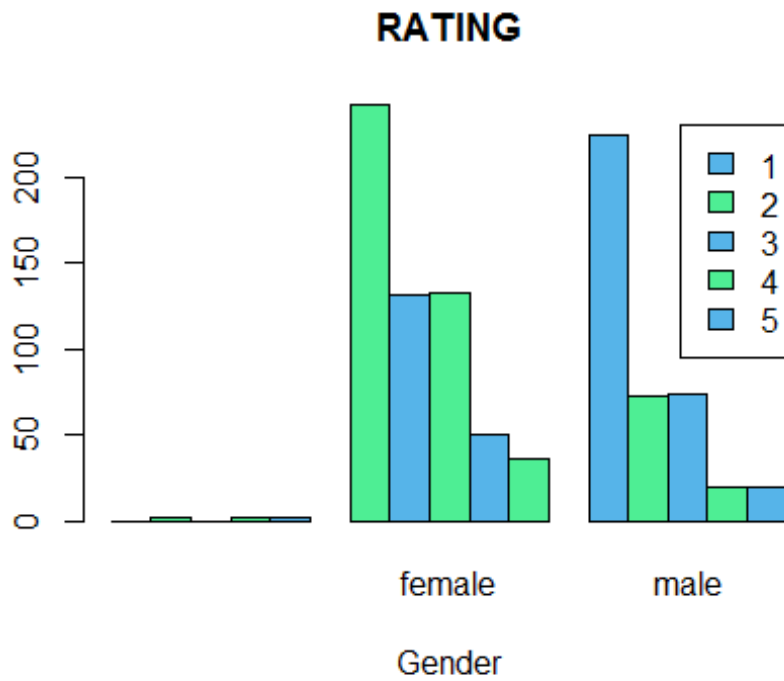
RATING


```
#Public Speaking-----Phobias
counts <- table(data_transformed$Public.speaking, data_transformed$Gender)
barplot(counts, main="RATING",
        xlab="Gender", col=c("slateblue1","red"),
        legend = rownames(counts), beside=TRUE)
```
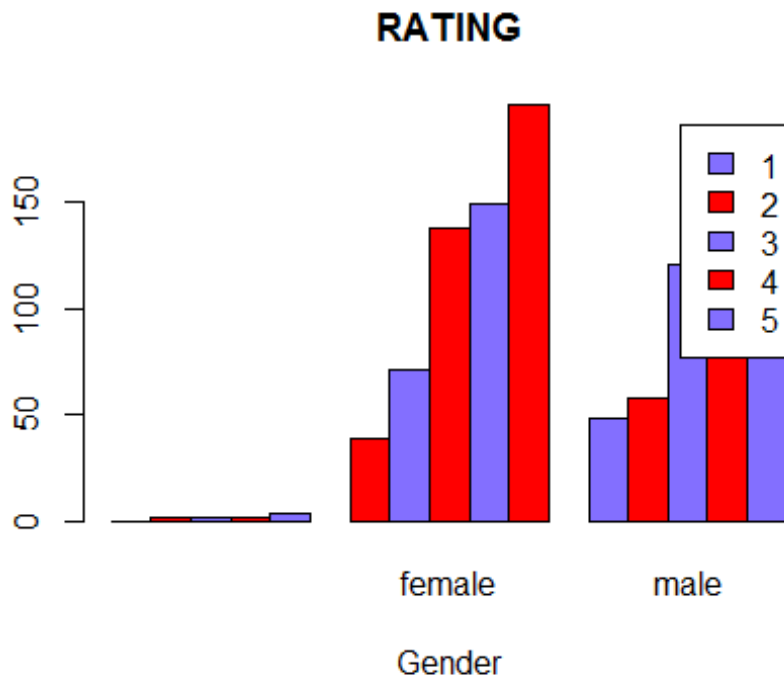
RATING


```
#Left/Right Handed
counts <- table(data_transformed$Left...right.handed,
data_transformed$Gender)
barplot(counts, main="RATING",
        xlab="Gender", col=c("deepskyblue1","red"),
        legend = rownames(counts), beside=TRUE)
```

RATING
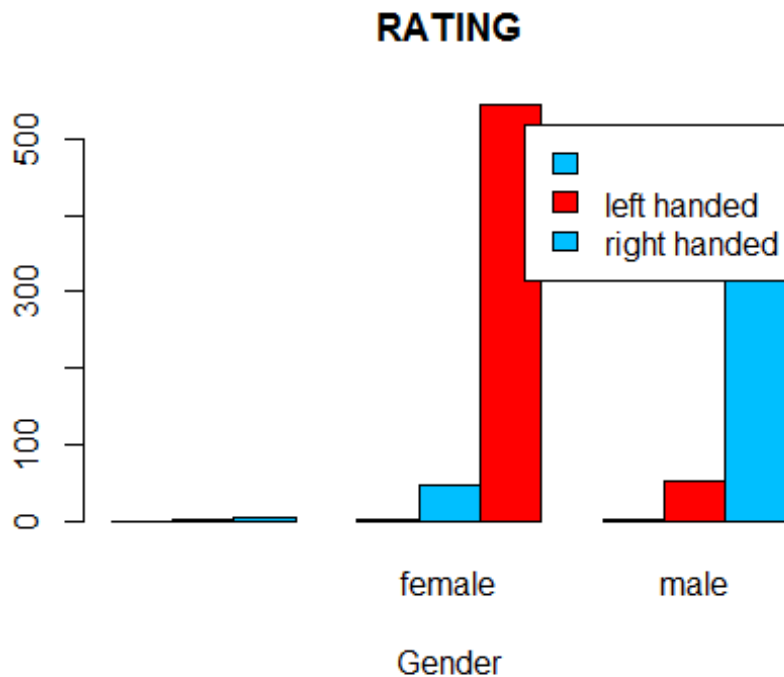

```r
dim(hobbies_data)

## [1] 1010    32

hobbies_transformed <- data_transformed[,names(hobbies_data)]
hobbies_pca <- prcomp(hobbies_transformed, scale= T)
names(hobbies_pca)

## [1] "sdev"     "rotation" "center"   "scale"    "x"

#rotation - represents the loadings of each variables on components
hobbies_pca$rotation

##                            PC1         PC2         PC3         PC4
## History             0.188458129 -0.09972504  0.191659752 -0.22991541
## Psychology          0.230036558  0.01786097  0.099845621 -0.12092486
## Politics            0.123498901 -0.20221515  0.261041540 -0.21465574
## Mathematics         0.071298342 -0.28497563 -0.148794306 -0.11696119
## Physics             0.117537829 -0.32127215 -0.264318100 -0.13787033
## Internet           -0.047107481 -0.24945405  0.114615245  0.10689102
## PC                 -0.040810044 -0.37916578 -0.026702872 -0.01947711
## Economy.Management -0.004247973 -0.19189231  0.297016846  0.01081594
## Biology             0.275152415  0.02013486 -0.351237734  0.16443892
## Chemistry           0.220249354 -0.02970157 -0.402713435  0.09655225
## Reading             0.273290822  0.20243199  0.075074553 -0.17176942
## Geography           0.165733285 -0.15102913  0.150868856 -0.07075296
## Foreign.languages   0.196795893  0.01943294  0.224850707 -0.01840982
## Medicine            0.283815963 -0.01061050 -0.296379491  0.11658962
```

```
## Law                     0.139885598 -0.14966276  0.276167023 -0.02315421
## Cars                    -0.054065830 -0.35287817  0.054454401  0.15197566
## Art.exhibitions          0.307286358  0.08363239  0.106223775 -0.05528705
## Religion                 0.234554023 -0.02118824 -0.009334782 -0.16050540
## Countryside..outdoors    0.196673276 -0.02578241 -0.009371219  0.11783931
## Dancing                  0.232312679  0.05907080  0.086621432  0.24672526
## Musical.instruments      0.216399667 -0.01219800 -0.012291430 -0.08626889
## Writing                  0.231718611  0.07397364  0.067636420 -0.15644741
## Passive.sport           -0.023439504 -0.15300983  0.051616951  0.20587472
## Active.sport             0.069058573 -0.20429023  0.043485929  0.24414843
## Gardening                0.192890484  0.03464648 -0.080288637  0.18959498
## Celebrities              0.015776035  0.09462840  0.186510020  0.34123592
## Shopping                 0.083917204  0.12707686  0.199581102  0.39774969
## Science.and.technology   0.097311047 -0.33700031 -0.117622329 -0.03484404
## Theatre                  0.293866571  0.13860458  0.110875136 -0.03254494
## Fun.with.friends         0.062460243 -0.05187930  0.139364342  0.26018379
## Adrenaline.sports        0.074602609 -0.25199639  0.062705429  0.22378600
## Pets                     0.087440530  0.03835047 -0.026758239  0.25545973
##                                  PC5         PC6         PC7         PC8
## History                  0.092591265 -0.232015433  0.25239113 -0.06548575
## Psychology               0.148720516  0.014508725 -0.14185033  0.08552131
## Politics                 0.247013176 -0.132333726  0.12069825  0.12790917
## Mathematics             -0.002370872  0.290108551 -0.24097120  0.17220703
## Physics                 -0.005937990  0.138911115 -0.15417460  0.13472563
## Internet                -0.031563650  0.409201245  0.15277805 -0.33138111
## PC                      -0.140059444  0.319267598  0.09215982 -0.08493418
## Economy.Management       0.219596773  0.149171977 -0.20031212  0.17069411
## Biology                  0.237872115 -0.035475460  0.02578910 -0.11433832
## Chemistry                0.254623212 -0.044583322 -0.03483529 -0.07935483
## Reading                  0.009166497  0.073519057 -0.01308066 -0.14064121
## Geography               -0.001296033 -0.207056165  0.27032491 -0.27703787
## Foreign.languages        0.062444420  0.094568340 -0.14992093 -0.41035039
## Medicine                 0.274674151 -0.056459180  0.01393986 -0.12804866
## Law                      0.358448817 -0.101036149  0.02537942  0.16761041
## Cars                    -0.003879326 -0.088122453  0.11289934  0.04308159
## Art.exhibitions         -0.194064673  0.083454620 -0.08848909  0.01818948
## Religion                -0.066276692  0.064782579  0.19193962  0.06085112
## Countryside..outdoors   -0.352637463 -0.097031086  0.22136307 -0.14052420
## Dancing                 -0.079618956  0.012731339 -0.16346012  0.18230175
## Musical.instruments     -0.366971152  0.082456456 -0.01926015  0.09180239
## Writing                 -0.205552004  0.136106746  0.03084835  0.23993099
## Passive.sport           -0.146071143 -0.127491042  0.15782316 -0.17095880
## Active.sport            -0.141964721 -0.325163564 -0.12763567  0.26173364
## Gardening               -0.147538683  0.082339921  0.35510845  0.31300178
## Celebrities              0.162685242  0.307917512  0.18206845  0.13487536
## Shopping                 0.157865883  0.241111976  0.02183875  0.02799432
## Science.and.technology   0.001477316  0.083055353  0.04019640 -0.08928700
## Theatre                 -0.101931633  0.064560558 -0.21810241 -0.07438009
## Fun.with.friends        -0.109742421 -0.063689827 -0.39486085 -0.29098669
## Adrenaline.sports       -0.143782184 -0.329756935 -0.24642978  0.03323823
```

```
## Pets                     0.051462435 -0.009519456  0.21944914  0.10229865
##                                   PC9        PC10        PC11        PC12
## History                 0.2342319487  0.013213679  0.02656929  0.014686171
## Psychology              0.1634428977 -0.173316277  0.29922905 -0.217844043
## Politics                0.0003330098  0.028409473  0.11560478  0.089453472
## Mathematics            -0.1227967977  0.415744678 -0.03102544  0.146137501
## Physics                 0.0605717983  0.187165070 -0.05964467  0.118388354
## Internet                0.0501169630 -0.135904736  0.13256657 -0.038345456
## PC                      0.0836480239 -0.194955920 -0.08441881 -0.110075826
## Economy.Management     -0.2578599951  0.237036055 -0.05440312 -0.099314337
## Biology                -0.0656992949 -0.068240695  0.06665055 -0.004194024
## Chemistry              -0.0448282578 -0.012743686 -0.03919365  0.109878401
## Reading                 0.1311171386  0.121373314 -0.16553035  0.121776808
## Geography              -0.2121255816  0.075893927 -0.40988342  0.173529969
## Foreign.languages      -0.2743702248 -0.085613319 -0.18114315 -0.019851505
## Medicine               -0.1044512509 -0.176308133  0.08116972  0.001417123
## Law                    -0.0129844112  0.024797536  0.13392287  0.042392594
## Cars                    0.1126257763 -0.100383522  0.05174534 -0.138464290
## Art.exhibitions         0.1480556405  0.028108790 -0.03140235  0.049578834
## Religion               -0.2035988869 -0.004848608  0.35849183 -0.393017524
## Countryside..outdoors  -0.1682045383  0.334944022 -0.04810741 -0.379477869
## Dancing                -0.2718126978 -0.035144419 -0.02929581 -0.169902419
## Musical.instruments    -0.1518894347 -0.228909445  0.26370229  0.136685469
## Writing                 0.0859320390 -0.365865217 -0.11663001  0.303731172
## Passive.sport          -0.1388167380  0.193524389  0.49466560  0.554056046
## Active.sport           -0.0978546087 -0.191441181 -0.20297874  0.037383030
## Gardening              -0.0174921768  0.134950497 -0.07051273  0.075730596
## Celebrities            -0.0213124787 -0.112807899 -0.10859489  0.173889435
## Shopping                0.0241152752 -0.022607496 -0.02547038 -0.019461421
## Science.and.technology  0.2525523547 -0.146066026 -0.18943901 -0.072974790
## Theatre                 0.2373060604  0.203906538 -0.02908785  0.045437909
## Fun.with.friends        0.2492036609  0.070038751  0.20242860  0.038986631
## Adrenaline.sports       0.1002526616 -0.115681528 -0.07578508 -0.052770482
## Pets                    0.4875204274  0.294586372 -0.01534318 -0.099785036
##                                  PC13        PC14        PC15        PC16
## History                 -0.11918292 -0.264841906  0.23562129  0.048499587
## Psychology              -0.53147080 -0.134003144 -0.25960270 -0.212537201
## Politics                 0.14225150  0.020275698  0.17110829 -0.030416836
## Mathematics             -0.17389206 -0.088680894  0.04575537  0.190550851
## Physics                 -0.02725997 -0.176143809  0.01568440  0.150602790
## Internet                -0.24231809 -0.094006707  0.14534745 -0.080953151
## PC                       0.03656889  0.065041281  0.07195299 -0.073035218
## Economy.Management      -0.02685626  0.258389802 -0.09402371 -0.306934336
## Biology                 -0.03674544  0.014119227 -0.03946773 -0.083243298
## Chemistry                0.07105813  0.018197628  0.10117714 -0.021308793
## Reading                  0.05977048 -0.012847994  0.11893710  0.045485171
## Geography               -0.12965737 -0.141435945  0.01708068  0.037413428
## Foreign.languages       -0.11516304  0.336766162 -0.04416348  0.114506778
## Medicine                 0.05568575  0.112221784 -0.05484492 -0.011739787
## Law                      0.20052654  0.220965966  0.03155761  0.053131138
```

```
## Cars                   0.35424863  0.088685964 -0.19272303  0.127627879
## Art.exhibitions         0.15766714 -0.095611890 -0.35873345  0.021981645
## Religion                0.14689966 -0.232714089  0.02768653  0.224113200
## Countryside..outdoors  -0.02248433  0.064114677 -0.13582649 -0.052047476
## Dancing                -0.07621054 -0.156530043  0.29739895  0.006507375
## Musical.instruments     0.08865918  0.372599208  0.20443150  0.279091075
## Writing                -0.13370538  0.143648944 -0.01997338 -0.120877714
## Passive.sport          -0.10655182 -0.033802622 -0.27309109 -0.053951301
## Active.sport           -0.16497639 -0.187370312  0.05512601  0.165136097
## Gardening               0.08029240  0.051113842  0.16972346 -0.577177451
## Celebrities             0.06850153 -0.234754041 -0.08292139  0.248466200
## Shopping                0.06411123 -0.170558272 -0.09922488  0.126536851
## Science.and.technology  0.17199686 -0.004297953 -0.15015236 -0.130311971
## Theatre                 0.26338123 -0.078838818 -0.21457617 -0.028072652
## Fun.with.friends        0.17384884 -0.101511359  0.47844396 -0.185474306
## Adrenaline.sports      -0.10302385  0.065904906 -0.16953678 -0.015564040
## Pets                   -0.33225220  0.440512655  0.11433088  0.322198191
##                              PC17         PC18         PC19         PC20
## History                0.140568535  0.019058804 -0.063137882 -0.340299967
## Psychology             0.005707387  0.129875824  0.031426925 -0.214641018
## Politics              -0.121565756  0.217081565 -0.068302094  0.003366495
## Mathematics           -0.087735929 -0.110900070 -0.023429064 -0.143880906
## Physics               -0.073782415  0.068293026  0.076768503 -0.050267426
## Internet               0.217522404 -0.215441375  0.162339326  0.176880420
## PC                     0.211440075 -0.111475474 -0.031609704 -0.047651596
## Economy.Management    -0.045930537  0.027840840  0.036412935  0.102489385
## Biology                0.003257511 -0.012333933  0.069147808 -0.038975437
## Chemistry              0.065622261 -0.045303826  0.024145774 -0.027908462
## Reading                0.118537094 -0.343128291 -0.273039466  0.051648044
## Geography             -0.176918197  0.137768750  0.384144671  0.184347919
## Foreign.languages     -0.095618470 -0.048243639 -0.400141090 -0.196940783
## Medicine               0.028008379 -0.062090399  0.091488004  0.042749446
## Law                    0.232253891 -0.212837437  0.163565688  0.047394133
## Cars                   0.101290718 -0.105382064  0.064788378 -0.077041582
## Art.exhibitions        0.153430645 -0.122627223  0.216359971  0.014236907
## Religion              -0.385963102 -0.232352629 -0.186134785  0.334236445
## Countryside..outdoors  0.041465898  0.063372624  0.104381153 -0.213741811
## Dancing                0.347373197  0.315367885  0.078103955  0.303012386
## Musical.instruments    0.023551049  0.261318628  0.136422927 -0.305837922
## Writing               -0.232484887 -0.091472367  0.092251598  0.294789399
## Passive.sport          0.080514277  0.071173847 -0.224338422  0.159425948
## Active.sport           0.244062647 -0.171008779 -0.379805344  0.038079046
## Gardening             -0.083220637 -0.152562035 -0.158094901 -0.204521380
## Celebrities           -0.162035703  0.019266520  0.116912722 -0.286153981
## Shopping              -0.169084120  0.142479980 -0.132551335 -0.061052617
## Science.and.technology -0.123494310  0.487730771 -0.345660363  0.152263003
## Theatre                0.223948702  0.105474154 -0.003676628  0.108807117
## Fun.with.friends      -0.282540907 -0.008602802  0.091997421 -0.028442837
## Adrenaline.sports     -0.331133280 -0.278594683  0.153394827 -0.068272781
## Pets                  -0.046438159  0.058743608 -0.021156648  0.241707897
```

```
##                              PC21        PC22        PC23         PC24
## History                0.089378024  0.27249982  0.081685958  0.404197186
## Psychology             0.105591700 -0.00341174 -0.142315832 -0.212594526
## Politics              -0.169374235 -0.31925693 -0.086141769 -0.168492841
## Mathematics            0.077297990  0.03806932 -0.006096263 -0.035969797
## Physics               -0.013570922  0.11217012  0.162977863 -0.240395516
## Internet              -0.155409428 -0.09517320  0.174672673  0.013745440
## PC                    -0.029353779 -0.12653046 -0.172011307  0.097874903
## Economy.Management     0.056489720  0.03141804 -0.161727689  0.522600837
## Biology                0.036599800 -0.09641642 -0.019273983  0.149770112
## Chemistry             -0.042457150  0.10832498  0.063636914  0.192233868
## Reading               -0.143087905  0.20705552 -0.348080118 -0.001703690
## Geography              0.213153785 -0.12339851 -0.024883673 -0.022706934
## Foreign.languages      0.213276835 -0.00187073  0.098434706 -0.251287644
## Medicine              -0.033030822 -0.05857201 -0.124398783 -0.031707678
## Law                   -0.261291638  0.07208552  0.310180864 -0.283896857
## Cars                   0.487331938  0.36616198 -0.200557843 -0.139096644
## Art.exhibitions        0.296753202 -0.33764367  0.195876942  0.058571883
## Religion               0.061461577 -0.07981032 -0.032296540  0.098511884
## Countryside..outdoors -0.405737882  0.18979428  0.044101941 -0.119357905
## Dancing                0.100580228  0.23799480 -0.165722489 -0.146517269
## Musical.instruments   -0.022222980 -0.10777622  0.013830321  0.222434963
## Writing               -0.068715353  0.37683012  0.070487540 -0.025514325
## Passive.sport         -0.006673113  0.10716349 -0.094521343  0.014066381
## Active.sport          -0.035453278 -0.29817392  0.081032254  0.066455305
## Gardening              0.191596177 -0.13655688  0.078457744 -0.157125078
## Celebrities           -0.193970300 -0.08718504 -0.443689860 -0.071644312
## Shopping               0.011889605  0.18851704  0.504202132  0.182827722
## Science.and.technology -0.167691163  0.02308271  0.015102689 -0.001437206
## Theatre               -0.137914691 -0.12133188 -0.093273415  0.082180350
## Fun.with.friends       0.107272447 -0.03169795 -0.033741293 -0.096182782
## Adrenaline.sports     -0.274955137  0.04690266 -0.068476535  0.117502955
## Pets                   0.120812178 -0.12080933 -0.059398012  0.020557043
##                              PC25        PC26        PC27         PC28
## History               -0.015325238 -0.053328696 -0.30396841  0.165928980
## Psychology             0.110054126  0.151113617  0.19481959 -0.132513914
## Politics              -0.347059475 -0.438008513  0.26221721 -0.074297731
## Mathematics           -0.022970305  0.072390127  0.01836953  0.102939921
## Physics                0.024431136 -0.066306695 -0.02225712 -0.033656426
## Internet              -0.155178320 -0.041469767  0.22223796  0.398051285
## PC                     0.015283657  0.026053169 -0.21824761 -0.580466363
## Economy.Management     0.183985283 -0.095838917  0.04118931  0.052189789
## Biology                0.071131033 -0.088068770 -0.04602056 -0.060382767
## Chemistry             -0.131050003 -0.155411984  0.07054633 -0.055676060
## Reading               -0.059989639  0.116711124  0.34129790 -0.258231158
## Geography              0.118727757  0.292600948  0.15721901 -0.122039954
## Foreign.languages     -0.101072969 -0.085507934 -0.23360523  0.135039521
## Medicine               0.107828167 -0.005904270  0.02810581  0.138094731
## Law                    0.226302203  0.291996307 -0.21384712 -0.089548162
## Cars                  -0.012959607 -0.077885679  0.29806334  0.143823156
```

```
## Art.exhibitions          -0.088515158 -0.305624403 -0.19551497 -0.128551909
## Religion                  0.051195327  0.108817872 -0.11200946  0.024296446
## Countryside..outdoors     0.207300073 -0.308268090  0.08157090 -0.043944572
## Dancing                  -0.306851079  0.006402375 -0.21306071 -0.040119998
## Musical.instruments       0.011472790  0.237780789  0.20544425  0.020807957
## Writing                   0.183600601 -0.295185892 -0.02768596  0.070409544
## Passive.sport            -0.013564230 -0.001914892 -0.11556287 -0.129317040
## Active.sport              0.328790684 -0.091217882  0.19676068  0.081321547
## Gardening                -0.124510434  0.217420577 -0.01340209  0.117973210
## Celebrities               0.132522166 -0.065358357 -0.21211129  0.135374613
## Shopping                 -0.109395978  0.069785761  0.29544826 -0.299961683
## Science.and.technology    0.087363698  0.163581113 -0.10841696  0.113833901
## Theatre                  -0.023644657  0.226538771  0.05989364  0.309597289
## Fun.with.friends          0.321433616 -0.102270132 -0.02456618 -0.068338982
## Adrenaline.sports        -0.498461041  0.180729640 -0.11356323  0.003381675
## Pets                      0.006329268 -0.038696539 -0.06279122 -0.011001691
##                                 PC29        PC30        PC31        PC32
## History                  0.0436252264  0.08885972 -0.103643613  0.024873786
## Psychology               0.0003107664 -0.11531229  0.115281418  0.089776263
## Politics                 0.1014169997 -0.04752005 -0.112039360 -0.049791245
## Mathematics             -0.1355805402 -0.34968646 -0.460256858  0.006634840
## Physics                  0.2005685773  0.54567187  0.397435033 -0.060552789
## Internet                -0.1195715221  0.03743514  0.085149185 -0.047635005
## PC                       0.3364108291 -0.07193913 -0.109636364  0.059974932
## Economy.Management      -0.0416391116  0.18651618  0.161571740  0.028396348
## Biology                  0.0034737992 -0.03368850 -0.076829898 -0.782877286
## Chemistry                0.0016929119 -0.46994875  0.452349152  0.368489468
## Reading                 -0.3029578433  0.18862194  0.049639285 -0.076930129
## Geography                0.0434073886 -0.07451515  0.028324979  0.026165782
## Foreign.languages        0.1328496283 -0.01348350  0.107185899 -0.019764701
## Medicine                 0.0670882078  0.40844571 -0.477668691  0.434044599
## Law                     -0.1208068942 -0.11101063  0.041150511 -0.055407938
## Cars                     0.0285055732 -0.07887428  0.005240120 -0.085151482
## Art.exhibitions         -0.3798787386  0.05354058  0.010294708  0.096928939
## Religion                 0.0538250641 -0.05636915  0.116502577  0.030215774
## Countryside..outdoors   -0.0140779316 -0.05361508 -0.042472613  0.031224932
## Dancing                 -0.0817104451  0.02524419 -0.036321042 -0.022423769
## Musical.instruments     -0.1095417829  0.05151530  0.088708506 -0.022241308
## Writing                  0.1553783156 -0.13250198 -0.106361802 -0.046039769
## Passive.sport            0.0056073362  0.02706482  0.029672665  0.031963639
## Active.sport             0.0329459508 -0.01366870  0.033893795  0.005157876
## Gardening                0.0286857110  0.04824095  0.041577449  0.037166519
## Celebrities             -0.0600954317 -0.03197759  0.154158929  0.019391548
## Shopping                 0.1108551014  0.07020307 -0.165240833  0.033732846
## Science.and.technology  -0.4034422108 -0.05396951 -0.022175035  0.003311783
## Theatre                  0.5421808200 -0.14293657 -0.003959493 -0.046385582
## Fun.with.friends        -0.0469591626 -0.03661335 -0.013638638  0.037373544
## Adrenaline.sports       -0.0248298425  0.05120411 -0.004412017 -0.026971282
## Pets                     0.0339082048  0.01427524  0.039473323  0.037922218
```

```r
# Calculate the variance explaned by each component
eigen_hobbies <- hobbies_pca$sdev^2
names(eigen_hobbies) <- paste("PC",1:32,sep="")
eigen_hobbies
```

```
##       PC1       PC2       PC3       PC4       PC5       PC6       PC7
PC8
## 4.2391294 3.2188434 2.5628009 2.1936649 1.5704999 1.3868499 1.1689198
1.1287278
##       PC9      PC10      PC11      PC12      PC13      PC14      PC15
PC16
## 1.0887872 0.9921651 0.9212331 0.8913134 0.8595703 0.7790779 0.7677160
0.7298606
##       PC17      PC18      PC19      PC20      PC21      PC22      PC23
PC24
## 0.6634885 0.6386832 0.6241286 0.5868250 0.5521857 0.5316185 0.5036362
0.4961543
##       PC25      PC26      PC27      PC28      PC29      PC30      PC31
PC32
## 0.4709276 0.4429519 0.4079236 0.3757610 0.3676952 0.3061206 0.2978055
0.2349349
```

```r
sum_hobbies <- sum(eigen_hobbies)
sum_hobbies
```

```
## [1] 32
```

```r
## Proportion of variance explained by each component

propvar_hobbies <- eigen_hobbies/sum_hobbies
propvar_hobbies
```

```
##          PC1          PC2          PC3          PC4          PC5          PC6
## 0.132472795 0.100588857 0.080087528 0.068552030 0.049078121 0.043339059
##          PC7          PC8          PC9         PC10         PC11         PC12
## 0.036528744 0.035272745 0.034024598 0.031005160 0.028788535 0.027853544
##         PC13         PC14         PC15         PC16         PC17         PC18
## 0.026861573 0.024346185 0.023991126 0.022808142 0.020734014 0.019958849
##         PC19         PC20         PC21         PC22         PC23         PC24
## 0.019504019 0.018338280 0.017255805 0.016613077 0.015738632 0.015504822
##         PC25         PC26         PC27         PC28         PC29         PC30
## 0.014716488 0.013842245 0.012747613 0.011742532 0.011490476 0.009566268
##         PC31         PC32
## 0.009306422 0.007341716
```

```r
cumvar_hobbies <- cumsum(propvar_hobbies)
cumvar_hobbies
```

```
##       PC1       PC2       PC3       PC4       PC5       PC6       PC7
PC8
## 0.1324728 0.2330617 0.3131492 0.3817012 0.4307793 0.4741184 0.5106471
```

```
0.5459199
##       PC9      PC10      PC11      PC12      PC13      PC14      PC15
PC16
## 0.5799445 0.6109496 0.6397382 0.6675917 0.6944533 0.7187995 0.7427906
0.7655987
##      PC17      PC18      PC19      PC20      PC21      PC22      PC23
PC24
## 0.7863328 0.8062916 0.8257956 0.8441339 0.8613897 0.8780028 0.8937414
0.9092462
##      PC25      PC26      PC27      PC28      PC29      PC30      PC31
PC32
## 0.9239627 0.9378050 0.9505526 0.9622951 0.9737856 0.9833519 0.9926583
1.0000000
```

```
matlambdas <- rbind(eigen_hobbies,propvar_hobbies,cumvar_hobbies)
rownames(matlambdas) <- c("Eigenvalues","Prop. variance","Cum. prop.
variance")
round(matlambdas,4)
```

```
##                          PC1    PC2    PC3    PC4    PC5    PC6    PC7
PC8
## Eigenvalues           4.2391 3.2188 2.5628 2.1937 1.5705 1.3868 1.1689
1.1287
## Prop. variance        0.1325 0.1006 0.0801 0.0686 0.0491 0.0433 0.0365
0.0353
## Cum. prop. variance   0.1325 0.2331 0.3131 0.3817 0.4308 0.4741 0.5106
0.5459
##                          PC9   PC10   PC11   PC12   PC13   PC14   PC15
PC16
## Eigenvalues           1.0888 0.9922 0.9212 0.8913 0.8596 0.7791 0.7677
0.7299
## Prop. variance        0.0340 0.0310 0.0288 0.0279 0.0269 0.0243 0.0240
0.0228
## Cum. prop. variance   0.5799 0.6109 0.6397 0.6676 0.6945 0.7188 0.7428
0.7656
##                         PC17   PC18   PC19   PC20   PC21   PC22   PC23
PC24
## Eigenvalues           0.6635 0.6387 0.6241 0.5868 0.5522 0.5316 0.5036
0.4962
## Prop. variance        0.0207 0.0200 0.0195 0.0183 0.0173 0.0166 0.0157
0.0155
## Cum. prop. variance   0.7863 0.8063 0.8258 0.8441 0.8614 0.8780 0.8937
0.9092
##                         PC25   PC26   PC27   PC28   PC29   PC30   PC31
PC32
## Eigenvalues           0.4709 0.4430 0.4079 0.3758 0.3677 0.3061 0.2978
0.2349
## Prop. variance        0.0147 0.0138 0.0127 0.0117 0.0115 0.0096 0.0093
0.0073
```

```
## Cum. prop. variance 0.9240 0.9378 0.9506 0.9623 0.9738 0.9834 0.9927
1.0000

summary(hobbies_pca)

## Importance of components:
##                                PC1     PC2     PC3     PC4     PC5     PC6
PC7
## Standard deviation      2.0589 1.7941 1.60088 1.48110 1.25320 1.17765
1.08117
## Proportion of Variance 0.1325 0.1006 0.08009 0.06855 0.04908 0.04334
0.03653
## Cumulative Proportion  0.1325 0.2331 0.31315 0.38170 0.43078 0.47412
0.51065
##                                PC8     PC9    PC10    PC11    PC12    PC13
PC14
## Standard deviation      1.06242 1.04345 0.99607 0.95981 0.94409 0.92713
0.88265
## Proportion of Variance 0.03527 0.03402 0.03101 0.02879 0.02785 0.02686
0.02435
## Cumulative Proportion  0.54592 0.57994 0.61095 0.63974 0.66759 0.69445
0.71880
##                               PC15    PC16    PC17    PC18    PC19    PC20
PC21
## Standard deviation      0.87619 0.85432 0.81455 0.79918 0.7900 0.76605
0.74309
## Proportion of Variance 0.02399 0.02281 0.02073 0.01996 0.0195 0.01834
0.01726
## Cumulative Proportion  0.74279 0.76560 0.78633 0.80629 0.8258 0.84413
0.86139
##                               PC22    PC23    PC24    PC25    PC26    PC27
PC28
## Standard deviation      0.72912 0.70967 0.7044 0.68624 0.66555 0.63869
0.61299
## Proportion of Variance 0.01661 0.01574 0.0155 0.01472 0.01384 0.01275
0.01174
## Cumulative Proportion  0.87800 0.89374 0.9093 0.92396 0.93780 0.95055
0.96230
##                               PC29    PC30    PC31    PC32
## Standard deviation      0.60638 0.55328 0.54572 0.48470
## Proportion of Variance 0.01149 0.00957 0.00931 0.00734
## Cumulative Proportion  0.97379 0.98335 0.99266 1.00000

## Plot a biplot to view components on n-dimensional plane
biplot(hobbies_pca, scale = 0, main = 'Principal componets')
```
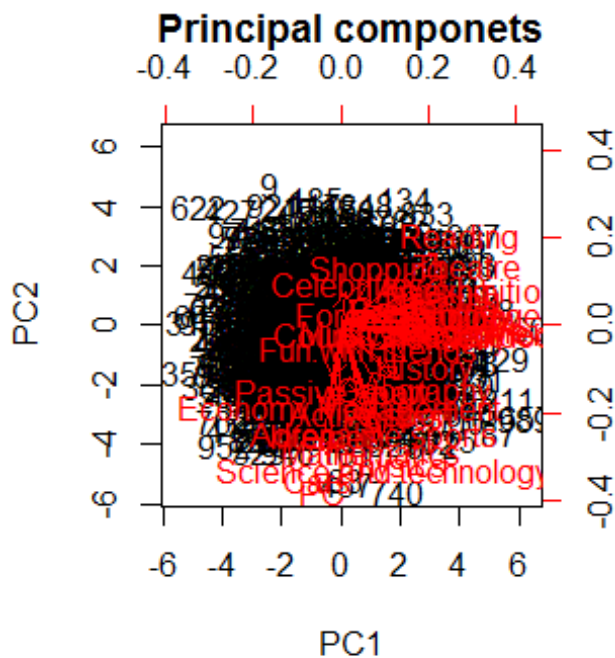
Principal componets

```
plot(propvar_hobbies,xlab = 'Prinicipal component',ylab = 'Proporiton of
variance explained',type = 'b', main = 'Prop. of Variance')
```
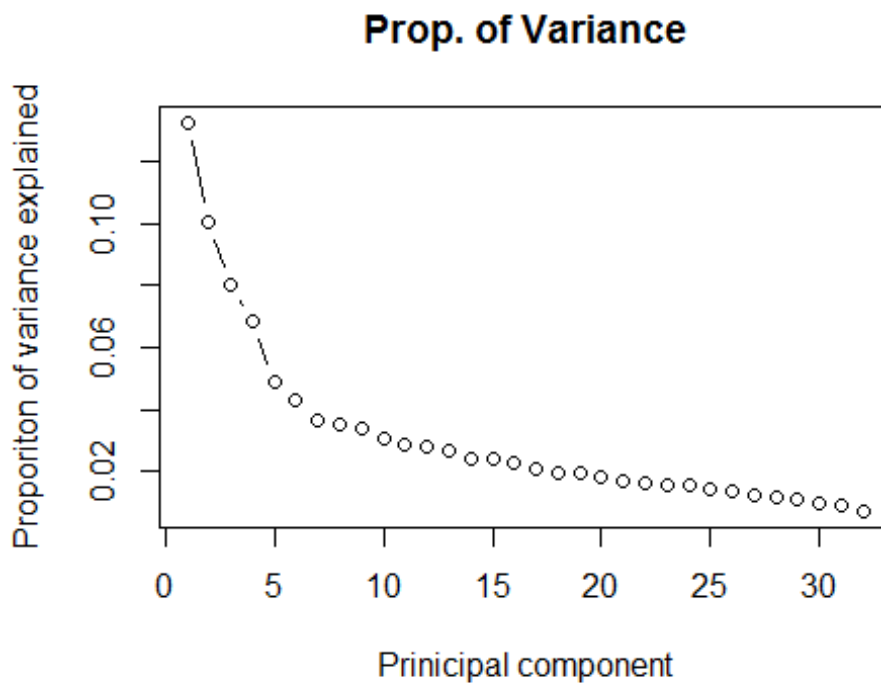
Prop. of Variance

```
#The optimum number of components are ~ 8 i.e PC1 : PC8

# cumulative scree plot
plot(cumvar_hobbies,xlab = 'Principal component',ylab = 'Cumulative
proportion of variance explained',type = 'b', main = 'Cumulative Prop.of
Variance')
```


Cumulative Prop.of Variance
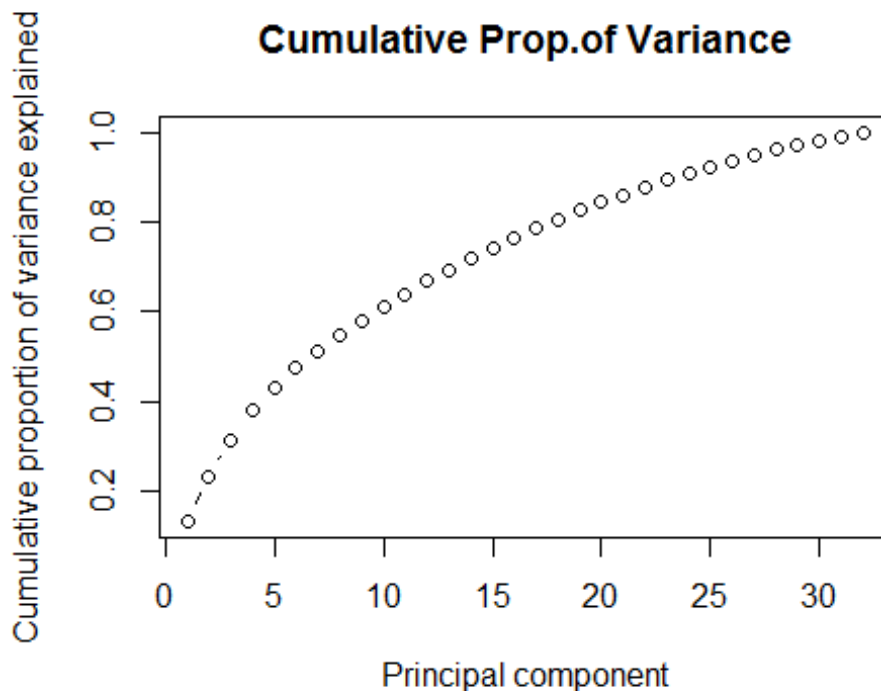
```
#Approx: ~ 75% of the variance is explained by 20 components i.e PC1 to PC20

dim(movie_data)

## [1] 1010    12

movie_transformed <- data_transformed[,names(movie_data)]
movie_pca <- prcomp(movie_transformed, scale= T)
names(movie_pca)

## [1] "sdev"     "rotation" "center"   "scale"    "x"

#rotation - represents the loadings of each variables on components
movie_pca$rotation

##                           PC1           PC2          PC3           PC4
## Movies            -0.18067387 0.2943522148 -0.29434144  0.1753636709
## Horror            -0.29774492 0.0281326824 -0.48865014 -0.3468640042
## Thriller          -0.38637808 0.0264578000 -0.39885764 -0.3255496550
## Comedy             0.00957783 0.3601720121 -0.23777270  0.5045943972
## Romantic           0.25313650 0.3635153351 -0.09666751  0.2900854864
```

```
## Sci.fi            -0.37660398 0.1182255631   0.04518061   0.1849454105
## War               -0.40483304 0.0003113374   0.24428376  -0.0005316756
## Fantasy.Fairy.tales 0.13147403 0.5530319979   0.14626774  -0.2789775438
## Animated           0.05080348 0.5454401638   0.10708136  -0.3574114799
## Documentary       -0.18889650 0.1506598727   0.47688883  -0.1906702214
## Western           -0.36669650 0.0334098269   0.35553267   0.1424325175
## Action            -0.41171847 0.0941099146   0.03483277   0.3282782261
##                            PC5          PC6          PC7          PC8
## Movies            -0.58171966  0.542758857 -0.063103472 -0.05424721
## Horror             0.40181487 -0.053550228  0.101364547  0.06897342
## Thriller           0.03984132  0.113480694 -0.031760285  0.07288430
## Comedy             0.50260892 -0.003243588 -0.318932106 -0.08324422
## Romantic           0.14940500  0.206681921  0.476449707  0.32906483
## Sci.fi            -0.26744131 -0.481445533  0.116396679  0.65269730
## War                0.02545531  0.268568571  0.383612801 -0.25097709
## Fantasy.Fairy.tales -0.03100975 -0.148531492  0.071361143 -0.14464158
## Animated          -0.10495198 -0.237208831 -0.005510402 -0.17859759
## Documentary        0.20900897  0.403789550 -0.512050412  0.41447721
## Western            0.28455333  0.055422480  0.377146568 -0.15168470
## Action            -0.12172688 -0.313963737 -0.292826826 -0.36763211
##                            PC9         PC10          PC11          PC12
## Movies            -0.003660409  0.33290656 -0.098891004  0.052868440
## Horror             0.087255268  0.19915946 -0.553794897  0.134689408
## Thriller          -0.297400380 -0.33471692  0.595001950 -0.098215100
## Comedy             0.319128438  0.11521465  0.283954563 -0.044854364
## Romantic          -0.296782981 -0.40454959 -0.215875985 -0.107768793
## Sci.fi             0.212854244  0.10154056  0.087993301  0.041342734
## War                0.604553122 -0.35768442 -0.001701204 -0.009188477
## Fantasy.Fairy.tales -0.017579240 -0.03239820  0.148441139  0.710786335
## Animated           0.071388848  0.08856167 -0.065700856 -0.666511889
## Documentary       -0.061502779 -0.08527072 -0.161446239  0.002305173
## Western           -0.425260296  0.51196209  0.154642040 -0.039639315
## Action            -0.336418372 -0.37950074 -0.343795999  0.054460149
```

```r
# Calculate the variance explained by each component
eigen_movie <- movie_pca$sdev^2
names(eigen_movie) <- paste("PC",1:12,sep="")
eigen_movie
```

```
##       PC1       PC2       PC3       PC4       PC5       PC6       PC7
PC8
## 2.5328872 2.1154265 1.4605655 1.0037483 0.8077760 0.7887751 0.7483881
0.6730806
##       PC9      PC10      PC11      PC12
## 0.5946969 0.5502757 0.4200133 0.3043667
```

```r
sum_movie <- sum(eigen_movie)
sum_movie
```

```
## [1] 12
```

```r
## Proportion of variance explained by each component

propvar_movie <- eigen_movie/sum_movie
propvar_movie
```

```
##         PC1        PC2        PC3        PC4        PC5        PC6
PC7
## 0.21107393 0.17628555 0.12171380 0.08364569 0.06731467 0.06573126
0.06236568
##         PC8        PC9       PC10       PC11       PC12
## 0.05609005 0.04955807 0.04585630 0.03500111 0.02536389
```

```r
cumvar_movie <- cumsum(propvar_movie)
cumvar_movie
```

```
##        PC1       PC2       PC3       PC4       PC5       PC6       PC7
PC8
## 0.2110739 0.3873595 0.5090733 0.5927190 0.6600336 0.7257649 0.7881306
0.8442206
##        PC9      PC10      PC11      PC12
## 0.8937787 0.9396350 0.9746361 1.0000000
```

```r
matlambdas_movie <- rbind(eigen_movie,propvar_movie,cumvar_movie)
rownames(matlambdas_movie) <- c("Eigenvalues","Prop. variance","Cum. prop.
variance")
round(matlambdas_movie,4)
```

```
##                       PC1    PC2    PC3    PC4    PC5    PC6    PC7
PC8
## Eigenvalues        2.5329 2.1154 1.4606 1.0037 0.8078 0.7888 0.7484
0.6731
## Prop. variance     0.2111 0.1763 0.1217 0.0836 0.0673 0.0657 0.0624
0.0561
## Cum. prop. variance 0.2111 0.3874 0.5091 0.5927 0.6600 0.7258 0.7881
0.8442
##                       PC9   PC10   PC11   PC12
## Eigenvalues        0.5947 0.5503 0.4200 0.3044
## Prop. variance     0.0496 0.0459 0.0350 0.0254
## Cum. prop. variance 0.8938 0.9396 0.9746 1.0000
```

```r
summary(movie_pca)
```

```
## Importance of components:
##                          PC1    PC2    PC3     PC4     PC5     PC6
PC7
## Standard deviation     1.5915 1.4545 1.2085 1.00187 0.89876 0.88813
0.86509
## Proportion of Variance 0.2111 0.1763 0.1217 0.08365 0.06731 0.06573
0.06237
## Cumulative Proportion  0.2111 0.3874 0.5091 0.59272 0.66003 0.72576
0.78813
```

```
##                           PC8     PC9    PC10   PC11    PC12
## Standard deviation     0.82041 0.77117 0.74181 0.6481 0.55169
## Proportion of Variance 0.05609 0.04956 0.04586 0.0350 0.02536
## Cumulative Proportion  0.84422 0.89378 0.93963 0.9746 1.00000
```

```
## Plot a biplot to view components on n-dimensional plane
biplot(movie_pca, scale = 0, main = 'Principal componets')
```


Principal componets
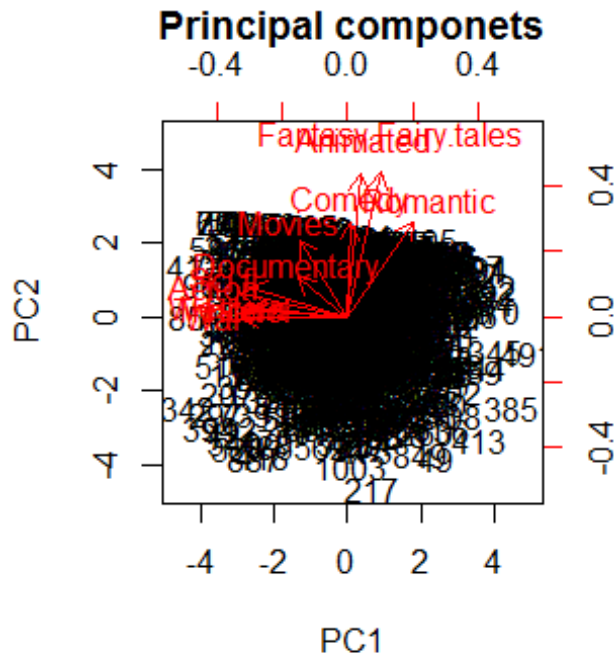
```
##scree plot - to identify the elbow point
plot(propvar_movie,xlab = 'Prinicipal component',ylab = 'Proporiton of
variance explained',type = 'b', main = 'Prop. of Variance')
```

Prop. of Variance

Proporiton of variance explained (y-axis)

Prinicipal component (x-axis)
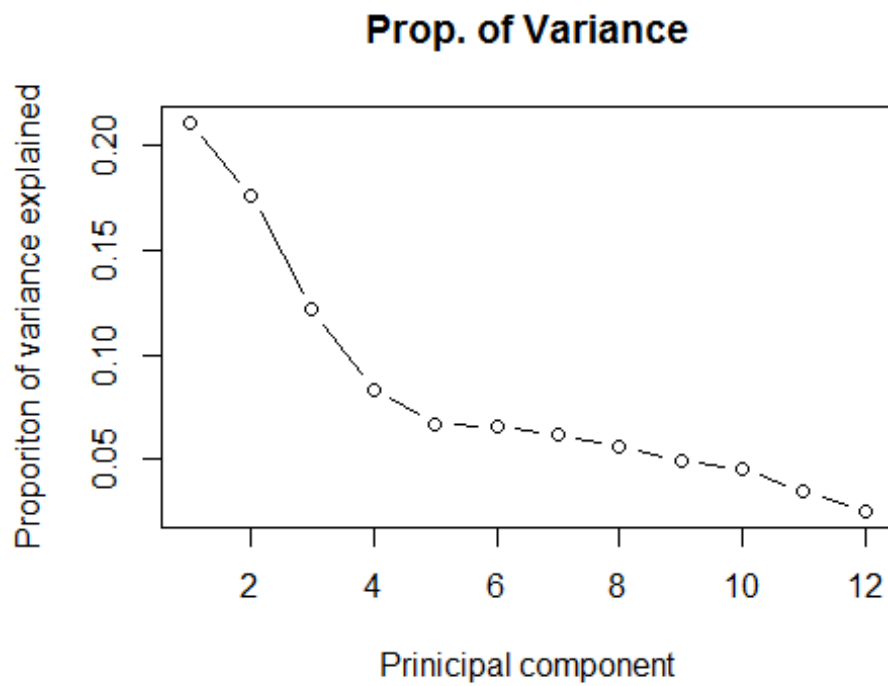
```
#The optimum number of components are ~ 5 i.e PC1 : PC5

# cumulative scree plot
plot(cumvar_movie,xlab = 'Principal component',ylab = 'Cumulative proportion
of variance explained',type = 'b', main = 'Cumulative Prop.of Variance')
```

Cumulative Prop.of Variance
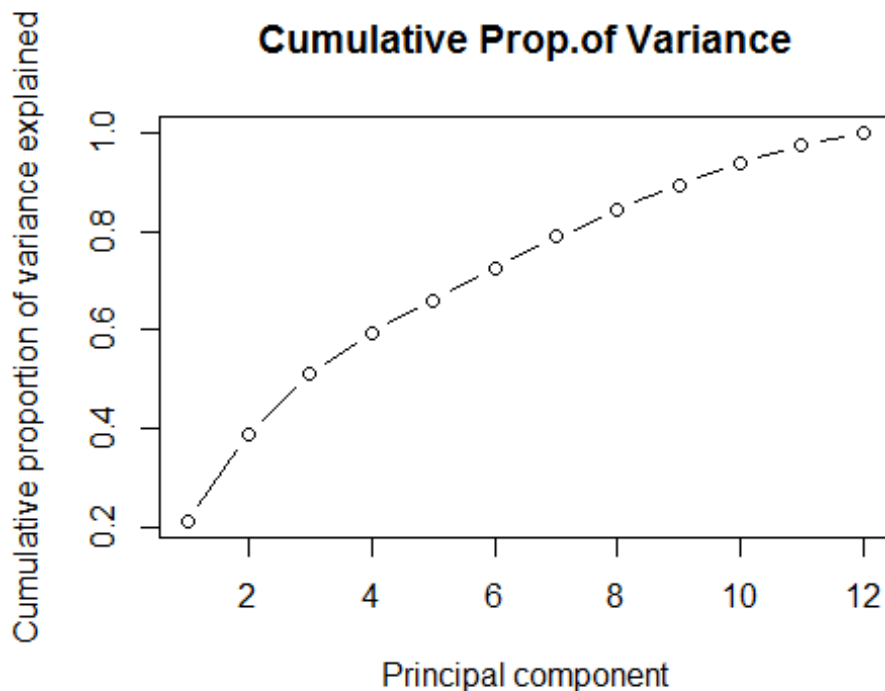

```
#Approx: ~ 75% of the variance is explained by 8 components i.e PC1 to PC8

dim(music_data)

## [1] 1010    19

music_transformed <- data_transformed[,names(music_data)]
music_pca <- prcomp(music_transformed, scale= T)
names(music_pca)

## [1] "sdev"     "rotation" "center"   "scale"    "x"

#rotation - represents the loadings of each variables on components
music_pca$rotation

##                              PC1         PC2         PC3         PC4
## Music                   -0.07348587 -0.06637258  0.20393520 -0.27285334
## Slow.songs.or.fast.songs  0.07909389 -0.03715789  0.33673187 -0.38692865
## Dance                    0.10593604 -0.40686613  0.25266992 -0.18809943
## Folk                    -0.23536427 -0.20395715 -0.17735902 -0.15261096
## Country                 -0.22165587 -0.16378995 -0.08826069 -0.07278389
## Classical.music         -0.33427216 -0.11363745 -0.22530674 -0.19648989
## Musical                 -0.21306339 -0.27761360 -0.19176926 -0.04813964
## Pop                      0.07948200 -0.36864939  0.10610310 -0.08628967
## Rock                    -0.31408320  0.16381242  0.24497619 -0.13760973
## Metal.or.Hardrock       -0.26788754  0.27493723  0.20888397 -0.20728971
## Punk                    -0.25877936  0.22880832  0.32746991 -0.01776324
## Hiphop..Rap              0.14668504 -0.28399372  0.32226482  0.21487767
```

```
## Reggae..Ska             -0.17063495 -0.13437788  0.33404941  0.51149310
## Swing..Jazz             -0.32246691 -0.16834386  0.02878952  0.30067030
## Rock.n.roll             -0.35567777 -0.02784195  0.15705958  0.11136720
## Alternative             -0.29273952  0.12627082  0.16107910  0.04377580
## Latino                  -0.11432176 -0.39837369 -0.03575959  0.17249177
## Techno..Trance           0.09648161 -0.23597716  0.27927306 -0.33307335
## Opera                   -0.28734109 -0.14638664 -0.29342147 -0.21923779
##                                 PC5         PC6         PC7         PC8
## Music                    0.32592753 -0.47761802  0.53270546 -0.19974554
## Slow.songs.or.fast.songs -0.07423270  0.07177854  0.12369657 -0.47694134
## Dance                   -0.05577652  0.06055365 -0.05942948  0.21887240
## Folk                    -0.26544668  0.20827679  0.30003736 -0.17663204
## Country                 -0.24305255  0.49366779  0.40798558  0.10106895
## Classical.music         -0.13812859 -0.25098533 -0.22358870 -0.01890419
## Musical                  0.32990755  0.04105766 -0.22303756 -0.29312977
## Pop                      0.46499371  0.15721120 -0.19059791  0.13285282
## Rock                     0.31499048  0.14180077 -0.08393359  0.20370011
## Metal.or.Hardrock       -0.07920439  0.21455617 -0.19275758 -0.01276431
## Punk                     0.03787992  0.19456396 -0.23696787 -0.16828955
## Hiphop..Rap             -0.14591724 -0.05330011 -0.16891849 -0.21654015
## Reggae..Ska             -0.18318806  0.01510496 -0.02608224 -0.33284595
## Swing..Jazz             -0.09855736 -0.27677329  0.06829684  0.13525914
## Rock.n.roll              0.15407054  0.08154945  0.17375175  0.27605014
## Alternative             -0.10328380 -0.37016042  0.05279782  0.17869982
## Latino                   0.16866976  0.09636174  0.05687371  0.07392996
## Techno..Trance          -0.40272503 -0.16159061 -0.17221071  0.36838201
## Opera                   -0.12224120 -0.15441720 -0.32365349 -0.21004774
##                                 PC9        PC10        PC11
PC12
## Music                    0.407713408 -0.08118246  0.163265029 -
0.046192469
## Slow.songs.or.fast.songs -0.626930018 -0.15449805 -0.117591247
0.142963357
## Dance                   -0.005060525  0.15836972 -0.001963950
0.034498068
## Folk                     0.101978314  0.59768376 -0.044187886
0.266968801
## Country                  0.187947460 -0.34757560 -0.176241400 -
0.296622461
## Classical.music          0.074840699 -0.11353868 -0.197110022
0.215496597
## Musical                 -0.127942176 -0.06550861  0.043660995 -
0.530976566
## Pop                      0.089375763  0.17576542 -0.360479495
0.206155249
## Rock                     0.093377372 -0.01603115  0.012947358
0.194189967
## Metal.or.Hardrock        0.095803135 -0.09200573  0.378608727
0.148009287
## Punk                     0.188934780  0.18211426 -0.009197961 -
```

```
0.136728601
## Hiphop..Rap              0.291127995 -0.19951768 -0.212893673
0.016816754
## Reggae..Ska              0.109227439  0.09666073  0.055259444 -
0.033726863
## Swing..Jazz             -0.180981008 -0.25859960  0.011764742
0.393901884
## Rock.n.roll             -0.227212134 -0.21678701 -0.222790454 -
0.050344008
## Alternative             -0.252502677  0.43193360 -0.239920191 -
0.392991837
## Latino                  -0.233292591  0.10051712  0.644329108
0.009843656
## Techno..Trance           0.049583019 -0.05716672  0.202874089 -
0.232242161
## Opera                    0.098588439 -0.11619488  0.012943917
0.014313820
##                                 PC13        PC14        PC15
PC16
## Music                    0.049792397 -0.02112800 -0.021711972 -
0.024489556
## Slow.songs.or.fast.songs  0.003296287 -0.12450736  0.072331948 -
0.011696895
## Dance                    0.305288988  0.10278145 -0.636427969
0.312758934
## Folk                    -0.152396906  0.33786207  0.078929868 -
0.115326873
## Country                  0.033698701 -0.30836572  0.067818499
0.203982029
## Classical.music         -0.081254762 -0.22963497  0.078587122
0.183762909
## Musical                  0.012225873  0.44293088  0.107137446
0.250791103
## Pop                      0.039315867 -0.21197082  0.351688766 -
0.023506412
## Rock                    -0.019546117  0.05416288  0.143052503
0.071888142
## Metal.or.Hardrock       -0.239674138  0.16759903  0.028215133
0.274542443
## Punk                     0.158206848 -0.23587526 -0.223276307 -
0.151087803
## Hiphop..Rap             -0.650067679  0.07539266 -0.148338423 -
0.004739777
## Reggae..Ska              0.409507673 -0.01913020  0.255708315 -
0.040735037
## Swing..Jazz              0.161510400  0.13579529  0.038880226
0.271349720
## Rock.n.roll             -0.090920432  0.29860848 -0.205885619 -
0.545870152
## Alternative             -0.244048277 -0.23543333 -0.004240393
```

```
0.204720244
## Latino                    -0.277520061 -0.40294002 -0.040696024 -
0.117740140
## Techno..Trance             0.085649349  0.14642498  0.421244095 -
0.240536719
## Opera                      0.142288289 -0.17563687 -0.235717510 -
0.398788272
##                                      PC17          PC18         PC19
## Music                      -0.066875434  2.567921e-02  0.07345943
## Slow.songs.or.fast.songs    0.033053577 -1.410316e-02 -0.04974487
## Dance                       0.140182891 -2.906194e-02  0.11125996
## Folk                       -0.051850387 -3.490200e-02 -0.10739444
## Country                     0.006149017  9.814582e-02 -0.06497751
## Classical.music             0.028773192 -5.759827e-01  0.34337770
## Musical                    -0.066238082 -8.145992e-02 -0.07751286
## Pop                        -0.216265041  2.928257e-01  0.17206160
## Rock                        0.583382189 -1.360268e-01 -0.43938942
## Metal.or.Hardrock          -0.119696729  3.588220e-01  0.43444249
## Punk                       -0.523054151 -2.601956e-01 -0.25901292
## Hiphop..Rap                 0.056186635  8.017653e-03 -0.15671264
## Reggae..Ska                 0.302779309  9.179124e-05  0.28654917
## Swing..Jazz                -0.369360329  1.762901e-01 -0.35365088
## Rock.n.roll                -0.039227337 -8.664268e-02  0.31816965
## Alternative                 0.084954381  2.479808e-01  0.01148615
## Latino                      0.008442401 -1.256294e-01 -0.01498152
## Techno..Trance             -0.095918082 -8.103699e-02 -0.10837567
## Opera                       0.206245145  4.752428e-01 -0.12849210
```

```r
# Calculate the variance explaned by each component
eigen_music <- music_pca$sdev^2
names(eigen_music) <- paste("PC",1:19,sep="")
eigen_music
```

```
##       PC1       PC2       PC3       PC4       PC5       PC6       PC7
PC8
## 3.8053009 2.6634739 1.9555901 1.1307190 1.1176877 1.0349666 0.8881561
0.8590806
##       PC9      PC10      PC11      PC12      PC13      PC14      PC15
PC16
## 0.7991110 0.6495392 0.6424224 0.5720013 0.4996263 0.4616361 0.4427409
0.4127463
##      PC17      PC18      PC19
## 0.3801299 0.3576233 0.3274485
```

```r
sum_music <- sum(eigen_music)
sum_music
```

```
## [1] 19
```

```r
## Proportion of variance explained by each component
```

```
propvar_music <- eigen_music/sum_music
propvar_music

##         PC1        PC2        PC3        PC4        PC5        PC6
PC7
## 0.20027900 0.14018284 0.10292580 0.05951152 0.05882567 0.05447193
0.04674506
##         PC8        PC9       PC10       PC11       PC12       PC13
PC14
## 0.04521477 0.04205847 0.03418627 0.03381170 0.03010533 0.02629612
0.02429663
##        PC15       PC16       PC17       PC18       PC19
## 0.02330215 0.02172349 0.02000684 0.01882228 0.01723413

cumvar_music <- cumsum(propvar_music)
cumvar_music

##        PC1       PC2       PC3       PC4       PC5       PC6       PC7
PC8
## 0.2002790 0.3404618 0.4433876 0.5028992 0.5617248 0.6161967 0.6629418
0.7081566
##        PC9      PC10      PC11      PC12      PC13      PC14      PC15
PC16
## 0.7502151 0.7844013 0.8182130 0.8483184 0.8746145 0.8989111 0.9222133
0.9439368
##       PC17      PC18      PC19
## 0.9639436 0.9827659 1.0000000

matlambdas_music <- rbind(eigen_music,propvar_music,cumvar_music)
rownames(matlambdas_music) <- c("Eigenvalues","Prop. variance","Cum. prop.
variance")
round(matlambdas_music,4)

##                        PC1    PC2    PC3    PC4    PC5    PC6    PC7
PC8
## Eigenvalues         3.8053 2.6635 1.9556 1.1307 1.1177 1.0350 0.8882
0.8591
## Prop. variance      0.2003 0.1402 0.1029 0.0595 0.0588 0.0545 0.0467
0.0452
## Cum. prop. variance 0.2003 0.3405 0.4434 0.5029 0.5617 0.6162 0.6629
0.7082
##                        PC9   PC10   PC11   PC12   PC13   PC14   PC15
PC16
## Eigenvalues         0.7991 0.6495 0.6424 0.5720 0.4996 0.4616 0.4427
0.4127
## Prop. variance      0.0421 0.0342 0.0338 0.0301 0.0263 0.0243 0.0233
0.0217
## Cum. prop. variance 0.7502 0.7844 0.8182 0.8483 0.8746 0.8989 0.9222
0.9439
##                       PC17   PC18   PC19
## Eigenvalues         0.3801 0.3576 0.3274
```

```
## Prop. variance      0.0200 0.0188 0.0172
## Cum. prop. variance 0.9639 0.9828 1.0000
```

```r
summary(music_pca)
```

```
## Importance of components:
##                          PC1    PC2    PC3    PC4    PC5    PC6
PC7
## Standard deviation     1.9507 1.6320 1.3984 1.06335 1.05721 1.01733
0.94242
## Proportion of Variance 0.2003 0.1402 0.1029 0.05951 0.05883 0.05447
0.04675
## Cumulative Proportion  0.2003 0.3405 0.4434 0.50290 0.56172 0.61620
0.66294
##                          PC8    PC9   PC10   PC11   PC12   PC13
PC14
## Standard deviation     0.92687 0.89393 0.80594 0.80151 0.75631 0.7068
0.6794
## Proportion of Variance 0.04521 0.04206 0.03419 0.03381 0.03011 0.0263
0.0243
## Cumulative Proportion  0.70816 0.75022 0.78440 0.81821 0.84832 0.8746
0.8989
##                         PC15   PC16   PC17   PC18   PC19
## Standard deviation     0.6654 0.64245 0.61655 0.59802 0.57223
## Proportion of Variance 0.0233 0.02172 0.02001 0.01882 0.01723
## Cumulative Proportion  0.9222 0.94394 0.96394 0.98277 1.00000
```

```r
## Plot a biplot to view components on n-dimensional plane
biplot(music_pca, scale = 0, main = 'Principal componets')
```

Principal componets
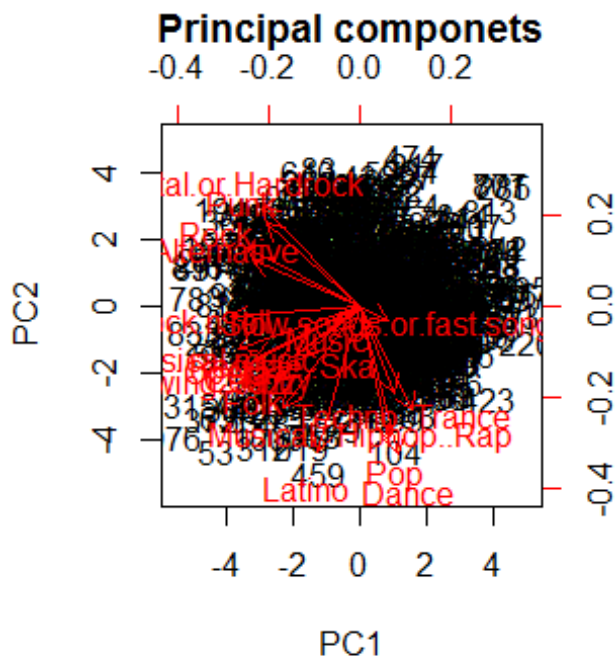

```
##scree plot - to identify the elbow point
plot(propvar_music,xlab = 'Prinicipal component',ylab = 'Proporiton of
variance explained',type = 'b', main = 'Prop. of Variance')
```
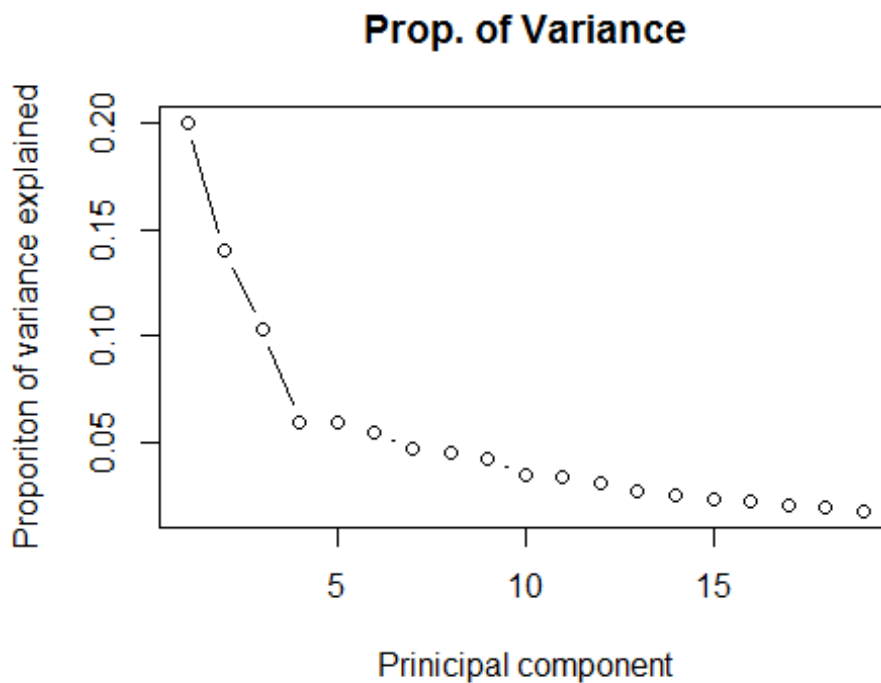
Prop. of Variance

```
#The optimum number of components are ~ 4 i.e PC1 : PC4

# cumulative scree plot
plot(cumvar_music,xlab = 'Principal component',ylab = 'Cumulative proportion
of variance explained',type = 'b', main = 'Cumulative Prop.of Variance')
```

Cumulative Prop.of Variance
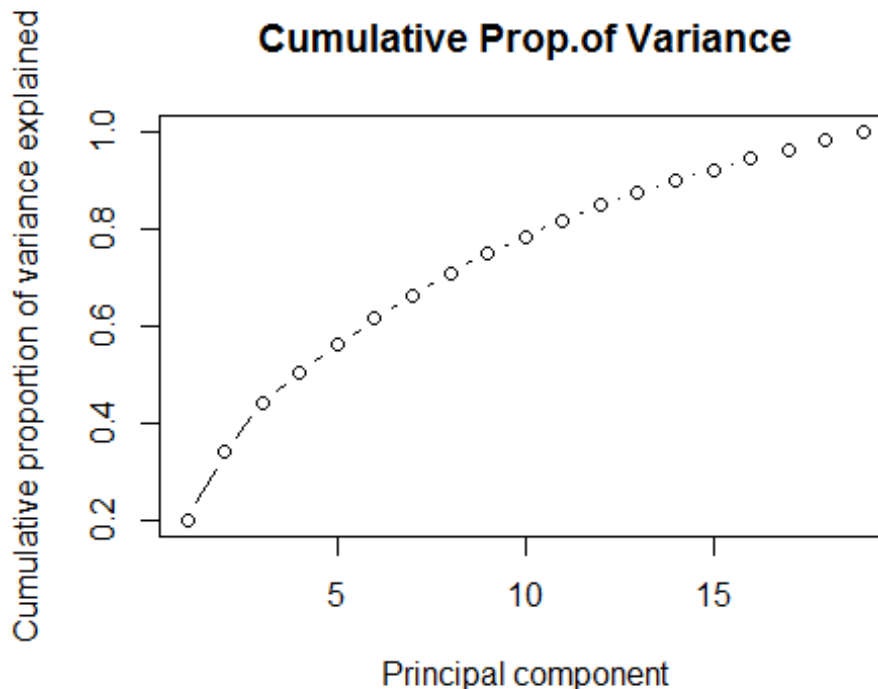

```
#Approx: ~ 75% of the variance is explained by 8 components i.e PC1 to PC8

library(cluster)

## Warning: package 'cluster' was built under R version 3.6.2
```

Data Cluster

Movie Preferences Cluster (Hierarcical Clustering)

```
dim(music_trans)

## [1] 1010    19
```

Given to our variables value is the same dimension, We don't need to normalize the data and form the cluster fit directly.

```
dist.mat5 = music_trans
mat5.nn <- hclust(dist(dist.mat5, method = "euclidean"), method = "average")
plot(mat5.nn, hang=-1,xlab="Object",ylab="Distance",
     main="Dendrogram. Nearest neighbor linkage")
```

Dendrogram. Nearest neighbor linkage
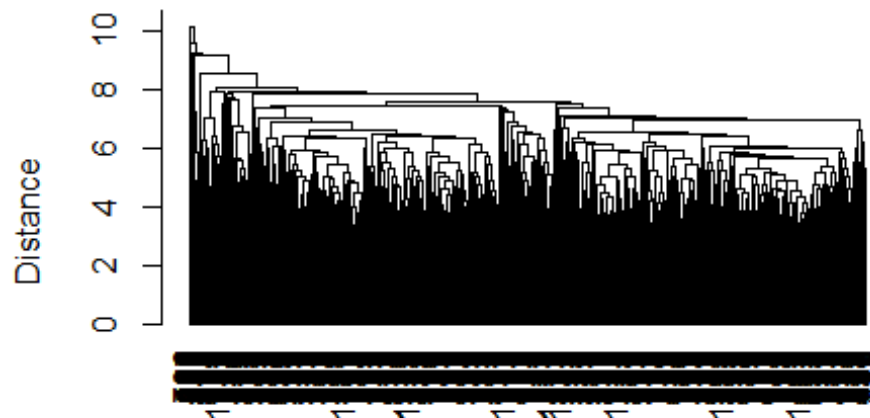
Object
hclust (*, "average")

```r
#use agglomerative hierarchical clustering to cluster
hc_mod = hclust(dist(music_trans, method = "euclidean"),method = "ward.D")
plot(hc_mod, hang = -0.01, cex = 0.7)
```
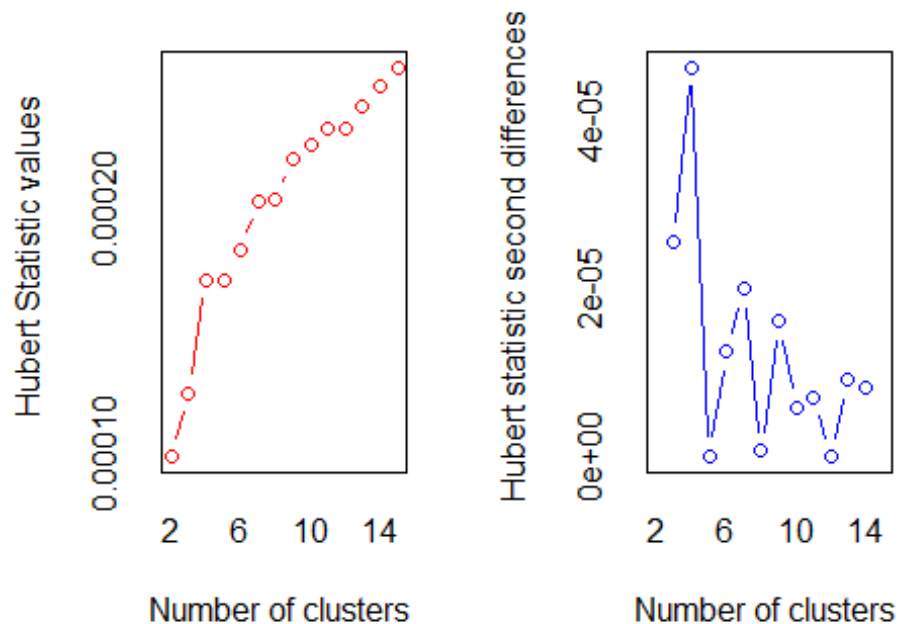
Cluster Dendrogram

dist(music_trans, method = "euclidean")
hclust (*, "ward.D")

I use Ward's method in this section. Our dataset has a large observations and a lot of variable number, and Ward's method tends to produce clusters with proper numbers of observations. By the way, it can also be sensitive to outlines. From above tree, I'm not so sure how many cluster number it should be.And I will seek help from function NbClust.

```
library(NbClust)

nb_clust = NbClust(music_trans, distance="euclidean",
                   min.nc=2, max.nc=15, method="ward.D")
```

```
## *** : The Hubert index is a graphical method of determining the number of
clusters.
##                 In the plot of Hubert index, we seek a significant knee
that corresponds to a
##                 significant increase of the value of the measure i.e the
significant peak in Hubert
##                 index second differences plot.
##
```
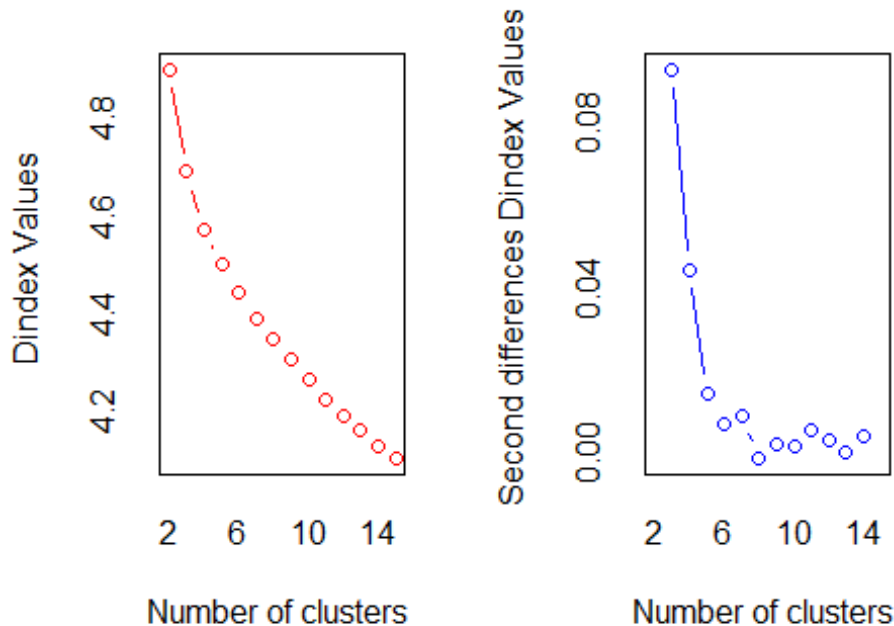
```
## *** : The D index is a graphical method of determining the number of
clusters.
##                    In the plot of D index, we seek a significant knee (the
significant peak in Dindex
##                    second differences plot) that corresponds to a significant
increase of the value of
##                    the measure.
##
## *****************************************************************
## * Among all indices:
## * 4 proposed 2 as the best number of clusters
## * 11 proposed 3 as the best number of clusters
## * 4 proposed 4 as the best number of clusters
## * 1 proposed 9 as the best number of clusters
## * 1 proposed 10 as the best number of clusters
## * 2 proposed 15 as the best number of clusters
##
##                       ***** Conclusion *****
##
## * According to the majority rule, the best number of clusters is   3
##
##
## *****************************************************************
```

Next step is cut the tree to into different clusters.

```
fit_model = cutree(hc_mod, k=3)
```

```
plot(hc_mod)
```

Cluster Dendrogram
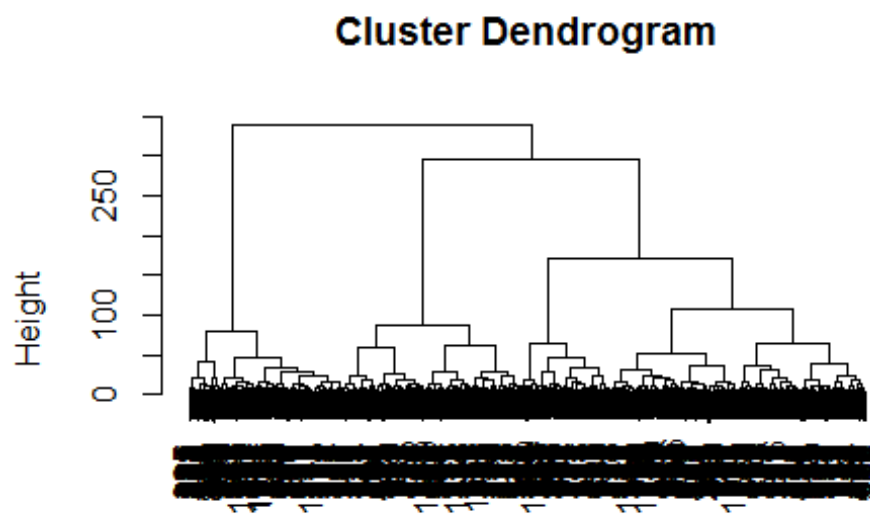
dist(music_trans, method = "euclidean")
hclust (*, "ward.D")

```
plot(hc_mod)
rect.hclust(hc_mod, k= 3, border = "blue")
```

Cluster Dendrogram
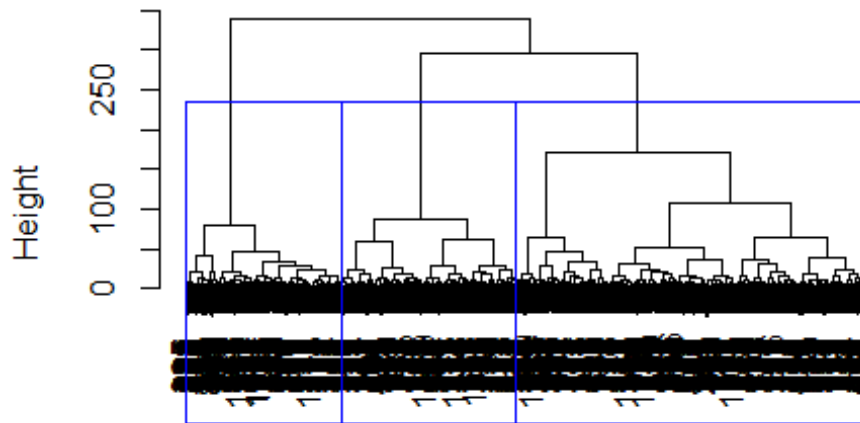
dist(music_trans, method = "euclidean")
hclust (*, "ward.D")

```r
#segment inspection
aggregate(movie_trans, by=list(cluster=fit_model), mean)

##   cluster   Movies   Horror Thriller   Comedy Romantic   Sci.fi      War
## 1       1 4.584416 3.034632 3.463203 4.597403 3.316017 3.017316 3.225108
## 2       2 4.616858 2.823755 3.517241 4.298851 3.042146 3.210728 3.272031
## 3       3 4.623552 2.667954 3.277992 4.550193 3.791506 3.098456 3.065637
##   Fantasy.Fairy.tales Animated Documentary  Western   Action
## 1            3.376623 3.519481    3.406926 1.874459 3.679654
## 2            3.513410 3.689655    3.724138 2.130268 3.440613
## 3            4.034749 3.959459    3.706564 2.239382 3.515444

clusplot(movie_trans, fit_model, color=TRUE,labels = 4, lines=0, main
="hclust plot")
```

hclust plot
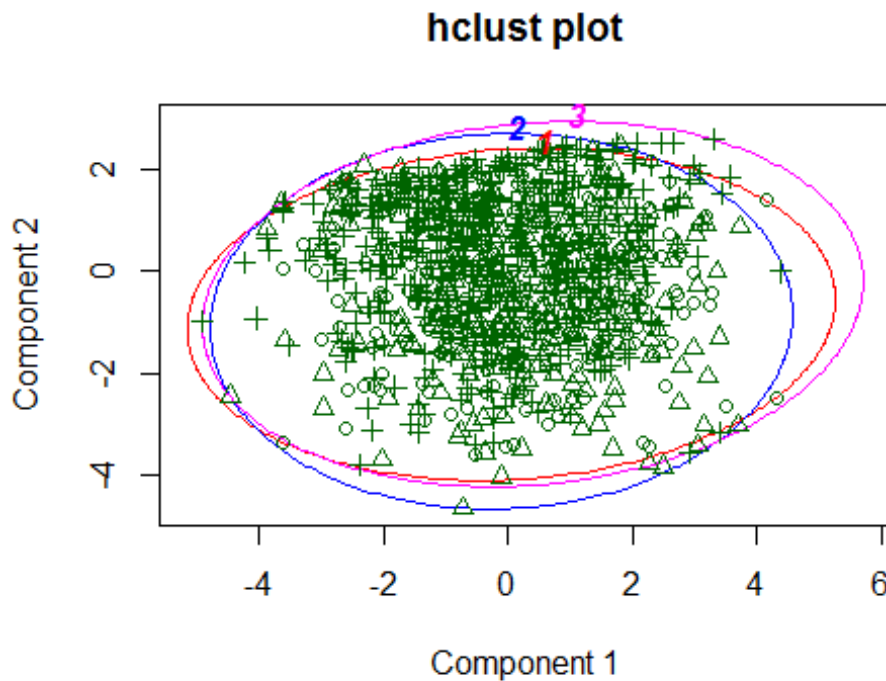
Component 1
These two components explain 38.74 % of the point variab

The cluster is cut clearly, but as the segment description shows that this cluster is kind of odd. Three groups are umbalance distribution, the first variable, which is general in this topic, has only a value.

K-means cluster

```
#Decide the number of cluster before starting the K-mean fit form.
nb_clust2 = NbClust(movie_trans, min.nc=2, max.nc=15, method="kmeans")
```
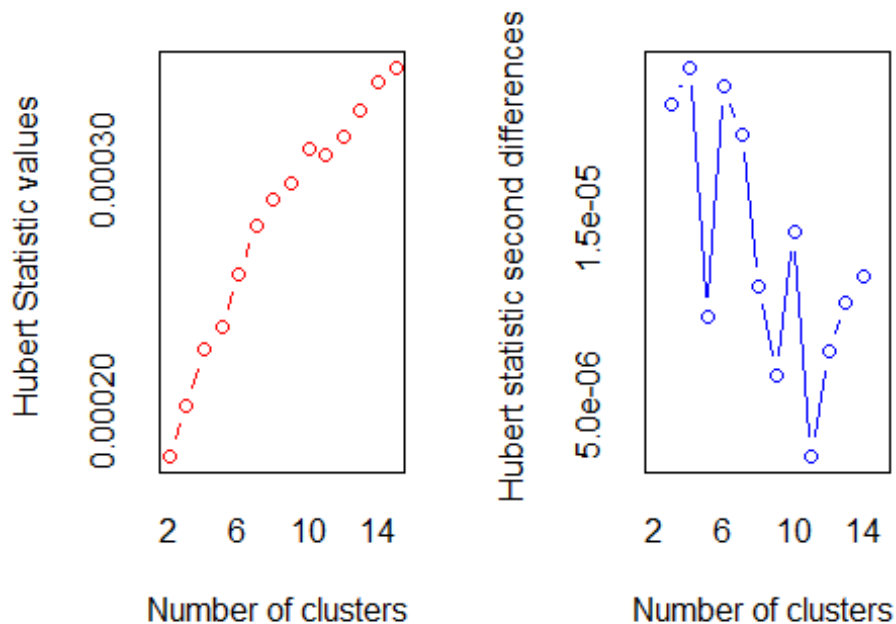
```
## *** : The Hubert index is a graphical method of determining the number of
clusters.
##                  In the plot of Hubert index, we seek a significant knee
that corresponds to a
##                  significant increase of the value of the measure i.e the
significant peak in Hubert
##                  index second differences plot.
##
```
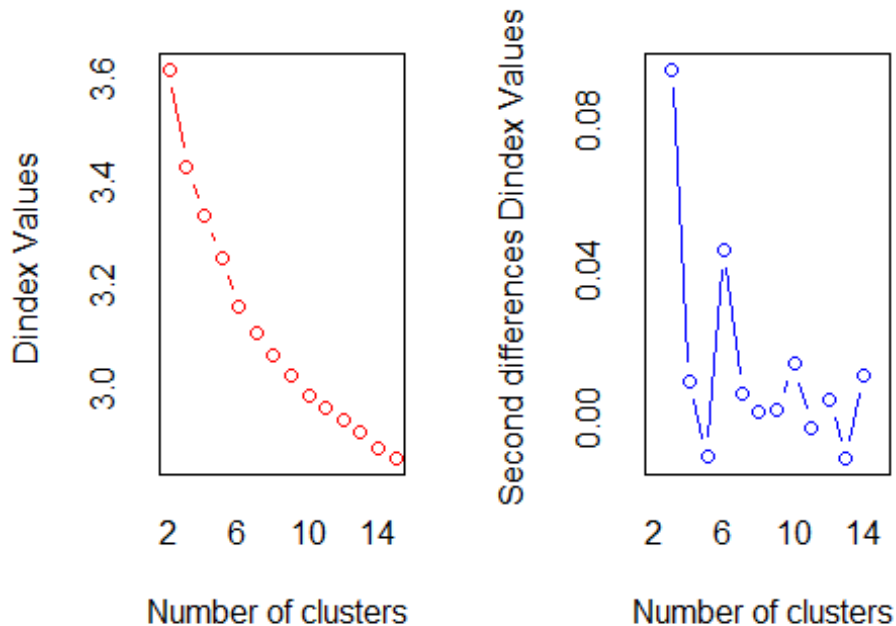
```
## *** : The D index is a graphical method of determining the number of
clusters.
##                  In the plot of D index, we seek a significant knee (the
significant peak in Dindex
##                  second differences plot) that corresponds to a significant
increase of the value of
##                  the measure.
##
## *******************************************************************
## * Among all indices:
## * 7 proposed 2 as the best number of clusters
## * 11 proposed 3 as the best number of clusters
## * 1 proposed 6 as the best number of clusters
## * 1 proposed 9 as the best number of clusters
## * 1 proposed 10 as the best number of clusters
## * 2 proposed 15 as the best number of clusters
##
##                      ***** Conclusion *****
##
## * According to the majority rule, the best number of clusters is   3
##
##
## *******************************************************************

#table(nc2$Best.n[1,])
```

It's still 3 with Kmeans.

```
set.seed(101)
km_mo <- kmeans(movie_trans, 3)
aggregate(movie_trans, by=list(cluster=km_mo$cluster), mean)

##   cluster   Movies   Horror Thriller   Comedy Romantic   Sci.fi      War
## 1       1 4.449827 2.913495 3.494810 4.145329 2.837370 2.951557 3.173010
## 2       2 4.576316 2.176316 2.721053 4.607895 4.068421 2.378947 2.334211
## 3       3 4.791789 3.375367 4.023460 4.668622 3.395894 4.055718 4.055718
##   Fantasy.Fairy.tales Animated Documentary  Western   Action
## 1            2.484429 2.422145    3.346021 2.086505 3.477509
## 2            4.421053 4.350000    3.463158 1.600000 2.873684
## 3            4.073314 4.322581    4.093842 2.750733 4.316716

clusplot(movie_trans, km_mo$cluster,color=TRUE, shade=TRUE,
         labels=4, lines=0, main="K-means cluster plot")
```


K-means cluster plot

Component 2 / Component 1

These two components explain 38.74 % of the point variab
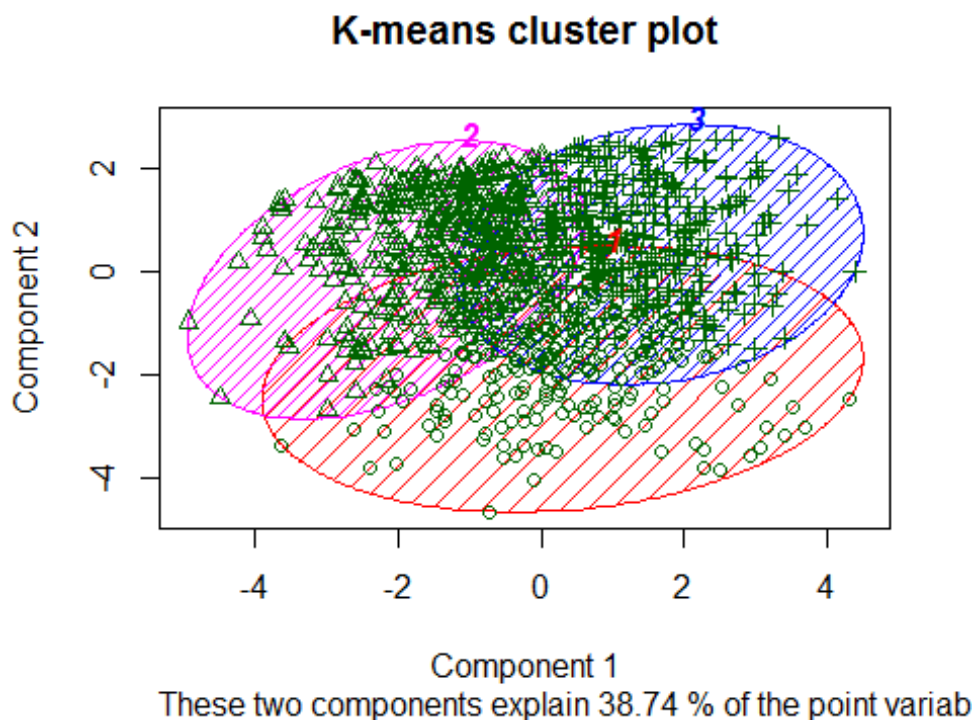
According to the kmeans cluster result, I can barely name the three cluster as:

cluster 3: movie enthdusiasts, love all kind of movie except romantic and Fantasy/Fairy tales cluster 1: normal movie consumer, focus on romantic, Fantasy/Fairy tales, comedy, and no feeling on horror, thriller, war, and western cluster 2: specific kind of movie lover, focus on war, thriller, action

comparing the three clusters demographics characters:

```
demo_trans = data_transformed[,names(demo_data)]

aggregate(demo_trans[,1:4], by = list(km_mo$cluster), mean)
```

```
##   Group.1      Age   Height   Weight Number.of.siblings
## 1       1 20.67474 175.3253 69.12111           1.231834
## 2       2 20.12895 169.1082 60.02105           1.300000
## 3       3 20.37537 177.0254 70.24047           1.351906
```

```r
round(prop.table(table(km_mo$cluster, demo_trans$Gender),1),2)
```

```
##
##          female male
##   1 0.01   0.45 0.54
##   2 0.01   0.90 0.10
##   3 0.01   0.35 0.64
```

```r
round(prop.table(table(demo_trans$Education,km_mo$cluster),2),2)
```

```
##
##                                        1    2    3
##                                     0.00 0.00 0.00
##   college/bachelor degree           0.22 0.22 0.20
##   currently a primary school pupil  0.01 0.01 0.01
##   doctorate degree                  0.01 0.00 0.00
##   masters degree                    0.10 0.08 0.07
##   primary school                    0.06 0.09 0.09
##   secondary school                  0.60 0.62 0.63
```

```r
round(prop.table(table(km_mo$cluster,demo_data$Village...town),1),2)
```

```
##
##          city village
##   1 0.01 0.72    0.27
##   2 0.00 0.69    0.31
##   3 0.00 0.70    0.30
```

```r
round(prop.table(table(km_mo$cluster,
demo_trans$House...block.of.flats),1),2)
```

```
##
##          block of flats house/bungalow
##   1 0.01           0.60          0.39
##   2 0.01           0.58          0.42
##   3 0.00           0.59          0.41
```

As you can see, the most difference between them is gender:

cluster 3: movie enthdusiasts are mainly guys cluster 1: normal movie consumers are mostly girls cluster 2: specific kind of movie lover are more elder but quite equal on gender

Factor Analysis

```r
#hobbies_pca
#movie_pca
```

```
#music_pca
eigvec.hobbies<- hobbies_pca$rotation

pcafactors.hobbies<- eigvec.hobbies[,1:4]
pcafactors.hobbies

##                               PC1          PC2          PC3          PC4
## History               0.188458129 -0.09972504  0.191659752 -0.22991541
## Psychology            0.230036558  0.01786097  0.099845621 -0.12092486
## Politics              0.123498901 -0.20221515  0.261041540 -0.21465574
## Mathematics           0.071298342 -0.28497563 -0.148794306 -0.11696119
## Physics               0.117537829 -0.32127215 -0.264318100 -0.13787033
## Internet             -0.047107481 -0.24945405  0.114615245  0.10689102
## PC                   -0.040810044 -0.37916578 -0.026702872 -0.01947711
## Economy.Management   -0.004247973 -0.19189231  0.297016846  0.01081594
## Biology               0.275152415  0.02013486 -0.351237734  0.16443892
## Chemistry             0.220249354 -0.02970157 -0.402713435  0.09655225
## Reading               0.273290822  0.20243199  0.075074553 -0.17176942
## Geography             0.165733285 -0.15102913  0.150868856 -0.07075296
## Foreign.languages     0.196795893  0.01943294  0.224850707 -0.01840982
## Medicine              0.283815963 -0.01061050 -0.296379491  0.11658962
## Law                   0.139885598 -0.14966276  0.276167023 -0.02315421
## Cars                 -0.054065830 -0.35287817  0.054454401  0.15197566
## Art.exhibitions       0.307286358  0.08363239  0.106223775 -0.05528705
## Religion              0.234554023 -0.02118824 -0.009334782 -0.16050540
## Countryside..outdoors 0.196673276 -0.02578241 -0.009371219  0.11783931
## Dancing               0.232312679  0.05907080  0.086621432  0.24672526
## Musical.instruments   0.216399667 -0.01219800 -0.012291430 -0.08626889
## Writing               0.231718611  0.07397364  0.067636420 -0.15644741
## Passive.sport        -0.023439504 -0.15300983  0.051616951  0.20587472
## Active.sport          0.069058573 -0.20429023  0.043485929  0.24414843
## Gardening             0.192890484  0.03464648 -0.080288637  0.18959498
## Celebrities           0.015776035  0.09462840  0.186510020  0.34123592
## Shopping              0.083917204  0.12707686  0.199581102  0.39774969
## Science.and.technology 0.097311047 -0.33700031 -0.117622329 -0.03484404
## Theatre               0.293866571  0.13860458  0.110875136 -0.03254494
## Fun.with.friends      0.062460243 -0.05187930  0.139364342  0.26018379
## Adrenaline.sports     0.074602609 -0.25199639  0.062705429  0.22378600
## Pets                  0.087440530  0.03835047 -0.026758239  0.25545973

unrot.fact.hobbies<-
sweep(pcafactors.hobbies,MARGIN=2,hobbies_pca$sdev[1:4],`*`)
unrot.fact.hobbies

##                               PC1          PC2          PC3          PC4
## History               0.388019198 -0.17891805  0.30682331 -0.34052832
## Psychology            0.473625633  0.03204461  0.15984036 -0.17910213
## Politics              0.254273693 -0.36279694  0.41789489 -0.31792717
## Mathematics           0.146797198 -0.51127864 -0.23820109 -0.17323152
## Physics               0.242000355 -0.57639873 -0.42314025 -0.20420011
## Internet             -0.096990282 -0.44754889  0.18348468  0.15831657
```

```
## PC                      -0.084024396 -0.68026646 -0.04274796 -0.02884760
## Economy.Management       -0.008746213 -0.34427659  0.47548685  0.01601952
## Biology                   0.566515332  0.03612423 -0.56228772  0.24355091
## Chemistry                 0.453474616 -0.05328799 -0.64469388  0.14300379
## Reading                   0.562682471  0.36318598  0.12018498 -0.25440813
## Geography                 0.341230685 -0.27096341  0.24152219 -0.10479239
## Foreign.languages         0.405185944  0.03486491  0.35995788 -0.02726684
## Medicine                  0.584352837 -0.01903645 -0.47446653  0.17268119
## Law                       0.288012505 -0.26851199  0.44210889 -0.03429376
## Cars                     -0.111316929 -0.63310351  0.08717469  0.22509155
## Art.exhibitions           0.632676378  0.15004601  0.17005099 -0.08188580
## Religion                  0.482926708 -0.03801411 -0.01494382 -0.23772497
## Countryside..outdoors     0.404933485 -0.04625658 -0.01500215  0.17453211
## Dancing                   0.478311973  0.10597972  0.13867009  0.36542543
## Musical.instruments       0.445548441 -0.02188459 -0.01967704 -0.12777307
## Writing                   0.477088837  0.13271712  0.10827746 -0.23171467
## Passive.sport            -0.048259938 -0.27451702  0.08263229  0.30492158
## Active.sport              0.142185706 -0.36651987  0.06961554  0.36160888
## Gardening                 0.397145038  0.06215972 -0.12853207  0.28080963
## Celebrities               0.032481508  0.16977409  0.29857923  0.50540541
## Shopping                  0.172778359  0.22799031  0.31950440  0.58910810
## Science.and.technology    0.200355138 -0.60461683 -0.18829865 -0.05160760
## Theatre                   0.605046182  0.24867236  0.17749724 -0.04820240
## Fun.with.friends          0.128600309 -0.09307736  0.22310490  0.38535888
## Adrenaline.sports         0.153600402 -0.45211014  0.10038356  0.33145003
## Pets                      0.180032587  0.06880511 -0.04283660  0.37836208

communalities.hobbies<- rowSums(unrot.fact.hobbies^2)
communalities.hobbies # 1 - this would be your unique variance

##                 History              Psychology                 Politics
##               0.3926706               0.2829746                0.4719906
##             Mathematics                 Physics                 Internet
##               0.3697042               0.6115450                0.2684379
##                      PC       Economy.Management                  Biology
##               0.4724821               0.3449472                0.6977291
##               Chemistry                 Reading                Geography
##               0.6445591               0.5276835                0.2591740
##       Foreign.languages                Medicine                      Law
##               0.2957044               0.5967679                0.3516862
##                    Cars         Art.exhibitions                 Religion
##               0.4714771               0.4584158                0.2913998
##   Countryside..outdoors                 Dancing      Musical.instruments
##               0.1967973               0.3927792                0.2157055
##                 Writing            Passive.sport             Active.sport
##               0.3106433               0.1774939                0.2901609
##               Gardening             Celebrities                 Shopping
##               0.2569626               0.3744625                0.5309634
##  Science.and.technology                 Theatre         Fun.with.friends
##               0.4438234               0.4617476                0.2234787
```

```
##       Adrenaline.sports                      Pets
##              0.3479326                  0.1821387

rot.fact.hobbies<- varimax(unrot.fact.hobbies)
View(unrot.fact.hobbies)
rot.fact.hobbies

## $loadings
##
## Loadings:
##                        PC1    PC2    PC3    PC4
## History                0.586 -0.128  0.113 -0.141
## Psychology             0.522
## Politics               0.524 -0.320  0.267 -0.154
## Mathematics                  -0.405 -0.217 -0.388
## Physics                      -0.435 -0.404 -0.500
## Internet                     -0.492  0.147
## PC                           -0.627        -0.275
## Economy.Management     0.209 -0.398  0.362  0.110
## Biology                0.107        -0.826
## Chemistry                           -0.795 -0.109
## Reading                0.597  0.382 -0.152
## Geography              0.430 -0.272
## Foreign.languages      0.498                 0.212
## Medicine               0.190        -0.748
## Law                    0.450 -0.316  0.183  0.126
## Cars                  -0.123 -0.673
## Art.exhibitions        0.614  0.121 -0.206  0.157
## Religion               0.475        -0.217 -0.137
## Countryside..outdoors  0.252 -0.105 -0.295  0.188
## Dancing                0.303        -0.275  0.473
## Musical.instruments    0.399        -0.232
## Writing                0.519  0.161 -0.120
## Passive.sport         -0.114 -0.358         0.191
## Active.sport                 -0.465 -0.137  0.234
## Gardening              0.151        -0.408  0.259
## Celebrities                                 0.607
## Shopping                                    0.726
## Science.and.technology 0.110 -0.537 -0.246 -0.287
## Theatre                0.579  0.204 -0.194  0.215
## Fun.with.friends             -0.235         0.406
## Adrenaline.sports            -0.542 -0.112  0.197
## Pets                                -0.248  0.344
##
##                  PC1   PC2   PC3   PC4
## SS loadings    3.592 3.122 3.077 2.423
## Proportion Var 0.112 0.098 0.096 0.076
## Cumulative Var 0.112 0.210 0.306 0.382
##
## $rotmat
```

```
##             [,1]        [,2]         [,3]      [,4]
## [1,]  0.80414921 -0.03239952 -0.571263073 0.1610988
## [2,] -0.02266617  0.94671379  0.004990906 0.3212388
## [3,]  0.45001608 -0.14193505  0.765086252 0.4381586
## [4,] -0.38770584 -0.28729377 -0.297113816 0.8239356
```

```
fact.load.hobbies<- rot.fact.hobbies$loadings[1:9,1:4]
fact.load.hobbies
```

```
##                              PC1         PC2         PC3          PC4
## History               0.58618096 -0.12767314  0.11336796 -0.141102100
## Psychology            0.52150903  0.04375981 -0.09489952  0.009061298
## Politics              0.52401884 -0.31967865  0.26711833 -0.154428509
## Mathematics           0.08960413 -0.40521328 -0.21718646 -0.387695145
## Physics               0.09641880 -0.43480146 -0.40419073 -0.499825939
## Internet             -0.04665964 -0.49208454  0.14651686  0.051442991
## PC                   -0.06020201 -0.62694011  0.02047003 -0.274563127
## Economy.Management    0.20853604 -0.39773858  0.36230697  0.109533743
## Biology               0.10727944  0.02568216 -0.82600994  0.057168467
```

```
scale.hobbies<- scale(hobbies_transformed[-1])
scale.hobbies
```

```
##          Psychology   Politics Mathematics      Physics    Internet
PC
##    [1,]   1.4817895 -1.2335329   0.4925588   0.76311405   0.8918804 -
0.1049952
##    [2,]  -0.1094996  1.0850805   1.9709672  -0.05248933  -0.1947290
0.6524702
##    [3,]  -0.9051442 -1.2335329   1.9709672  -0.05248933  -0.1947290 -
0.8624606
##    [4,]   0.6861450  1.8579516   1.2317630  -0.86809270  -1.2813384 -
1.6199259
##    [5,]  -0.9051442  0.3122093  -0.2466454  -0.05248933  -2.3679478 -
0.8624606
##    [6,]  -0.1094996  1.0850805  -0.2466454   0.76311405  -0.1947290
0.6524702
##    [7,]  -0.1094996 -1.2335329  -0.9858495  -0.86809270  -2.3679478 -
1.6199259
##    [8,]  -0.9051442  0.3122093  -0.9858495  -0.86809270   0.8918804
0.6524702
##    [9,]  -0.9051442 -1.2335329  -0.9858495  -0.86809270  -3.4545571 -
1.6199259
##   [10,]  -0.9051442  0.3122093   0.4925588  -0.86809270   0.8918804 -
1.6199259
##   [11,]  -0.1094996  0.3122093  -0.2466454  -0.86809270  -0.1947290
1.4099355
##   [12,]  -0.9051442  1.8579516  -0.9858495  -0.86809270   0.8918804
0.6524702
##   [13,]   0.6861450  1.0850805  -0.9858495  -0.86809270  -1.2813384 -
0.8624606
```

```
##  [14,] -0.9051442 -1.2335329  -0.9858495 -0.86809270 -1.2813384 -
0.1049952
##  [15,]  1.4817895 -1.2335329  -0.9858495 -0.86809270 -0.1947290 -
0.8624606
##  [16,]  1.4817895  0.3122093   0.4925588  0.76311405 -0.1947290
1.4099355
##  [17,] -1.7007887 -1.2335329  -0.9858495 -0.86809270  0.8918804 -
0.8624606
##  [18,] -0.9051442 -0.4606618  -0.9858495  0.76311405 -1.2813384 -
0.1049952
##  [19,]  1.4817895  0.3122093   1.9709672  2.39432079  0.8918804
1.4099355
##  [20,] -0.1094996  0.3122093   0.4925588 -0.05248933  0.8918804
1.4099355
##  [21,] -0.1094996  1.0850805  -0.2466454  0.76311405  0.8918804
0.6524702
##  [22,]  0.6861450  1.0850805   0.4925588 -0.86809270  0.8918804
1.4099355
##  [23,]  0.6861450 -0.4606618  -0.9858495 -0.86809270  0.8918804 -
0.1049952
##  [24,] -0.9051442  0.3122093  -0.2466454  0.76311405 -0.1947290 -
0.1049952
##  [25,]  1.4817895  1.8579516  -0.2466454 -0.86809270  0.8918804
0.6524702
##  [26,] -0.9051442 -1.2335329   0.4925588 -0.86809270  0.8918804 -
0.8624606
##  [27,] -0.1094996 -1.2335329  -0.2466454  0.76311405  0.8918804 -
0.8624606
##  [28,] -0.9051442  0.3122093  -0.9858495  0.76311405 -0.1947290 -
0.8624606
##  [29,] -1.7007887 -1.2335329  -0.9858495 -0.05248933  0.8918804 -
0.8624606
##  [30,]  0.6861450 -0.4606618  -0.2466454 -0.05248933 -0.1947290 -
0.1049952
##  [31,] -0.1094996  0.3122093  -0.9858495 -0.86809270 -0.1947290 -
0.1049952
##  [32,]  0.6861450 -0.4606618  -0.2466454 -0.05248933 -1.2813384 -
0.8624606
##  [33,]  1.4817895  0.3122093  -0.9858495 -0.86809270  0.8918804
0.6524702
##  [34,] -0.1094996  1.8579516  -0.2466454 -0.86809270  0.8918804
0.6524702
##  [35,]  1.4817895  1.0850805   0.4925588 -0.86809270  0.8918804
0.6524702
##  [36,] -1.7007887 -1.2335329  -0.9858495 -0.86809270  0.8918804 -
0.1049952
##  [37,]  1.4817895  0.3122093   0.4925588  0.76311405  0.8918804 -
0.1049952
##  [38,] -0.1094996  1.8579516   0.4925588  0.76311405 -0.1947290 -
0.1049952
```

```
##    [39,]   0.6861450   1.0850805    0.4925588 -0.05248933   0.8918804 -
0.8624606
##    [40,]  -1.7007887  -1.2335329   -0.9858495 -0.86809270   0.8918804 -
0.8624606
##    [41,]  -1.7007887  -1.2335329   -0.2466454 -0.86809270   0.8918804
0.6524702
##    [42,]   0.6861450   1.8579516    1.9709672  2.39432079   0.8918804
1.4099355
##    [43,]   1.4817895  -1.2335329    1.9709672 -0.86809270   0.8918804
1.4099355
##    [44,]   0.6861450  -0.4606618   -0.9858495 -0.86809270   0.8918804 -
0.1049952
##    [45,]   1.4817895   1.8579516    0.4925588  1.57871742  -0.1947290 -
0.1049952
##    [46,]   1.4817895   1.8579516    1.9709672  2.39432079   0.8918804
1.4099355
##    [47,]  -0.1094996  -1.2335329   -0.2466454 -0.05248933   0.8918804
0.6524702
##    [48,]  -0.1094996  -1.2335329   -0.2466454 -0.86809270   0.8918804 -
0.1049952
##    [49,]   0.6861450   0.3122093   -0.2466454 -0.05248933  -0.1947290 -
0.8624606
##    [50,]  -0.9051442  -0.4606618   -0.9858495 -0.86809270   0.8918804 -
0.1049952
##    [51,]   0.6861450  -1.2335329    1.2317630 -0.86809270  -0.1947290 -
0.8624606
##    [52,]   0.6861450   1.0850805    1.9709672  2.39432079   0.8918804
1.4099355
##    [53,]   0.6861450   0.3122093    0.4925588 -0.05248933  -0.1947290 -
0.8624606
##    [54,]  -0.1094996   1.0850805   -0.9858495 -0.86809270  -1.2813384 -
0.8624606
##    [55,]  -0.1094996   1.0850805   -0.9858495  1.57871742  -1.2813384 -
1.6199259
##    [56,]   1.4817895  -0.4606618   -0.2466454  0.76311405   0.8918804
0.6524702
##    [57,]   0.6861450   1.0850805    1.2317630  0.76311405  -0.1947290
0.6524702
##    [58,]   1.4817895  -0.4606618   -0.9858495 -0.86809270   0.8918804 -
1.6199259
##    [59,]  -0.1094996  -1.2335329    0.4925588 -0.05248933  -0.1947290 -
0.1049952
##    [60,]   0.6861450   1.8579516   -0.9858495 -0.86809270  -1.2813384 -
0.1049952
##    [61,]   1.4817895   1.0850805    1.2317630  1.57871742   0.8918804
0.6524702
##    [62,]  -0.1094996   0.3122093    0.4925588  1.57871742   0.8918804
0.6524702
##    [63,]   0.6861450   1.0850805    1.2317630  2.39432079   0.8918804
1.4099355
```

```
##   [64,] -0.9051442   0.3122093  -0.9858495 -0.05248933 -0.1947290 -
0.1049952
##   [65,] -0.9051442  -0.4606618  -0.9858495  0.76311405  0.8918804 -
0.8624606
##   [66,] -0.9051442   0.3122093  -0.2466454 -0.86809270  0.8918804 -
0.1049952
##   [67,] -0.9051442  -0.4606618   1.9709672  2.39432079 -0.1947290 -
0.1049952
##   [68,] -0.1094996   0.3122093   1.2317630 -0.05248933 -1.2813384 -
1.6199259
##   [69,] -0.9051442   0.3122093   1.9709672 -0.05248933  0.8918804 -
0.8624606
##   [70,] -0.9051442  -0.4606618  -0.9858495 -0.86809270 -1.2813384 -
1.6199259
##   [71,] -1.7007887   0.3122093  -0.9858495 -0.86809270 -1.2813384 -
0.1049952
##   [72,] -1.7007887   1.8579516  -0.2466454 -0.86809270 -0.1947290 -
0.8624606
##   [73,] -0.9051442  -1.2335329  -0.9858495 -0.86809270 -0.1947290 -
0.1049952
##   [74,] -0.1094996   1.0850805  -0.9858495 -0.86809270  0.8918804
1.4099355
##   [75,] -0.1094996   1.8579516  -0.9858495 -0.86809270 -0.1947290 -
0.1049952
##   [76,]  1.4817895   1.0850805  -0.2466454 -0.86809270  0.8918804
0.6524702
##   [77,] -0.9051442   1.8579516  -0.9858495 -0.86809270 -0.1947290
0.6524702
##   [78,] -0.9051442  -1.2335329  -0.9858495 -0.86809270 -1.2813384 -
1.6199259
##   [79,]  1.4817895  -1.2335329   0.4925588 -0.86809270 -0.1947290
0.6524702
##   [80,] -0.1094996   1.8579516  -0.2466454 -0.86809270  0.8918804 -
0.1049952
##   [81,]  0.6861450   1.0850805  -0.9858495 -0.05248933  0.8918804 -
0.1049952
##   [82,] -0.9051442  -1.2335329  -0.9858495 -0.05248933  0.8918804
1.4099355
##   [83,]  1.4817895  -1.2335329  -0.9858495 -0.86809270  0.8918804 -
1.6199259
##   [84,] -0.9051442  -1.2335329  -0.9858495 -0.86809270  0.8918804 -
0.1049952
##   [85,]  1.4817895   1.0850805  -0.9858495 -0.86809270 -0.1947290
0.6524702
##   [86,] -0.1094996  -1.2335329   1.9709672  2.39432079  0.8918804
1.4099355
##   [87,]  1.4817895   1.8579516   1.2317630  1.57871742  0.8918804
0.6524702
##   [88,]  0.6861450   1.8579516  -0.9858495 -0.86809270  0.8918804 -
0.8624606
```

```
##  [89,] -1.7007887  1.8579516  -0.9858495 -0.86809270  0.8918804 -
1.6199259
##  [90,] -0.1094996  0.3122093  -0.9858495 -0.86809270 -1.2813384 -
1.6199259
##  [91,] -1.7007887 -1.2335329  -0.9858495 -0.86809270 -0.1947290 -
1.6199259
##  [92,] -1.7007887 -1.2335329  -0.9858495 -0.86809270  0.8918804
1.4099355
##  [93,] -0.1094996 -0.4606618   0.4925588  0.76311405 -1.2813384 -
0.8624606
##  [94,] -0.1094996 -1.2335329   1.2317630  1.57871742  0.8918804
1.4099355
##  [95,] -0.9051442 -1.2335329  -0.9858495 -0.86809270  0.8918804
1.4099355
##  [96,]  0.6861450  1.0850805  -0.9858495 -0.05248933  0.8918804
1.4099355
##  [97,] -1.7007887 -1.2335329  -0.9858495 -0.86809270 -2.3679478 -
1.6199259
##  [98,] -0.9051442 -0.4606618   1.2317630 -0.86809270  0.8918804
1.4099355
##  [99,] -1.7007887 -1.2335329  -0.9858495 -0.05248933 -1.2813384
0.6524702
## [100,]  0.6861450 -1.2335329   1.9709672  2.39432079  0.8918804 -
1.6199259
## [101,] -1.7007887 -0.4606618  -0.2466454  0.76311405  0.8918804
1.4099355
## [102,] -1.7007887  1.0850805  -0.9858495 -0.86809270 -0.1947290 -
0.1049952
## [103,]  1.4817895  1.8579516   1.2317630  1.57871742  0.8918804
0.6524702
## [104,]  0.6861450  1.0850805  -0.2466454 -0.05248933  0.8918804
1.4099355
## [105,]  0.6861450  1.8579516  -0.2466454 -0.05248933 -1.2813384 -
0.1049952
## [106,] -0.9051442 -0.4606618  -0.9858495 -0.86809270 -1.2813384 -
0.1049952
## [107,]  0.6861450  0.3122093   0.4925588 -0.86809270 -0.1947290
0.6524702
## [108,] -0.9051442  1.0850805  -0.9858495  0.76311405 -0.1947290 -
1.6199259
## [109,] -0.1094996 -0.4606618   0.4925588 -0.05248933 -0.1947290
0.6524702
## [110,] -0.1094996  1.0850805  -0.2466454 -0.05248933 -0.1947290
1.4099355
## [111,]  0.6861450 -1.2335329  -0.2466454  0.76311405  0.8918804 -
0.8624606
## [112,]  0.6861450 -1.2335329  -0.9858495 -0.86809270 -0.1947290 -
1.6199259
## [113,] -0.1094996 -1.2335329  -0.2466454 -0.86809270 -1.2813384 -
1.6199259
```

```
## [114,] -0.9051442 -1.2335329  -0.9858495 -0.05248933 -1.2813384 -
0.8624606
## [115,] -0.1094996 -1.2335329  -0.9858495 -0.86809270  0.8918804 -
0.1049952
## [116,]  1.4817895  0.3122093  -0.9858495  0.76311405  0.8918804 -
0.1049952
## [117,]  0.6861450 -0.4606618  -0.9858495 -0.05248933 -1.2813384 -
1.6199259
## [118,] -0.9051442 -0.4606618   1.9709672 -0.05248933  0.8918804
1.4099355
## [119,] -0.9051442  1.0850805   1.2317630 -0.05248933 -0.1947290
0.6524702
## [120,]  0.6861450 -0.4606618   1.2317630 -0.05248933  0.8918804 -
1.6199259
## [121,] -0.1094996  1.0850805   1.9709672  2.39432079 -2.3679478
0.6524702
## [122,] -0.1094996  0.3122093   1.2317630  0.76311405 -0.1947290
0.6524702
## [123,] -0.9051442 -1.2335329  -0.9858495 -0.86809270 -0.1947290 -
0.8624606
## [124,] -0.1094996 -1.2335329  -0.9858495  0.76311405 -1.2813384 -
0.1049952
## [125,]  0.6861450  1.0850805  -0.9858495  0.76311405 -0.1947290
1.4099355
## [126,]  0.6861450  1.0850805  -0.2466454 -0.05248933 -1.2813384 -
0.8624606
## [127,] -0.9051442 -0.4606618  -0.2466454 -0.86809270  0.8918804 -
0.1049952
## [128,]  0.6861450  1.0850805   0.4925588 -0.05248933  0.8918804
0.6524702
## [129,]  1.4817895  0.3122093   0.4925588  2.39432079  0.8918804
1.4099355
## [130,] -0.1094996 -0.4606618  -0.9858495 -0.86809270 -0.1947290 -
0.8624606
## [131,] -0.1094996  1.8579516  -0.2466454 -0.86809270  0.8918804
0.6524702
## [132,] -0.1094996  1.0850805  -0.9858495 -0.86809270  0.8918804
0.6524702
## [133,]  1.4817895 -0.4606618   1.2317630 -0.86809270  0.8918804 -
0.1049952
## [134,] -1.7007887 -1.2335329  -0.9858495 -0.86809270 -2.3679478 -
1.6199259
## [135,] -0.1094996  0.3122093  -0.9858495 -0.05248933 -1.2813384 -
0.1049952
## [136,] -0.9051442 -1.2335329   0.4925588 -0.05248933 -0.1947290
0.6524702
## [137,] -0.9051442  1.8579516  -0.2466454  1.57871742  0.8918804
0.6524702
## [138,] -0.9051442  0.3122093   0.4925588  0.76311405  0.8918804
0.6524702
```

```
##  [139,] -0.1094996 -0.4606618  -0.9858495 -0.86809270 -1.2813384 -
1.6199259
##  [140,] -0.1094996 -1.2335329  -0.2466454 -0.86809270 -0.1947290 -
0.1049952
##  [141,]  0.6861450  0.3122093  -0.2466454 -0.05248933 -1.2813384 -
1.6199259
##  [142,]  1.4817895 -1.2335329   1.9709672  2.39432079  0.8918804
1.4099355
##  [143,] -0.9051442 -0.4606618  -0.2466454 -0.86809270  0.8918804
1.4099355
##  [144,]  0.6861450 -0.4606618  -0.9858495 -0.86809270  0.8918804 -
0.1049952
##  [145,]  0.6861450 -1.2335329  -0.9858495  1.57871742  0.8918804
1.4099355
##  [146,]  0.6861450 -0.4606618  -0.9858495 -0.05248933 -0.1947290 -
0.8624606
##  [147,] -0.1094996  1.8579516  -0.9858495 -0.86809270  0.8918804
1.4099355
##  [148,] -0.9051442  0.3122093   1.9709672  2.39432079  0.8918804
0.6524702
##  [149,]  0.6861450  0.3122093   1.2317630  1.57871742  0.8918804
1.4099355
##  [150,] -0.1094996 -1.2335329   1.9709672  2.39432079 -1.2813384
1.4099355
##  [151,] -0.1094996  1.0850805   0.4925588  0.76311405 -0.1947290
0.6524702
##  [152,]  0.6861450  1.0850805  -0.2466454 -0.05248933 -1.2813384 -
0.1049952
##  [153,]  1.4817895  1.8579516  -0.2466454 -0.86809270 -0.1947290 -
0.8624606
##  [154,] -0.1094996  1.8579516  -0.9858495 -0.05248933 -0.1947290 -
0.8624606
##  [155,] -1.7007887  1.8579516   0.4925588  1.57871742  0.8918804
1.4099355
##  [156,]  1.4817895 -0.4606618   0.4925588 -0.05248933 -1.2813384 -
0.8624606
##  [157,] -0.9051442  1.0850805  -0.9858495 -0.86809270  0.8918804 -
0.8624606
##  [158,]  0.6861450  0.3122093  -0.2466454 -0.05248933 -0.1947290
0.6524702
##  [159,] -0.9051442 -1.2335329   0.4925588 -0.05248933  0.8918804 -
0.1049952
##  [160,]  0.6861450  1.0850805   0.4925588 -0.05248933 -0.1947290 -
0.1049952
##  [161,] -0.1094996  1.8579516   1.9709672  1.57871742  0.8918804
0.6524702
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## [338,] -0.1094996  1.0850805   1.2317630  2.39432079 -1.2813384 -
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## [345,] -1.7007887  1.0850805  -0.9858495 -0.86809270 -0.1947290 -
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## [355,]  0.6861450  1.0850805   1.2317630  1.57871742 -0.1947290 -
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## [368,] -1.7007887 -0.4606618  -0.9858495 -0.86809270 -0.1947290
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0.1049952
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1.4099355
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```

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## [520,] -0.9051442 -0.4606618  -0.2466454 -0.05248933 -0.1947290 -
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## [521,] -0.1094996  0.3122093   0.4925588 -0.05248933  0.8918804 -
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0.8624606
## [524,] -1.7007887 -0.4606618   1.2317630  1.57871742 -0.1947290
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## [526,] -0.1094996  0.3122093   0.4925588  0.76311405 -1.2813384 -
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## [529,] -0.1094996 -0.4606618   1.9709672  2.39432079  0.8918804
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0.8624606
## [532,]  1.4817895  1.8579516   0.4925588  1.57871742  0.8918804
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1.6199259
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```

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1.4099355
```

```
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1.4099355
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1.6199259
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0.6524702
## [608,]  -0.1094996  1.8579516  -0.9858495 -0.05248933 -2.3679478 -
0.8624606
## [609,]   1.4817895  1.8579516   1.9709672  2.39432079 -0.1947290 -
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## [610,]   1.4817895 -0.4606618   1.9709672 -0.05248933  0.8918804
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1.4099355
```

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1.6199259
## [626,]  -0.1094996  0.3122093   0.4925588 -0.86809270  0.8918804
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## [627,]   0.6861450 -0.4606618  -0.2466454 -0.05248933 -0.1947290
0.6524702
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0.6524702
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1.4099355
```

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1.4099355
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```

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## [687,] -0.1094996  0.3122093   0.4925588  0.76311405 -1.2813384 -
0.1049952
## [688,] -0.9051442  0.3122093  -0.9858495  0.76311405  0.8918804
1.4099355
```

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1.4099355
## [690,] -0.1094996  0.3122093   0.4925588 -0.86809270 -0.1947290 -
0.1049952
## [691,]  0.6861450  0.3122093   0.4925588 -0.05248933 -0.1947290
0.6524702
## [692,] -0.9051442 -1.2335329  -0.9858495 -0.86809270 -0.1947290 -
0.1049952
## [693,]  1.4817895  1.8579516   0.4925588  0.76311405  0.8918804
0.6524702
## [694,]  0.6861450 -0.4606618  -0.9858495 -0.86809270  0.8918804
0.6524702
## [695,]  1.4817895  1.8579516   1.9709672  0.76311405  0.8918804
1.4099355
## [696,]  1.4817895 -0.4606618  -0.2466454 -0.05248933 -0.1947290 -
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## [697,] -0.1094996 -0.4606618  -0.2466454 -0.86809270 -1.2813384 -
0.8624606
## [698,] -1.7007887 -0.4606618   1.2317630 -0.86809270 -0.1947290 -
0.1049952
## [699,]  1.4817895  0.3122093  -0.9858495 -0.05248933  0.8918804 -
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## [700,] -0.1094996 -0.4606618  -0.9858495 -0.86809270 -0.1947290 -
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## [701,] -0.1094996 -1.2335329  -0.9858495 -0.86809270  0.8918804 -
0.8624606
## [702,]  1.4817895  0.3122093   0.4925588  0.76311405  0.8918804 -
0.1049952
## [703,]  1.4817895  1.8579516   1.9709672  2.39432079  0.8918804
1.4099355
## [704,] -0.9051442 -0.4606618  -0.9858495 -0.86809270  0.8918804
1.4099355
## [705,]  0.6861450 -1.2335329  -0.9858495 -0.86809270 -0.1947290 -
0.1049952
## [706,]  1.4817895  0.3122093   1.2317630  2.39432079  0.8918804 -
0.1049952
## [707,] -0.9051442  1.0850805  -0.9858495 -0.86809270 -0.1947290 -
0.1049952
## [708,] -0.1094996 -1.2335329   0.4925588 -0.05248933 -1.2813384 -
0.8624606
## [709,] -0.1094996  0.3122093   0.4925588  0.76311405 -0.1947290
0.6524702
## [710,] -0.9051442 -0.4606618  -0.9858495 -0.86809270 -1.2813384 -
0.1049952
## [711,]  1.4817895 -0.4606618   1.9709672  1.57871742 -1.2813384 -
0.1049952
## [712,] -0.9051442 -1.2335329  -0.9858495 -0.86809270 -1.2813384 -
1.6199259
## [713,]  1.4817895 -1.2335329  -0.9858495 -0.86809270  0.8918804
0.6524702
```

```
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##  [715,]  -0.1094996  -0.4606618   0.4925588 -0.05248933 -0.1947290
0.6524702
##  [716,]  -1.7007887   0.3122093  -0.2466454  0.76311405 -0.1947290
1.4099355
##  [717,]   1.4817895   1.8579516   1.9709672  2.39432079 -0.1947290
0.6524702
##  [718,]  -0.1094996  -1.2335329   0.4925588 -0.86809270 -0.1947290 -
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##  [719,]  -0.1094996  -0.4606618  -0.9858495 -0.86809270 -0.1947290
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##  [720,]  -0.1094996  -0.4606618   1.2317630 -0.05248933 -0.1947290
0.6524702
##  [721,]   0.6861450   0.3122093  -0.2466454  0.76311405 -1.2813384
0.6524702
##  [722,]  -1.7007887   1.0850805   0.4925588 -0.05248933 -1.2813384 -
1.6199259
##  [723,]  -0.1094996   0.3122093  -0.2466454 -0.05248933 -2.3679478 -
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##  [724,]  -0.1094996   1.0850805   0.4925588 -0.86809270 -0.1947290 -
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1.6199259
##  [726,]  -0.1094996   1.8579516  -0.9858495  0.76311405 -0.1947290 -
0.1049952
##  [727,]   1.4817895  -0.4606618  -0.9858495 -0.86809270  0.8918804
1.4099355
##  [728,]  -1.7007887  -1.2335329   0.4925588  0.76311405  0.8918804 -
0.1049952
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1.4099355
##  [730,]   0.6861450  -0.4606618   1.2317630  1.57871742  0.8918804
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##  [731,]   1.4817895   1.8579516  -0.9858495 -0.86809270 -2.3679478 -
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##  [732,]  -0.9051442   0.3122093   1.2317630 -0.05248933  0.8918804
0.6524702
##  [733,]   0.6861450   1.8579516   0.4925588 -0.05248933  0.8918804 -
0.8624606
##  [734,]   1.4817895   1.8579516   1.9709672  0.76311405 -1.2813384 -
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##  [735,]  -0.9051442  -1.2335329   1.9709672  0.76311405 -1.2813384 -
0.1049952
##  [736,]   0.6861450   0.3122093   0.4925588  0.76311405 -3.4545571 -
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##  [737,]   1.4817895   1.0850805  -0.2466454  0.76311405 -0.1947290 -
0.8624606
##  [738,]   0.6861450  -1.2335329  -0.9858495 -0.86809270  0.8918804 -
0.8624606
```

```
##  [739,] -1.7007887  0.3122093   1.2317630  1.57871742  0.8918804
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1.4099355
##  [741,] -0.1094996  1.8579516   0.4925588 -0.05248933  0.8918804
0.6524702
##  [742,] -1.7007887 -1.2335329   1.9709672  0.76311405 -1.2813384 -
1.6199259
##  [743,]  1.4817895  0.3122093   1.2317630  0.76311405  0.8918804
0.6524702
##  [744,] -0.9051442 -0.4606618   0.4925588  0.76311405 -0.1947290
1.4099355
##  [745,] -1.7007887 -1.2335329  -0.9858495  0.76311405 -0.1947290
0.6524702
##  [746,]  0.6861450  0.3122093   1.2317630  1.57871742  0.8918804
1.4099355
##  [747,] -1.7007887 -1.2335329   1.9709672 -0.86809270  0.8918804 -
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##  [748,]  0.6861450 -0.4606618  -0.9858495 -0.05248933 -3.4545571
0.6524702
##  [749,] -0.1094996 -0.4606618  -0.2466454 -0.05248933  0.8918804
1.4099355
##  [750,]  0.6861450 -1.2335329  -0.9858495 -0.86809270 -0.1947290 -
0.1049952
##  [751,]  1.4817895 -0.4606618   1.2317630  0.76311405 -1.2813384 -
0.1049952
##  [752,] -0.9051442 -1.2335329  -0.9858495 -0.86809270  0.8918804 -
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##  [755,] -0.9051442  1.0850805   1.2317630  0.76311405 -0.1947290
0.6524702
##  [756,] -0.1094996  0.3122093   1.2317630  1.57871742  0.8918804
0.6524702
##  [757,]  0.6861450  0.3122093   0.4925588  0.76311405  0.8918804
1.4099355
##  [758,]  0.6861450 -1.2335329  -0.9858495  1.57871742 -0.1947290 -
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##  [759,] -0.9051442 -1.2335329   0.4925588  1.57871742 -0.1947290
1.4099355
##  [760,]  0.6861450 -0.4606618   1.2317630 -0.05248933 -1.2813384 -
0.1049952
##  [761,] -0.1094996  1.8579516   0.4925588  0.76311405 -1.2813384 -
0.1049952
##  [762,] -0.9051442  0.3122093   0.4925588  0.76311405  0.8918804
1.4099355
##  [763,] -0.1094996  1.8579516   0.4925588  0.76311405 -0.1947290
0.6524702
```

```
##  [764,] -0.9051442  0.3122093  -0.9858495 -0.86809270 -1.2813384 -
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##  [765,]  0.6861450 -1.2335329  -0.2466454 -0.05248933 -1.2813384 -
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##  [766,]  1.4817895 -1.2335329   0.4925588  1.57871742  0.8918804
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##  [767,]  0.6861450  1.0850805   0.4925588  0.76311405 -0.1947290
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0.6524702
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1.4099355
##  [777,] -0.1094996  1.8579516  -0.9858495 -0.86809270  0.8918804
1.4099355
##  [778,] -0.9051442  0.3122093  -0.9858495 -0.86809270  0.8918804 -
0.1049952
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##  [781,]  0.6861450  1.0850805   1.2317630 -0.86809270 -0.1947290 -
0.1049952
##  [782,]  1.4817895 -0.4606618  -0.9858495 -0.86809270 -2.3679478 -
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##  [783,]  1.4817895 -1.2335329   0.4925588  0.76311405  0.8918804
0.6524702
##  [784,] -0.1094996  0.3122093  -0.2466454  0.76311405  0.8918804
1.4099355
##  [785,]  1.4817895  1.8579516  -0.2466454 -0.05248933 -0.1947290 -
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##  [786,] -0.1094996  1.0850805  -0.9858495 -0.86809270 -0.1947290 -
0.1049952
##  [787,] -0.9051442  1.0850805  -0.2466454 -0.05248933  0.8918804 -
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##  [788,]  0.6861450  1.8579516   0.4925588 -0.05248933 -0.1947290 -
1.6199259
```

```
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## [790,] -0.9051442 -1.2335329  -0.9858495 -0.86809270  0.8918804
1.4099355
## [791,]  0.6861450 -1.2335329   0.4925588  1.57871742 -0.1947290 -
0.8624606
## [792,]  1.4817895 -0.4606618  -0.9858495 -0.86809270 -0.1947290
0.6524702
## [793,] -0.1094996 -0.4606618  -0.9858495 -0.86809270 -0.1947290 -
0.1049952
## [794,] -0.1094996  0.3122093   1.2317630  1.57871742 -2.3679478
0.6524702
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0.6524702
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0.6524702
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0.8624606
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1.4099355
## [801,] -1.7007887 -0.4606618   1.2317630  0.76311405 -0.1947290
0.6524702
## [802,] -1.7007887 -1.2335329  -0.9858495 -0.05248933 -1.2813384 -
0.8624606
## [803,] -0.1094996 -1.2335329  -0.9858495 -0.86809270 -0.1947290 -
0.8624606
## [804,] -0.1094996  0.3122093  -0.9858495 -0.86809270  0.8918804 -
0.1049952
## [805,] -0.1094996  0.3122093  -0.9858495 -0.86809270  0.8918804 -
0.8624606
## [806,]  0.6861450  0.3122093  -0.9858495 -0.86809270  0.8918804 -
0.1049952
## [807,]  1.4817895  1.8579516  -0.9858495 -0.86809270  0.8918804
1.4099355
## [808,] -0.1094996  1.8579516  -0.9858495 -0.86809270  0.8918804 -
0.8624606
## [809,] -0.9051442 -1.2335329  -0.9858495 -0.86809270  0.8918804 -
0.1049952
## [810,] -0.1094996  1.8579516  -0.9858495 -0.86809270 -0.1947290
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## [812,]  1.4817895  1.0850805  -0.2466454  0.76311405 -1.2813384 -
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## [813,] -1.7007887 -1.2335329  -0.9858495 -0.86809270  0.8918804 -
0.1049952
```

```
##  [814,] -1.7007887 -1.2335329  -0.9858495 -0.86809270  0.8918804 -
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##  [816,]  1.4817895  0.3122093   1.2317630  1.57871742 -0.1947290 -
0.1049952
##  [817,]  0.6861450  1.8579516   0.4925588  0.76311405  0.8918804
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##  [818,] -1.7007887  1.0850805  -0.9858495 -0.86809270  0.8918804
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##  [828,] -0.1094996 -0.4606618  -0.9858495 -0.86809270 -0.1947290 -
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0.1049952
##  [830,]  0.6861450  1.8579516  -0.2466454 -0.86809270  0.8918804
0.6524702
##  [831,]  0.6861450 -1.2335329   1.9709672  1.57871742  0.8918804
1.4099355
##  [832,] -0.1094996  0.3122093   0.4925588 -0.05248933  0.8918804 -
0.1049952
##  [833,] -0.1094996  0.3122093  -0.9858495 -0.05248933 -2.3679478 -
0.8624606
##  [834,]  1.4817895  1.8579516  -0.2466454  1.57871742  0.8918804 -
0.1049952
##  [835,] -0.9051442  0.3122093  -0.9858495 -0.05248933 -1.2813384 -
0.1049952
##  [836,] -1.7007887 -1.2335329   1.2317630  1.57871742  0.8918804
1.4099355
##  [837,] -0.1094996  1.0850805  -0.9858495 -0.86809270 -0.1947290
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0.1049952
```

```
## [839,] -1.7007887 -1.2335329  -0.9858495 -0.86809270  0.8918804 -
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0.1049952
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0.6524702
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1.4099355
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1.4099355
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0.1049952
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0.6524702
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0.1049952
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0.6524702
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0.8624606
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0.1049952
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0.1049952
## [855,] -1.7007887 -0.4606618   0.4925588  0.76311405 -0.1947290
0.6524702
## [856,]  0.6861450  0.3122093   1.2317630  1.57871742  0.8918804
1.4099355
## [857,] -0.9051442  0.3122093   1.2317630 -0.86809270  0.8918804 -
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0.6524702
## [859,] -0.1094996  0.3122093  -0.2466454 -0.86809270 -0.1947290 -
0.1049952
## [860,] -1.7007887  1.0850805  -0.2466454 -0.86809270  0.8918804 -
0.1049952
## [861,]  1.4817895  1.0850805  -0.9858495  0.76311405  0.8918804
0.6524702
## [862,] -0.9051442  1.0850805  -0.2466454 -0.86809270 -0.1947290 -
0.1049952
## [863,] -0.9051442  1.0850805   1.2317630 -0.05248933  0.8918804
1.4099355
```

```
##  [864,]   0.6861450 -1.2335329  -0.9858495 -0.86809270 -0.1947290
0.6524702
##  [865,]   0.6861450 -0.4606618   0.4925588 -0.86809270 -0.1947290
0.6524702
##  [866,]  -0.9051442  0.3122093   0.4925588 -0.05248933 -0.1947290
0.6524702
##  [867,]   0.6861450  0.3122093  -0.2466454  0.76311405  0.8918804
1.4099355
##  [868,]   1.4817895  1.0850805   0.4925588  0.76311405  0.8918804
0.6524702
##  [869,]  -1.7007887  0.3122093  -0.2466454 -0.05248933 -0.1947290 -
0.1049952
##  [870,]   1.4817895 -1.2335329  -0.9858495 -0.86809270 -0.1947290 -
1.6199259
##  [871,]  -0.9051442  0.3122093   0.4925588 -0.05248933 -1.2813384 -
0.8624606
##  [872,]   0.6861450  1.0850805   1.9709672  2.39432079  0.8918804
1.4099355
##  [873,]  -0.1094996 -1.2335329  -0.9858495  1.57871742 -0.1947290
0.6524702
##  [874,]   0.6861450 -0.4606618  -0.2466454 -0.86809270 -0.1947290
0.6524702
##  [875,]  -0.1094996 -0.4606618  -0.9858495 -0.86809270 -0.1947290 -
0.8624606
##  [876,]   0.6861450 -1.2335329  -0.9858495 -0.86809270  0.8918804
1.4099355
##  [877,]  -0.9051442  1.0850805   1.9709672  1.57871742  0.8918804
1.4099355
##  [878,]   1.4817895  1.8579516   0.4925588 -0.86809270 -0.1947290
0.6524702
##  [879,]   0.6861450  1.0850805   1.2317630 -0.05248933 -0.1947290
0.6524702
##  [880,]  -0.9051442  0.3122093   1.2317630  2.39432079 -2.3679478
0.6524702
##  [881,]  -0.1094996 -0.4606618  -0.9858495 -0.86809270 -0.1947290 -
0.8624606
##  [882,]   0.6861450 -0.4606618  -0.9858495 -0.86809270 -0.1947290 -
1.6199259
##  [883,]  -0.1094996 -1.2335329  -0.9858495 -0.86809270 -0.1947290 -
1.6199259
##  [884,]   0.6861450  0.3122093  -0.9858495 -0.86809270  0.8918804 -
0.1049952
##  [885,]  -0.9051442 -1.2335329   1.2317630 -0.05248933  0.8918804 -
0.1049952
##  [886,]  -0.9051442 -0.4606618  -0.2466454 -0.86809270 -1.2813384 -
1.6199259
##  [887,]  -1.7007887  1.0850805   1.2317630  1.57871742  0.8918804
1.4099355
##  [888,]  -0.1094996 -0.4606618   0.4925588 -0.86809270 -1.2813384 -
0.1049952
```

```
##  [889,]  1.4817895  0.3122093  -0.9858495  -0.86809270  0.8918804
0.6524702
##  [890,] -0.1094996 -1.2335329  -0.9858495  -0.86809270  0.8918804
0.6524702
##  [891,] -1.7007887 -1.2335329   1.2317630   1.57871742  0.8918804
1.4099355
##  [892,] -0.1094996  0.3122093  -0.2466454  -0.86809270 -0.1947290 -
0.1049952
##  [893,] -0.9051442  0.3122093   1.2317630   1.57871742 -0.1947290
0.6524702
##  [894,] -0.9051442  0.3122093   0.4925588  -0.05248933 -1.2813384 -
0.8624606
##  [895,] -0.1094996 -1.2335329  -0.9858495  -0.86809270  0.8918804
0.6524702
##  [896,] -0.9051442 -0.4606618  -0.9858495  -0.05248933 -2.3679478 -
0.8624606
##  [897,] -0.9051442  1.0850805  -0.9858495  -0.86809270  0.8918804
0.6524702
##  [898,] -0.1094996 -0.4606618   1.2317630  -0.05248933 -1.2813384 -
0.8624606
##  [899,]  0.6861450  1.0850805  -0.9858495  -0.86809270 -0.1947290
0.6524702
##  [900,]  0.6861450  1.0850805   0.4925588   0.76311405  0.8918804
1.4099355
##  [901,] -0.1094996  1.8579516  -0.2466454  -0.86809270 -0.1947290 -
0.8624606
##  [902,] -0.9051442  1.8579516  -0.9858495  -0.86809270 -0.1947290 -
0.8624606
##  [903,]  0.6861450 -1.2335329   0.4925588   0.76311405 -0.1947290 -
0.1049952
##  [904,] -1.7007887  0.3122093   1.9709672   0.76311405  0.8918804
1.4099355
##  [905,] -0.1094996  0.3122093  -0.2466454  -0.05248933 -0.1947290
0.6524702
##  [906,] -0.9051442  1.0850805  -0.9858495  -0.86809270  0.8918804 -
0.1049952
##  [907,] -0.9051442  1.0850805  -0.9858495  -0.86809270  0.8918804 -
0.1049952
##  [908,] -0.9051442 -0.4606618  -0.2466454  -0.86809270  0.8918804 -
0.1049952
##  [909,] -0.9051442  0.3122093  -0.2466454   1.57871742 -0.1947290 -
0.1049952
##  [910,]  0.6861450  0.3122093  -0.2466454  -0.05248933  0.8918804
0.6524702
##  [911,] -0.1094996  1.0850805   1.2317630  -0.05248933  0.8918804 -
0.1049952
##  [912,]  0.6861450  0.3122093   1.9709672   0.76311405 -1.2813384 -
0.1049952
##  [913,] -0.9051442 -0.4606618   0.4925588  -0.05248933 -1.2813384 -
0.8624606
```

```
## [914,]  0.6861450  0.3122093   0.4925588 -0.86809270 -1.2813384 -
## 0.8624606
## [915,]  0.6861450  1.0850805   0.4925588 -0.05248933 -1.2813384 -
## 1.6199259
## [916,] -0.9051442 -0.4606618  -0.2466454 -0.86809270  0.8918804 -
## 0.8624606
## [917,] -0.9051442  1.8579516  -0.9858495 -0.86809270  0.8918804
## 1.4099355
## [918,] -0.9051442  0.3122093   0.4925588 -0.05248933  0.8918804
## 0.6524702
## [919,]  0.6861450  0.3122093  -0.2466454 -0.05248933 -0.1947290 -
## 0.8624606
## [920,]  1.4817895  0.3122093  -0.2466454 -0.86809270 -2.3679478 -
## 1.6199259
## [921,]  1.4817895 -0.4606618  -0.9858495 -0.86809270 -1.2813384 -
## 1.6199259
## [922,] -0.9051442 -0.4606618   0.4925588  0.76311405  0.8918804
## 0.6524702
## [923,]  1.4817895  1.8579516   0.4925588  1.57871742  0.8918804
## 1.4099355
## [924,] -0.9051442 -0.4606618  -0.9858495 -0.05248933  0.8918804
## 0.6524702
## [925,]  0.6861450 -0.4606618  -0.9858495 -0.86809270 -1.2813384 -
## 1.6199259
## [926,]  0.6861450 -1.2335329  -0.9858495 -0.86809270 -1.2813384 -
## 0.1049952
## [927,] -1.7007887  0.3122093   0.4925588 -0.86809270  0.8918804
## 1.4099355
## [928,]  1.4817895 -1.2335329  -0.9858495 -0.86809270 -0.1947290 -
## 0.8624606
## [929,] -0.9051442 -0.4606618  -0.9858495 -0.86809270 -0.1947290 -
## 0.8624606
## [930,] -0.1094996  0.3122093   0.4925588  0.76311405 -1.2813384
## 0.6524702
## [931,] -0.9051442 -0.4606618  -0.9858495 -0.05248933  0.8918804
## 0.6524702
## [932,] -0.9051442  0.3122093  -0.2466454 -0.86809270 -0.1947290
## 1.4099355
## [933,] -1.7007887 -0.4606618   0.4925588 -0.86809270  0.8918804
## 1.4099355
## [934,] -1.7007887  1.0850805  -0.2466454 -0.86809270 -0.1947290 -
## 1.6199259
## [935,]  1.4817895 -0.4606618  -0.2466454 -0.05248933  0.8918804 -
## 0.8624606
## [936,] -1.7007887 -1.2335329  -0.9858495 -0.86809270  0.8918804 -
## 1.6199259
## [937,] -0.9051442 -1.2335329  -0.2466454 -0.86809270 -1.2813384 -
## 0.8624606
## [938,]  1.4817895 -1.2335329   1.9709672  1.57871742  0.8918804 -
## 0.1049952
```

```
## [939,]  0.6861450  0.3122093   1.9709672  0.76311405 -0.1947290 -
0.1049952
## [940,]  1.4817895 -0.4606618   0.4925588  1.57871742 -0.1947290 -
1.6199259
## [941,] -0.1094996 -0.4606618   0.4925588  0.76311405  0.8918804
1.4099355
## [942,]  0.6861450  1.8579516  -0.2466454 -0.86809270  0.8918804 -
0.1049952
## [943,] -0.1094996  1.0850805  -0.9858495 -0.86809270  0.8918804 -
0.8624606
## [944,] -0.9051442  0.3122093   1.2317630  0.76311405 -0.1947290 -
0.8624606
## [945,] -0.9051442  0.3122093  -0.2466454  0.76311405 -1.2813384 -
1.6199259
## [946,] -0.9051442  0.3122093   1.9709672  2.39432079  0.8918804
1.4099355
## [947,] -0.9051442 -1.2335329  -0.9858495 -0.86809270  0.8918804
1.4099355
## [948,] -1.7007887 -1.2335329  -0.9858495 -0.86809270 -1.2813384 -
0.8624606
## [949,] -0.9051442 -0.4606618   1.9709672  1.57871742 -1.2813384 -
0.1049952
## [950,] -0.1094996 -1.2335329  -0.2466454 -0.86809270 -1.2813384 -
0.8624606
## [951,] -1.7007887  0.3122093  -0.9858495 -0.86809270  0.8918804
1.4099355
## [952,] -1.7007887 -0.4606618   0.4925588  1.57871742  0.8918804
1.4099355
## [953,] -0.9051442  0.3122093   1.9709672  1.57871742 -0.1947290
1.4099355
## [954,]  0.6861450  0.3122093   0.4925588 -0.05248933 -1.2813384 -
1.6199259
## [955,]  1.4817895 -1.2335329   1.2317630 -0.86809270  0.8918804 -
0.8624606
## [956,]  1.4817895 -1.2335329   1.9709672  1.57871742 -1.2813384 -
0.8624606
## [957,] -0.9051442 -0.4606618  -0.2466454  0.76311405 -0.1947290 -
0.1049952
## [958,] -0.1094996  0.3122093  -0.9858495 -0.86809270 -0.1947290
0.6524702
## [959,]  0.6861450 -0.4606618  -0.9858495 -0.86809270 -2.3679478 -
1.6199259
## [960,]  0.6861450 -0.4606618   0.4925588 -0.86809270  0.8918804 -
0.8624606
## [961,] -0.1094996  0.3122093   0.4925588  0.76311405  0.8918804 -
0.1049952
## [962,]  1.4817895  1.8579516   1.9709672  0.76311405  0.8918804
1.4099355
## [963,] -0.1094996 -1.2335329   0.4925588  1.57871742 -1.2813384 -
1.6199259
```

```
## [964,]  1.4817895  1.8579516 -0.9858495  1.57871742  0.8918804
1.4099355
## [965,]  0.6861450 -0.4606618 -0.2466454 -0.05248933 -0.1947290 -
0.1049952
## [966,]  1.4817895 -1.2335329 -0.9858495  0.76311405  0.8918804 -
0.8624606
## [967,]  1.4817895  1.8579516 -0.9858495 -0.86809270 -3.4545571 -
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## [968,] -0.9051442  0.3122093  1.9709672  2.39432079 -0.1947290 -
0.1049952
## [969,] -1.7007887 -1.2335329  1.9709672  1.57871742  0.8918804
1.4099355
## [970,] -0.1094996 -1.2335329  0.4925588 -0.86809270  0.8918804
1.4099355
## [971,] -0.1094996 -0.4606618  1.2317630  1.57871742  0.8918804
1.4099355
## [972,] -0.9051442  0.3122093  0.4925588  0.76311405 -0.1947290
0.6524702
## [973,]  0.6861450 -0.4606618  0.4925588  0.76311405 -0.1947290 -
0.8624606
## [974,]  0.6861450 -1.2335329 -0.9858495 -0.05248933  0.8918804
1.4099355
## [975,]  0.6861450  0.3122093  1.9709672  0.76311405  0.8918804 -
0.8624606
## [976,]  0.6861450  0.3122093 -0.9858495  1.57871742  0.8918804 -
1.6199259
## [977,]  1.4817895 -0.4606618  1.2317630  0.76311405 -0.1947290
0.6524702
## [978,] -1.7007887  0.3122093  0.4925588 -0.86809270 -0.1947290 -
0.8624606
## [979,] -0.1094996  0.3122093 -0.2466454 -0.05248933  0.8918804 -
0.1049952
## [980,] -0.1094996  1.8579516  0.4925588 -0.05248933  0.8918804 -
0.1049952
## [981,]  1.4817895  1.8579516 -0.9858495 -0.05248933 -0.1947290 -
1.6199259
## [982,]  1.4817895 -0.4606618 -0.9858495 -0.05248933  0.8918804 -
1.6199259
## [983,] -0.9051442  0.3122093  0.4925588  1.57871742 -0.1947290
0.6524702
## [984,] -0.9051442  0.3122093 -0.9858495 -0.86809270 -0.1947290 -
1.6199259
## [985,] -1.7007887  1.0850805 -0.9858495 -0.86809270 -0.1947290 -
0.8624606
## [986,] -0.1094996 -0.4606618 -0.9858495 -0.05248933 -1.2813384 -
0.8624606
## [987,]  1.4817895  0.3122093  1.9709672  0.76311405 -0.1947290
0.6524702
## [988,]  1.4817895  1.0850805 -0.2466454 -0.05248933  0.8918804 -
0.8624606
```

```
##  [989,]   1.4817895   1.8579516    1.2317630   2.39432079   0.8918804
1.4099355
##  [990,]   1.4817895   1.8579516   -0.9858495  -0.86809270   0.8918804
1.4099355
##  [991,]  -0.9051442   1.8579516   -0.9858495  -0.86809270   0.8918804
1.4099355
##  [992,]  -1.7007887  -0.4606618   -0.9858495  -0.86809270   0.8918804
1.4099355
##  [993,]  -0.9051442   0.3122093    1.9709672   2.39432079  -0.1947290 -
0.1049952
##  [994,]   0.6861450   1.8579516   -0.9858495  -0.86809270  -1.2813384 -
0.8624606
##  [995,]   1.4817895  -0.4606618   -0.9858495  -0.86809270   0.8918804 -
1.6199259
##  [996,]   0.6861450   0.3122093    1.2317630  -0.05248933   0.8918804
0.6524702
##  [997,]  -1.7007887  -1.2335329   -0.9858495  -0.86809270  -0.1947290
0.6524702
##  [998,]   1.4817895  -1.2335329   -0.2466454  -0.86809270  -0.1947290 -
1.6199259
##  [999,]   0.6861450  -0.4606618    1.9709672   2.39432079   0.8918804
1.4099355
## [1000,]   1.4817895   0.3122093    1.9709672   0.76311405   0.8918804
1.4099355
## [1001,]  -0.1094996  -0.4606618   -0.9858495  -0.86809270  -1.2813384 -
1.6199259
## [1002,]  -0.9051442   0.3122093   -0.9858495  -0.86809270   0.8918804 -
0.1049952
## [1003,]  -0.9051442  -1.2335329   -0.9858495   0.76311405   0.8918804
1.4099355
## [1004,]   0.6861450   0.3122093   -0.9858495  -0.86809270  -1.2813384 -
1.6199259
## [1005,]   0.6861450  -1.2335329   -0.2466454  -0.05248933   0.8918804
1.4099355
## [1006,]   0.6861450  -0.4606618   -0.9858495  -0.05248933  -0.1947290 -
0.1049952
## [1007,]  -1.7007887  -1.2335329    1.9709672   1.57871742   0.8918804
1.4099355
## [1008,]  -0.1094996   0.3122093    0.4925588  -0.86809270  -1.2813384
0.6524702
## [1009,]   1.4817895   0.3122093   -0.9858495  -0.86809270   0.8918804
0.6524702
## [1010,]  -0.1094996  -1.2335329   -0.2466454  -0.05248933  -0.1947290 -
0.8624606
##          Economy.Management    Biology  Chemistry    Reading  Geography
##     [1,]           1.7524146  0.2323720  0.6102413 -0.1052355 -0.0650566
##     [2,]           1.7524146 -1.2074790 -0.8433995  0.5632416  0.7171715
##     [3,]           1.0090552 -1.2074790 -0.8433995  1.2317188 -0.8472847
##     [4,]          -0.4776636  0.2323720  0.6102413  1.2317188  0.7171715
##     [5,]          -0.4776636  0.2323720  0.6102413  1.2317188 -0.8472847
```

```
##    [6,]           -1.2210230  0.9522975  1.3370617 -0.1052355 -0.0650566
##    [7,]            0.2656958  1.6722230  2.0638820 -0.1052355 -0.0650566
##    [8,]           -1.2210230 -0.4875535 -0.1165791 -0.7737127 -0.0650566
##    [9,]           -1.2210230  0.2323720 -0.8433995  1.2317188 -1.6295129
##   [10,]            1.0090552 -0.4875535 -0.8433995  0.5632416  0.7171715
##   [11,]            0.2656958 -0.4875535 -0.8433995 -0.1052355 -0.0650566
##   [12,]           -1.2210230 -1.2074790 -0.8433995 -0.1052355  1.4993997
##   [13,]           -1.2210230  1.6722230  2.0638820  1.2317188 -0.0650566
##   [14,]            0.2656958 -1.2074790 -0.8433995  0.5632416 -1.6295129
##   [15,]            0.2656958 -0.4875535 -0.8433995  0.5632416 -1.6295129
##   [16,]            0.2656958  1.6722230 -0.1165791 -0.1052355 -0.0650566
##   [17,]           -1.2210230  0.9522975 -0.8433995 -1.4421898 -1.6295129
##   [18,]           -1.2210230  1.6722230  2.0638820  0.5632416 -0.8472847
##   [19,]            0.2656958  0.2323720  0.6102413 -0.1052355 -1.6295129
##   [20,]            1.0090552 -0.4875535 -0.8433995 -0.1052355  0.7171715
##   [21,]           -0.4776636  0.9522975  1.3370617 -0.1052355 -0.0650566
##   [22,]            1.7524146  0.2323720 -0.8433995 -1.4421898  1.4993997
##   [23,]            0.2656958  0.2323720 -0.1165791 -0.7737127 -0.0650566
##   [24,]           -0.4776636  1.6722230  2.0638820  1.2317188 -0.0650566
##   [25,]           -0.4776636  0.2323720 -0.1165791  0.5632416  0.7171715
##   [26,]            1.7524146 -1.2074790 -0.8433995  0.5632416 -0.8472847
##   [27,]           -1.2210230  1.6722230  2.0638820  0.5632416 -0.0650566
##   [28,]           -0.4776636  1.6722230  2.0638820 -0.7737127 -0.8472847
##   [29,]           -1.2210230 -1.2074790 -0.8433995 -1.4421898  0.7171715
##   [30,]            1.0090552  0.9522975 -0.1165791  1.2317188 -0.0650566
##   [31,]            0.2656958  0.2323720 -0.8433995  0.5632416  0.7171715
##   [32,]           -0.4776636 -0.4875535 -0.1165791  1.2317188  1.4993997
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##   [43,]            1.7524146  1.6722230 -0.1165791 -0.1052355 -0.8472847
##   [44,]            1.7524146 -1.2074790 -0.8433995 -0.1052355  1.4993997
##   [45,]            1.0090552  0.2323720 -0.1165791  1.2317188  0.7171715
##   [46,]           -0.4776636 -1.2074790 -0.8433995 -0.1052355 -1.6295129
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##   [55,]           -1.2210230  0.2323720  1.3370617  1.2317188 -0.0650566
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##  [58,]          0.2656958  0.2323720 -0.8433995  1.2317188 -0.8472847
##  [59,]         -1.2210230  1.6722230  1.3370617 -1.4421898  1.4993997
##  [60,]         -0.4776636 -1.2074790 -0.8433995  1.2317188  1.4993997
##  [61,]          1.0090552 -0.4875535 -0.1165791  1.2317188  0.7171715
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##  [67,]         -0.4776636 -1.2074790 -0.1165791 -1.4421898  0.7171715
##  [68,]          1.7524146 -0.4875535 -0.1165791 -0.1052355 -0.0650566
##  [69,]          1.0090552  0.2323720  2.0638820 -0.7737127 -0.0650566
##  [70,]         -1.2210230  1.6722230  2.0638820 -0.1052355 -1.6295129
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##  [72,]          1.0090552 -1.2074790 -0.8433995 -0.1052355  0.7171715
##  [73,]         -1.2210230 -1.2074790 -0.8433995 -0.7737127 -0.8472847
##  [74,]          0.2656958 -0.4875535 -0.1165791 -0.7737127  0.7171715
##  [75,]          1.0090552 -1.2074790 -0.8433995 -1.4421898  0.7171715
##  [76,]          1.7524146  0.9522975 -0.8433995 -0.7737127  1.4993997
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##  [85,]         -1.2210230  0.9522975  1.3370617  1.2317188  1.4993997
##  [86,]          0.2656958 -0.4875535 -0.1165791 -0.7737127 -0.0650566
##  [87,]          1.7524146  0.9522975  1.3370617  1.2317188  1.4993997
##  [88,]          1.0090552  0.2323720 -0.1165791 -0.1052355  0.7171715
##  [89,]         -1.2210230  0.9522975 -0.8433995  1.2317188  1.4993997
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##  [92,]         -1.2210230  1.6722230 -0.8433995 -1.4421898 -1.6295129
##  [93,]         -0.4776636 -0.4875535 -0.1165791  1.2317188  0.7171715
##  [94,]          0.2656958 -0.4875535 -0.1165791 -1.4421898  1.4993997
##  [95,]          0.2656958 -0.4875535 -0.1165791 -0.7737127 -0.0650566
##  [96,]         -0.4776636 -0.4875535 -0.8433995 -1.4421898  1.4993997
##  [97,]         -1.2210230  0.2323720  1.3370617 -1.4421898 -1.6295129
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## [105,]          1.0090552 -0.4875535 -0.1165791 -0.7737127  0.7171715
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## [117,]           -1.2210230 -1.2074790  0.6102413  1.2317188 -1.6295129
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## [119,]           -0.4776636 -0.4875535 -0.1165791  0.5632416  0.7171715
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## [123,]           -1.2210230 -1.2074790 -0.8433995  1.2317188 -0.0650566
## [124,]           -0.4776636  0.9522975 -0.1165791 -0.1052355 -0.0650566
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## [126,]           -0.4776636  0.2323720 -0.1165791  1.2317188 -0.8472847
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## [129,]           -1.2210230  0.2323720  2.0638820  1.2317188  1.4993997
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```

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## [173,]          -0.4776636 -0.4875535 -0.1165791 -0.7737127  1.4993997
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## [452,]         -0.4776636  0.9522975  0.6102413 -1.4421898 -1.6295129
## [453,]          1.7524146  0.2323720 -0.8433995  0.5632416  1.4993997
## [454,]         -0.4776636  1.6722230  2.0638820  1.2317188 -0.0650566
## [455,]          1.7524146 -0.4875535 -0.8433995 -0.1052355  0.7171715
```

```
##   [456,]           -0.4776636  0.2323720 -0.1165791 -0.7737127 -0.8472847
##   [457,]            1.7524146  0.9522975  1.3370617 -0.7737127  1.4993997
##   [458,]            0.2656958 -0.4875535 -0.8433995 -1.4421898 -0.8472847
##   [459,]            1.7524146  1.6722230  2.0638820  1.2317188  1.4993997
##   [460,]           -1.2210230  0.9522975 -0.1165791 -0.1052355  0.7171715
##   [461,]            0.2656958 -1.2074790 -0.8433995 -0.1052355  1.4993997
##   [462,]            1.0090552 -0.4875535 -0.1165791 -0.1052355  0.7171715
##   [463,]           -0.4776636  0.9522975  0.6102413 -0.1052355 -0.0650566
##   [464,]           -0.4776636  0.9522975 -0.1165791 -0.1052355 -0.8472847
##   [465,]            1.0090552 -0.4875535 -0.8433995 -1.4421898  1.4993997
##   [466,]            0.2656958  0.2323720 -0.8433995  1.2317188  1.4993997
##   [467,]            1.0090552 -1.2074790 -0.8433995 -1.4421898 -1.6295129
##   [468,]            1.7524146 -1.2074790 -0.8433995 -1.4421898 -1.6295129
##   [469,]            1.7524146 -1.2074790 -0.8433995 -0.7737127 -0.0650566
##   [470,]            0.2656958 -1.2074790 -0.8433995 -0.7737127  0.7171715
##   [471,]           -0.4776636 -0.4875535 -0.8433995 -0.1052355  0.7171715
##   [472,]            0.2656958  0.9522975  1.3370617 -0.7737127 -0.0650566
##   [473,]           -0.4776636  0.9522975 -0.1165791 -1.4421898  0.7171715
##   [474,]           -0.4776636  1.6722230  2.0638820  1.2317188 -0.0650566
##   [475,]           -1.2210230  1.6722230  2.0638820 -0.1052355 -1.6295129
##   [476,]           -0.4776636  0.2323720 -0.1165791  1.2317188 -0.0650566
##   [477,]           -1.2210230  0.9522975  1.3370617  1.2317188 -0.8472847
##   [478,]           -0.4776636 -0.4875535  2.0638820  0.5632416 -0.8472847
##   [479,]            1.7524146 -0.4875535 -0.1165791  1.2317188  1.4993997
##   [480,]           -1.2210230  0.9522975  1.3370617 -0.1052355 -0.0650566
##   [481,]           -0.4776636  1.6722230  1.3370617  0.5632416 -0.0650566
##   [482,]           -1.2210230  0.2323720 -0.8433995  1.2317188  0.7171715
##   [483,]            1.0090552  0.2323720 -0.1165791 -0.1052355 -0.8472847
##   [484,]           -0.4776636  1.6722230  2.0638820 -0.1052355 -0.0650566
##   [485,]            1.7524146 -1.2074790 -0.8433995  0.5632416 -0.0650566
##   [486,]            0.2656958  0.9522975 -0.8433995 -1.4421898 -0.0650566
##   [487,]            1.0090552 -0.4875535 -0.1165791  0.5632416 -0.8472847
##   [488,]           -0.4776636  1.6722230  0.6102413 -1.4421898 -0.8472847
##   [489,]            0.2656958 -0.4875535 -0.1165791  1.2317188  0.7171715
##   [490,]           -0.4776636  0.2323720 -0.8433995  1.2317188  1.4993997
##   [491,]            1.7524146 -1.2074790 -0.8433995 -1.4421898 -1.6295129
##   [492,]           -0.4776636  1.6722230 -0.1165791 -0.7737127 -0.0650566
##   [493,]           -1.2210230  1.6722230 -0.1165791  1.2317188  1.4993997
##   [494,]           -0.4776636 -1.2074790 -0.8433995 -1.4421898 -0.8472847
##   [495,]            1.0090552  0.2323720 -0.1165791 -0.1052355 -0.0650566
##   [496,]            1.0090552  0.9522975 -0.1165791  0.5632416 -0.0650566
##   [497,]            1.0090552  0.2323720  0.6102413 -0.1052355  0.7171715
##   [498,]            0.2656958 -0.4875535 -0.8433995 -0.1052355 -0.8472847
##   [499,]           -1.2210230 -1.2074790 -0.8433995  1.2317188 -0.0650566
##   [500,]            0.2656958  0.9522975 -0.8433995 -0.1052355 -1.6295129
##   [501,]           -0.4776636  1.6722230  2.0638820  1.2317188 -0.0650566
##   [502,]            1.7524146 -0.4875535 -0.1165791  0.5632416 -0.8472847
##   [503,]            1.0090552 -1.2074790 -0.8433995 -1.4421898 -1.6295129
##   [504,]           -1.2210230  1.6722230 -0.1165791 -1.4421898  1.4993997
##   [505,]           -1.2210230 -1.2074790  2.0638820 -0.1052355  1.4993997
```

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##   [506,]          0.2656958 -0.4875535  1.3370617 -0.7737127 -0.8472847
##   [507,]          0.2656958 -0.4875535 -0.8433995 -1.4421898 -0.8472847
##   [508,]         -1.2210230  0.9522975  2.0638820 -0.7737127  0.7171715
##   [509,]          1.0090552 -1.2074790 -0.8433995 -0.1052355  0.7171715
##   [510,]          1.0090552 -1.2074790 -0.8433995  0.5632416  1.4993997
##   [511,]          0.2656958  0.2323720 -0.8433995 -0.1052355 -0.0650566
##   [512,]          0.2656958  0.2323720  0.6102413 -0.7737127 -0.0650566
##   [513,]         -1.2210230 -1.2074790 -0.8433995  1.2317188  1.4993997
##   [514,]         -0.4776636 -1.2074790 -0.8433995 -0.1052355 -0.8472847
##   [515,]         -1.2210230 -1.2074790 -0.8433995 -0.7737127 -0.8472847
##   [516,]         -0.4776636 -1.2074790 -0.8433995 -1.4421898 -0.8472847
##   [517,]          0.2656958  0.2323720 -0.8433995 -1.4421898 -0.0650566
##   [518,]          1.0090552  1.6722230  2.0638820  0.5632416  1.4993997
##   [519,]         -1.2210230  1.6722230  2.0638820  1.2317188 -0.8472847
##   [520,]         -0.4776636 -1.2074790 -0.1165791 -1.4421898 -0.0650566
##   [521,]         -0.4776636 -0.4875535 -0.1165791 -0.1052355 -0.0650566
##   [522,]         -1.2210230  0.9522975  1.3370617 -0.7737127 -1.6295129
##   [523,]          0.2656958 -0.4875535 -0.8433995 -0.1052355  0.7171715
##   [524,]         -1.2210230 -1.2074790 -0.8433995 -1.4421898  1.4993997
##   [525,]         -1.2210230  1.6722230  1.3370617 -0.1052355  0.7171715
##   [526,]          1.0090552  0.2323720  0.6102413 -0.1052355 -0.0650566
##   [527,]         -0.4776636  0.9522975  2.0638820 -0.7737127  0.7171715
##   [528,]          1.0090552 -0.4875535 -0.1165791 -0.1052355  0.7171715
##   [529,]         -0.4776636 -1.2074790 -0.8433995 -1.4421898 -0.8472847
##   [530,]         -0.4776636  0.2323720 -0.8433995 -1.4421898 -0.0650566
##   [531,]          1.0090552  0.2323720  0.6102413 -0.7737127  0.7171715
##   [532,]          1.7524146 -0.4875535 -0.1165791 -1.4421898  1.4993997
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##   [534,]          0.2656958  0.2323720 -0.1165791  0.5632416 -0.0650566
##   [535,]          0.2656958 -1.2074790 -0.8433995  0.5632416 -0.8472847
##   [536,]          1.7524146  0.2323720 -0.1165791 -1.4421898 -0.0650566
##   [537,]         -1.2210230 -1.2074790 -0.8433995 -1.4421898 -0.8472847
##   [538,]          0.2656958 -0.4875535 -0.1165791 -1.4421898  1.4993997
##   [539,]         -0.4776636  1.6722230  2.0638820 -0.7737127  0.7171715
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##   [542,]         -0.4776636  1.6722230  2.0638820 -0.1052355 -1.6295129
##   [543,]          1.0090552 -1.2074790 -0.8433995 -0.7737127 -0.0650566
##   [544,]          1.7524146  0.2323720  0.6102413 -1.4421898 -1.6295129
##   [545,]         -1.2210230  1.6722230  2.0638820 -0.1052355 -0.0650566
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##   [547,]          0.2656958 -0.4875535 -0.1165791 -0.7737127  0.7171715
##   [548,]         -1.2210230 -0.4875535 -0.8433995  1.2317188  1.4993997
##   [549,]         -1.2210230  0.9522975 -0.8433995 -1.4421898 -1.6295129
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##   [551,]         -0.4776636  0.2323720 -0.8433995  1.2317188 -0.8472847
##   [552,]         -0.4776636  0.2323720 -0.1165791 -0.1052355 -0.8472847
##   [553,]         -0.4776636  0.9522975 -0.8433995  1.2317188 -0.8472847
##   [554,]          0.2656958 -0.4875535 -0.1165791 -1.4421898 -0.8472847
##   [555,]          1.0090552  0.2323720 -0.1165791 -0.7737127 -0.0650566
```

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##   [556,]          1.0090552 -1.2074790 -0.8433995 -0.1052355  0.7171715
##   [557,]          1.0090552 -1.2074790 -0.8433995 -0.7737127 -0.8472847
##   [558,]          0.2656958 -0.4875535 -0.8433995 -0.1052355  0.7171715
##   [559,]         -0.4776636  0.2323720 -0.1165791  0.5632416 -0.8472847
##   [560,]         -0.4776636 -1.2074790 -0.8433995 -1.4421898  1.4993997
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##   [562,]         -0.4776636  0.2323720 -0.8433995 -0.1052355  1.4993997
##   [563,]          0.2656958 -0.4875535 -0.1165791 -1.4421898  0.7171715
##   [564,]          0.2656958  0.2323720  0.6102413 -1.4421898  0.7171715
##   [565,]          1.7524146 -1.2074790 -0.8433995 -1.4421898 -1.6295129
##   [566,]         -0.4776636  0.2323720  0.6102413  1.2317188 -1.6295129
##   [567,]          0.2656958 -1.2074790 -0.8433995  1.2317188 -1.6295129
##   [568,]         -0.4776636  0.9522975 -0.1165791 -1.4421898 -1.6295129
##   [569,]          0.2656958 -0.4875535 -0.8433995 -0.7737127  1.4993997
##   [570,]         -0.4776636  0.2323720 -0.1165791 -0.7737127 -0.0650566
##   [571,]         -0.4776636 -0.4875535 -0.8433995 -1.4421898  0.7171715
##   [572,]          0.2656958  0.9522975  0.6102413  0.5632416  1.4993997
##   [573,]         -1.2210230  1.6722230  1.3370617 -0.7737127 -0.0650566
##   [574,]         -1.2210230 -1.2074790  0.6102413 -1.4421898  1.4993997
##   [575,]          0.2656958  1.6722230  2.0638820 -1.4421898 -0.0650566
##   [576,]         -1.2210230  0.9522975  1.3370617  1.2317188 -0.0650566
##   [577,]          0.2656958  0.2323720 -0.1165791 -1.4421898  0.7171715
##   [578,]         -0.4776636 -0.4875535 -0.1165791 -0.1052355 -0.8472847
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##   [583,]          0.2656958 -0.4875535 -0.1165791  0.5632416  1.4993997
##   [584,]          1.0090552 -1.2074790 -0.8433995 -0.1052355 -0.8472847
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##   [586,]          1.0090552 -0.4875535 -0.8433995 -1.4421898 -1.6295129
##   [587,]         -1.2210230 -1.2074790  0.6102413  1.2317188  1.4993997
##   [588,]         -1.2210230 -0.4875535  0.6102413 -1.4421898 -0.8472847
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##   [590,]          1.7524146  0.2323720 -0.8433995  0.5632416 -0.0650566
##   [591,]          1.0090552  0.9522975  1.3370617  0.5632416 -0.8472847
##   [592,]          1.7524146 -0.4875535 -0.1165791 -0.1052355  1.4993997
##   [593,]          1.7524146  0.2323720 -0.8433995 -1.4421898 -0.0650566
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##   [600,]          1.7524146 -0.4875535 -0.1165791 -1.4421898 -0.0650566
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##   [602,]         -1.2210230  0.2323720 -0.1165791 -0.1052355 -0.0650566
##   [603,]          1.0090552 -0.4875535 -0.1165791 -1.4421898 -0.0650566
##   [604,]          1.7524146 -0.4875535 -0.8433995 -1.4421898  0.7171715
##   [605,]          0.2656958 -0.4875535 -0.8433995  1.2317188 -1.6295129
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## [606,]          -1.2210230  0.2323720 -0.8433995 -1.4421898  1.4993997
## [607,]          -1.2210230 -0.4875535 -0.8433995 -0.7737127 -0.0650566
## [608,]          -0.4776636  1.6722230  2.0638820  1.2317188 -0.8472847
## [609,]           1.0090552 -0.4875535  1.3370617 -0.7737127  0.7171715
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## [614,]          -0.4776636 -0.4875535 -0.8433995  0.5632416 -0.8472847
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## [622,]          -1.2210230 -1.2074790 -0.8433995 -0.1052355 -1.6295129
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## [624,]           0.2656958 -0.4875535 -0.1165791 -1.4421898 -0.8472847
## [625,]           1.0090552  0.9522975 -0.1165791 -0.7737127 -1.6295129
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## [627,]           1.0090552  0.9522975 -0.1165791 -0.1052355 -0.0650566
## [628,]           0.2656958  0.9522975  1.3370617 -0.7737127 -0.0650566
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## [630,]           0.2656958 -0.4875535 -0.8433995 -0.7737127  1.4993997
## [631,]           1.0090552  0.2323720 -0.8433995 -1.4421898  0.7171715
## [632,]           0.2656958 -0.4875535 -0.1165791  1.2317188 -0.0650566
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## [636,]          -1.2210230  0.9522975  1.3370617  0.5632416  1.4993997
## [637,]           1.0090552  1.6722230 -0.1165791 -1.4421898  0.7171715
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## [640,]          -1.2210230 -0.4875535 -0.8433995  1.2317188 -0.8472847
## [641,]           1.7524146  0.9522975 -0.8433995  0.5632416  1.4993997
## [642,]          -1.2210230 -0.4875535 -0.1165791 -1.4421898 -1.6295129
## [643,]          -1.2210230  1.6722230  2.0638820  1.2317188 -0.0650566
## [644,]           0.2656958 -0.4875535 -0.1165791  1.2317188  0.7171715
## [645,]           0.2656958  0.9522975 -0.1165791  0.5632416  0.7171715
## [646,]          -0.4776636  0.9522975 -0.1165791  0.5632416  1.4993997
## [647,]           0.2656958 -1.2074790 -0.8433995 -1.4421898 -1.6295129
## [648,]          -1.2210230  1.6722230 -0.8433995  1.2317188 -0.0650566
## [649,]          -0.4776636  0.9522975  1.3370617  1.2317188 -1.6295129
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## [655,]           1.0090552  0.2323720 -0.1165791 -1.4421898  1.4993997
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##   [659,]            1.0090552 -1.2074790 -0.8433995 -1.4421898 -1.6295129
##   [660,]            1.7524146 -0.4875535 -0.1165791 -0.7737127 -1.6295129
##   [661,]           -0.4776636 -0.4875535 -0.8433995  0.5632416  0.7171715
##   [662,]            0.2656958 -0.4875535 -0.8433995  0.5632416 -0.0650566
##   [663,]            1.0090552 -0.4875535 -0.8433995 -0.1052355 -1.6295129
##   [664,]           -1.2210230 -0.4875535 -0.1165791  0.5632416  0.7171715
##   [665,]            0.2656958  0.9522975 -0.1165791  0.5632416  1.4993997
##   [666,]           -1.2210230 -0.4875535 -0.8433995 -0.1052355 -0.0650566
##   [667,]           -1.2210230 -1.2074790 -0.8433995  0.5632416 -0.0650566
##   [668,]           -0.4776636 -0.4875535 -0.8433995 -0.7737127 -0.8472847
##   [669,]           -1.2210230  1.6722230  0.6102413  0.5632416 -0.0650566
##   [670,]           -0.4776636  0.9522975 -0.1165791 -0.7737127  0.7171715
##   [671,]            0.2656958 -0.4875535 -0.1165791  0.5632416 -0.0650566
##   [672,]            0.2656958  0.2323720  0.6102413 -0.7737127 -0.0650566
##   [673,]           -0.4776636 -0.4875535 -0.1165791 -0.1052355 -1.6295129
##   [674,]           -1.2210230 -0.4875535 -0.1165791  1.2317188 -0.8472847
##   [675,]            1.7524146 -0.4875535 -0.1165791 -0.1052355 -0.0650566
##   [676,]           -0.4776636 -0.4875535 -0.1165791  1.2317188 -0.8472847
##   [677,]           -1.2210230 -1.2074790 -0.8433995 -1.4421898 -0.0650566
##   [678,]           -0.4776636 -0.4875535 -0.8433995 -0.1052355  0.7171715
##   [679,]           -1.2210230  0.2323720 -0.1165791  0.5632416  0.7171715
##   [680,]           -1.2210230 -0.4875535 -0.8433995  1.2317188  1.4993997
##   [681,]            0.2656958  1.6722230  1.3370617  1.2317188  1.4993997
##   [682,]            0.2656958  1.6722230  0.6102413  1.2317188  1.4993997
##   [683,]           -0.4776636 -0.4875535 -0.8433995 -0.1052355  0.7171715
##   [684,]           -0.4776636  1.6722230  0.6102413  1.2317188  1.4993997
##   [685,]            0.2656958  0.9522975 -0.8433995 -0.7737127 -0.0650566
##   [686,]           -0.4776636  0.2323720 -0.1165791  0.5632416 -0.0650566
##   [687,]            0.2656958  0.2323720  0.6102413 -0.1052355 -0.0650566
##   [688,]            0.2656958 -1.2074790 -0.1165791 -0.1052355  0.7171715
##   [689,]           -1.2210230  1.6722230  0.6102413  1.2317188 -0.0650566
##   [690,]            1.7524146 -0.4875535  2.0638820 -0.1052355  0.7171715
##   [691,]            1.0090552  0.2323720 -0.1165791  1.2317188  1.4993997
##   [692,]           -1.2210230 -1.2074790 -0.8433995  0.5632416 -0.0650566
##   [693,]            0.2656958  0.2323720 -0.8433995  1.2317188  1.4993997
##   [694,]            1.0090552 -0.4875535 -0.8433995 -1.4421898 -1.6295129
##   [695,]            0.2656958 -0.4875535 -0.1165791 -0.7737127  0.7171715
##   [696,]            0.2656958 -0.4875535 -0.8433995  0.5632416 -1.6295129
##   [697,]            0.2656958 -0.4875535 -0.8433995 -1.4421898  0.7171715
##   [698,]            1.7524146 -0.4875535 -0.8433995  1.2317188  0.7171715
##   [699,]           -0.4776636  0.9522975  0.6102413 -0.7737127 -0.8472847
##   [700,]           -1.2210230 -0.4875535 -0.8433995 -1.4421898  1.4993997
##   [701,]           -0.4776636 -1.2074790 -0.8433995  1.2317188 -1.6295129
##   [702,]           -1.2210230  0.9522975  0.6102413 -0.1052355  0.7171715
##   [703,]            0.2656958 -0.4875535 -0.1165791 -0.1052355  1.4993997
##   [704,]            0.2656958  0.2323720  0.6102413 -0.7737127  1.4993997
##   [705,]           -0.4776636  0.2323720 -0.8433995 -1.4421898  1.4993997
```

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## [706,]        -0.4776636  0.2323720 -0.8433995 -0.7737127  0.7171715
## [707,]         1.7524146 -1.2074790 -0.8433995 -0.1052355 -0.0650566
## [708,]        -0.4776636  1.6722230  1.3370617  1.2317188  0.7171715
## [709,]         0.2656958 -1.2074790 -0.8433995 -0.7737127 -0.8472847
## [710,]        -1.2210230 -1.2074790 -0.8433995 -0.1052355 -0.0650566
## [711,]         0.2656958  0.2323720  1.3370617  0.5632416 -1.6295129
## [712,]        -1.2210230 -1.2074790 -0.8433995 -0.1052355 -1.6295129
## [713,]        -1.2210230  0.2323720 -0.8433995 -0.7737127 -0.0650566
## [714,]        -1.2210230  0.9522975 -0.8433995  1.2317188 -0.0650566
## [715,]         1.0090552  0.2323720  0.6102413  1.2317188 -0.0650566
## [716,]         0.2656958  0.9522975  0.6102413 -0.1052355 -0.0650566
## [717,]         1.0090552  0.9522975  1.3370617 -0.1052355  0.7171715
## [718,]        -1.2210230  0.9522975  0.6102413 -0.1052355 -0.0650566
## [719,]        -1.2210230  1.6722230  2.0638820 -0.1052355  0.7171715
## [720,]         0.2656958 -0.4875535 -0.8433995 -0.7737127 -0.8472847
## [721,]        -1.2210230  1.6722230  0.6102413  1.2317188  1.4993997
## [722,]         0.2656958  1.6722230  2.0638820 -1.4421898  1.4993997
## [723,]        -1.2210230 -1.2074790 -0.8433995 -0.1052355  0.7171715
## [724,]         0.2656958 -0.4875535 -0.8433995  1.2317188 -0.8472847
## [725,]        -1.2210230 -0.4875535 -0.8433995 -1.4421898 -1.6295129
## [726,]         1.0090552 -1.2074790 -0.8433995 -1.4421898  1.4993997
## [727,]        -0.4776636 -0.4875535 -0.8433995 -0.1052355 -0.8472847
## [728,]        -1.2210230 -1.2074790 -0.8433995 -1.4421898 -0.8472847
## [729,]         1.7524146 -1.2074790 -0.8433995  0.5632416 -1.6295129
## [730,]         0.2656958  1.6722230  2.0638820 -0.1052355 -0.0650566
## [731,]        -0.4776636  0.9522975  0.6102413  1.2317188  1.4993997
## [732,]         1.7524146 -0.4875535 -0.8433995  1.2317188  0.7171715
## [733,]         0.2656958 -0.4875535 -0.1165791  1.2317188  1.4993997
## [734,]         1.7524146 -0.4875535 -0.1165791  1.2317188  1.4993997
## [735,]        -1.2210230 -1.2074790 -0.1165791  1.2317188 -1.6295129
## [736,]        -0.4776636 -0.4875535 -0.1165791  1.2317188 -0.8472847
## [737,]         0.2656958  0.9522975 -0.1165791  0.5632416 -0.0650566
## [738,]        -0.4776636  0.2323720 -0.1165791  1.2317188 -0.0650566
## [739,]         0.2656958 -1.2074790 -0.1165791 -1.4421898 -0.0650566
## [740,]         1.7524146  0.2323720 -0.1165791 -1.4421898  1.4993997
## [741,]         1.7524146  0.2323720 -0.8433995 -0.1052355  1.4993997
## [742,]         1.7524146  1.6722230  2.0638820  1.2317188 -0.8472847
## [743,]         1.7524146  0.9522975 -0.8433995  1.2317188  0.7171715
## [744,]         1.0090552 -0.4875535 -0.1165791 -0.7737127 -1.6295129
## [745,]        -1.2210230  1.6722230  2.0638820  1.2317188 -1.6295129
## [746,]         0.2656958 -0.4875535 -0.1165791 -1.4421898 -0.0650566
## [747,]         0.2656958 -0.4875535 -0.1165791 -1.4421898  0.7171715
## [748,]        -1.2210230  1.6722230 -0.1165791  1.2317188  1.4993997
## [749,]        -1.2210230  0.2323720  0.6102413 -0.7737127  0.7171715
## [750,]        -1.2210230  0.2323720 -0.1165791 -1.4421898  0.7171715
## [751,]        -0.4776636  0.2323720 -0.1165791 -0.7737127 -0.8472847
## [752,]        -1.2210230 -1.2074790 -0.8433995  1.2317188 -0.0650566
## [753,]         1.0090552  1.6722230  1.3370617 -1.4421898 -1.6295129
## [754,]        -0.4776636 -1.2074790 -0.8433995  1.2317188 -0.0650566
## [755,]         0.2656958  0.2323720 -0.1165791  0.5632416  0.7171715
```

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##   [756,]         0.2656958  0.9522975  1.3370617  1.2317188  0.7171715
##   [757,]         0.2656958  0.2323720  0.6102413  1.2317188  0.7171715
##   [758,]        -0.4776636  1.6722230  2.0638820 -0.1052355 -0.0650566
##   [759,]         0.2656958 -0.4875535  0.6102413 -1.4421898 -0.0650566
##   [760,]        -1.2210230  1.6722230  2.0638820  1.2317188  0.7171715
##   [761,]         1.7524146 -0.4875535 -0.8433995  1.2317188  0.7171715
##   [762,]        -1.2210230 -1.2074790 -0.8433995 -0.7737127 -0.8472847
##   [763,]         1.0090552 -0.4875535 -0.1165791  0.5632416  1.4993997
##   [764,]        -1.2210230  0.2323720 -0.8433995  1.2317188 -0.8472847
##   [765,]        -0.4776636  1.6722230  2.0638820  1.2317188 -0.0650566
##   [766,]        -1.2210230  0.2323720  0.6102413 -0.7737127 -0.0650566
##   [767,]        -0.4776636  1.6722230  2.0638820 -1.4421898 -0.0650566
##   [768,]        -1.2210230  0.9522975  1.3370617  0.5632416  0.7171715
##   [769,]         1.7524146 -0.4875535 -0.1165791 -1.4421898 -0.0650566
##   [770,]         1.0090552  0.9522975  1.3370617  0.5632416  0.7171715
##   [771,]        -0.4776636 -1.2074790 -0.1165791 -0.1052355  0.7171715
##   [772,]         1.0090552 -0.4875535 -0.1165791 -0.7737127 -0.0650566
##   [773,]        -1.2210230  0.2323720 -0.8433995 -0.1052355  0.7171715
##   [774,]         0.2656958  0.2323720  0.6102413 -0.1052355 -0.0650566
##   [775,]         0.2656958 -0.4875535 -0.1165791  1.2317188  0.7171715
##   [776,]         1.0090552  0.2323720 -0.8433995  0.5632416  1.4993997
##   [777,]         1.7524146 -0.4875535 -0.8433995 -1.4421898 -0.0650566
##   [778,]         0.2656958 -1.2074790 -0.8433995 -1.4421898 -1.6295129
##   [779,]        -0.4776636 -1.2074790 -0.8433995 -0.1052355 -1.6295129
##   [780,]         0.2656958  0.2323720 -0.1165791  1.2317188 -0.8472847
##   [781,]         1.7524146 -0.4875535  2.0638820 -0.1052355  0.7171715
##   [782,]        -1.2210230  1.6722230  0.6102413  1.2317188 -1.6295129
##   [783,]         0.2656958  1.6722230  1.3370617  1.2317188 -0.0650566
##   [784,]         0.2656958  0.9522975 -0.1165791  0.5632416  0.7171715
##   [785,]        -0.4776636  1.6722230  2.0638820 -0.7737127 -0.0650566
##   [786,]         0.2656958 -0.4875535 -0.8433995 -0.1052355  0.7171715
##   [787,]        -0.4776636  1.6722230  2.0638820  0.5632416 -0.8472847
##   [788,]        -0.4776636 -1.2074790 -0.8433995  0.5632416 -0.0650566
##   [789,]         1.0090552  0.2323720 -0.1165791 -0.1052355 -0.8472847
##   [790,]         0.2656958  0.9522975 -0.1165791  0.5632416 -0.0650566
##   [791,]        -1.2210230  1.6722230  2.0638820 -0.7737127 -1.6295129
##   [792,]        -0.4776636  0.2323720 -0.8433995  0.5632416 -0.0650566
##   [793,]         0.2656958  0.2323720 -0.8433995 -1.4421898 -0.8472847
##   [794,]         0.2656958  1.6722230 -0.8433995  1.2317188 -0.0650566
##   [795,]        -1.2210230 -1.2074790 -0.8433995 -1.4421898 -1.6295129
##   [796,]         1.0090552  0.9522975  1.3370617  0.5632416  0.7171715
##   [797,]         1.0090552 -0.4875535 -0.8433995 -1.4421898 -0.0650566
##   [798,]         1.0090552 -1.2074790 -0.8433995 -1.4421898 -1.6295129
##   [799,]         0.2656958 -0.4875535 -0.8433995 -0.1052355  1.4993997
##   [800,]        -0.4776636  0.2323720 -0.1165791  1.2317188 -0.0650566
##   [801,]        -1.2210230  1.6722230  2.0638820 -0.1052355  0.7171715
##   [802,]        -1.2210230 -1.2074790 -0.8433995 -1.4421898 -0.0650566
##   [803,]        -1.2210230  0.9522975 -0.8433995 -0.1052355  1.4993997
##   [804,]        -0.4776636 -0.4875535 -0.8433995 -0.7737127 -0.8472847
##   [805,]         0.2656958 -1.2074790 -0.8433995  1.2317188 -0.0650566
```

```
##   [806,]      0.2656958  0.9522975  1.3370617  1.2317188  1.4993997
##   [807,]     -1.2210230 -1.2074790 -0.8433995 -1.4421898 -0.0650566
##   [808,]      1.7524146 -1.2074790 -0.8433995 -0.7737127  0.7171715
##   [809,]     -0.4776636 -1.2074790 -0.8433995 -1.4421898  0.7171715
##   [810,]     -1.2210230 -1.2074790 -0.8433995 -1.4421898 -0.0650566
##   [811,]      0.2656958  0.2323720 -0.8433995  1.2317188 -0.0650566
##   [812,]     -0.4776636  0.9522975 -0.1165791  1.2317188  0.7171715
##   [813,]      1.7524146 -1.2074790 -0.8433995 -1.4421898  1.4993997
##   [814,]     -1.2210230 -1.2074790 -0.8433995 -1.4421898 -0.0650566
##   [815,]      1.0090552  0.2323720 -0.1165791  1.2317188 -0.8472847
##   [816,]      0.2656958  1.6722230  2.0638820 -0.1052355 -0.8472847
##   [817,]      1.0090552  0.2323720 -0.1165791 -0.7737127  0.7171715
##   [818,]     -1.2210230  0.9522975 -0.8433995 -1.4421898  1.4993997
##   [819,]      1.7524146  0.2323720 -0.8433995 -1.4421898  1.4993997
##   [820,]     -0.4776636  1.6722230  2.0638820 -0.7737127  0.7171715
##   [821,]      0.2656958 -1.2074790 -0.8433995 -0.1052355  0.7171715
##   [822,]     -1.2210230  0.9522975  0.6102413 -0.7737127 -1.6295129
##   [823,]      1.7524146 -1.2074790 -0.8433995  1.2317188 -0.8472847
##   [824,]      1.7524146 -1.2074790 -0.8433995 -1.4421898 -0.0650566
##   [825,]     -1.2210230 -1.2074790 -0.8433995  1.2317188 -0.0650566
##   [826,]     -1.2210230 -0.4875535 -0.8433995 -0.1052355 -0.8472847
##   [827,]     -1.2210230  0.9522975 -0.8433995  0.5632416  0.7171715
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##   [829,]      0.2656958 -0.4875535 -0.1165791 -0.1052355 -0.8472847
##   [830,]      1.7524146  0.2323720 -0.8433995  1.2317188  0.7171715
##   [831,]     -1.2210230  1.6722230  2.0638820  1.2317188  0.7171715
##   [832,]      1.0090552  0.2323720  0.6102413 -0.1052355 -0.0650566
##   [833,]     -1.2210230  0.9522975  0.6102413  1.2317188  1.4993997
##   [834,]      1.7524146 -0.4875535 -0.1165791  1.2317188 -0.8472847
##   [835,]      1.0090552  0.9522975 -0.1165791 -0.1052355 -0.0650566
##   [836,]     -0.4776636 -1.2074790 -0.8433995 -0.7737127  0.7171715
##   [837,]      0.2656958  0.2323720  0.6102413  0.5632416  0.7171715
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##   [840,]      1.0090552 -0.4875535 -0.8433995 -0.7737127 -0.8472847
##   [841,]     -0.4776636 -0.4875535 -0.1165791 -0.1052355 -0.0650566
##   [842,]     -0.4776636 -0.4875535 -0.1165791 -0.1052355 -0.8472847
##   [843,]     -1.2210230 -1.2074790 -0.8433995  1.2317188 -0.8472847
##   [844,]      1.7524146 -1.2074790 -0.8433995  1.2317188  1.4993997
##   [845,]      1.7524146 -0.4875535 -0.8433995  1.2317188 -1.6295129
##   [846,]     -0.4776636 -1.2074790  0.6102413  1.2317188  0.7171715
##   [847,]      0.2656958 -1.2074790 -0.8433995 -0.1052355 -0.8472847
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##   [849,]      1.7524146 -0.4875535 -0.1165791 -1.4421898 -0.8472847
##   [850,]     -0.4776636 -0.4875535 -0.8433995  0.5632416 -0.0650566
##   [851,]     -1.2210230  1.6722230  1.3370617  1.2317188  0.7171715
##   [852,]      1.7524146  0.2323720 -0.8433995 -1.4421898  1.4993997
##   [853,]      1.7524146  0.2323720 -0.1165791 -1.4421898  1.4993997
##   [854,]      0.2656958  0.2323720  0.6102413  0.5632416  0.7171715
##   [855,]      0.2656958 -0.4875535 -0.8433995 -0.1052355 -0.8472847
```

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##  [856,]          1.0090552   0.9522975  -0.1165791  -0.7737127  -0.0650566
##  [857,]          1.0090552  -0.4875535   1.3370617  -0.1052355   0.7171715
##  [858,]          1.0090552  -1.2074790  -0.8433995   0.5632416  -0.8472847
##  [859,]          0.2656958  -0.4875535  -0.8433995   1.2317188  -0.0650566
##  [860,]          1.7524146  -0.4875535  -0.8433995  -0.7737127   1.4993997
##  [861,]          1.7524146   0.2323720  -0.8433995  -0.1052355  -0.0650566
##  [862,]         -0.4776636  -0.4875535  -0.1165791   0.5632416  -0.8472847
##  [863,]          1.7524146  -0.4875535  -0.8433995  -0.7737127   0.7171715
##  [864,]          0.2656958  -1.2074790  -0.8433995   0.5632416  -1.6295129
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##  [866,]          0.2656958  -0.4875535  -0.8433995  -0.7737127  -0.0650566
##  [867,]         -0.4776636   0.9522975   1.3370617   1.2317188   0.7171715
##  [868,]          0.2656958   0.9522975  -0.1165791  -0.1052355   0.7171715
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##  [870,]         -1.2210230   0.9522975  -0.1165791   0.5632416   0.7171715
##  [871,]         -1.2210230  -0.4875535  -0.1165791   0.5632416  -0.0650566
##  [872,]          1.0090552   0.2323720   2.0638820  -0.1052355   1.4993997
##  [873,]         -1.2210230   1.6722230   2.0638820  -0.7737127  -1.6295129
##  [874,]         -0.4776636  -0.4875535  -0.8433995  -0.7737127  -0.0650566
##  [875,]          1.0090552   0.2323720  -0.1165791  -1.4421898  -0.8472847
##  [876,]         -1.2210230  -0.4875535  -0.8433995  -1.4421898  -0.8472847
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##  [878,]          1.0090552  -0.4875535  -0.8433995   1.2317188   1.4993997
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##  [882,]         -1.2210230   0.9522975  -0.8433995   1.2317188   0.7171715
##  [883,]         -1.2210230   1.6722230   2.0638820   0.5632416  -0.0650566
##  [884,]         -0.4776636  -0.4875535  -0.8433995   1.2317188  -0.8472847
##  [885,]          1.7524146  -1.2074790  -0.8433995   1.2317188  -0.0650566
##  [886,]          1.0090552   0.9522975   0.6102413   0.5632416  -0.8472847
##  [887,]         -0.4776636  -1.2074790  -0.8433995  -1.4421898   0.7171715
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##  [898,]         -0.4776636  -1.2074790  -0.8433995  -0.7737127  -0.8472847
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##  [900,]          1.7524146  -1.2074790  -0.8433995  -1.4421898   0.7171715
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##  [902,]         -1.2210230  -1.2074790  -0.8433995  -0.7737127  -0.0650566
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##  [904,]         -1.2210230   0.2323720   2.0638820  -0.1052355   1.4993997
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## [907,]        1.7524146 -1.2074790 -0.8433995 -1.4421898 -0.0650566
## [908,]        0.2656958 -1.2074790 -0.8433995 -0.1052355 -1.6295129
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## [912,]        1.0090552 -0.4875535  2.0638820  1.2317188 -0.0650566
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## [924,]       -1.2210230  0.9522975 -0.1165791  1.2317188 -0.8472847
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## [926,]       -1.2210230 -0.4875535 -0.8433995  1.2317188 -1.6295129
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## [928,]       -1.2210230  1.6722230 -0.1165791 -1.4421898  1.4993997
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##    [997,]          -0.4776636 -0.4875535 -0.8433995 -1.4421898  0.7171715
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## [1005,]            0.2656958  0.2323720 -0.1165791 -0.7737127 -0.0650566
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##    [6,]           0.1919881  1.0733052  0.5991631  1.6082294      -0.4490903
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##    [9,]          -2.4402471 -1.0991162 -1.0102910 -1.1695589      -1.2050590
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##   [19,]           0.1919881 -0.3749757 -1.0102910 -0.4751118      -1.2050590
##   [20,]           0.1919881 -0.3749757 -1.0102910  0.9137823      -0.4490903
##   [21,]           0.1919881  1.0733052 -0.2055639  1.6082294      -0.4490903
##   [22,]           0.1919881 -0.3749757 -1.0102910 -1.1695589      -0.4490903
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##   [43,]           1.0693999  1.0733052  0.5991631  0.2193353      -0.4490903
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##    [49,]     1.0693999  0.3491648 -0.2055639 -0.4751118   -0.4490903
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##    [57,]     1.0693999 -0.3749757  1.4038902  0.2193353    1.8188158
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##    [62,]    -0.6854236  0.3491648  0.5991631  0.9137823    0.3068784
##    [63,]     0.1919881  0.3491648  0.5991631  1.6082294   -0.4490903
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##    [66,]    -0.6854236  0.3491648 -1.0102910 -0.4751118   -1.2050590
##    [67,]    -1.5628354 -1.0991162 -1.0102910  0.9137823   -0.4490903
##    [68,]     0.1919881  0.3491648  0.5991631 -1.1695589   -0.4490903
##    [69,]     0.1919881 -1.0991162  1.4038902  0.2193353   -0.4490903
##    [70,]    -0.6854236  1.0733052 -1.0102910 -0.4751118    0.3068784
##    [71,]    -0.6854236 -1.0991162  2.2086173  1.6082294   -0.4490903
##    [72,]    -1.5628354 -1.0991162  2.2086173  1.6082294   -1.2050590
##    [73,]    -0.6854236 -1.0991162 -1.0102910  0.2193353   -1.2050590
##    [74,]     1.0693999 -1.0991162 -0.2055639  1.6082294   -0.4490903
##    [75,]     1.0693999 -1.0991162  0.5991631  1.6082294    0.3068784
##    [76,]     1.0693999  1.7974457 -0.2055639  1.6082294    1.8188158
##    [77,]    -0.6854236 -1.0991162  0.5991631  1.6082294   -1.2050590
##    [78,]     1.0693999  0.3491648 -1.0102910 -1.1695589    1.0628471
##    [79,]     1.0693999  1.0733052 -1.0102910 -1.1695589    1.8188158
##    [80,]     1.0693999 -0.3749757  2.2086173  0.9137823   -0.4490903
##    [81,]    -0.6854236 -0.3749757  2.2086173  0.2193353   -0.4490903
##    [82,]     0.1919881 -1.0991162  1.4038902  1.6082294    0.3068784
##    [83,]     0.1919881 -1.0991162 -1.0102910 -1.1695589    1.8188158
##    [84,]     0.1919881  1.7974457  2.2086173  0.9137823    0.3068784
##    [85,]     1.0693999  0.3491648  0.5991631  0.2193353    0.3068784
##    [86,]    -0.6854236  0.3491648 -0.2055639  0.2193353    1.8188158
##    [87,]     0.1919881  1.0733052  1.4038902  0.9137823    1.8188158
##    [88,]     1.0693999 -1.0991162  1.4038902 -1.1695589   -0.4490903
##    [89,]     1.0693999 -1.0991162  0.5991631 -1.1695589    0.3068784
##    [90,]     0.1919881 -0.3749757 -0.2055639 -1.1695589    1.0628471
##    [91,]     0.1919881  1.0733052 -1.0102910  0.2193353   -1.2050590
##    [92,]     1.0693999  1.7974457 -1.0102910 -1.1695589   -1.2050590
##    [93,]     1.0693999 -0.3749757 -1.0102910 -1.1695589    1.8188158
##    [94,]    -1.5628354 -1.0991162 -0.2055639  1.6082294    0.3068784
```

```
##  [95,]      0.1919881 -0.3749757 -0.2055639  0.9137823    -0.4490903
##  [96,]      0.1919881 -1.0991162 -0.2055639  1.6082294     0.3068784
##  [97,]     -2.4402471  1.7974457 -1.0102910 -1.1695589    -1.2050590
##  [98,]      0.1919881 -1.0991162 -0.2055639 -0.4751118    -1.2050590
##  [99,]      1.0693999 -0.3749757 -1.0102910 -1.1695589     0.3068784
## [100,]      0.1919881 -1.0991162 -1.0102910 -0.4751118    -0.4490903
## [101,]      0.1919881  1.7974457 -1.0102910 -0.4751118     0.3068784
## [102,]     -0.6854236 -1.0991162 -0.2055639  0.2193353    -1.2050590
## [103,]      1.0693999  1.7974457  1.4038902 -0.4751118     1.0628471
## [104,]      1.0693999 -0.3749757  1.4038902  1.6082294    -0.4490903
## [105,]     -0.6854236 -0.3749757  2.2086173  0.9137823     1.0628471
## [106,]     -0.6854236 -1.0991162  0.5991631  0.2193353    -1.2050590
## [107,]      1.0693999 -1.0991162 -0.2055639  0.2193353    -1.2050590
## [108,]     -2.4402471  1.7974457 -0.2055639  0.9137823     1.8188158
## [109,]      0.1919881 -1.0991162 -1.0102910 -0.4751118    -1.2050590
## [110,]     -0.6854236  0.3491648 -0.2055639  1.6082294    -0.4490903
## [111,]      0.1919881  0.3491648 -1.0102910 -1.1695589    -1.2050590
## [112,]      1.0693999  0.3491648 -0.2055639 -1.1695589     1.8188158
## [113,]      0.1919881  1.7974457 -0.2055639 -1.1695589     1.0628471
## [114,]     -2.4402471 -1.0991162 -1.0102910  0.9137823    -0.4490903
## [115,]      1.0693999  0.3491648 -1.0102910 -0.4751118     1.8188158
## [116,]      1.0693999  1.0733052 -0.2055639  1.6082294     1.0628471
## [117,]      0.1919881 -1.0991162 -1.0102910 -1.1695589    -0.4490903
## [118,]     -1.5628354 -1.0991162 -1.0102910  1.6082294    -1.2050590
## [119,]     -0.6854236 -0.3749757 -1.0102910 -0.4751118     1.0628471
## [120,]     -2.4402471  0.3491648 -1.0102910 -1.1695589    -0.4490903
## [121,]      0.1919881  0.3491648  0.5991631 -0.4751118    -1.2050590
## [122,]     -1.5628354  0.3491648  1.4038902  1.6082294    -1.2050590
## [123,]     -0.6854236 -1.0991162 -1.0102910  0.9137823     1.8188158
## [124,]     -0.6854236  0.3491648  0.5991631 -0.4751118     1.0628471
## [125,]      0.1919881  1.0733052  1.4038902  0.9137823     1.8188158
## [126,]      0.1919881  0.3491648  0.5991631 -1.1695589     1.0628471
## [127,]      1.0693999 -1.0991162 -1.0102910  0.2193353    -0.4490903
## [128,]      0.1919881  0.3491648 -0.2055639  0.9137823     0.3068784
## [129,]      1.0693999 -1.0991162 -1.0102910 -1.1695589     1.8188158
## [130,]     -0.6854236  1.7974457 -0.2055639 -1.1695589     0.3068784
## [131,]      0.1919881 -0.3749757  2.2086173 -1.1695589     1.0628471
## [132,]      0.1919881 -1.0991162 -1.0102910  0.9137823    -1.2050590
## [133,]      1.0693999  0.3491648 -0.2055639 -1.1695589    -1.2050590
## [134,]      0.1919881 -0.3749757 -1.0102910 -1.1695589     1.8188158
## [135,]     -0.6854236  1.0733052  0.5991631  0.2193353     0.3068784
## [136,]      1.0693999 -0.3749757  2.2086173  0.9137823     1.0628471
## [137,]     -0.6854236  1.7974457 -0.2055639 -0.4751118    -1.2050590
## [138,]      1.0693999  0.3491648 -0.2055639  1.6082294     1.0628471
## [139,]      1.0693999  1.7974457 -1.0102910 -1.1695589    -1.2050590
## [140,]      0.1919881 -1.0991162  0.5991631 -1.1695589     1.0628471
## [141,]      1.0693999 -0.3749757 -0.2055639  0.2193353     1.8188158
## [142,]      1.0693999 -1.0991162 -1.0102910 -1.1695589    -1.2050590
## [143,]     -0.6854236 -1.0991162 -0.2055639 -0.4751118    -1.2050590
## [144,]     -0.6854236 -1.0991162 -1.0102910  0.9137823    -1.2050590
```

```
## [145,]       -0.6854236  1.7974457 -1.0102910 -1.1695589    1.0628471
## [146,]        0.1919881  1.0733052 -0.2055639 -1.1695589   -0.4490903
## [147,]        1.0693999  0.3491648  2.2086173  0.9137823   -0.4490903
## [148,]        0.1919881 -0.3749757 -0.2055639 -0.4751118   -1.2050590
## [149,]        0.1919881  0.3491648  0.5991631 -1.1695589   -0.4490903
## [150,]       -0.6854236 -0.3749757 -1.0102910 -0.4751118   -1.2050590
## [151,]        0.1919881 -0.3749757 -1.0102910  0.2193353    0.3068784
## [152,]       -1.5628354  0.3491648 -0.2055639 -0.4751118    0.3068784
## [153,]        1.0693999  1.7974457  0.5991631 -1.1695589   -1.2050590
## [154,]       -0.6854236 -0.3749757 -0.2055639  0.9137823    0.3068784
## [155,]        1.0693999 -0.3749757  1.4038902 -0.4751118   -1.2050590
## [156,]        1.0693999  1.0733052  2.2086173 -0.4751118    0.3068784
## [157,]        1.0693999 -1.0991162  2.2086173 -1.1695589   -1.2050590
## [158,]       -1.5628354 -0.3749757 -0.2055639 -0.4751118   -0.4490903
## [159,]        0.1919881 -0.3749757 -1.0102910 -1.1695589    1.0628471
## [160,]        0.1919881  0.3491648  0.5991631  0.2193353    0.3068784
## [161,]        0.1919881 -1.0991162 -0.2055639  0.9137823    0.3068784
## [162,]        0.1919881  1.0733052 -1.0102910 -1.1695589   -0.4490903
## [163,]        1.0693999 -1.0991162  0.5991631  0.9137823   -1.2050590
## [164,]       -1.5628354 -0.3749757 -1.0102910 -1.1695589   -1.2050590
## [165,]        0.1919881 -1.0991162 -0.2055639 -1.1695589    0.3068784
## [166,]        1.0693999 -0.3749757  2.2086173 -0.4751118    1.0628471
## [167,]        0.1919881 -0.3749757 -1.0102910 -1.1695589    0.3068784
## [168,]       -2.4402471 -0.3749757 -0.2055639 -0.4751118   -1.2050590
## [169,]       -0.6854236 -1.0991162  2.2086173 -0.4751118   -1.2050590
## [170,]        1.0693999 -1.0991162 -0.2055639 -1.1695589    1.0628471
## [171,]        0.1919881  1.0733052  1.4038902 -1.1695589   -0.4490903
## [172,]       -0.6854236 -1.0991162  2.2086173 -1.1695589   -1.2050590
## [173,]        0.1919881 -0.3749757  0.5991631 -0.4751118   -0.4490903
## [174,]        0.1919881 -0.3749757 -1.0102910  1.6082294   -1.2050590
## [175,]       -0.6854236  0.3491648  0.5991631  1.6082294    1.8188158
## [176,]        1.0693999  1.7974457 -1.0102910  1.6082294   -1.2050590
## [177,]       -0.6854236 -1.0991162 -0.2055639  1.6082294    0.3068784
## [178,]       -1.5628354 -0.3749757 -1.0102910 -1.1695589    0.3068784
## [179,]        1.0693999  0.3491648 -1.0102910 -1.1695589   -0.4490903
## [180,]        0.1919881  0.3491648  0.5991631 -1.1695589    1.0628471
## [181,]        0.1919881 -1.0991162 -1.0102910  1.6082294   -1.2050590
## [182,]       -0.6854236  0.3491648  0.5991631  1.6082294    0.3068784
## [183,]        0.1919881  1.7974457 -0.2055639 -0.4751118    0.3068784
## [184,]       -0.6854236  0.3491648 -1.0102910 -1.1695589    1.0628471
## [185,]       -1.5628354 -1.0991162 -1.0102910 -1.1695589    1.8188158
## [186,]       -0.6854236 -1.0991162 -0.2055639 -0.4751118    0.3068784
## [187,]       -1.5628354 -1.0991162 -0.2055639 -1.1695589   -0.4490903
## [188,]       -1.5628354 -1.0991162 -1.0102910 -1.1695589   -0.4490903
## [189,]       -0.6854236  1.7974457  0.5991631  0.2193353   -1.2050590
## [190,]        1.0693999 -1.0991162 -0.2055639 -1.1695589   -0.4490903
## [191,]       -0.6854236  1.0733052 -1.0102910 -0.4751118   -1.2050590
## [192,]       -2.4402471 -1.0991162 -1.0102910 -1.1695589    1.8188158
## [193,]        1.0693999 -1.0991162 -0.2055639 -1.1695589   -0.4490903
## [194,]       -1.5628354 -0.3749757 -1.0102910 -1.1695589    0.3068784
```

```
##   [195,]          0.1919881 -1.0991162  0.5991631  0.2193353         0.3068784
##   [196,]          0.1919881  0.3491648  0.5991631  0.9137823        -0.4490903
##   [197,]          1.0693999  1.0733052 -0.2055639  0.2193353        -0.4490903
##   [198,]         -0.6854236 -1.0991162 -1.0102910  0.2193353        -1.2050590
##   [199,]         -0.6854236 -1.0991162 -1.0102910  0.9137823        -1.2050590
##   [200,]         -0.6854236 -1.0991162 -1.0102910  0.9137823         0.3068784
##   [201,]          0.1919881 -0.3749757 -0.2055639  0.2193353        -0.4490903
##   [202,]          1.0693999 -1.0991162  2.2086173 -1.1695589        -1.2050590
##   [203,]          1.0693999  0.3491648 -1.0102910  0.9137823        -1.2050590
##   [204,]          0.1919881  1.7974457  0.5991631  0.9137823         0.3068784
##   [205,]         -1.5628354 -1.0991162 -1.0102910 -1.1695589        -1.2050590
##   [206,]          1.0693999  1.7974457 -1.0102910 -1.1695589         1.0628471
##   [207,]          1.0693999  0.3491648  2.2086173  0.9137823         1.8188158
##   [208,]          0.1919881  0.3491648  2.2086173  0.9137823        -0.4490903
##   [209,]          0.1919881 -0.3749757 -1.0102910  0.2193353         1.8188158
##   [210,]         -0.6854236 -0.3749757  1.4038902  0.2193353         0.3068784
##   [211,]          1.0693999  1.0733052  2.2086173  0.9137823         1.8188158
##   [212,]          1.0693999 -1.0991162 -1.0102910  0.2193353        -1.2050590
##   [213,]          0.1919881  0.3491648  1.4038902  0.2193353         1.8188158
##   [214,]          1.0693999  1.7974457  1.4038902  1.6082294         0.3068784
##   [215,]          1.0693999  1.7974457  1.4038902  0.9137823         1.0628471
##   [216,]         -2.4402471 -1.0991162 -1.0102910  0.2193353        -1.2050590
##   [217,]         -0.6854236  1.7974457  0.5991631 -1.1695589        -0.4490903
##   [218,]          1.0693999 -1.0991162 -0.2055639 -1.1695589         1.0628471
##   [219,]          1.0693999  1.7974457  0.5991631  0.9137823        -1.2050590
##   [220,]         -0.6854236 -1.0991162  0.5991631  1.6082294        -0.4490903
##   [221,]          1.0693999  0.3491648 -0.2055639  0.9137823         0.3068784
##   [222,]          1.0693999  0.3491648  0.5991631  0.9137823         1.0628471
##   [223,]         -0.6854236 -1.0991162 -1.0102910 -1.1695589        -1.2050590
##   [224,]          0.1919881 -0.3749757 -0.2055639 -0.4751118         0.3068784
##   [225,]         -1.5628354 -1.0991162 -1.0102910 -0.4751118        -1.2050590
##   [226,]          0.1919881  0.3491648 -0.2055639  1.6082294         0.3068784
##   [227,]         -1.5628354 -1.0991162 -1.0102910 -1.1695589        -1.2050590
##   [228,]          1.0693999  1.0733052  0.5991631  0.9137823         1.0628471
##   [229,]          0.1919881  1.0733052 -0.2055639 -1.1695589         1.8188158
##   [230,]         -0.6854236 -0.3749757 -0.2055639 -0.4751118        -0.4490903
##   [231,]          1.0693999 -0.3749757 -1.0102910 -0.4751118         0.3068784
##   [232,]          1.0693999  1.0733052  1.4038902  0.2193353        -0.4490903
##   [233,]          1.0693999 -1.0991162  0.5991631 -1.1695589        -1.2050590
##   [234,]         -0.6854236  0.3491648 -0.2055639 -0.4751118        -0.4490903
##   [235,]         -1.5628354 -1.0991162  0.5991631  0.2193353        -1.2050590
##   [236,]          0.1919881 -1.0991162  2.2086173 -0.4751118        -1.2050590
##   [237,]          1.0693999 -0.3749757  2.2086173 -0.4751118         1.8188158
##   [238,]          1.0693999 -0.3749757 -1.0102910  0.9137823        -0.4490903
##   [239,]          1.0693999 -1.0991162 -1.0102910 -0.4751118        -1.2050590
##   [240,]         -0.6854236 -0.3749757  0.5991631 -0.4751118         1.0628471
##   [241,]         -0.6854236 -0.3749757  1.4038902  1.6082294         0.3068784
##   [242,]          1.0693999  0.3491648  2.2086173  0.9137823         0.3068784
##   [243,]          1.0693999 -0.3749757 -0.2055639 -1.1695589         1.8188158
##   [244,]          1.0693999  1.7974457 -1.0102910 -1.1695589        -0.4490903
```

```
##  [245,]         -0.6854236  0.3491648 -1.0102910 -1.1695589   -1.2050590
##  [246,]         -0.6854236 -1.0991162 -1.0102910 -1.1695589    1.8188158
##  [247,]         -2.4402471 -1.0991162  2.2086173  0.2193353   -1.2050590
##  [248,]          1.0693999  1.7974457  0.5991631 -1.1695589    1.0628471
##  [249,]          1.0693999  0.3491648  2.2086173 -1.1695589    0.3068784
##  [250,]         -1.5628354  1.7974457 -1.0102910 -1.1695589   -0.4490903
##  [251,]          0.1919881 -1.0991162 -1.0102910 -1.1695589   -1.2050590
##  [252,]          0.1919881  1.0733052 -1.0102910 -0.4751118    0.3068784
##  [253,]          1.0693999 -0.3749757 -1.0102910 -0.4751118   -0.4490903
##  [254,]         -1.5628354 -0.3749757 -1.0102910  1.6082294   -1.2050590
##  [255,]         -1.5628354  1.7974457  0.5991631  0.2193353   -1.2050590
##  [256,]          1.0693999  1.0733052 -1.0102910 -1.1695589    1.0628471
##  [257,]         -1.5628354 -1.0991162  0.5991631  0.2193353   -1.2050590
##  [258,]          0.1919881 -1.0991162 -1.0102910  1.6082294   -0.4490903
##  [259,]         -0.6854236 -1.0991162 -1.0102910 -1.1695589   -1.2050590
##  [260,]          0.1919881  0.3491648  1.4038902  0.9137823   -0.4490903
##  [261,]         -0.6854236  0.3491648  0.5991631  0.2193353    0.3068784
##  [262,]          1.0693999 -1.0991162  1.4038902 -0.4751118    0.3068784
##  [263,]          1.0693999  0.3491648  0.5991631 -1.1695589    1.0628471
##  [264,]          1.0693999 -0.3749757  1.4038902  0.2193353    0.3068784
##  [265,]         -0.6854236  1.7974457  0.5991631  0.2193353    1.0628471
##  [266,]         -0.6854236 -0.3749757 -0.2055639 -1.1695589   -1.2050590
##  [267,]          1.0693999 -0.3749757 -1.0102910  0.2193353    0.3068784
##  [268,]          0.1919881 -0.3749757 -0.2055639 -1.1695589    0.3068784
##  [269,]          0.1919881  0.3491648 -1.0102910 -1.1695589   -1.2050590
##  [270,]          1.0693999  1.7974457  1.4038902 -1.1695589   -0.4490903
##  [271,]          0.1919881 -0.3749757 -0.2055639 -1.1695589   -0.4490903
##  [272,]         -0.6854236 -0.3749757 -0.2055639  1.6082294   -0.4490903
##  [273,]          0.1919881  1.7974457 -1.0102910 -1.1695589    1.8188158
##  [274,]          1.0693999  0.3491648  1.4038902 -0.4751118    1.0628471
##  [275,]         -1.5628354 -0.3749757  2.2086173  0.9137823    0.3068784
##  [276,]          1.0693999 -0.3749757  0.5991631  0.2193353    1.8188158
##  [277,]          0.1919881 -1.0991162 -0.2055639 -1.1695589   -1.2050590
##  [278,]          1.0693999 -0.3749757  1.4038902  0.2193353   -1.2050590
##  [279,]          0.1919881  0.3491648 -0.2055639  0.9137823    0.3068784
##  [280,]         -1.5628354 -1.0991162  2.2086173 -1.1695589   -1.2050590
##  [281,]         -0.6854236  0.3491648 -0.2055639 -0.4751118    0.3068784
##  [282,]          0.1919881  1.7974457 -1.0102910  0.9137823    0.3068784
##  [283,]         -0.6854236 -1.0991162 -1.0102910  0.9137823   -1.2050590
##  [284,]          0.1919881  0.3491648 -0.2055639  0.2193353   -0.4490903
##  [285,]         -0.6854236 -1.0991162 -1.0102910  0.9137823   -1.2050590
##  [286,]          1.0693999  1.7974457 -1.0102910 -1.1695589    1.0628471
##  [287,]          1.0693999 -0.3749757 -0.2055639  0.9137823    1.8188158
##  [288,]          0.1919881  0.3491648 -0.2055639 -0.4751118    0.3068784
##  [289,]          1.0693999 -0.3749757 -0.2055639  0.9137823   -0.4490903
##  [290,]          0.1919881  0.3491648  2.2086173  0.2193353   -1.2050590
##  [291,]          0.1919881  1.7974457  0.5991631 -1.1695589    1.8188158
##  [292,]          0.1919881 -1.0991162  0.5991631  0.2193353   -0.4490903
##  [293,]          1.0693999 -1.0991162 -0.2055639 -1.1695589    0.3068784
##  [294,]          1.0693999 -1.0991162 -1.0102910 -1.1695589    0.3068784
```

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## [295,]    1.0693999 -0.3749757  1.4038902 -0.4751118    1.0628471
## [296,]    0.1919881 -0.3749757 -0.2055639 -0.4751118   -0.4490903
## [297,]    1.0693999 -1.0991162 -1.0102910  1.6082294   -0.4490903
## [298,]   -0.6854236  1.7974457 -1.0102910 -0.4751118    0.3068784
## [299,]    0.1919881 -0.3749757 -1.0102910 -1.1695589    0.3068784
## [300,]    0.1919881  0.3491648 -0.2055639  0.2193353    0.3068784
## [301,]    0.1919881  0.3491648 -0.2055639 -1.1695589    1.8188158
## [302,]   -2.4402471 -0.3749757 -0.2055639 -0.4751118    0.3068784
## [303,]    1.0693999  0.3491648  1.4038902  0.2193353    0.3068784
## [304,]    0.1919881  0.3491648  0.5991631  0.9137823   -1.2050590
## [305,]    0.1919881 -0.3749757  1.4038902 -1.1695589   -1.2050590
## [306,]    1.0693999 -1.0991162 -0.2055639 -1.1695589    0.3068784
## [307,]    0.1919881 -1.0991162  0.5991631  1.6082294   -0.4490903
## [308,]    1.0693999  1.7974457 -1.0102910 -1.1695589   -0.4490903
## [309,]    0.1919881  1.0733052  1.4038902  0.9137823   -0.4490903
## [310,]    0.1919881 -0.3749757 -1.0102910 -0.4751118    0.3068784
## [311,]   -1.5628354  1.7974457 -1.0102910  1.6082294   -1.2050590
## [312,]    1.0693999 -0.3749757 -0.2055639  0.9137823    0.3068784
## [313,]   -2.4402471 -1.0991162 -1.0102910  0.2193353   -1.2050590
## [314,]    0.1919881 -1.0991162 -0.2055639 -0.4751118    0.3068784
## [315,]    1.0693999  0.3491648  0.5991631  1.6082294    1.8188158
## [316,]   -0.6854236 -1.0991162 -1.0102910 -0.4751118   -0.4490903
## [317,]   -2.4402471 -0.3749757  0.5991631 -0.4751118    0.3068784
## [318,]   -0.6854236 -0.3749757 -1.0102910  0.9137823   -1.2050590
## [319,]    0.1919881  1.7974457 -0.2055639 -1.1695589   -1.2050590
## [320,]    1.0693999 -0.3749757 -0.2055639 -0.4751118    0.3068784
## [321,]    0.1919881 -0.3749757 -0.2055639  0.9137823    0.3068784
## [322,]    0.1919881  1.7974457  0.5991631 -1.1695589   -0.4490903
## [323,]   -0.6854236 -1.0991162  2.2086173  0.2193353    0.3068784
## [324,]   -0.6854236  1.7974457 -1.0102910 -1.1695589   -1.2050590
## [325,]   -0.6854236  1.0733052 -0.2055639 -1.1695589   -0.4490903
## [326,]    0.1919881  1.7974457 -0.2055639  1.6082294    0.3068784
## [327,]   -0.6854236 -0.3749757 -0.2055639 -1.1695589   -1.2050590
## [328,]    0.1919881 -0.3749757 -0.2055639  0.9137823    0.3068784
## [329,]    1.0693999 -1.0991162  0.5991631  1.6082294   -1.2050590
## [330,]   -0.6854236 -0.3749757 -1.0102910  0.2193353   -1.2050590
## [331,]    1.0693999 -1.0991162 -1.0102910 -1.1695589   -0.4490903
## [332,]   -0.6854236  1.7974457 -0.2055639  1.6082294    0.3068784
## [333,]   -0.6854236  1.7974457 -0.2055639 -0.4751118   -0.4490903
## [334,]   -0.6854236  0.3491648 -0.2055639 -0.4751118    0.3068784
## [335,]    1.0693999 -0.3749757 -0.2055639 -1.1695589   -1.2050590
## [336,]   -1.5628354 -0.3749757 -0.2055639  1.6082294    0.3068784
## [337,]   -0.6854236  1.0733052 -1.0102910 -0.4751118   -1.2050590
## [338,]   -2.4402471 -1.0991162  1.4038902  1.6082294   -1.2050590
## [339,]   -0.6854236 -1.0991162 -0.2055639 -1.1695589    1.0628471
## [340,]   -0.6854236 -0.3749757  2.2086173  0.2193353   -0.4490903
## [341,]    0.1919881 -0.3749757  0.5991631 -1.1695589   -1.2050590
## [342,]   -0.6854236 -1.0991162 -1.0102910  0.9137823    0.3068784
## [343,]   -0.6854236 -1.0991162 -1.0102910 -1.1695589    0.3068784
## [344,]    0.1919881 -0.3749757 -0.2055639 -1.1695589    0.3068784
```

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##  [345,]        -0.6854236 -1.0991162 -1.0102910 -1.1695589        -1.2050590
##  [346,]         1.0693999 -1.0991162  0.5991631  0.2193353         0.3068784
##  [347,]        -2.4402471 -1.0991162 -1.0102910  0.9137823         0.3068784
##  [348,]         0.1919881 -1.0991162 -1.0102910 -0.4751118        -1.2050590
##  [349,]        -1.5628354  0.3491648 -1.0102910 -1.1695589        -0.4490903
##  [350,]         0.1919881 -1.0991162 -1.0102910  0.2193353        -0.4490903
##  [351,]        -2.4402471 -1.0991162 -1.0102910  0.9137823        -1.2050590
##  [352,]         1.0693999  1.7974457 -0.2055639 -0.4751118        -0.4490903
##  [353,]        -0.6854236  1.7974457 -1.0102910  0.2193353        -1.2050590
##  [354,]         1.0693999 -0.3749757  1.4038902  0.2193353         1.0628471
##  [355,]         0.1919881  0.3491648  0.5991631  0.2193353         1.0628471
##  [356,]         0.1919881 -0.3749757  1.4038902  0.9137823        -1.2050590
##  [357,]         0.1919881 -0.3749757 -0.2055639  0.2193353        -1.2050590
##  [358,]        -0.6854236  0.3491648 -0.2055639  0.9137823        -0.4490903
##  [359,]        -0.6854236 -1.0991162 -1.0102910 -1.1695589        -1.2050590
##  [360,]         1.0693999 -0.3749757 -0.2055639  0.2193353         0.3068784
##  [361,]        -0.6854236 -1.0991162 -1.0102910  0.2193353        -0.4490903
##  [362,]         1.0693999  0.3491648 -1.0102910  0.9137823         1.8188158
##  [363,]         1.0693999  0.3491648 -0.2055639  0.9137823        -1.2050590
##  [364,]         1.0693999 -0.3749757 -1.0102910  0.2193353        -1.2050590
##  [365,]        -0.6854236 -1.0991162 -1.0102910 -0.4751118        -0.4490903
##  [366,]         1.0693999  1.0733052  1.4038902  1.6082294         1.0628471
##  [367,]         0.1919881 -1.0991162 -0.2055639  0.2193353        -1.2050590
##  [368,]         0.1919881 -1.0991162 -0.2055639  1.6082294        -1.2050590
##  [369,]         1.0693999  1.0733052 -0.2055639  0.9137823        -1.2050590
##  [370,]        -1.5628354  0.3491648  0.5991631  1.6082294        -0.4490903
##  [371,]         1.0693999  1.7974457 -1.0102910 -0.4751118        -0.4490903
##  [372,]        -0.6854236  1.7974457 -0.2055639 -0.4751118         0.3068784
##  [373,]         0.1919881 -1.0991162 -1.0102910  0.9137823        -0.4490903
##  [374,]         0.1919881 -1.0991162 -1.0102910  1.6082294        -1.2050590
##  [375,]        -0.6854236  1.7974457 -1.0102910 -0.4751118        -1.2050590
##  [376,]        -0.6854236  0.3491648 -1.0102910  0.2193353        -1.2050590
##  [377,]        -0.6854236  0.3491648 -1.0102910 -1.1695589        -1.2050590
##  [378,]         1.0693999  1.7974457  0.5991631  0.9137823         1.8188158
##  [379,]        -0.6854236 -1.0991162 -1.0102910 -1.1695589         1.0628471
##  [380,]        -0.6854236 -0.3749757  1.4038902  0.2193353         0.3068784
##  [381,]         0.1919881  1.0733052 -1.0102910 -0.4751118        -1.2050590
##  [382,]         0.1919881 -1.0991162  0.5991631 -0.4751118         1.0628471
##  [383,]         0.1919881  1.0733052 -0.2055639  1.6082294        -0.4490903
##  [384,]        -0.6854236 -1.0991162 -1.0102910 -0.4751118        -0.4490903
##  [385,]         1.0693999  0.3491648 -0.2055639 -1.1695589         1.0628471
##  [386,]         0.1919881  0.3491648  0.5991631  0.9137823         0.3068784
##  [387,]         0.1919881  1.0733052 -1.0102910 -0.4751118        -0.4490903
##  [388,]         1.0693999  1.7974457  1.4038902  0.2193353         0.3068784
##  [389,]         1.0693999  0.3491648 -0.2055639 -0.4751118         0.3068784
##  [390,]         1.0693999  0.3491648 -1.0102910 -0.4751118         1.8188158
##  [391,]         1.0693999  0.3491648  0.5991631  0.9137823        -0.4490903
##  [392,]        -0.6854236 -1.0991162 -1.0102910 -1.1695589         1.0628471
##  [393,]        -1.5628354  0.3491648 -0.2055639  0.2193353        -0.4490903
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```

```
## [395,]        -1.5628354  1.0733052 -0.2055639  0.9137823      -0.4490903
## [396,]         1.0693999 -1.0991162 -1.0102910  1.6082294      -1.2050590
## [397,]         0.1919881 -1.0991162 -1.0102910 -0.4751118       0.3068784
## [398,]         0.1919881 -1.0991162 -1.0102910  0.2193353       0.3068784
## [399,]         1.0693999  0.3491648  2.2086173  0.2193353       1.0628471
## [400,]         0.1919881 -0.3749757  0.5991631 -1.1695589       1.8188158
## [401,]        -0.6854236  1.0733052 -0.2055639 -1.1695589       1.0628471
## [402,]        -0.6854236 -0.3749757 -1.0102910 -1.1695589      -1.2050590
## [403,]        -2.4402471 -1.0991162 -1.0102910  1.6082294      -1.2050590
## [404,]        -0.6854236 -0.3749757 -1.0102910  0.2193353      -0.4490903
## [405,]         1.0693999 -0.3749757 -1.0102910 -1.1695589       1.0628471
## [406,]         1.0693999 -0.3749757  1.4038902 -0.4751118       0.3068784
## [407,]         1.0693999 -1.0991162 -1.0102910  0.9137823      -1.2050590
## [408,]         1.0693999  0.3491648  1.4038902 -0.4751118       1.8188158
## [409,]         0.1919881 -0.3749757 -1.0102910 -1.1695589       0.3068784
## [410,]        -0.6854236 -0.3749757 -1.0102910  0.2193353       1.8188158
## [411,]        -2.4402471 -1.0991162 -1.0102910  1.6082294      -1.2050590
## [412,]         1.0693999 -0.3749757  2.2086173  1.6082294      -0.4490903
## [413,]        -0.6854236 -1.0991162 -0.2055639 -1.1695589      -1.2050590
## [414,]        -1.5628354 -0.3749757 -0.2055639  0.9137823      -0.4490903
## [415,]         1.0693999 -1.0991162 -1.0102910 -1.1695589       0.3068784
## [416,]         1.0693999  1.7974457  0.5991631 -1.1695589      -1.2050590
## [417,]        -1.5628354 -1.0991162 -0.2055639 -0.4751118       0.3068784
## [418,]        -1.5628354  0.3491648 -0.2055639 -0.4751118       1.0628471
## [419,]         1.0693999 -1.0991162 -0.2055639 -1.1695589      -0.4490903
## [420,]        -1.5628354  1.7974457  1.4038902 -1.1695589       0.3068784
## [421,]        -0.6854236 -0.3749757  1.4038902 -1.1695589       0.3068784
## [422,]        -0.6854236  0.3491648  0.5991631 -0.4751118       1.8188158
## [423,]         0.1919881 -0.3749757 -0.2055639  1.6082294      -0.4490903
## [424,]         1.0693999  1.7974457  0.5991631  0.2193353       1.0628471
## [425,]        -2.4402471 -1.0991162 -1.0102910  1.6082294      -1.2050590
## [426,]         1.0693999 -1.0991162  0.5991631  0.2193353       1.8188158
## [427,]        -1.5628354 -1.0991162 -1.0102910 -1.1695589      -0.4490903
## [428,]         0.1919881 -0.3749757 -1.0102910 -1.1695589       1.8188158
## [429,]        -0.6854236 -0.3749757  0.5991631 -1.1695589       1.0628471
## [430,]         0.1919881 -0.3749757 -0.2055639 -0.4751118       0.3068784
## [431,]         1.0693999  0.3491648 -0.2055639 -1.1695589      -0.4490903
## [432,]         0.1919881 -0.3749757 -1.0102910  1.6082294      -0.4490903
## [433,]         1.0693999 -0.3749757 -0.2055639 -1.1695589       0.3068784
## [434,]         0.1919881 -1.0991162 -1.0102910 -1.1695589      -0.4490903
## [435,]         0.1919881  1.7974457  0.5991631  1.6082294       0.3068784
## [436,]         0.1919881  1.7974457 -1.0102910 -1.1695589      -1.2050590
## [437,]        -1.5628354  1.7974457 -1.0102910  0.9137823      -0.4490903
## [438,]        -0.6854236 -1.0991162  0.5991631 -1.1695589      -1.2050590
## [439,]         0.1919881 -0.3749757 -1.0102910 -1.1695589      -1.2050590
## [440,]         1.0693999 -0.3749757 -0.2055639  0.9137823      -1.2050590
## [441,]         0.1919881 -0.3749757 -0.2055639  0.2193353      -0.4490903
## [442,]        -2.4402471  1.7974457 -1.0102910 -1.1695589      -1.2050590
## [443,]        -0.6854236 -0.3749757 -0.2055639 -0.4751118       1.0628471
## [444,]         1.0693999 -0.3749757  1.4038902 -1.1695589      -1.2050590
```

```
## [445,]        0.1919881  1.0733052 -1.0102910 -0.4751118   1.0628471
## [446,]        0.1919881 -1.0991162  1.4038902 -1.1695589  -1.2050590
## [447,]       -0.6854236 -1.0991162 -1.0102910  0.2193353  -1.2050590
## [448,]        1.0693999  1.7974457  1.4038902 -1.1695589   1.8188158
## [449,]        1.0693999 -1.0991162  1.4038902  0.2193353  -0.4490903
## [450,]       -0.6854236  1.7974457 -0.2055639 -0.4751118  -1.2050590
## [451,]       -1.5628354  1.7974457 -0.2055639  0.9137823  -1.2050590
## [452,]       -0.6854236  1.7974457 -0.2055639 -0.4751118  -0.4490903
## [453,]        1.0693999  1.7974457  0.5991631  0.9137823   1.8188158
## [454,]       -0.6854236  1.7974457 -0.2055639 -0.4751118  -1.2050590
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## [456,]        1.0693999  0.3491648 -1.0102910 -0.4751118   1.0628471
## [457,]       -1.5628354  1.0733052  1.4038902  1.6082294  -1.2050590
## [458,]       -0.6854236 -0.3749757 -1.0102910  1.6082294  -1.2050590
## [459,]        1.0693999  1.7974457  2.2086173  1.6082294   1.8188158
## [460,]        1.0693999  1.7974457 -1.0102910 -1.1695589   1.8188158
## [461,]        1.0693999 -1.0991162  0.5991631  0.9137823  -1.2050590
## [462,]        0.1919881  0.3491648  0.5991631  0.9137823   0.3068784
## [463,]       -0.6854236  0.3491648  0.5991631 -1.1695589  -1.2050590
## [464,]        0.1919881 -0.3749757 -1.0102910 -1.1695589   1.0628471
## [465,]        1.0693999 -0.3749757 -0.2055639  0.2193353  -0.4490903
## [466,]        1.0693999 -0.3749757  0.5991631 -1.1695589  -0.4490903
## [467,]        0.1919881 -1.0991162  1.4038902  1.6082294  -1.2050590
## [468,]       -0.6854236 -1.0991162 -0.2055639 -1.1695589  -1.2050590
## [469,]        0.1919881 -0.3749757 -0.2055639  0.2193353  -1.2050590
## [470,]        0.1919881  0.3491648 -0.2055639  0.2193353  -1.2050590
## [471,]       -0.6854236 -0.3749757 -1.0102910  0.9137823  -0.4490903
## [472,]       -1.5628354 -0.3749757 -0.2055639  1.6082294  -1.2050590
## [473,]       -2.4402471 -0.3749757 -1.0102910 -0.4751118  -1.2050590
## [474,]       -0.6854236  1.7974457 -0.2055639  0.9137823   0.3068784
## [475,]       -1.5628354  1.7974457  0.5991631  1.6082294   0.3068784
## [476,]       -0.6854236 -0.3749757  0.5991631 -1.1695589  -0.4490903
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## [485,]        0.1919881 -1.0991162  0.5991631 -1.1695589  -1.2050590
## [486,]        1.0693999 -1.0991162 -0.2055639 -1.1695589  -1.2050590
## [487,]        1.0693999  0.3491648  2.2086173 -1.1695589   1.8188158
## [488,]       -0.6854236  1.7974457  1.4038902  1.6082294  -0.4490903
## [489,]        1.0693999  0.3491648  2.2086173  0.9137823   0.3068784
## [490,]        1.0693999  0.3491648  1.4038902 -1.1695589  -1.2050590
## [491,]        0.1919881  0.3491648  0.5991631 -1.1695589  -1.2050590
## [492,]        0.1919881  1.7974457 -1.0102910 -1.1695589  -0.4490903
## [493,]        1.0693999  1.0733052 -1.0102910 -1.1695589   1.0628471
## [494,]       -1.5628354 -1.0991162 -1.0102910  1.6082294  -1.2050590
```

```
##   [495,]          0.1919881   1.0733052   0.5991631  -0.4751118          1.0628471
##   [496,]          0.1919881   0.3491648  -0.2055639  -1.1695589          0.3068784
##   [497,]         -1.5628354   0.3491648  -0.2055639  -0.4751118         -1.2050590
##   [498,]         -0.6854236  -1.0991162  -1.0102910  -1.1695589          1.8188158
##   [499,]          1.0693999   1.0733052   0.5991631  -0.4751118         -0.4490903
##   [500,]         -1.5628354  -1.0991162  -1.0102910   0.2193353         -0.4490903
##   [501,]          0.1919881   1.0733052  -1.0102910  -0.4751118          0.3068784
##   [502,]          1.0693999  -0.3749757  -0.2055639  -0.4751118         -0.4490903
##   [503,]          0.1919881  -1.0991162  -0.2055639   1.6082294         -1.2050590
##   [504,]          0.1919881   1.0733052  -1.0102910  -1.1695589          0.3068784
##   [505,]          0.1919881   0.3491648  -1.0102910   1.6082294          1.0628471
##   [506,]         -1.5628354  -0.3749757  -0.2055639   0.2193353         -0.4490903
##   [507,]         -1.5628354   0.3491648  -1.0102910  -0.4751118         -1.2050590
##   [508,]         -1.5628354   0.3491648  -1.0102910  -0.4751118          0.3068784
##   [509,]          1.0693999  -1.0991162  -0.2055639   0.2193353         -1.2050590
##   [510,]          1.0693999   1.7974457   1.4038902  -1.1695589         -1.2050590
##   [511,]          0.1919881  -0.3749757   0.5991631   1.6082294          0.3068784
##   [512,]          1.0693999   0.3491648  -0.2055639   1.6082294          0.3068784
##   [513,]          1.0693999  -1.0991162   2.2086173   0.2193353          0.3068784
##   [514,]         -0.6854236  -0.3749757  -1.0102910   0.9137823         -0.4490903
##   [515,]         -0.6854236  -1.0991162   0.5991631   0.2193353         -0.4490903
##   [516,]          0.1919881  -1.0991162  -1.0102910   0.2193353          1.0628471
##   [517,]          1.0693999   0.3491648   0.5991631   1.6082294          0.3068784
##   [518,]          1.0693999   1.7974457   2.2086173   0.2193353          1.0628471
##   [519,]          0.1919881   1.7974457  -1.0102910  -1.1695589         -0.4490903
##   [520,]          0.1919881  -0.3749757   0.5991631   0.2193353          1.8188158
##   [521,]          1.0693999   0.3491648   0.5991631  -0.4751118          0.3068784
##   [522,]         -0.6854236   1.0733052   0.5991631  -0.4751118          0.3068784
##   [523,]          0.1919881  -0.3749757   0.5991631  -0.4751118         -0.4490903
##   [524,]          0.1919881  -1.0991162  -1.0102910   0.2193353         -1.2050590
##   [525,]         -0.6854236   1.7974457  -1.0102910  -1.1695589          0.3068784
##   [526,]         -0.6854236   0.3491648   0.5991631   0.2193353          0.3068784
##   [527,]         -1.5628354   1.7974457   0.5991631   0.9137823          0.3068784
##   [528,]          0.1919881  -0.3749757   0.5991631  -0.4751118          1.0628471
##   [529,]         -0.6854236   0.3491648   0.5991631   1.6082294         -1.2050590
##   [530,]          0.1919881  -0.3749757   2.2086173  -0.4751118         -1.2050590
##   [531,]          0.1919881   1.0733052   0.5991631  -1.1695589          0.3068784
##   [532,]          0.1919881  -1.0991162  -0.2055639   0.2193353          1.0628471
##   [533,]          1.0693999  -1.0991162  -0.2055639  -1.1695589          0.3068784
##   [534,]          1.0693999  -0.3749757  -0.2055639   0.2193353         -0.4490903
##   [535,]         -0.6854236   0.3491648  -1.0102910  -1.1695589         -1.2050590
##   [536,]          0.1919881  -0.3749757  -1.0102910   1.6082294          0.3068784
##   [537,]          1.0693999  -1.0991162   2.2086173   1.6082294         -0.4490903
##   [538,]          1.0693999   0.3491648   0.5991631   0.9137823         -0.4490903
##   [539,]         -1.5628354   1.7974457   0.5991631  -0.4751118         -0.4490903
##   [540,]          0.1919881   1.7974457   2.2086173   0.2193353          1.0628471
##   [541,]         -1.5628354   1.7974457  -1.0102910   1.6082294          1.0628471
##   [542,]         -0.6854236   0.3491648  -1.0102910  -0.4751118         -1.2050590
##   [543,]          0.1919881  -0.3749757  -0.2055639   0.9137823          1.0628471
##   [544,]         -1.5628354  -0.3749757   2.2086173   1.6082294         -0.4490903
```

```
##   [545,]         -1.5628354   1.7974457 -1.0102910 -0.4751118          0.3068784
##   [546,]         -2.4402471  -1.0991162 -1.0102910  1.6082294          0.3068784
##   [547,]          1.0693999   0.3491648 -0.2055639  1.6082294          1.8188158
##   [548,]          1.0693999  -0.3749757 -0.2055639 -1.1695589          1.0628471
##   [549,]         -0.6854236   0.3491648 -0.2055639 -0.4751118         -1.2050590
##   [550,]          0.1919881   0.3491648 -1.0102910 -1.1695589         -0.4490903
##   [551,]          1.0693999  -0.3749757  0.5991631 -1.1695589          0.3068784
##   [552,]          0.1919881  -1.0991162 -1.0102910 -1.1695589         -0.4490903
##   [553,]          1.0693999   0.3491648  2.2086173 -0.4751118          1.8188158
##   [554,]          0.1919881  -0.3749757  1.4038902  0.2193353         -1.2050590
##   [555,]         -0.6854236   0.3491648  0.5991631  1.6082294          0.3068784
##   [556,]          0.1919881  -1.0991162 -1.0102910 -1.1695589          0.3068784
##   [557,]          0.1919881  -1.0991162 -1.0102910 -1.1695589         -1.2050590
##   [558,]          1.0693999  -1.0991162 -0.2055639 -1.1695589          0.3068784
##   [559,]          0.1919881  -0.3749757 -0.2055639 -0.4751118          1.8188158
##   [560,]         -1.5628354  -1.0991162 -1.0102910 -0.4751118         -1.2050590
##   [561,]          0.1919881   1.7974457  2.2086173  1.6082294          1.8188158
##   [562,]          0.1919881  -0.3749757 -0.2055639 -0.4751118          0.3068784
##   [563,]         -0.6854236  -1.0991162 -0.2055639  1.6082294         -0.4490903
##   [564,]          1.0693999   0.3491648  1.4038902  0.9137823         -0.4490903
##   [565,]          1.0693999  -1.0991162 -1.0102910  0.9137823         -1.2050590
##   [566,]          1.0693999  -1.0991162 -0.2055639  1.6082294          1.8188158
##   [567,]         -1.5628354  -1.0991162 -1.0102910 -1.1695589          0.3068784
##   [568,]         -1.5628354  -0.3749757 -1.0102910  0.9137823         -0.4490903
##   [569,]          1.0693999  -0.3749757 -1.0102910 -0.4751118         -1.2050590
##   [570,]          0.1919881   0.3491648  2.2086173 -0.4751118         -0.4490903
##   [571,]          1.0693999  -1.0991162 -1.0102910  1.6082294         -1.2050590
##   [572,]          1.0693999   0.3491648  1.4038902  1.6082294         -0.4490903
##   [573,]         -0.6854236   1.0733052 -0.2055639 -0.4751118         -1.2050590
##   [574,]          1.0693999  -1.0991162 -1.0102910 -0.4751118         -1.2050590
##   [575,]          1.0693999   1.0733052 -1.0102910  0.9137823         -1.2050590
##   [576,]          0.1919881   1.7974457  0.5991631  0.2193353          1.0628471
##   [577,]         -0.6854236  -0.3749757  0.5991631  1.6082294          0.3068784
##   [578,]         -0.6854236   0.3491648 -0.2055639 -0.4751118         -0.4490903
##   [579,]          1.0693999   1.0733052 -1.0102910 -1.1695589         -1.2050590
##   [580,]         -0.6854236  -1.0991162 -0.2055639  1.6082294         -1.2050590
##   [581,]         -1.5628354  -1.0991162  0.5991631  0.2193353         -1.2050590
##   [582,]         -1.5628354  -1.0991162  0.5991631 -0.4751118         -0.4490903
##   [583,]          1.0693999  -0.3749757 -0.2055639 -1.1695589         -1.2050590
##   [584,]         -0.6854236  -1.0991162  2.2086173  0.2193353         -1.2050590
##   [585,]         -1.5628354  -1.0991162 -1.0102910 -1.1695589         -1.2050590
##   [586,]         -0.6854236  -1.0991162 -1.0102910 -1.1695589         -1.2050590
##   [587,]          1.0693999  -1.0991162  0.5991631 -1.1695589         -1.2050590
##   [588,]          0.1919881  -0.3749757  0.5991631  0.2193353         -1.2050590
##   [589,]         -1.5628354  -0.3749757 -0.2055639 -0.4751118         -0.4490903
##   [590,]          0.1919881   0.3491648  1.4038902  0.2193353          1.8188158
##   [591,]          0.1919881  -0.3749757  0.5991631  0.2193353          1.0628471
##   [592,]          1.0693999   0.3491648  1.4038902  0.9137823          0.3068784
##   [593,]          1.0693999   1.7974457  0.5991631  1.6082294          0.3068784
##   [594,]         -0.6854236   1.7974457 -1.0102910 -0.4751118         -0.4490903
```

```
## [595,]     1.0693999 -1.0991162 -1.0102910 -0.4751118     1.0628471
## [596,]     0.1919881  1.7974457 -1.0102910 -0.4751118    -1.2050590
## [597,]    -2.4402471 -1.0991162 -0.2055639 -0.4751118    -0.4490903
## [598,]    -1.5628354 -0.3749757 -0.2055639  0.9137823    -0.4490903
## [599,]    -0.6854236 -1.0991162 -1.0102910  0.2193353    -0.4490903
## [600,]    -0.6854236 -0.3749757 -0.2055639  0.9137823    -0.4490903
## [601,]    -1.5628354 -0.3749757 -0.2055639  0.2193353     0.3068784
## [602,]     1.0693999  0.3491648 -1.0102910 -1.1695589     1.0628471
## [603,]    -0.6854236 -1.0991162 -0.2055639  0.2193353    -0.4490903
## [604,]     0.1919881 -1.0991162 -0.2055639 -0.4751118     0.3068784
## [605,]    -0.6854236  0.3491648  0.5991631  0.9137823     1.8188158
## [606,]    -2.4402471 -1.0991162 -1.0102910  1.6082294     0.3068784
## [607,]    -2.4402471 -0.3749757 -1.0102910  0.9137823    -1.2050590
## [608,]    -0.6854236  1.7974457 -1.0102910 -0.4751118    -1.2050590
## [609,]    -1.5628354  1.0733052 -0.2055639  0.9137823    -0.4490903
## [610,]     0.1919881 -1.0991162 -1.0102910  0.2193353     0.3068784
## [611,]     1.0693999  1.7974457 -1.0102910 -0.4751118    -1.2050590
## [612,]     0.1919881 -0.3749757  0.5991631  0.2193353    -1.2050590
## [613,]    -0.6854236 -0.3749757 -0.2055639  0.2193353    -0.4490903
## [614,]    -0.6854236 -1.0991162 -0.2055639  0.2193353     1.0628471
## [615,]     0.1919881 -1.0991162 -1.0102910  0.2193353     1.0628471
## [616,]     1.0693999  0.3491648 -1.0102910 -0.4751118    -0.4490903
## [617,]    -1.5628354  1.7974457 -0.2055639  1.6082294    -1.2050590
## [618,]     1.0693999 -1.0991162  2.2086173  1.6082294     1.8188158
## [619,]     1.0693999 -0.3749757 -0.2055639  1.6082294    -0.4490903
## [620,]     0.1919881 -0.3749757  0.5991631  0.9137823    -1.2050590
## [621,]     1.0693999 -1.0991162 -1.0102910  0.9137823     0.3068784
## [622,]    -0.6854236 -1.0991162 -1.0102910 -1.1695589    -1.2050590
## [623,]     1.0693999 -1.0991162  1.4038902 -0.4751118     0.3068784
## [624,]    -2.4402471 -1.0991162 -0.2055639  0.2193353    -0.4490903
## [625,]     1.0693999  0.3491648 -0.2055639 -1.1695589     0.3068784
## [626,]     1.0693999 -0.3749757 -0.2055639 -0.4751118    -1.2050590
## [627,]    -0.6854236 -0.3749757 -0.2055639  0.9137823    -0.4490903
## [628,]    -0.6854236  0.3491648 -0.2055639 -1.1695589    -0.4490903
## [629,]    -0.6854236 -0.3749757 -0.2055639  0.2193353    -1.2050590
## [630,]     1.0693999 -1.0991162  0.5991631 -1.1695589     1.8188158
## [631,]     0.1919881 -1.0991162 -0.2055639  0.9137823    -1.2050590
## [632,]     1.0693999  1.7974457  0.5991631 -0.4751118     0.3068784
## [633,]    -2.4402471  1.0733052  0.5991631  0.2193353    -0.4490903
## [634,]    -2.4402471 -1.0991162 -1.0102910  1.6082294    -0.4490903
## [635,]     0.1919881 -0.3749757 -1.0102910 -1.1695589     1.0628471
## [636,]     1.0693999  1.7974457 -0.2055639 -1.1695589    -0.4490903
## [637,]    -0.6854236 -1.0991162 -0.2055639  1.6082294     0.3068784
## [638,]     0.1919881 -0.3749757 -1.0102910 -0.4751118     1.0628471
## [639,]     0.1919881  1.0733052  0.5991631 -1.1695589    -0.4490903
## [640,]     0.1919881 -0.3749757 -1.0102910  0.9137823    -1.2050590
## [641,]     1.0693999  1.7974457 -1.0102910 -0.4751118    -0.4490903
## [642,]    -1.5628354 -1.0991162 -1.0102910  0.2193353    -1.2050590
## [643,]    -2.4402471  1.7974457 -1.0102910 -0.4751118     1.0628471
## [644,]     1.0693999 -0.3749757 -0.2055639 -0.4751118     1.0628471
```

```
## [645,]      1.0693999  1.0733052 -0.2055639 -0.4751118      1.0628471
## [646,]     -1.5628354 -0.3749757  0.5991631  1.6082294      1.0628471
## [647,]     -0.6854236 -1.0991162 -1.0102910 -0.4751118     -1.2050590
## [648,]     -0.6854236 -1.0991162 -1.0102910  0.2193353     -1.2050590
## [649,]     -0.6854236  1.7974457 -0.2055639 -0.4751118     -0.4490903
## [650,]      1.0693999 -0.3749757  0.5991631 -0.4751118     -0.4490903
## [651,]     -1.5628354 -0.3749757 -1.0102910  0.9137823      1.0628471
## [652,]      1.0693999 -1.0991162  1.4038902  0.9137823     -1.2050590
## [653,]     -0.6854236 -1.0991162 -1.0102910  0.2193353     -1.2050590
## [654,]      1.0693999  1.0733052  1.4038902 -0.4751118     -1.2050590
## [655,]     -1.5628354  0.3491648  0.5991631  1.6082294     -0.4490903
## [656,]      1.0693999  0.3491648 -1.0102910 -1.1695589      0.3068784
## [657,]      1.0693999  1.7974457  0.5991631  0.2193353      1.8188158
## [658,]      0.1919881  0.3491648 -1.0102910 -1.1695589      0.3068784
## [659,]     -0.6854236 -1.0991162  1.4038902  0.9137823     -0.4490903
## [660,]      0.1919881 -0.3749757  0.5991631 -1.1695589      0.3068784
## [661,]      1.0693999  0.3491648 -0.2055639 -1.1695589      1.0628471
## [662,]     -0.6854236  0.3491648 -0.2055639  0.2193353      0.3068784
## [663,]      0.1919881  0.3491648 -1.0102910  0.2193353     -0.4490903
## [664,]     -1.5628354 -0.3749757 -1.0102910 -1.1695589      1.0628471
## [665,]      0.1919881  1.7974457 -1.0102910  0.2193353     -0.4490903
## [666,]      0.1919881 -1.0991162 -0.2055639 -0.4751118      1.8188158
## [667,]      1.0693999 -1.0991162 -1.0102910 -1.1695589      1.8188158
## [668,]     -0.6854236 -0.3749757 -0.2055639 -0.4751118      0.3068784
## [669,]      0.1919881  1.7974457 -1.0102910 -1.1695589      1.0628471
## [670,]      0.1919881 -0.3749757 -0.2055639  0.9137823      1.0628471
## [671,]      0.1919881 -0.3749757  0.5991631  0.2193353     -0.4490903
## [672,]      0.1919881  0.3491648  0.5991631  0.9137823      1.0628471
## [673,]      0.1919881  0.3491648  0.5991631  0.2193353      1.0628471
## [674,]      0.1919881 -0.3749757 -0.2055639 -1.1695589      0.3068784
## [675,]     -0.6854236 -1.0991162  0.5991631  0.2193353     -1.2050590
## [676,]     -2.4402471 -0.3749757 -0.2055639 -0.4751118      0.3068784
## [677,]      0.1919881 -1.0991162  2.2086173 -0.4751118      0.3068784
## [678,]     -0.6854236 -0.3749757  1.4038902  0.9137823     -0.4490903
## [679,]      0.1919881  0.3491648 -0.2055639 -0.4751118      1.8188158
## [680,]      1.0693999  0.3491648 -1.0102910 -1.1695589      1.8188158
## [681,]      0.1919881  1.7974457  0.5991631  0.9137823     -0.4490903
## [682,]      1.0693999  1.7974457  0.5991631  0.9137823      1.0628471
## [683,]     -0.6854236 -0.3749757 -0.2055639  0.9137823     -0.4490903
## [684,]     -0.6854236  1.7974457  1.4038902  0.2193353     -1.2050590
## [685,]     -0.6854236  0.3491648 -0.2055639  0.2193353      0.3068784
## [686,]      0.1919881  1.7974457  1.4038902  0.2193353      1.0628471
## [687,]     -0.6854236  0.3491648  0.5991631  0.2193353      0.3068784
## [688,]      1.0693999 -1.0991162 -0.2055639  1.6082294      1.0628471
## [689,]     -0.6854236  0.3491648 -1.0102910 -1.1695589      0.3068784
## [690,]      1.0693999 -0.3749757  1.4038902  1.6082294      1.0628471
## [691,]      1.0693999  0.3491648 -0.2055639  1.6082294      0.3068784
## [692,]      1.0693999 -1.0991162 -1.0102910  1.6082294     -0.4490903
## [693,]      0.1919881  1.0733052 -0.2055639 -0.4751118      1.0628471
## [694,]     -1.5628354 -1.0991162  1.4038902  0.2193353     -0.4490903
```

```
## [695,]          1.0693999 -1.0991162  0.5991631  0.9137823          0.3068784
## [696,]          0.1919881 -0.3749757  0.5991631 -0.4751118          1.0628471
## [697,]          1.0693999  0.3491648  0.5991631 -1.1695589         -1.2050590
## [698,]          1.0693999 -1.0991162  0.5991631 -0.4751118         -0.4490903
## [699,]          1.0693999  0.3491648 -0.2055639 -1.1695589         -0.4490903
## [700,]          0.1919881  0.3491648 -1.0102910 -0.4751118         -0.4490903
## [701,]         -1.5628354 -1.0991162 -1.0102910  1.6082294         -1.2050590
## [702,]         -0.6854236  1.7974457 -1.0102910 -0.4751118         -0.4490903
## [703,]         -0.6854236  0.3491648 -1.0102910  1.6082294         -0.4490903
## [704,]         -0.6854236  0.3491648  0.5991631  0.2193353         -0.4490903
## [705,]          1.0693999  0.3491648 -0.2055639 -0.4751118         -1.2050590
## [706,]          1.0693999  1.7974457  0.5991631  0.9137823          1.8188158
## [707,]          0.1919881 -1.0991162 -1.0102910  0.9137823         -1.2050590
## [708,]         -1.5628354  1.0733052 -0.2055639 -0.4751118          1.0628471
## [709,]         -0.6854236 -0.3749757  1.4038902  1.6082294         -0.4490903
## [710,]          1.0693999 -1.0991162 -1.0102910  1.6082294          0.3068784
## [711,]         -0.6854236 -0.3749757 -0.2055639 -1.1695589         -0.4490903
## [712,]         -0.6854236 -1.0991162 -1.0102910 -0.4751118         -0.4490903
## [713,]          1.0693999  0.3491648 -1.0102910 -1.1695589          1.0628471
## [714,]          1.0693999 -0.3749757  0.5991631 -0.4751118          1.0628471
## [715,]          1.0693999  1.0733052  0.5991631  0.2193353          0.3068784
## [716,]         -0.6854236  0.3491648 -0.2055639  0.2193353         -1.2050590
## [717,]          0.1919881  1.0733052  2.2086173  0.2193353         -0.4490903
## [718,]          1.0693999 -1.0991162 -1.0102910 -0.4751118          1.8188158
## [719,]          1.0693999  1.0733052 -0.2055639  0.2193353          0.3068784
## [720,]         -0.6854236 -1.0991162 -1.0102910 -1.1695589         -1.2050590
## [721,]         -0.6854236 -0.3749757 -1.0102910 -0.4751118          1.0628471
## [722,]          1.0693999  1.7974457 -1.0102910 -0.4751118          1.8188158
## [723,]          1.0693999 -1.0991162 -0.2055639 -0.4751118          1.0628471
## [724,]          1.0693999 -0.3749757  2.2086173 -0.4751118          0.3068784
## [725,]         -1.5628354 -1.0991162 -1.0102910 -1.1695589         -0.4490903
## [726,]          1.0693999 -1.0991162  1.4038902  0.2193353         -0.4490903
## [727,]         -1.5628354 -1.0991162 -1.0102910  1.6082294         -1.2050590
## [728,]         -2.4402471 -1.0991162 -1.0102910  1.6082294         -1.2050590
## [729,]          0.1919881 -1.0991162 -1.0102910  0.2193353          0.3068784
## [730,]          0.1919881  1.7974457  0.5991631  0.2193353         -0.4490903
## [731,]          1.0693999  1.7974457 -0.2055639  0.2193353          1.8188158
## [732,]          1.0693999 -0.3749757  0.5991631 -0.4751118         -0.4490903
## [733,]          1.0693999 -0.3749757  0.5991631 -1.1695589         -0.4490903
## [734,]          1.0693999  0.3491648  1.4038902 -1.1695589          0.3068784
## [735,]          0.1919881 -1.0991162 -1.0102910 -1.1695589          0.3068784
## [736,]         -2.4402471 -1.0991162 -0.2055639 -1.1695589          0.3068784
## [737,]         -0.6854236  0.3491648  2.2086173  0.2193353          1.0628471
## [738,]          1.0693999  0.3491648 -0.2055639 -1.1695589          1.0628471
## [739,]          1.0693999 -1.0991162 -0.2055639  1.6082294         -1.2050590
## [740,]          1.0693999  1.0733052  1.4038902  0.9137823         -0.4490903
## [741,]          0.1919881  0.3491648  1.4038902  1.6082294          0.3068784
## [742,]          1.0693999  1.0733052 -0.2055639 -1.1695589          1.8188158
## [743,]          1.0693999  1.0733052  1.4038902 -0.4751118          0.3068784
## [744,]         -0.6854236 -0.3749757 -0.2055639 -0.4751118         -0.4490903
```

```
## [745,]    0.1919881  1.7974457 -1.0102910  0.9137823    0.3068784
## [746,]   -0.6854236 -0.3749757 -0.2055639  1.6082294   -0.4490903
## [747,]    0.1919881 -1.0991162 -1.0102910 -1.1695589   -0.4490903
## [748,]   -0.6854236 -0.3749757 -1.0102910 -0.4751118    1.8188158
## [749,]   -1.5628354 -0.3749757 -0.2055639 -0.4751118    1.0628471
## [750,]    1.0693999  0.3491648  1.4038902 -1.1695589    0.3068784
## [751,]   -1.5628354  1.7974457  0.5991631  1.6082294    1.8188158
## [752,]    0.1919881 -0.3749757 -0.2055639 -1.1695589    1.8188158
## [753,]    1.0693999  1.0733052  1.4038902 -1.1695589    0.3068784
## [754,]    1.0693999  0.3491648 -1.0102910 -1.1695589   -0.4490903
## [755,]    1.0693999 -0.3749757 -0.2055639  0.9137823    0.3068784
## [756,]    1.0693999  1.7974457 -1.0102910 -1.1695589   -1.2050590
## [757,]    0.1919881 -0.3749757 -0.2055639  0.2193353   -0.4490903
## [758,]    1.0693999  1.7974457 -1.0102910 -1.1695589    1.0628471
## [759,]    0.1919881 -0.3749757 -1.0102910  1.6082294   -1.2050590
## [760,]   -0.6854236  1.7974457 -0.2055639  0.9137823    1.8188158
## [761,]    1.0693999  0.3491648  1.4038902 -1.1695589   -0.4490903
## [762,]   -0.6854236 -1.0991162 -1.0102910  1.6082294   -1.2050590
## [763,]    1.0693999  1.0733052  1.4038902  1.6082294   -0.4490903
## [764,]    0.1919881 -1.0991162 -1.0102910 -1.1695589    1.8188158
## [765,]    1.0693999  1.7974457 -1.0102910 -1.1695589   -0.4490903
## [766,]    1.0693999  1.0733052  0.5991631  1.6082294   -0.4490903
## [767,]    1.0693999  1.7974457 -0.2055639  1.6082294   -0.4490903
## [768,]    0.1919881  1.7974457  0.5991631  0.2193353    0.3068784
## [769,]   -0.6854236 -0.3749757  1.4038902  0.2193353   -1.2050590
## [770,]    0.1919881  1.0733052  1.4038902  0.9137823    1.0628471
## [771,]   -0.6854236 -0.3749757 -1.0102910 -0.4751118    0.3068784
## [772,]   -0.6854236 -0.3749757 -0.2055639  1.6082294   -0.4490903
## [773,]    0.1919881 -1.0991162 -0.2055639  0.2193353   -0.4490903
## [774,]   -0.6854236  0.3491648  0.5991631  0.2193353   -0.4490903
## [775,]    1.0693999 -1.0991162 -0.2055639 -0.4751118    0.3068784
## [776,]    1.0693999  0.3491648  0.5991631  0.2193353    1.8188158
## [777,]    1.0693999  0.3491648 -0.2055639  1.6082294    0.3068784
## [778,]   -0.6854236 -1.0991162 -1.0102910  1.6082294   -1.2050590
## [779,]   -0.6854236 -1.0991162 -1.0102910  0.2193353    0.3068784
## [780,]    0.1919881 -0.3749757 -0.2055639 -0.4751118    1.8188158
## [781,]    1.0693999  0.3491648  1.4038902  0.9137823    0.3068784
## [782,]   -0.6854236  0.3491648 -1.0102910 -1.1695589    1.0628471
## [783,]    1.0693999  1.7974457  0.5991631  0.2193353    1.8188158
## [784,]   -1.5628354  0.3491648 -0.2055639  0.9137823    0.3068784
## [785,]    0.1919881  1.7974457 -0.2055639  1.6082294    1.0628471
## [786,]    1.0693999  0.3491648  2.2086173  0.9137823    0.3068784
## [787,]   -0.6854236  1.7974457  1.4038902  1.6082294   -0.4490903
## [788,]   -0.6854236 -0.3749757  2.2086173  0.9137823    0.3068784
## [789,]    0.1919881  0.3491648  1.4038902 -1.1695589   -0.4490903
## [790,]    0.1919881 -1.0991162  0.5991631  0.2193353    1.8188158
## [791,]    0.1919881  1.0733052 -1.0102910 -1.1695589   -0.4490903
## [792,]   -0.6854236  1.7974457 -0.2055639 -1.1695589    1.0628471
## [793,]   -1.5628354 -1.0991162 -1.0102910  1.6082294   -1.2050590
## [794,]    0.1919881 -0.3749757  1.4038902  0.2193353    1.0628471
```

```
## [795,]       -2.4402471 -1.0991162 -1.0102910  1.6082294      -1.2050590
## [796,]        0.1919881  1.0733052  1.4038902  1.6082294       0.3068784
## [797,]        0.1919881  0.3491648  1.4038902  0.9137823       1.8188158
## [798,]       -0.6854236 -0.3749757 -0.2055639  1.6082294      -1.2050590
## [799,]        1.0693999  1.0733052  2.2086173  0.9137823      -0.4490903
## [800,]        0.1919881  0.3491648 -0.2055639  0.2193353       1.0628471
## [801,]       -0.6854236  1.7974457 -1.0102910 -1.1695589      -1.2050590
## [802,]       -1.5628354 -1.0991162 -1.0102910  1.6082294      -1.2050590
## [803,]        1.0693999 -1.0991162 -1.0102910 -0.4751118      -1.2050590
## [804,]       -0.6854236 -1.0991162 -1.0102910  0.2193353       0.3068784
## [805,]        1.0693999 -1.0991162 -1.0102910  0.9137823       1.0628471
## [806,]        1.0693999  0.3491648 -0.2055639 -1.1695589       1.8188158
## [807,]        0.1919881 -1.0991162  0.5991631  1.6082294      -1.2050590
## [808,]        0.1919881 -1.0991162  1.4038902  1.6082294      -0.4490903
## [809,]       -0.6854236 -1.0991162 -1.0102910  0.2193353      -1.2050590
## [810,]        1.0693999 -1.0991162 -0.2055639  1.6082294      -1.2050590
## [811,]       -0.6854236  0.3491648  0.5991631 -0.4751118       1.8188158
## [812,]        0.1919881  1.0733052  0.5991631 -0.4751118       1.0628471
## [813,]       -1.5628354 -1.0991162  2.2086173  1.6082294      -1.2050590
## [814,]       -1.5628354 -1.0991162 -1.0102910  1.6082294      -1.2050590
## [815,]        1.0693999  0.3491648 -1.0102910  1.6082294       1.8188158
## [816,]        1.0693999  1.7974457 -0.2055639  1.6082294      -1.2050590
## [817,]        1.0693999 -0.3749757  1.4038902  0.9137823       0.3068784
## [818,]       -2.4402471  1.0733052 -1.0102910 -1.1695589       0.3068784
## [819,]        1.0693999 -1.0991162 -1.0102910  0.2193353      -1.2050590
## [820,]        0.1919881  1.7974457  0.5991631  1.6082294      -0.4490903
## [821,]        1.0693999 -1.0991162 -1.0102910 -0.4751118      -1.2050590
## [822,]        1.0693999  0.3491648 -1.0102910  0.2193353       0.3068784
## [823,]        0.1919881 -1.0991162 -1.0102910 -1.1695589      -0.4490903
## [824,]       -0.6854236 -1.0991162 -0.2055639 -0.4751118      -0.4490903
## [825,]        1.0693999 -1.0991162 -1.0102910 -1.1695589      -0.4490903
## [826,]       -0.6854236 -1.0991162 -1.0102910 -1.1695589       1.0628471
## [827,]        1.0693999  0.3491648 -1.0102910 -1.1695589       1.8188158
## [828,]        0.1919881  0.3491648 -0.2055639 -1.1695589       1.8188158
## [829,]        0.1919881 -0.3749757 -0.2055639  0.2193353      -0.4490903
## [830,]        1.0693999  0.3491648  2.2086173 -1.1695589       1.0628471
## [831,]        1.0693999  1.7974457  2.2086173 -1.1695589       0.3068784
## [832,]        1.0693999  0.3491648  2.2086173  1.6082294       1.8188158
## [833,]        1.0693999  1.0733052 -1.0102910 -1.1695589       1.8188158
## [834,]        0.1919881 -0.3749757  1.4038902 -1.1695589       1.0628471
## [835,]        1.0693999  1.0733052  0.5991631  0.9137823       0.3068784
## [836,]       -0.6854236 -1.0991162 -1.0102910  0.2193353      -1.2050590
## [837,]        0.1919881 -0.3749757 -0.2055639  1.6082294      -1.2050590
## [838,]        1.0693999  1.7974457 -1.0102910 -1.1695589       1.0628471
## [839,]       -0.6854236 -1.0991162  1.4038902 -0.4751118       0.3068784
## [840,]        0.1919881  0.3491648  2.2086173  0.2193353      -0.4490903
## [841,]       -1.5628354 -0.3749757 -0.2055639  0.2193353      -1.2050590
## [842,]        1.0693999 -0.3749757 -0.2055639  0.2193353      -1.2050590
## [843,]       -0.6854236 -1.0991162 -1.0102910 -0.4751118      -1.2050590
## [844,]        1.0693999  1.0733052  2.2086173  1.6082294       0.3068784
```

```
## [845,]         1.0693999  0.3491648  0.5991631  0.9137823      1.8188158
## [846,]         1.0693999 -1.0991162  0.5991631  0.2193353      0.3068784
## [847,]         1.0693999 -0.3749757 -1.0102910  0.2193353     -0.4490903
## [848,]         0.1919881 -1.0991162 -1.0102910 -1.1695589      1.8188158
## [849,]        -0.6854236 -1.0991162 -0.2055639 -1.1695589     -0.4490903
## [850,]        -1.5628354  0.3491648 -1.0102910 -1.1695589      1.0628471
## [851,]         1.0693999  1.0733052  0.5991631 -0.4751118     -1.2050590
## [852,]         0.1919881  1.0733052  0.5991631  1.6082294      1.8188158
## [853,]         0.1919881 -0.3749757  1.4038902  1.6082294     -0.4490903
## [854,]        -0.6854236  0.3491648  0.5991631  0.2193353      0.3068784
## [855,]        -0.6854236 -1.0991162 -1.0102910  0.9137823      0.3068784
## [856,]        -0.6854236 -0.3749757  0.5991631  1.6082294      0.3068784
## [857,]         1.0693999 -0.3749757  0.5991631 -1.1695589      0.3068784
## [858,]         0.1919881 -1.0991162 -1.0102910 -0.4751118     -1.2050590
## [859,]         1.0693999 -0.3749757  0.5991631  0.9137823     -1.2050590
## [860,]         0.1919881 -1.0991162 -0.2055639  1.6082294     -0.4490903
## [861,]         0.1919881 -0.3749757  1.4038902  1.6082294      0.3068784
## [862,]         1.0693999  0.3491648  0.5991631  0.2193353      1.0628471
## [863,]         1.0693999 -1.0991162  0.5991631  1.6082294     -0.4490903
## [864,]         0.1919881 -1.0991162 -1.0102910  0.2193353     -1.2050590
## [865,]         0.1919881  0.3491648  0.5991631  0.2193353     -0.4490903
## [866,]        -0.6854236  0.3491648 -0.2055639  0.2193353      0.3068784
## [867,]         0.1919881  1.7974457  0.5991631 -0.4751118      0.3068784
## [868,]        -0.6854236  1.0733052 -0.2055639  0.9137823     -1.2050590
## [869,]         0.1919881 -0.3749757 -1.0102910  0.2193353     -0.4490903
## [870,]         1.0693999  1.0733052 -1.0102910 -1.1695589     -0.4490903
## [871,]         0.1919881 -0.3749757  2.2086173 -0.4751118      0.3068784
## [872,]         0.1919881  1.0733052  2.2086173  1.6082294      1.8188158
## [873,]        -1.5628354  1.7974457 -1.0102910  1.6082294      0.3068784
## [874,]         0.1919881 -0.3749757 -1.0102910  0.9137823      0.3068784
## [875,]        -0.6854236 -0.3749757  0.5991631 -0.4751118     -1.2050590
## [876,]        -2.4402471  1.7974457 -1.0102910  1.6082294      0.3068784
## [877,]        -0.6854236  1.7974457 -1.0102910  1.6082294      0.3068784
## [878,]         1.0693999  0.3491648  0.5991631  0.9137823      0.3068784
## [879,]         0.1919881  1.7974457  2.2086173  0.9137823      1.8188158
## [880,]        -0.6854236 -0.3749757  1.4038902  1.6082294     -0.4490903
## [881,]        -0.6854236 -0.3749757  1.4038902  0.2193353     -1.2050590
## [882,]         1.0693999  1.0733052 -1.0102910 -0.4751118      1.0628471
## [883,]         0.1919881  1.0733052 -1.0102910 -1.1695589      0.3068784
## [884,]         1.0693999 -0.3749757  1.4038902 -1.1695589     -0.4490903
## [885,]         1.0693999 -1.0991162 -1.0102910  1.6082294      1.8188158
## [886,]         0.1919881  1.7974457  2.2086173  0.9137823     -0.4490903
## [887,]         0.1919881 -1.0991162 -0.2055639  1.6082294     -1.2050590
## [888,]        -0.6854236  1.0733052 -0.2055639  0.2193353      0.3068784
## [889,]         0.1919881  1.7974457  0.5991631 -1.1695589      0.3068784
## [890,]         1.0693999  1.0733052 -0.2055639  0.9137823      1.0628471
## [891,]        -0.6854236 -1.0991162  1.4038902  1.6082294     -1.2050590
## [892,]        -0.6854236 -0.3749757 -0.2055639  0.9137823      0.3068784
## [893,]         0.1919881 -1.0991162 -1.0102910  1.6082294     -0.4490903
## [894,]         0.1919881  0.3491648 -0.2055639  0.2193353     -0.4490903
```

```
##  [895,]        -0.6854236 -1.0991162 -1.0102910 -1.1695589         1.0628471
##  [896,]        -0.6854236 -0.3749757 -1.0102910 -0.4751118        -0.4490903
##  [897,]         0.1919881 -1.0991162 -0.2055639 -0.4751118         1.0628471
##  [898,]        -0.6854236 -0.3749757  1.4038902  0.2193353        -0.4490903
##  [899,]        -0.6854236 -0.3749757 -1.0102910 -1.1695589         1.8188158
##  [900,]        -0.6854236 -1.0991162  1.4038902  0.9137823        -1.2050590
##  [901,]         0.1919881 -0.3749757  2.2086173 -0.4751118        -0.4490903
##  [902,]        -1.5628354 -1.0991162  0.5991631 -1.1695589        -0.4490903
##  [903,]        -2.4402471 -0.3749757  1.4038902 -1.1695589        -1.2050590
##  [904,]         0.1919881  0.3491648 -1.0102910  0.2193353        -0.4490903
##  [905,]         1.0693999 -0.3749757 -0.2055639  0.2193353         1.8188158
##  [906,]         1.0693999  0.3491648  2.2086173  1.6082294         0.3068784
##  [907,]         1.0693999 -1.0991162 -0.2055639 -1.1695589        -0.4490903
##  [908,]        -0.6854236 -1.0991162 -1.0102910 -1.1695589         1.0628471
##  [909,]        -0.6854236 -0.3749757 -0.2055639  0.2193353        -0.4490903
##  [910,]         1.0693999  1.0733052  1.4038902  0.2193353         0.3068784
##  [911,]         1.0693999  0.3491648  1.4038902  0.9137823         1.8188158
##  [912,]        -0.6854236 -1.0991162  1.4038902  0.9137823        -0.4490903
##  [913,]        -0.6854236  0.3491648 -0.2055639  0.9137823        -0.4490903
##  [914,]         1.0693999 -0.3749757 -1.0102910 -1.1695589         1.8188158
##  [915,]         1.0693999  0.3491648  1.4038902 -0.4751118         1.0628471
##  [916,]         0.1919881 -1.0991162 -0.2055639  0.2193353         0.3068784
##  [917,]        -1.5628354 -1.0991162  1.4038902  0.9137823        -0.4490903
##  [918,]         0.1919881 -1.0991162 -1.0102910  0.9137823         0.3068784
##  [919,]        -0.6854236 -1.0991162 -0.2055639 -1.1695589         1.8188158
##  [920,]         0.1919881 -0.3749757  2.2086173 -1.1695589         1.8188158
##  [921,]        -0.6854236 -1.0991162 -1.0102910 -1.1695589        -0.4490903
##  [922,]        -1.5628354  0.3491648 -0.2055639  0.9137823         0.3068784
##  [923,]         1.0693999  0.3491648  1.4038902  1.6082294        -0.4490903
##  [924,]         1.0693999  0.3491648 -1.0102910 -1.1695589         1.8188158
##  [925,]         1.0693999 -0.3749757 -1.0102910 -0.4751118         1.8188158
##  [926,]         0.1919881 -0.3749757 -1.0102910 -0.4751118         0.3068784
##  [927,]        -0.6854236 -1.0991162 -1.0102910  1.6082294        -0.4490903
##  [928,]         0.1919881  0.3491648 -0.2055639  1.6082294         0.3068784
##  [929,]         0.1919881  0.3491648 -0.2055639 -1.1695589         0.3068784
##  [930,]        -2.4402471  0.3491648  1.4038902 -1.1695589         1.0628471
##  [931,]        -0.6854236  0.3491648 -0.2055639  0.9137823         0.3068784
##  [932,]         0.1919881 -0.3749757 -0.2055639  0.2193353         0.3068784
##  [933,]        -0.6854236  0.3491648 -0.2055639  0.2193353         0.3068784
##  [934,]         0.1919881  0.3491648  0.5991631 -1.1695589        -0.4490903
##  [935,]         1.0693999 -0.3749757 -0.2055639  0.2193353        -0.4490903
##  [936,]         1.0693999 -1.0991162 -1.0102910 -1.1695589        -1.2050590
##  [937,]         0.1919881 -0.3749757 -1.0102910 -0.4751118        -0.4490903
##  [938,]         0.1919881  0.3491648 -0.2055639  0.2193353         0.3068784
##  [939,]         1.0693999 -0.3749757 -1.0102910 -1.1695589         1.8188158
##  [940,]         1.0693999 -0.3749757 -1.0102910 -1.1695589         1.0628471
##  [941,]        -0.6854236 -1.0991162 -1.0102910 -1.1695589        -0.4490903
##  [942,]         1.0693999  0.3491648 -0.2055639 -1.1695589         1.8188158
##  [943,]         1.0693999 -1.0991162 -0.2055639 -1.1695589        -1.2050590
##  [944,]        -0.6854236 -0.3749757  2.2086173  1.6082294        -0.4490903
```

```
##   [945,]          -1.5628354  0.3491648 -0.2055639  0.9137823          0.3068784
##   [946,]           0.1919881 -1.0991162  0.5991631  0.2193353         -1.2050590
##   [947,]           1.0693999  0.3491648  0.5991631  1.6082294         -0.4490903
##   [948,]          -0.6854236 -0.3749757 -0.2055639 -1.1695589          0.3068784
##   [949,]           0.1919881  1.7974457 -1.0102910 -0.4751118          0.3068784
##   [950,]          -0.6854236 -1.0991162 -1.0102910  0.9137823         -0.4490903
##   [951,]          -0.6854236 -1.0991162  0.5991631  0.2193353         -1.2050590
##   [952,]          -1.5628354 -1.0991162 -0.2055639  1.6082294         -1.2050590
##   [953,]           1.0693999 -1.0991162 -1.0102910  0.2193353         -1.2050590
##   [954,]           1.0693999  1.7974457  0.5991631  0.2193353         -1.2050590
##   [955,]           0.1919881  0.3491648  0.5991631 -0.4751118          0.3068784
##   [956,]          -2.4402471 -0.3749757  1.4038902 -1.1695589         -0.4490903
##   [957,]          -1.5628354 -1.0991162 -1.0102910 -1.1695589         -1.2050590
##   [958,]          -2.4402471 -1.0991162 -1.0102910  1.6082294         -1.2050590
##   [959,]           1.0693999  1.7974457 -1.0102910 -0.4751118         -0.4490903
##   [960,]           0.1919881  0.3491648 -1.0102910 -1.1695589         -1.2050590
##   [961,]           1.0693999 -0.3749757  1.4038902  0.2193353          1.0628471
##   [962,]          -0.6854236  1.7974457  1.4038902  0.9137823         -0.4490903
##   [963,]           1.0693999  0.3491648 -1.0102910  0.2193353          0.3068784
##   [964,]          -1.5628354 -0.3749757  0.5991631  1.6082294         -0.4490903
##   [965,]           0.1919881  0.3491648  0.5991631  0.2193353          0.3068784
##   [966,]           1.0693999 -1.0991162 -0.2055639 -0.4751118          0.3068784
##   [967,]           1.0693999  1.7974457  2.2086173 -1.1695589          1.8188158
##   [968,]          -0.6854236  0.3491648 -0.2055639  0.9137823          1.8188158
##   [969,]          -1.5628354 -0.3749757 -1.0102910  0.2193353         -1.2050590
##   [970,]           0.1919881 -1.0991162 -0.2055639 -0.4751118         -1.2050590
##   [971,]           1.0693999 -1.0991162 -1.0102910  1.6082294          1.0628471
##   [972,]           1.0693999 -0.3749757 -0.2055639  0.9137823          0.3068784
##   [973,]           1.0693999  1.7974457  0.5991631  0.2193353          1.0628471
##   [974,]          -2.4402471 -1.0991162 -1.0102910 -1.1695589          1.0628471
##   [975,]           1.0693999  0.3491648  0.5991631 -0.4751118          0.3068784
##   [976,]           1.0693999  0.3491648 -0.2055639 -1.1695589          1.8188158
##   [977,]           1.0693999  0.3491648 -0.2055639  0.9137823         -0.4490903
##   [978,]           0.1919881 -1.0991162 -1.0102910  0.2193353         -0.4490903
##   [979,]           0.1919881 -0.3749757  0.5991631 -1.1695589          0.3068784
##   [980,]           1.0693999  0.3491648  2.2086173  0.9137823          0.3068784
##   [981,]          -1.5628354 -1.0991162  0.5991631 -0.4751118          1.0628471
##   [982,]          -1.5628354 -1.0991162 -1.0102910 -1.1695589          1.0628471
##   [983,]           0.1919881 -0.3749757 -1.0102910  0.9137823          0.3068784
##   [984,]          -1.5628354 -1.0991162 -0.2055639 -1.1695589          0.3068784
##   [985,]          -1.5628354 -1.0991162 -1.0102910 -0.4751118          0.3068784
##   [986,]           0.1919881 -1.0991162 -1.0102910 -1.1695589          1.0628471
##   [987,]           1.0693999 -0.3749757 -1.0102910 -1.1695589          1.0628471
##   [988,]           1.0693999 -0.3749757 -1.0102910 -1.1695589          1.0628471
##   [989,]           1.0693999  1.7974457  0.5991631 -0.4751118          0.3068784
##   [990,]           1.0693999  1.0733052  0.5991631  0.2193353          1.0628471
##   [991,]          -0.6854236 -0.3749757 -0.2055639  0.9137823         -1.2050590
##   [992,]           0.1919881 -1.0991162 -1.0102910 -0.4751118         -1.2050590
##   [993,]          -1.5628354 -1.0991162 -1.0102910 -0.4751118         -1.2050590
##   [994,]           1.0693999 -1.0991162  1.4038902 -1.1695589         -0.4490903
```

```
##  [995,]         -0.6854236  0.3491648  0.5991631 -0.4751118          1.0628471
##  [996,]          1.0693999 -1.0991162  1.4038902  0.9137823         -0.4490903
##  [997,]         -0.6854236 -0.3749757 -1.0102910 -1.1695589         -0.4490903
##  [998,]          1.0693999  0.3491648  0.5991631  0.2193353          1.8188158
##  [999,]          1.0693999  0.3491648 -0.2055639 -1.1695589         -1.2050590
## [1000,]          1.0693999  0.3491648 -0.2055639  0.2193353          0.3068784
## [1001,]         -1.5628354  0.3491648 -0.2055639 -1.1695589         -1.2050590
## [1002,]         -2.4402471 -1.0991162  0.5991631 -0.4751118         -0.4490903
## [1003,]         -0.6854236 -1.0991162 -1.0102910 -0.4751118         -1.2050590
## [1004,]          0.1919881 -0.3749757 -0.2055639 -1.1695589         -1.2050590
## [1005,]          0.1919881  0.3491648 -0.2055639 -0.4751118          0.3068784
## [1006,]          1.0693999 -0.3749757 -1.0102910 -1.1695589          1.8188158
## [1007,]         -1.5628354 -1.0991162 -1.0102910  1.6082294         -1.2050590
## [1008,]          1.0693999 -1.0991162 -1.0102910 -1.1695589         -1.2050590
## [1009,]          1.0693999  0.3491648 -1.0102910 -1.1695589          1.8188158
## [1010,]          0.1919881  1.7974457 -1.0102910  0.2193353         -1.2050590
##            Religion Countryside..outdoors    Dancing Musical.instruments
##    [1,] -0.9652426             1.0942820  0.3673575          0.4472073
##    [2,] -0.9652426            -2.2498173 -1.0093811         -0.8754263
##    [3,]  2.0600329             1.0942820  1.7440961          1.7698410
##    [4,]  1.3037140            -2.2498173 -1.0093811         -0.8754263
##    [5,]  1.3037140             0.2582572 -1.0093811          0.4472073
##    [6,] -0.2089237             1.0942820 -1.0093811          1.7698410
##    [7,] -0.9652426             0.2582572  0.3673575         -0.2141095
##    [8,] -0.2089237            -1.4137925 -1.0093811         -0.8754263
##    [9,] -0.2089237             0.2582572 -1.0093811         -0.2141095
##   [10,]  1.3037140             0.2582572  1.7440961          0.4472073
##   [11,] -0.2089237             0.2582572 -1.0093811         -0.8754263
##   [12,] -0.9652426             1.0942820 -1.0093811         -0.8754263
##   [13,] -0.9652426             1.0942820  0.3673575          1.1085242
##   [14,] -0.9652426             1.0942820  0.3673575          0.4472073
##   [15,] -0.2089237            -0.5777676 -1.0093811         -0.8754263
##   [16,] -0.9652426             1.0942820 -1.0093811          1.7698410
##   [17,] -0.2089237             1.0942820 -0.3210118         -0.2141095
##   [18,] -0.9652426             1.0942820  0.3673575         -0.8754263
##   [19,] -0.9652426            -0.5777676  0.3673575         -0.8754263
##   [20,] -0.9652426             0.2582572 -1.0093811          1.7698410
##   [21,] -0.9652426             1.0942820 -1.0093811          1.7698410
##   [22,] -0.9652426             0.2582572 -1.0093811         -0.2141095
##   [23,]  1.3037140             0.2582572  0.3673575         -0.2141095
##   [24,] -0.2089237            -0.5777676  1.7440961          1.7698410
##   [25,] -0.2089237             1.0942820  1.7440961          1.1085242
##   [26,] -0.9652426            -1.4137925  1.0557268         -0.8754263
##   [27,]  1.3037140             1.0942820  0.3673575         -0.2141095
##   [28,] -0.9652426            -0.5777676 -1.0093811         -0.8754263
##   [29,] -0.9652426            -0.5777676  0.3673575         -0.8754263
##   [30,] -0.2089237             1.0942820  1.0557268         -0.2141095
##   [31,] -0.2089237             0.2582572 -1.0093811         -0.8754263
##   [32,] -0.9652426             1.0942820  1.0557268         -0.8754263
##   [33,] -0.2089237            -1.4137925 -1.0093811         -0.2141095
```

```
##    [34,] -0.9652426    1.0942820  0.3673575     0.4472073
##    [35,]  2.0600329    1.0942820 -0.3210118     0.4472073
##    [36,]  0.5473952   -0.5777676  1.0557268    -0.8754263
##    [37,] -0.2089237    0.2582572 -1.0093811    -0.8754263
##    [38,]  2.0600329    1.0942820 -1.0093811     1.7698410
##    [39,] -0.2089237    0.2582572  1.7440961     0.4472073
##    [40,]  0.5473952    1.0942820 -1.0093811    -0.2141095
##    [41,] -0.9652426   -0.5777676 -1.0093811    -0.8754263
##    [42,]  2.0600329    1.0942820 -0.3210118     1.1085242
##    [43,] -0.2089237   -0.5777676 -1.0093811    -0.2141095
##    [44,] -0.9652426   -0.5777676 -0.3210118    -0.2141095
##    [45,]  1.3037140   -0.5777676  0.3673575    -0.8754263
##    [46,]  1.3037140   -1.4137925  1.7440961     1.7698410
##    [47,]  1.3037140    1.0942820  0.3673575     1.1085242
##    [48,] -0.9652426   -0.5777676 -1.0093811    -0.8754263
##    [49,] -0.2089237    0.2582572  1.7440961    -0.2141095
##    [50,] -0.9652426   -1.4137925 -1.0093811    -0.8754263
##    [51,]  1.3037140   -0.5777676 -1.0093811    -0.8754263
##    [52,]  0.5473952   -0.5777676  1.7440961    -0.2141095
##    [53,] -0.2089237    1.0942820  1.7440961     1.7698410
##    [54,]  2.0600329    0.2582572  1.7440961     1.1085242
##    [55,] -0.2089237    1.0942820  1.0557268     1.1085242
##    [56,] -0.2089237    0.2582572  1.0557268    -0.2141095
##    [57,] -0.2089237   -0.5777676 -0.3210118    -0.8754263
##    [58,]  1.3037140    1.0942820 -0.3210118    -0.2141095
##    [59,] -0.9652426    0.2582572 -0.3210118    -0.8754263
##    [60,] -0.9652426   -2.2498173 -1.0093811    -0.8754263
##    [61,]  1.3037140    0.2582572 -0.3210118     1.7698410
##    [62,] -0.9652426   -0.5777676 -1.0093811    -0.8754263
##    [63,] -0.9652426    0.2582572 -1.0093811    -0.2141095
##    [64,]  0.5473952   -0.5777676 -1.0093811    -0.8754263
##    [65,] -0.9652426   -2.2498173 -0.3210118    -0.8754263
##    [66,] -0.2089237   -0.5777676 -1.0093811    -0.8754263
##    [67,] -0.9652426   -0.5777676 -1.0093811    -0.8754263
##    [68,] -0.2089237   -0.5777676  1.7440961    -0.2141095
##    [69,]  2.0600329    0.2582572 -1.0093811    -0.2141095
##    [70,] -0.9652426   -0.5777676  0.3673575    -0.8754263
##    [71,] -0.9652426    1.0942820 -0.3210118    -0.8754263
##    [72,] -0.9652426   -0.5777676 -1.0093811    -0.8754263
##    [73,] -0.2089237    1.0942820  0.3673575     0.4472073
##    [74,]  2.0600329    1.0942820  1.7440961     0.4472073
##    [75,] -0.2089237    1.0942820 -1.0093811     1.7698410
##    [76,]  2.0600329    1.0942820 -0.3210118     1.7698410
##    [77,] -0.2089237   -0.5777676  0.3673575    -0.8754263
##    [78,] -0.9652426    1.0942820  1.7440961    -0.8754263
##    [79,] -0.9652426    1.0942820  1.7440961    -0.2141095
##    [80,] -0.9652426    0.2582572  0.3673575    -0.2141095
##    [81,] -0.9652426    0.2582572  1.7440961    -0.2141095
##    [82,] -0.2089237   -0.5777676  1.7440961    -0.8754263
##    [83,]  1.3037140    1.0942820 -1.0093811     0.4472073
```

```
##   [84,] -0.9652426              1.0942820  0.3673575          -0.8754263
##   [85,]  0.5473952              1.0942820 -1.0093811          -0.8754263
##   [86,] -0.9652426              1.0942820 -0.3210118           1.1085242
##   [87,]  2.0600329              1.0942820  1.0557268           1.1085242
##   [88,] -0.2089237             -0.5777676  1.7440961          -0.8754263
##   [89,]  2.0600329             -0.5777676  1.0557268          -0.8754263
##   [90,]  0.5473952             -0.5777676 -0.3210118          -0.8754263
##   [91,]  1.3037140              0.2582572 -1.0093811           0.4472073
##   [92,] -0.9652426              1.0942820  1.7440961          -0.8754263
##   [93,]  1.3037140              1.0942820  0.3673575          -0.2141095
##   [94,] -0.9652426              0.2582572 -1.0093811          -0.2141095
##   [95,] -0.2089237              0.2582572 -1.0093811          -0.2141095
##   [96,] -0.9652426              0.2582572 -1.0093811          -0.8754263
##   [97,] -0.9652426             -2.2498173 -1.0093811          -0.8754263
##   [98,]  1.3037140              0.2582572 -1.0093811          -0.8754263
##   [99,] -0.9652426              1.0942820 -1.0093811          -0.8754263
##  [100,] -0.2089237              1.0942820  0.3673575          -0.8754263
##  [101,]  1.3037140              0.2582572 -1.0093811           1.1085242
##  [102,]  0.5473952             -0.5777676 -1.0093811          -0.8754263
##  [103,] -0.2089237              1.0942820  1.0557268           1.1085242
##  [104,]  2.0600329              0.2582572  1.0557268           1.1085242
##  [105,]  0.5473952             -0.5777676 -0.3210118          -0.2141095
##  [106,]  0.5473952              1.0942820 -1.0093811          -0.8754263
##  [107,] -0.2089237              0.2582572 -0.3210118          -0.8754263
##  [108,]  1.3037140              0.2582572 -0.3210118          -0.8754263
##  [109,] -0.9652426             -2.2498173 -1.0093811           1.7698410
##  [110,]  0.5473952             -0.5777676 -1.0093811          -0.8754263
##  [111,] -0.2089237              1.0942820 -1.0093811          -0.8754263
##  [112,]  0.5473952              1.0942820  0.3673575          -0.2141095
##  [113,]  0.5473952              0.2582572  1.7440961          -0.2141095
##  [114,] -0.9652426              1.0942820 -1.0093811          -0.8754263
##  [115,] -0.9652426              0.2582572 -1.0093811          -0.8754263
##  [116,] -0.2089237              0.2582572  1.7440961           0.4472073
##  [117,] -0.2089237             -0.5777676 -1.0093811           1.7698410
##  [118,] -0.9652426              0.2582572 -1.0093811          -0.8754263
##  [119,] -0.9652426              1.0942820 -1.0093811          -0.2141095
##  [120,] -0.2089237              0.2582572 -1.0093811           0.4472073
##  [121,] -0.2089237              1.0942820  1.0557268           0.4472073
##  [122,] -0.9652426              0.2582572 -1.0093811          -0.8754263
##  [123,]  0.5473952              0.2582572 -0.3210118          -0.2141095
##  [124,]  1.3037140              0.2582572 -1.0093811           1.7698410
##  [125,]  0.5473952              1.0942820 -0.3210118           1.7698410
##  [126,] -0.2089237              1.0942820  1.0557268           1.7698410
##  [127,] -0.2089237             -0.5777676 -1.0093811          -0.8754263
##  [128,]  1.3037140              0.2582572 -1.0093811          -0.8754263
##  [129,]  2.0600329              1.0942820  1.7440961           1.7698410
##  [130,]  2.0600329             -0.5777676 -0.3210118          -0.8754263
##  [131,]  0.5473952              0.2582572 -0.3210118          -0.8754263
##  [132,] -0.9652426              1.0942820 -0.3210118          -0.8754263
##  [133,] -0.2089237             -0.5777676 -1.0093811          -0.8754263
```

```
## [134,]  2.0600329       1.0942820  1.7440961        1.7698410
## [135,] -0.9652426      -0.5777676  0.3673575       -0.2141095
## [136,] -0.2089237       0.2582572 -1.0093811        0.4472073
## [137,]  2.0600329      -0.5777676  1.0557268       -0.8754263
## [138,]  0.5473952      -0.5777676 -1.0093811       -0.8754263
## [139,]  2.0600329       1.0942820 -0.3210118        1.7698410
## [140,]  0.5473952       1.0942820  1.7440961        1.7698410
## [141,]  2.0600329       1.0942820 -1.0093811        1.1085242
## [142,] -0.9652426       1.0942820 -1.0093811       -0.8754263
## [143,] -0.9652426       1.0942820  1.7440961       -0.8754263
## [144,] -0.9652426      -0.5777676  0.3673575       -0.8754263
## [145,] -0.9652426       1.0942820  0.3673575        0.4472073
## [146,]  0.5473952      -1.4137925 -1.0093811       -0.2141095
## [147,]  2.0600329       1.0942820 -1.0093811       -0.8754263
## [148,]  0.5473952       1.0942820 -1.0093811       -0.8754263
## [149,]  2.0600329       0.2582572  0.3673575       -0.2141095
## [150,]  0.5473952       0.2582572 -1.0093811       -0.8754263
## [151,] -0.9652426       0.2582572 -1.0093811       -0.8754263
## [152,]  1.3037140      -1.4137925 -1.0093811       -0.8754263
## [153,] -0.2089237      -2.2498173 -1.0093811       -0.8754263
## [154,]  1.3037140      -0.5777676 -1.0093811       -0.8754263
## [155,] -0.2089237      -0.5777676 -1.0093811        0.4472073
## [156,] -0.9652426      -0.5777676  1.0557268        1.7698410
## [157,]  0.5473952      -0.5777676 -1.0093811       -0.8754263
## [158,]  1.3037140       1.0942820 -1.0093811       -0.8754263
## [159,] -0.9652426       1.0942820 -0.3210118        1.7698410
## [160,]  1.3037140       1.0942820  0.3673575        1.1085242
## [161,] -0.9652426      -1.4137925  1.0557268        1.7698410
## [162,] -0.9652426      -0.5777676 -1.0093811       -0.8754263
## [163,] -0.2089237      -0.5777676 -1.0093811       -0.8754263
## [164,]  2.0600329      -2.2498173 -0.3210118       -0.8754263
## [165,] -0.2089237      -2.2498173 -1.0093811       -0.8754263
## [166,]  0.5473952       1.0942820  1.0557268        1.1085242
## [167,] -0.9652426       0.2582572 -1.0093811        0.4472073
## [168,] -0.9652426      -1.4137925 -1.0093811       -0.8754263
## [169,] -0.9652426      -2.2498173 -1.0093811       -0.8754263
## [170,] -0.2089237      -0.5777676 -1.0093811        1.1085242
## [171,]  0.5473952       1.0942820 -0.3210118        1.7698410
## [172,] -0.9652426      -2.2498173 -1.0093811       -0.8754263
## [173,] -0.9652426       0.2582572 -1.0093811       -0.8754263
## [174,] -0.9652426       0.2582572 -1.0093811       -0.8754263
## [175,]  2.0600329       1.0942820  1.7440961        1.7698410
## [176,] -0.9652426       0.2582572 -1.0093811        1.7698410
## [177,] -0.9652426       1.0942820 -0.3210118       -0.2141095
## [178,] -0.9652426       1.0942820 -1.0093811        0.4472073
## [179,]  0.5473952      -0.5777676 -1.0093811       -0.8754263
## [180,]  1.3037140       1.0942820  0.3673575        1.1085242
## [181,] -0.9652426      -2.2498173 -1.0093811       -0.8754263
## [182,]  1.3037140      -0.5777676 -0.3210118       -0.2141095
## [183,] -0.2089237       0.2582572 -1.0093811       -0.8754263
```

```
## [184,] -0.9652426    1.0942820  0.3673575   -0.8754263
## [185,]  0.5473952   -2.2498173 -0.3210118   -0.8754263
## [186,]  2.0600329    1.0942820 -1.0093811   -0.2141095
## [187,]  0.5473952    0.2582572  0.3673575   -0.2141095
## [188,] -0.9652426   -1.4137925 -1.0093811   -0.8754263
## [189,]  2.0600329    1.0942820 -0.3210118   -0.2141095
## [190,] -0.2089237    0.2582572  0.3673575   -0.8754263
## [191,] -0.9652426   -1.4137925 -1.0093811   -0.8754263
## [192,] -0.9652426   -0.5777676  1.0557268    1.7698410
## [193,] -0.9652426   -0.5777676  1.0557268   -0.8754263
## [194,]  0.5473952    0.2582572 -1.0093811    0.4472073
## [195,] -0.9652426   -0.5777676 -1.0093811    1.7698410
## [196,] -0.2089237   -0.5777676 -0.3210118   -0.2141095
## [197,] -0.9652426    1.0942820  0.3673575   -0.8754263
## [198,] -0.9652426    1.0942820  1.7440961   -0.8754263
## [199,] -0.9652426    0.2582572 -1.0093811    0.4472073
## [200,] -0.9652426    0.2582572  1.0557268   -0.2141095
## [201,] -0.9652426   -2.2498173 -1.0093811   -0.8754263
## [202,] -0.9652426    1.0942820 -1.0093811    1.7698410
## [203,] -0.9652426   -1.4137925  1.7440961   -0.2141095
## [204,] -0.2089237   -0.5777676  1.7440961   -0.8754263
## [205,] -0.9652426   -0.5777676 -1.0093811    0.4472073
## [206,]  1.3037140    0.2582572  1.0557268    0.4472073
## [207,]  0.5473952    0.2582572 -1.0093811    0.4472073
## [208,] -0.2089237    0.2582572 -0.3210118   -0.8754263
## [209,] -0.9652426    0.2582572 -0.3210118    0.4472073
## [210,]  1.3037140    0.2582572 -1.0093811   -0.8754263
## [211,]  1.3037140    1.0942820  1.0557268   -0.2141095
## [212,] -0.9652426   -0.5777676  1.7440961   -0.8754263
## [213,] -0.9652426    1.0942820 -0.3210118    1.7698410
## [214,]  0.5473952    1.0942820 -0.3210118   -0.8754263
## [215,] -0.2089237   -1.4137925 -1.0093811   -0.8754263
## [216,] -0.9652426   -0.5777676  1.7440961   -0.8754263
## [217,] -0.9652426   -0.5777676 -1.0093811   -0.8754263
## [218,]  0.5473952    0.2582572  0.3673575    1.1085242
## [219,] -0.2089237    0.2582572  1.7440961    1.7698410
## [220,] -0.9652426   -1.4137925 -1.0093811   -0.8754263
## [221,] -0.2089237    0.2582572 -0.3210118    1.7698410
## [222,] -0.9652426    1.0942820 -1.0093811    1.7698410
## [223,] -0.2089237    0.2582572 -1.0093811   -0.8754263
## [224,]  0.5473952    0.2582572  1.7440961    1.1085242
## [225,]  0.5473952   -2.2498173 -1.0093811   -0.8754263
## [226,]  0.5473952    0.2582572  0.3673575    0.4472073
## [227,] -0.2089237    1.0942820  1.0557268   -0.8754263
## [228,]  1.3037140    0.2582572 -1.0093811   -0.8754263
## [229,]  0.5473952    1.0942820  1.0557268    1.1085242
## [230,] -0.2089237    1.0942820 -0.3210118    1.1085242
## [231,]  0.5473952    0.2582572  1.7440961   -0.8754263
## [232,] -0.9652426    1.0942820  1.7440961    1.1085242
## [233,] -0.9652426    1.0942820 -0.3210118    1.7698410
```

```
## [234,] -0.2089237          0.2582572  1.0557268      -0.8754263
## [235,] -0.9652426         -1.4137925 -0.3210118      -0.8754263
## [236,]  2.0600329         -1.4137925 -1.0093811      -0.8754263
## [237,] -0.2089237         -1.4137925 -0.3210118      -0.2141095
## [238,] -0.9652426          0.2582572  1.0557268      -0.2141095
## [239,] -0.9652426         -0.5777676 -0.3210118      -0.8754263
## [240,] -0.2089237         -0.5777676  0.3673575      -0.2141095
## [241,] -0.9652426         -0.5777676 -1.0093811      -0.8754263
## [242,] -0.9652426         -1.4137925 -1.0093811      -0.8754263
## [243,]  1.3037140         -0.5777676 -0.3210118      -0.2141095
## [244,] -0.2089237         -1.4137925 -1.0093811      -0.8754263
## [245,] -0.9652426         -1.4137925 -1.0093811      -0.8754263
## [246,] -0.9652426          1.0942820 -0.3210118      -0.8754263
## [247,] -0.9652426         -2.2498173 -1.0093811      -0.8754263
## [248,] -0.9652426          1.0942820  1.7440961      -0.2141095
## [249,] -0.9652426         -1.4137925  0.3673575       1.1085242
## [250,]  2.0600329          1.0942820  0.3673575       0.4472073
## [251,] -0.2089237          0.2582572  0.3673575      -0.8754263
## [252,] -0.2089237          0.2582572 -1.0093811       0.4472073
## [253,] -0.2089237          0.2582572  0.3673575       0.4472073
## [254,]  2.0600329          1.0942820 -0.3210118      -0.8754263
## [255,] -0.9652426         -0.5777676 -1.0093811      -0.8754263
## [256,]  2.0600329          1.0942820  0.3673575       1.7698410
## [257,] -0.9652426         -1.4137925  0.3673575      -0.2141095
## [258,]  1.3037140          1.0942820 -0.3210118      -0.2141095
## [259,]  0.5473952          1.0942820 -1.0093811       0.4472073
## [260,]  0.5473952          1.0942820  1.7440961      -0.2141095
## [261,]  0.5473952         -0.5777676  0.3673575       0.4472073
## [262,] -0.2089237          1.0942820  1.7440961       1.1085242
## [263,] -0.2089237          1.0942820  0.3673575       1.7698410
## [264,] -0.9652426         -1.4137925 -0.3210118      -0.8754263
## [265,] -0.9652426         -0.5777676 -1.0093811      -0.8754263
## [266,] -0.9652426         -2.2498173 -1.0093811      -0.8754263
## [267,] -0.9652426          0.2582572  0.3673575      -0.2141095
## [268,]  1.3037140          1.0942820  1.0557268       1.1085242
## [269,] -0.9652426          0.2582572  1.7440961      -0.8754263
## [270,]  2.0600329          0.2582572 -1.0093811      -0.2141095
## [271,] -0.9652426         -1.4137925 -0.3210118      -0.8754263
## [272,] -0.9652426          0.2582572  0.3673575      -0.8754263
## [273,]  0.5473952          1.0942820 -1.0093811      -0.8754263
## [274,] -0.9652426          0.2582572  0.3673575       0.4472073
## [275,] -0.9652426          1.0942820  1.0557268      -0.2141095
## [276,]  0.5473952         -1.4137925  0.3673575      -0.2141095
## [277,]  0.5473952          0.2582572 -0.3210118       1.1085242
## [278,] -0.9652426         -2.2498173 -1.0093811      -0.8754263
## [279,] -0.2089237          1.0942820 -0.3210118      -0.8754263
## [280,]  0.5473952         -1.4137925 -1.0093811      -0.2141095
## [281,]  0.5473952          0.2582572  1.7440961       1.1085242
## [282,] -0.9652426          0.2582572  0.3673575       1.7698410
## [283,] -0.9652426          0.2582572 -1.0093811      -0.8754263
```

```
##   [284,] -0.9652426            0.2582572 -0.3210118         -0.2141095
##   [285,] -0.9652426            1.0942820 -1.0093811         -0.8754263
##   [286,]  1.3037140           -1.4137925  0.3673575         -0.8754263
##   [287,] -0.9652426            1.0942820 -0.3210118         -0.8754263
##   [288,] -0.2089237           -0.5777676 -0.3210118         -0.2141095
##   [289,]  1.3037140            1.0942820 -0.3210118         -0.8754263
##   [290,] -0.9652426            0.2582572 -1.0093811         -0.2141095
##   [291,]  2.0600329           -0.5777676  0.3673575         -0.8754263
##   [292,]  0.5473952           -0.5777676 -1.0093811         -0.8754263
##   [293,] -0.9652426           -1.4137925  0.3673575         -0.8754263
##   [294,] -0.9652426            0.2582572 -1.0093811          0.4472073
##   [295,] -0.9652426           -0.5777676  1.0557268         -0.8754263
##   [296,]  1.3037140            1.0942820 -0.3210118         -0.8754263
##   [297,] -0.9652426           -2.2498173 -1.0093811         -0.8754263
##   [298,]  1.3037140           -0.5777676 -1.0093811         -0.2141095
##   [299,] -0.2089237            1.0942820  1.7440961         -0.8754263
##   [300,] -0.9652426           -0.5777676 -0.3210118          0.4472073
##   [301,]  2.0600329            0.2582572 -1.0093811          1.1085242
##   [302,] -0.2089237            0.2582572 -1.0093811         -0.8754263
##   [303,]  2.0600329            0.2582572  1.0557268         -0.2141095
##   [304,] -0.9652426            0.2582572  1.0557268         -0.8754263
##   [305,] -0.2089237           -2.2498173  0.3673575         -0.8754263
##   [306,]  0.5473952            1.0942820  1.0557268          1.7698410
##   [307,] -0.2089237           -0.5777676  1.0557268          1.1085242
##   [308,] -0.2089237            1.0942820 -1.0093811          1.7698410
##   [309,] -0.2089237            0.2582572  1.0557268         -0.8754263
##   [310,] -0.9652426           -0.5777676  1.7440961         -0.8754263
##   [311,] -0.2089237           -1.4137925 -0.3210118         -0.8754263
##   [312,]  0.5473952           -0.5777676  0.3673575          0.4472073
##   [313,] -0.9652426           -2.2498173 -1.0093811         -0.8754263
##   [314,]  1.3037140            0.2582572  1.7440961         -0.2141095
##   [315,]  1.3037140            1.0942820 -0.3210118          1.7698410
##   [316,]  0.5473952           -1.4137925 -0.3210118         -0.8754263
##   [317,] -0.9652426            0.2582572  1.0557268         -0.8754263
##   [318,] -0.9652426           -0.5777676  0.3673575         -0.8754263
##   [319,]  2.0600329           -0.5777676  1.7440961         -0.8754263
##   [320,]  2.0600329            1.0942820  0.3673575         -0.8754263
##   [321,]  0.5473952            1.0942820  0.3673575          1.1085242
##   [322,]  0.5473952            0.2582572  1.7440961          1.1085242
##   [323,] -0.2089237            0.2582572 -0.3210118          1.7698410
##   [324,]  1.3037140           -0.5777676 -1.0093811          0.4472073
##   [325,]  1.3037140            0.2582572 -0.3210118         -0.2141095
##   [326,]  0.5473952            0.2582572  0.3673575          0.4472073
##   [327,] -0.9652426            0.2582572 -1.0093811         -0.8754263
##   [328,] -0.9652426            0.2582572 -1.0093811         -0.8754263
##   [329,] -0.9652426           -0.5777676 -1.0093811         -0.8754263
##   [330,] -0.2089237            0.2582572  0.3673575         -0.8754263
##   [331,] -0.2089237           -0.5777676 -1.0093811         -0.8754263
##   [332,]  0.5473952           -0.5777676  1.7440961          0.4472073
##   [333,]  2.0600329            1.0942820  1.0557268         -0.8754263
```

```
##  [334,]  0.5473952   -0.5777676 -0.3210118    1.7698410
##  [335,] -0.9652426    1.0942820 -1.0093811   -0.8754263
##  [336,]  1.3037140    0.2582572  1.0557268    1.1085242
##  [337,] -0.9652426    0.2582572 -1.0093811   -0.8754263
##  [338,]  0.5473952    1.0942820 -0.3210118   -0.8754263
##  [339,]  2.0600329    1.0942820  1.7440961    1.7698410
##  [340,] -0.2089237    0.2582572 -0.3210118    1.7698410
##  [341,]  2.0600329   -0.5777676 -1.0093811   -0.2141095
##  [342,] -0.9652426   -0.5777676  1.7440961    0.4472073
##  [343,] -0.9652426   -1.4137925  1.0557268   -0.2141095
##  [344,] -0.9652426    1.0942820  1.7440961   -0.2141095
##  [345,] -0.9652426    0.2582572 -1.0093811    0.4472073
##  [346,] -0.9652426    0.2582572 -1.0093811   -0.8754263
##  [347,] -0.9652426   -0.5777676 -1.0093811   -0.8754263
##  [348,] -0.9652426   -0.5777676 -1.0093811   -0.8754263
##  [349,] -0.9652426    1.0942820  1.7440961    1.7698410
##  [350,] -0.9652426    1.0942820 -1.0093811   -0.8754263
##  [351,] -0.9652426   -2.2498173 -1.0093811   -0.8754263
##  [352,]  0.5473952    1.0942820  0.3673575    1.1085242
##  [353,] -0.9652426    1.0942820 -1.0093811   -0.8754263
##  [354,] -0.2089237   -1.4137925 -0.3210118    1.1085242
##  [355,]  2.0600329    1.0942820  0.3673575    1.7698410
##  [356,] -0.9652426   -0.5777676 -1.0093811   -0.8754263
##  [357,] -0.9652426   -0.5777676 -1.0093811   -0.8754263
##  [358,] -0.9652426   -0.5777676 -1.0093811    0.4472073
##  [359,] -0.2089237    0.2582572 -0.3210118   -0.2141095
##  [360,] -0.9652426   -0.5777676 -1.0093811   -0.8754263
##  [361,] -0.9652426   -0.5777676  1.0557268   -0.8754263
##  [362,]  2.0600329    1.0942820  1.0557268    1.7698410
##  [363,] -0.9652426   -1.4137925 -0.3210118    1.1085242
##  [364,] -0.2089237   -1.4137925 -0.3210118    1.7698410
##  [365,] -0.9652426   -1.4137925 -1.0093811   -0.8754263
##  [366,]  1.3037140    1.0942820 -1.0093811    0.4472073
##  [367,] -0.9652426   -2.2498173 -1.0093811   -0.8754263
##  [368,]  0.5473952    0.2582572 -0.3210118   -0.8754263
##  [369,] -0.9652426    1.0942820 -1.0093811   -0.8754263
##  [370,] -0.9652426    1.0942820 -1.0093811   -0.2141095
##  [371,] -0.9652426    1.0942820  1.0557268   -0.2141095
##  [372,]  2.0600329    1.0942820  1.7440961    1.7698410
##  [373,]  0.5473952    1.0942820 -1.0093811   -0.8754263
##  [374,] -0.9652426    0.2582572 -1.0093811   -0.8754263
##  [375,] -0.9652426    0.2582572  0.3673575   -0.8754263
##  [376,] -0.9652426   -0.5777676 -1.0093811   -0.8754263
##  [377,] -0.9652426   -0.5777676  1.0557268   -0.8754263
##  [378,]  1.3037140    0.2582572 -0.3210118    1.1085242
##  [379,] -0.9652426    1.0942820  1.7440961   -0.2141095
##  [380,]  1.3037140    0.2582572  1.7440961    1.7698410
##  [381,] -0.2089237   -0.5777676  1.0557268    1.7698410
##  [382,] -0.9652426   -2.2498173 -0.3210118   -0.8754263
##  [383,] -0.9652426    0.2582572  1.7440961   -0.8754263
```

```
## [384,]  -0.9652426          -1.4137925 -1.0093811          -0.2141095
## [385,]   0.5473952          -0.5777676 -1.0093811          -0.8754263
## [386,]  -0.9652426           1.0942820  0.3673575           0.4472073
## [387,]   0.5473952          -1.4137925 -0.3210118           0.4472073
## [388,]   0.5473952          -0.5777676  0.3673575          -0.2141095
## [389,]   2.0600329           0.2582572  0.3673575           1.7698410
## [390,]  -0.9652426           0.2582572 -0.3210118           1.1085242
## [391,]   1.3037140           0.2582572 -0.3210118          -0.2141095
## [392,]   0.5473952           1.0942820  0.3673575          -0.8754263
## [393,]  -0.2089237          -0.5777676  0.3673575          -0.8754263
## [394,]  -0.9652426          -0.5777676 -1.0093811          -0.8754263
## [395,]  -0.2089237          -0.5777676 -1.0093811           1.1085242
## [396,]  -0.9652426           0.2582572 -1.0093811          -0.8754263
## [397,]  -0.9652426          -0.5777676 -1.0093811           1.7698410
## [398,]   1.3037140          -0.5777676 -0.3210118           0.4472073
## [399,]   1.3037140           1.0942820  1.7440961          -0.8754263
## [400,]   2.0600329           1.0942820  0.3673575           1.7698410
## [401,]  -0.2089237          -0.5777676 -1.0093811          -0.8754263
## [402,]  -0.9652426          -0.5777676 -1.0093811          -0.8754263
## [403,]   0.5473952           1.0942820 -1.0093811          -0.8754263
## [404,]  -0.9652426          -0.5777676 -1.0093811          -0.8754263
## [405,]   2.0600329           1.0942820 -1.0093811           1.7698410
## [406,]   2.0600329           1.0942820 -0.3210118          -0.2141095
## [407,]   2.0600329           1.0942820  0.3673575           1.7698410
## [408,]   0.5473952           0.2582572  1.0557268          -0.8754263
## [409,]   2.0600329           1.0942820  0.3673575           1.7698410
## [410,]  -0.2089237           1.0942820  1.7440961          -0.2141095
## [411,]  -0.9652426          -1.4137925 -1.0093811           1.7698410
## [412,]   0.5473952           0.2582572  1.0557268           1.7698410
## [413,]   0.5473952           1.0942820 -1.0093811          -0.8754263
## [414,]   0.5473952           0.2582572 -1.0093811          -0.8754263
## [415,]   0.5473952          -1.4137925 -1.0093811          -0.8754263
## [416,]  -0.9652426          -0.5777676  0.3673575          -0.8754263
## [417,]   0.5473952           0.2582572  1.0557268           1.1085242
## [418,]   1.3037140           0.2582572 -1.0093811          -0.8754263
## [419,]   0.5473952          -0.5777676 -1.0093811          -0.8754263
## [420,]   2.0600329          -1.4137925  1.0557268          -0.2141095
## [421,]   0.5473952          -0.5777676 -1.0093811          -0.8754263
## [422,]  -0.2089237           0.2582572  1.7440961          -0.8754263
## [423,]  -0.9652426           1.0942820  1.7440961          -0.2141095
## [424,]   1.3037140           1.0942820 -0.3210118          -0.8754263
## [425,]  -0.9652426           1.0942820  0.3673575          -0.8754263
## [426,]   0.5473952           1.0942820  1.7440961          -0.8754263
## [427,]  -0.9652426          -0.5777676 -1.0093811          -0.8754263
## [428,]   0.5473952           0.2582572 -1.0093811          -0.8754263
## [429,]  -0.2089237           0.2582572  1.0557268           1.7698410
## [430,]  -0.9652426           0.2582572 -1.0093811          -0.8754263
## [431,]   2.0600329           1.0942820  1.0557268          -0.2141095
## [432,]  -0.2089237           0.2582572 -1.0093811          -0.8754263
## [433,]  -0.9652426           0.2582572 -1.0093811           1.7698410
```

```
##   [434,] -0.9652426              -2.2498173 -1.0093811              -0.8754263
##   [435,] -0.9652426               0.2582572  1.7440961              -0.8754263
##   [436,] -0.9652426              -0.5777676 -0.3210118              -0.8754263
##   [437,]  0.5473952              -0.5777676  1.7440961              -0.8754263
##   [438,] -0.9652426              -2.2498173 -0.3210118              -0.2141095
##   [439,] -0.2089237              -0.5777676 -1.0093811              -0.8754263
##   [440,] -0.9652426              -0.5777676 -1.0093811              -0.8754263
##   [441,] -0.9652426              -0.5777676  1.0557268              -0.2141095
##   [442,] -0.9652426               0.2582572  1.7440961              -0.8754263
##   [443,]  0.5473952              -0.5777676 -0.3210118               1.7698410
##   [444,]  2.0600329              -0.5777676 -0.3210118              -0.8754263
##   [445,] -0.2089237               1.0942820  0.3673575              -0.8754263
##   [446,] -0.9652426               0.2582572  1.7440961              -0.8754263
##   [447,] -0.9652426              -2.2498173 -1.0093811               0.4472073
##   [448,]  2.0600329               0.2582572 -1.0093811               1.1085242
##   [449,] -0.9652426               0.2582572 -1.0093811              -0.8754263
##   [450,] -0.2089237               0.2582572  0.3673575              -0.8754263
##   [451,] -0.2089237              -2.2498173 -0.3210118              -0.8754263
##   [452,] -0.2089237               0.2582572  1.0557268              -0.8754263
##   [453,]  0.5473952               1.0942820  1.7440961              -0.8754263
##   [454,] -0.2089237               0.2582572  0.3673575              -0.8754263
##   [455,] -0.9652426               0.2582572 -0.3210118               1.7698410
##   [456,]  0.5473952               0.2582572  1.0557268               0.4472073
##   [457,]  1.3037140              -1.4137925 -1.0093811              -0.8754263
##   [458,]  0.5473952               0.2582572 -0.3210118              -0.2141095
##   [459,]  2.0600329               1.0942820  1.7440961               1.7698410
##   [460,]  1.3037140               0.2582572 -0.3210118               1.1085242
##   [461,]  2.0600329              -2.2498173 -1.0093811              -0.8754263
##   [462,]  0.5473952               0.2582572  0.3673575              -0.2141095
##   [463,] -0.9652426               0.2582572 -1.0093811               0.4472073
##   [464,]  2.0600329               1.0942820 -1.0093811              -0.8754263
##   [465,]  0.5473952               1.0942820 -1.0093811              -0.8754263
##   [466,] -0.9652426               0.2582572 -0.3210118              -0.8754263
##   [467,] -0.9652426              -0.5777676 -1.0093811              -0.8754263
##   [468,] -0.9652426              -1.4137925 -1.0093811              -0.8754263
##   [469,]  1.3037140              -0.5777676 -1.0093811              -0.8754263
##   [470,]  0.5473952               1.0942820  0.3673575              -0.8754263
##   [471,]  1.3037140              -0.5777676 -1.0093811               0.4472073
##   [472,] -0.9652426               0.2582572 -1.0093811              -0.8754263
##   [473,] -0.9652426              -0.5777676 -1.0093811              -0.8754263
##   [474,]  0.5473952               0.2582572 -1.0093811               1.1085242
##   [475,]  0.5473952              -0.5777676 -1.0093811               1.7698410
##   [476,] -0.2089237               0.2582572 -0.3210118               1.7698410
##   [477,] -0.2089237              -0.5777676 -0.3210118              -0.8754263
##   [478,] -0.9652426              -0.5777676 -0.3210118               1.1085242
##   [479,]  1.3037140              -0.5777676  1.0557268               0.4472073
##   [480,] -0.2089237              -0.5777676 -0.3210118               1.1085242
##   [481,] -0.2089237               0.2582572  1.0557268               0.4472073
##   [482,]  0.5473952               0.2582572 -1.0093811               1.1085242
##   [483,] -0.9652426              -1.4137925 -1.0093811              -0.8754263
```

```
##    [484,] -0.2089237             -2.2498173 -0.3210118             -0.2141095
##    [485,] -0.9652426             -0.5777676 -1.0093811              0.4472073
##    [486,]  0.5473952              1.0942820 -1.0093811             -0.8754263
##    [487,] -0.2089237             -0.5777676  1.0557268             -0.8754263
##    [488,]  2.0600329              1.0942820  1.7440961             -0.2141095
##    [489,] -0.9652426              1.0942820 -1.0093811              1.1085242
##    [490,] -0.2089237             -1.4137925  0.3673575             -0.8754263
##    [491,]  0.5473952             -1.4137925  1.0557268             -0.8754263
##    [492,] -0.2089237             -0.5777676  1.7440961              0.4472073
##    [493,]  1.3037140              0.2582572  1.7440961              1.1085242
##    [494,] -0.9652426             -0.5777676 -0.3210118             -0.8754263
##    [495,] -0.2089237              0.2582572 -1.0093811             -0.8754263
##    [496,] -0.2089237             -0.5777676  0.3673575              0.4472073
##    [497,]  0.5473952              1.0942820 -0.3210118             -0.2141095
##    [498,]  0.5473952             -1.4137925  0.3673575              1.7698410
##    [499,]  0.5473952              1.0942820  1.0557268              1.1085242
##    [500,] -0.9652426             -0.5777676 -1.0093811              0.4472073
##    [501,]  2.0600329              0.2582572  1.0557268              1.7698410
##    [502,]  1.3037140              0.2582572  0.3673575              1.7698410
##    [503,] -0.9652426             -1.4137925 -1.0093811              0.4472073
##    [504,]  2.0600329              1.0942820 -1.0093811              1.7698410
##    [505,] -0.9652426              1.0942820  1.7440961              0.4472073
##    [506,] -0.9652426             -1.4137925 -0.3210118             -0.8754263
##    [507,] -0.9652426             -2.2498173 -1.0093811             -0.8754263
##    [508,] -0.2089237              0.2582572  1.7440961              1.7698410
##    [509,] -0.2089237              1.0942820 -1.0093811              1.7698410
##    [510,] -0.9652426              0.2582572  1.7440961              1.7698410
##    [511,] -0.9652426              1.0942820  1.7440961             -0.8754263
##    [512,] -0.9652426              1.0942820 -1.0093811             -0.2141095
##    [513,]  0.5473952              1.0942820  1.7440961              1.7698410
##    [514,] -0.9652426             -1.4137925 -0.3210118             -0.8754263
##    [515,] -0.2089237              0.2582572 -1.0093811              1.7698410
##    [516,]  1.3037140              1.0942820 -1.0093811             -0.2141095
##    [517,]  0.5473952              1.0942820  1.7440961             -0.2141095
##    [518,] -0.2089237             -0.5777676  1.7440961             -0.8754263
##    [519,]  0.5473952              0.2582572  1.0557268             -0.8754263
##    [520,] -0.9652426             -0.5777676 -1.0093811             -0.8754263
##    [521,]  0.5473952              0.2582572  1.0557268             -0.8754263
##    [522,]  0.5473952              0.2582572  0.3673575              1.7698410
##    [523,] -0.2089237              0.2582572  0.3673575             -0.8754263
##    [524,]  0.5473952              0.2582572 -0.3210118             -0.8754263
##    [525,]  0.5473952              1.0942820 -0.3210118             -0.8754263
##    [526,]  0.5473952              1.0942820  1.0557268              0.4472073
##    [527,] -0.2089237              0.2582572 -0.3210118              1.1085242
##    [528,]  0.5473952              0.2582572  1.0557268              1.1085242
##    [529,]  0.5473952             -1.4137925 -1.0093811             -0.8754263
##    [530,] -0.9652426             -2.2498173 -1.0093811             -0.8754263
##    [531,]  2.0600329              0.2582572  1.7440961             -0.2141095
##    [532,]  1.3037140              1.0942820 -0.3210118             -0.8754263
##    [533,] -0.9652426              0.2582572  1.7440961             -0.2141095
```

```
## [534,] -0.2089237    0.2582572 -0.3210118    -0.2141095
## [535,] -0.9652426    0.2582572 -0.3210118    -0.2141095
## [536,]  2.0600329    1.0942820  0.3673575     0.4472073
## [537,] -0.2089237   -2.2498173 -1.0093811     0.4472073
## [538,]  0.5473952    1.0942820 -1.0093811     1.1085242
## [539,]  0.5473952   -0.5777676 -1.0093811    -0.8754263
## [540,] -0.2089237   -2.2498173 -1.0093811     1.7698410
## [541,]  1.3037140    1.0942820 -1.0093811     1.7698410
## [542,] -0.2089237   -1.4137925 -0.3210118    -0.8754263
## [543,]  0.5473952    0.2582572  1.0557268     1.7698410
## [544,] -0.2089237   -1.4137925 -1.0093811    -0.8754263
## [545,] -0.9652426   -0.5777676 -1.0093811    -0.8754263
## [546,] -0.9652426   -0.5777676 -0.3210118    -0.8754263
## [547,]  1.3037140    1.0942820  0.3673575     1.7698410
## [548,]  1.3037140   -0.5777676 -1.0093811     1.7698410
## [549,] -0.2089237   -0.5777676 -1.0093811    -0.8754263
## [550,] -0.9652426   -1.4137925  0.3673575    -0.8754263
## [551,]  0.5473952    1.0942820  1.7440961     1.7698410
## [552,]  2.0600329    1.0942820 -1.0093811     1.7698410
## [553,]  1.3037140    0.2582572  1.7440961     1.7698410
## [554,]  0.5473952    0.2582572  1.7440961     1.1085242
## [555,]  1.3037140    1.0942820  1.0557268     0.4472073
## [556,] -0.2089237    1.0942820 -0.3210118    -0.8754263
## [557,] -0.9652426    0.2582572 -0.3210118    -0.8754263
## [558,] -0.9652426    0.2582572  0.3673575     0.4472073
## [559,]  0.5473952    0.2582572 -0.3210118    -0.8754263
## [560,] -0.9652426    0.2582572 -0.3210118    -0.8754263
## [561,]  1.3037140    1.0942820  1.7440961     1.7698410
## [562,]  1.3037140    1.0942820 -0.3210118     0.4472073
## [563,] -0.9652426    1.0942820  0.3673575     0.4472073
## [564,] -0.9652426    0.2582572 -0.3210118    -0.8754263
## [565,] -0.9652426   -2.2498173 -1.0093811    -0.8754263
## [566,] -0.9652426    1.0942820  1.7440961    -0.8754263
## [567,]  0.5473952    0.2582572  1.7440961     1.7698410
## [568,] -0.9652426   -0.5777676 -0.3210118     0.4472073
## [569,] -0.9652426    1.0942820  1.0557268    -0.2141095
## [570,] -0.2089237   -0.5777676  1.0557268     1.7698410
## [571,] -0.9652426    1.0942820 -1.0093811    -0.2141095
## [572,]  0.5473952    0.2582572  0.3673575    -0.2141095
## [573,] -0.9652426    1.0942820  0.3673575     0.4472073
## [574,]  0.5473952    0.2582572 -1.0093811    -0.8754263
## [575,] -0.9652426   -0.5777676  0.3673575    -0.8754263
## [576,] -0.2089237    1.0942820  1.0557268     0.4472073
## [577,] -0.9652426    0.2582572 -0.3210118    -0.8754263
## [578,] -0.9652426   -2.2498173  1.0557268     1.1085242
## [579,] -0.9652426    1.0942820  0.3673575    -0.2141095
## [580,] -0.9652426   -1.4137925 -1.0093811    -0.2141095
## [581,] -0.9652426   -1.4137925 -1.0093811    -0.8754263
## [582,] -0.9652426   -0.5777676 -0.3210118    -0.8754263
## [583,] -0.2089237    1.0942820 -0.3210118    -0.8754263
```

```
## [584,]  0.5473952     -0.5777676  0.3673575      0.4472073
## [585,] -0.9652426     -0.5777676 -1.0093811     -0.8754263
## [586,] -0.9652426     -2.2498173 -1.0093811      0.4472073
## [587,]  2.0600329      0.2582572 -1.0093811      1.7698410
## [588,] -0.9652426      1.0942820 -1.0093811     -0.2141095
## [589,] -0.9652426      1.0942820  1.7440961      0.4472073
## [590,] -0.9652426      1.0942820  0.3673575      1.1085242
## [591,]  0.5473952      0.2582572  1.7440961     -0.8754263
## [592,] -0.2089237      1.0942820  1.7440961     -0.2141095
## [593,] -0.9652426      0.2582572  1.7440961     -0.8754263
## [594,] -0.9652426      1.0942820  0.3673575      0.4472073
## [595,] -0.2089237      0.2582572 -1.0093811      1.7698410
## [596,]  2.0600329      1.0942820 -1.0093811     -0.8754263
## [597,] -0.9652426      1.0942820 -1.0093811     -0.8754263
## [598,] -0.2089237      1.0942820 -0.3210118     -0.2141095
## [599,] -0.9652426      1.0942820  0.3673575     -0.2141095
## [600,]  0.5473952      0.2582572  0.3673575     -0.2141095
## [601,] -0.9652426     -1.4137925  0.3673575     -0.8754263
## [602,]  2.0600329      1.0942820  1.7440961      1.7698410
## [603,]  0.5473952      0.2582572  0.3673575     -0.8754263
## [604,] -0.2089237      0.2582572  0.3673575     -0.8754263
## [605,]  0.5473952     -0.5777676  1.0557268     -0.2141095
## [606,] -0.9652426      1.0942820 -1.0093811      1.7698410
## [607,]  1.3037140      0.2582572 -1.0093811     -0.8754263
## [608,]  0.5473952     -2.2498173 -0.3210118     -0.8754263
## [609,]  1.3037140     -1.4137925  1.0557268     -0.2141095
## [610,]  2.0600329      0.2582572 -1.0093811      0.4472073
## [611,] -0.9652426     -2.2498173 -1.0093811      1.1085242
## [612,] -0.9652426     -0.5777676  0.3673575     -0.8754263
## [613,] -0.9652426     -1.4137925 -1.0093811      1.7698410
## [614,] -0.9652426     -1.4137925 -0.3210118      1.1085242
## [615,] -0.9652426      1.0942820  0.3673575     -0.8754263
## [616,]  2.0600329      0.2582572 -1.0093811      1.7698410
## [617,] -0.9652426     -2.2498173 -1.0093811     -0.2141095
## [618,]  0.5473952     -0.5777676 -1.0093811     -0.8754263
## [619,] -0.2089237      1.0942820 -1.0093811      1.7698410
## [620,] -0.9652426     -1.4137925 -1.0093811     -0.8754263
## [621,] -0.9652426     -1.4137925 -1.0093811     -0.8754263
## [622,] -0.9652426     -1.4137925 -1.0093811     -0.8754263
## [623,] -0.9652426     -0.5777676  0.3673575     -0.2141095
## [624,] -0.9652426      1.0942820 -1.0093811     -0.8754263
## [625,] -0.9652426     -1.4137925  1.7440961     -0.2141095
## [626,]  1.3037140     -1.4137925  1.7440961      1.7698410
## [627,] -0.2089237      0.2582572 -0.3210118     -0.2141095
## [628,] -0.2089237      0.2582572 -0.3210118      0.4472073
## [629,] -0.9652426     -2.2498173 -1.0093811      0.4472073
## [630,] -0.9652426      1.0942820  0.3673575     -0.8754263
## [631,]  0.5473952     -0.5777676  1.0557268      1.1085242
## [632,]  2.0600329      1.0942820  1.7440961      1.7698410
## [633,] -0.2089237     -0.5777676 -1.0093811     -0.8754263
```

```
##  [634,] -0.2089237     -0.5777676 -0.3210118      0.4472073
##  [635,]  1.3037140      0.2582572  1.7440961      0.4472073
##  [636,] -0.2089237     -0.5777676  1.7440961     -0.8754263
##  [637,]  1.3037140      0.2582572  1.7440961      0.4472073
##  [638,]  1.3037140      1.0942820 -0.3210118     -0.8754263
##  [639,] -0.2089237      1.0942820 -1.0093811     -0.8754263
##  [640,] -0.9652426      0.2582572 -1.0093811      1.7698410
##  [641,] -0.2089237     -0.5777676  0.3673575     -0.8754263
##  [642,] -0.9652426     -0.5777676 -1.0093811     -0.2141095
##  [643,] -0.9652426      1.0942820 -0.3210118      0.4472073
##  [644,]  0.5473952      1.0942820  1.7440961      0.4472073
##  [645,]  1.3037140      1.0942820  0.3673575      1.7698410
##  [646,]  0.5473952      1.0942820 -0.3210118     -0.2141095
##  [647,] -0.9652426     -1.4137925 -1.0093811     -0.8754263
##  [648,]  0.5473952      1.0942820  0.3673575     -0.8754263
##  [649,] -0.2089237      1.0942820  1.7440961      1.1085242
##  [650,] -0.9652426      0.2582572  1.7440961      1.1085242
##  [651,] -0.9652426      0.2582572  0.3673575     -0.8754263
##  [652,] -0.2089237      1.0942820 -1.0093811     -0.8754263
##  [653,] -0.9652426     -1.4137925 -1.0093811     -0.8754263
##  [654,]  1.3037140      1.0942820  0.3673575     -0.8754263
##  [655,]  0.5473952      0.2582572 -0.3210118     -0.8754263
##  [656,] -0.9652426     -0.5777676 -1.0093811      0.4472073
##  [657,]  0.5473952      1.0942820  1.7440961      1.1085242
##  [658,] -0.9652426      1.0942820 -1.0093811     -0.8754263
##  [659,] -0.9652426      1.0942820  1.0557268      1.1085242
##  [660,] -0.9652426      1.0942820  0.3673575      1.7698410
##  [661,] -0.2089237      1.0942820 -0.3210118     -0.8754263
##  [662,] -0.9652426     -0.5777676 -0.3210118     -0.8754263
##  [663,]  1.3037140      0.2582572 -0.3210118     -0.8754263
##  [664,]  0.5473952      0.2582572  0.3673575      0.4472073
##  [665,]  0.5473952      1.0942820  1.7440961     -0.8754263
##  [666,] -0.9652426      1.0942820 -0.3210118     -0.2141095
##  [667,] -0.9652426      1.0942820 -1.0093811      0.4472073
##  [668,]  2.0600329      1.0942820 -0.3210118      0.4472073
##  [669,]  1.3037140      1.0942820 -1.0093811      1.7698410
##  [670,] -0.2089237      0.2582572 -0.3210118     -0.2141095
##  [671,] -0.2089237      0.2582572  1.0557268     -0.8754263
##  [672,] -0.2089237      1.0942820  1.7440961      1.1085242
##  [673,] -0.9652426      0.2582572 -0.3210118     -0.8754263
##  [674,] -0.9652426     -0.5777676 -1.0093811     -0.8754263
##  [675,] -0.9652426      0.2582572 -1.0093811     -0.8754263
##  [676,] -0.2089237      0.2582572  1.7440961     -0.2141095
##  [677,] -0.9652426      0.2582572 -1.0093811     -0.8754263
##  [678,] -0.2089237     -0.5777676  0.3673575     -0.2141095
##  [679,] -0.2089237      1.0942820 -0.3210118     -0.8754263
##  [680,]  1.3037140      1.0942820 -0.3210118      1.1085242
##  [681,] -0.9652426      1.0942820  1.7440961     -0.8754263
##  [682,]  0.5473952      1.0942820  0.3673575     -0.8754263
##  [683,]  1.3037140      0.2582572 -1.0093811     -0.8754263
```

```
##  [684,]   1.3037140          1.0942820  0.3673575           0.4472073
##  [685,]   1.3037140          1.0942820  1.0557268           0.4472073
##  [686,]  -0.2089237         -0.5777676  1.0557268           1.7698410
##  [687,]   0.5473952         -0.5777676  0.3673575           0.4472073
##  [688,]  -0.9652426          0.2582572  0.3673575           0.4472073
##  [689,]   0.5473952         -0.5777676 -0.3210118          -0.8754263
##  [690,]  -0.2089237         -1.4137925  0.3673575          -0.2141095
##  [691,]  -0.9652426          0.2582572  0.3673575           0.4472073
##  [692,]  -0.9652426         -0.5777676  1.0557268          -0.8754263
##  [693,]   1.3037140          0.2582572 -0.3210118           1.7698410
##  [694,]  -0.9652426         -0.5777676  0.3673575          -0.8754263
##  [695,]   2.0600329          0.2582572  0.3673575           1.7698410
##  [696,]  -0.9652426          0.2582572  1.0557268          -0.8754263
##  [697,]   0.5473952          1.0942820  1.7440961          -0.2141095
##  [698,]  -0.2089237         -0.5777676 -1.0093811          -0.8754263
##  [699,]  -0.2089237          1.0942820  1.7440961          -0.8754263
##  [700,]  -0.2089237         -0.5777676  1.7440961          -0.2141095
##  [701,]   0.5473952         -0.5777676 -1.0093811          -0.8754263
##  [702,]  -0.2089237          1.0942820  0.3673575          -0.8754263
##  [703,]   2.0600329         -0.5777676  0.3673575           1.1085242
##  [704,]  -0.2089237          0.2582572 -1.0093811           1.1085242
##  [705,]   0.5473952          1.0942820  1.7440961          -0.8754263
##  [706,]   0.5473952          1.0942820  1.0557268           1.7698410
##  [707,]  -0.2089237          0.2582572  0.3673575          -0.8754263
##  [708,]  -0.2089237          1.0942820 -0.3210118           0.4472073
##  [709,]  -0.9652426         -1.4137925 -0.3210118          -0.8754263
##  [710,]  -0.2089237          0.2582572  0.3673575          -0.8754263
##  [711,]  -0.9652426         -2.2498173 -1.0093811          -0.8754263
##  [712,]  -0.2089237          0.2582572 -1.0093811          -0.8754263
##  [713,]   2.0600329          0.2582572 -1.0093811           0.4472073
##  [714,]   0.5473952          0.2582572  1.7440961           1.1085242
##  [715,]   0.5473952          1.0942820  1.0557268          -0.8754263
##  [716,]  -0.9652426         -1.4137925 -1.0093811          -0.2141095
##  [717,]   0.5473952          1.0942820  0.3673575           1.1085242
##  [718,]  -0.9652426          1.0942820  0.3673575          -0.2141095
##  [719,]  -0.2089237          1.0942820 -0.3210118           1.7698410
##  [720,]   0.5473952         -2.2498173 -1.0093811          -0.8754263
##  [721,]   2.0600329          1.0942820 -0.3210118           1.1085242
##  [722,]   0.5473952          1.0942820  1.7440961           1.7698410
##  [723,]  -0.9652426          1.0942820  0.3673575           0.4472073
##  [724,]  -0.2089237          0.2582572 -0.3210118          -0.8754263
##  [725,]  -0.9652426         -0.5777676  0.3673575          -0.8754263
##  [726,]  -0.2089237          0.2582572 -1.0093811          -0.8754263
##  [727,]  -0.9652426         -1.4137925  1.7440961          -0.8754263
##  [728,]  -0.9652426         -2.2498173 -1.0093811           1.7698410
##  [729,]  -0.9652426          1.0942820 -0.3210118          -0.8754263
##  [730,]  -0.9652426          0.2582572 -0.3210118          -0.8754263
##  [731,]   0.5473952          1.0942820  0.3673575           1.7698410
##  [732,]   0.5473952         -2.2498173  1.0557268          -0.8754263
##  [733,]  -0.2089237          1.0942820  1.7440961          -0.8754263
```

```
##  [734,]  0.5473952    1.0942820  1.7440961    1.7698410
##  [735,]  2.0600329    0.2582572  1.0557268    1.7698410
##  [736,]  2.0600329    0.2582572 -0.3210118   -0.2141095
##  [737,]  1.3037140    0.2582572  1.0557268    0.4472073
##  [738,] -0.2089237    1.0942820  1.7440961    1.7698410
##  [739,]  0.5473952   -0.5777676  1.0557268   -0.8754263
##  [740,]  2.0600329    0.2582572  0.3673575    0.4472073
##  [741,]  1.3037140    0.2582572  0.3673575    0.4472073
##  [742,]  1.3037140    1.0942820  0.3673575    1.7698410
##  [743,]  2.0600329    1.0942820  1.0557268    0.4472073
##  [744,] -0.9652426   -1.4137925 -1.0093811   -0.8754263
##  [745,]  2.0600329    1.0942820 -1.0093811    1.7698410
##  [746,]  1.3037140   -0.5777676  0.3673575   -0.8754263
##  [747,] -0.9652426    0.2582572 -1.0093811   -0.8754263
##  [748,]  2.0600329    1.0942820  0.3673575    1.7698410
##  [749,]  0.5473952    0.2582572  1.0557268    1.7698410
##  [750,] -0.9652426    1.0942820 -1.0093811    1.7698410
##  [751,]  2.0600329   -1.4137925  1.7440961   -0.8754263
##  [752,] -0.2089237    1.0942820 -0.3210118    1.7698410
##  [753,] -0.2089237   -2.2498173  1.7440961   -0.8754263
##  [754,]  0.5473952    1.0942820  1.0557268    1.7698410
##  [755,]  1.3037140   -0.5777676  0.3673575    0.4472073
##  [756,] -0.9652426    0.2582572  0.3673575   -0.8754263
##  [757,]  0.5473952    1.0942820  0.3673575   -0.2141095
##  [758,]  2.0600329   -2.2498173  1.7440961   -0.8754263
##  [759,] -0.9652426    0.2582572 -1.0093811   -0.8754263
##  [760,]  2.0600329    1.0942820  1.0557268    1.7698410
##  [761,]  1.3037140    1.0942820  1.7440961   -0.8754263
##  [762,] -0.9652426   -2.2498173 -1.0093811   -0.8754263
##  [763,]  0.5473952    0.2582572 -1.0093811    0.4472073
##  [764,]  0.5473952    1.0942820 -0.3210118    1.7698410
##  [765,] -0.9652426   -1.4137925  0.3673575   -0.2141095
##  [766,]  0.5473952   -0.5777676 -1.0093811   -0.8754263
##  [767,] -0.2089237   -0.5777676  1.7440961    1.1085242
##  [768,]  0.5473952    0.2582572  1.7440961    1.7698410
##  [769,] -0.9652426   -1.4137925 -1.0093811   -0.8754263
##  [770,]  1.3037140    0.2582572  1.0557268    1.1085242
##  [771,]  1.3037140    1.0942820  1.0557268    0.4472073
##  [772,]  0.5473952   -1.4137925 -1.0093811   -0.8754263
##  [773,]  0.5473952    0.2582572  1.0557268    0.4472073
##  [774,] -0.2089237    0.2582572  1.0557268   -0.2141095
##  [775,]  0.5473952    1.0942820  1.7440961   -0.8754263
##  [776,]  0.5473952    1.0942820  1.7440961    1.1085242
##  [777,]  0.5473952    1.0942820  0.3673575    1.7698410
##  [778,] -0.9652426    0.2582572 -1.0093811   -0.8754263
##  [779,] -0.9652426    0.2582572 -0.3210118   -0.2141095
##  [780,]  1.3037140    1.0942820  1.7440961   -0.8754263
##  [781,] -0.2089237   -1.4137925  0.3673575   -0.2141095
##  [782,] -0.9652426    0.2582572 -0.3210118   -0.8754263
##  [783,] -0.9652426   -0.5777676 -1.0093811   -0.2141095
```

```
##  [784,]   0.5473952      0.2582572 -1.0093811       -0.8754263
##  [785,] -0.9652426      1.0942820  1.7440961        0.4472073
##  [786,] -0.2089237     -0.5777676 -1.0093811       -0.8754263
##  [787,]   0.5473952      1.0942820 -0.3210118       -0.8754263
##  [788,]   0.5473952      0.2582572 -0.3210118       -0.8754263
##  [789,] -0.9652426     -0.5777676 -0.3210118       -0.8754263
##  [790,]   0.5473952     -1.4137925  1.7440961       -0.8754263
##  [791,] -0.2089237     -0.5777676  1.0557268        0.4472073
##  [792,]   2.0600329     -1.4137925  0.3673575        0.4472073
##  [793,]   0.5473952     -0.5777676 -1.0093811       -0.8754263
##  [794,] -0.2089237      0.2582572  0.3673575        1.1085242
##  [795,] -0.9652426      0.2582572 -1.0093811       -0.8754263
##  [796,] -0.2089237      1.0942820  1.7440961        0.4472073
##  [797,]   0.5473952      1.0942820  1.0557268        1.1085242
##  [798,] -0.9652426      1.0942820 -1.0093811       -0.8754263
##  [799,]   0.5473952     -1.4137925  1.7440961        1.1085242
##  [800,] -0.2089237      0.2582572 -0.3210118        0.4472073
##  [801,]   1.3037140      1.0942820 -1.0093811       -0.8754263
##  [802,] -0.9652426      1.0942820 -1.0093811       -0.8754263
##  [803,] -0.9652426      0.2582572  1.7440961       -0.2141095
##  [804,] -0.2089237      0.2582572 -1.0093811        1.1085242
##  [805,] -0.2089237      0.2582572 -0.3210118        1.7698410
##  [806,]   0.5473952      0.2582572  1.0557268        1.7698410
##  [807,] -0.2089237      1.0942820  1.0557268       -0.8754263
##  [808,] -0.9652426      1.0942820 -1.0093811       -0.8754263
##  [809,] -0.9652426      0.2582572 -1.0093811       -0.8754263
##  [810,] -0.2089237      0.2582572 -1.0093811       -0.8754263
##  [811,]   0.5473952      1.0942820  0.3673575        1.7698410
##  [812,]   0.5473952      0.2582572 -0.3210118        0.4472073
##  [813,] -0.9652426      1.0942820  0.3673575       -0.8754263
##  [814,] -0.2089237      1.0942820  0.3673575       -0.8754263
##  [815,]   1.3037140      1.0942820  1.7440961        0.4472073
##  [816,]   2.0600329      1.0942820 -0.3210118        0.4472073
##  [817,]   1.3037140      1.0942820  0.3673575        1.7698410
##  [818,] -0.9652426     -0.5777676  0.3673575        1.1085242
##  [819,]   0.5473952      1.0942820 -1.0093811       -0.8754263
##  [820,] -0.2089237      0.2582572  0.3673575       -0.8754263
##  [821,] -0.9652426      0.2582572  0.3673575       -0.8754263
##  [822,]   1.3037140      1.0942820 -1.0093811        1.7698410
##  [823,] -0.9652426     -2.2498173 -1.0093811       -0.8754263
##  [824,] -0.9652426     -1.4137925 -1.0093811        1.1085242
##  [825,] -0.9652426     -1.4137925 -1.0093811        0.4472073
##  [826,] -0.9652426      1.0942820 -1.0093811        1.7698410
##  [827,]   0.5473952      0.2582572 -0.3210118        1.7698410
##  [828,] -0.9652426      0.2582572 -0.3210118        0.4472073
##  [829,]   1.3037140     -0.5777676 -1.0093811       -0.8754263
##  [830,]   2.0600329     -0.5777676  1.7440961       -0.2141095
##  [831,]   0.5473952      1.0942820  1.7440961        1.7698410
##  [832,]   1.3037140      0.2582572  0.3673575       -0.2141095
##  [833,]   1.3037140      0.2582572 -1.0093811       -0.2141095
```

```
## [834,] -0.9652426       0.2582572 -1.0093811       -0.2141095
## [835,] -0.2089237      -0.5777676 -1.0093811       -0.8754263
## [836,] -0.9652426       1.0942820 -0.3210118       -0.8754263
## [837,] -0.9652426       0.2582572 -1.0093811        1.7698410
## [838,]  1.3037140       1.0942820  1.7440961        1.7698410
## [839,] -0.9652426       0.2582572  1.7440961       -0.2141095
## [840,] -0.9652426      -0.5777676  0.3673575       -0.8754263
## [841,] -0.9652426      -0.5777676  0.3673575        0.4472073
## [842,] -0.9652426      -2.2498173  1.7440961        1.7698410
## [843,] -0.9652426      -0.5777676 -0.3210118       -0.2141095
## [844,]  2.0600329       1.0942820  1.0557268       -0.8754263
## [845,]  2.0600329       1.0942820  1.0557268        1.1085242
## [846,] -0.9652426       0.2582572 -0.3210118       -0.8754263
## [847,] -0.2089237      -0.5777676  1.7440961       -0.2141095
## [848,]  0.5473952       0.2582572  1.0557268       -0.8754263
## [849,] -0.9652426      -1.4137925 -0.3210118       -0.2141095
## [850,]  0.5473952       0.2582572  0.3673575        1.1085242
## [851,]  1.3037140      -0.5777676 -1.0093811       -0.8754263
## [852,]  0.5473952       1.0942820  0.3673575       -0.2141095
## [853,] -0.2089237      -0.5777676 -0.3210118       -0.8754263
## [854,]  0.5473952       1.0942820  0.3673575        0.4472073
## [855,] -0.9652426      -0.5777676 -0.3210118       -0.8754263
## [856,]  0.5473952       1.0942820 -0.3210118       -0.8754263
## [857,] -0.9652426      -0.5777676 -1.0093811       -0.2141095
## [858,] -0.9652426       0.2582572  0.3673575        0.4472073
## [859,] -0.9652426       0.2582572 -0.3210118        1.7698410
## [860,] -0.9652426       0.2582572 -0.3210118       -0.8754263
## [861,]  0.5473952      -0.5777676 -1.0093811       -0.8754263
## [862,] -0.9652426       0.2582572  0.3673575       -0.8754263
## [863,] -0.9652426       0.2582572  0.3673575       -0.8754263
## [864,] -0.2089237       0.2582572  0.3673575        0.4472073
## [865,] -0.9652426      -1.4137925 -0.3210118       -0.8754263
## [866,] -0.2089237      -0.5777676  0.3673575       -0.8754263
## [867,]  1.3037140      -1.4137925 -1.0093811       -0.8754263
## [868,] -0.9652426       0.2582572 -1.0093811       -0.8754263
## [869,] -0.9652426      -0.5777676  0.3673575       -0.2141095
## [870,] -0.9652426       1.0942820  0.3673575        0.4472073
## [871,] -0.2089237      -0.5777676 -0.3210118       -0.8754263
## [872,]  0.5473952       0.2582572 -1.0093811       -0.8754263
## [873,]  0.5473952      -1.4137925 -1.0093811        1.7698410
## [874,] -0.9652426       1.0942820 -0.3210118       -0.8754263
## [875,] -0.9652426      -1.4137925 -1.0093811       -0.8754263
## [876,] -0.9652426       1.0942820 -0.3210118       -0.8754263
## [877,] -0.9652426      -1.4137925  0.3673575        1.7698410
## [878,]  2.0600329       1.0942820  1.7440961        1.7698410
## [879,]  1.3037140       0.2582572 -0.3210118        1.1085242
## [880,] -0.2089237      -2.2498173 -0.3210118       -0.2141095
## [881,] -0.2089237       0.2582572 -1.0093811       -0.8754263
## [882,] -0.9652426       1.0942820 -0.3210118        1.7698410
## [883,] -0.2089237      -0.5777676 -1.0093811        0.4472073
```

```
##   [884,] -0.9652426             -0.5777676 -0.3210118         -0.8754263
##   [885,] -0.9652426             -0.5777676  0.3673575         -0.8754263
##   [886,]  0.5473952              1.0942820 -1.0093811         -0.8754263
##   [887,]  0.5473952             -2.2498173 -1.0093811          1.1085242
##   [888,]  0.5473952             -1.4137925  0.3673575         -0.2141095
##   [889,] -0.2089237              0.2582572  1.7440961         -0.8754263
##   [890,] -0.2089237              0.2582572  1.0557268          1.7698410
##   [891,] -0.9652426             -0.5777676 -1.0093811         -0.2141095
##   [892,] -0.2089237             -0.5777676  0.3673575         -0.8754263
##   [893,] -0.9652426             -1.4137925  0.3673575         -0.2141095
##   [894,]  0.5473952             -1.4137925 -0.3210118         -0.2141095
##   [895,] -0.9652426              1.0942820  1.7440961         -0.8754263
##   [896,] -0.9652426             -0.5777676 -1.0093811         -0.8754263
##   [897,] -0.9652426              0.2582572 -1.0093811         -0.2141095
##   [898,]  0.5473952             -1.4137925  0.3673575          1.1085242
##   [899,]  0.5473952              0.2582572  0.3673575         -0.8754263
##   [900,]  0.5473952             -1.4137925 -1.0093811         -0.8754263
##   [901,]  1.3037140             -1.4137925 -1.0093811         -0.8754263
##   [902,] -0.2089237              0.2582572 -1.0093811         -0.8754263
##   [903,]  0.5473952              1.0942820 -1.0093811         -0.8754263
##   [904,] -0.9652426             -0.5777676 -0.3210118          1.7698410
##   [905,]  0.5473952              0.2582572  1.0557268         -0.8754263
##   [906,] -0.2089237             -1.4137925 -1.0093811         -0.8754263
##   [907,] -0.2089237             -0.5777676  0.3673575         -0.8754263
##   [908,]  0.5473952             -2.2498173 -0.3210118         -0.8754263
##   [909,]  1.3037140             -0.5777676  0.3673575          1.1085242
##   [910,]  2.0600329              0.2582572 -0.3210118          1.1085242
##   [911,] -0.2089237             -1.4137925 -1.0093811          1.1085242
##   [912,] -0.9652426              0.2582572 -1.0093811         -0.2141095
##   [913,]  0.5473952              0.2582572 -0.3210118          0.4472073
##   [914,]  0.5473952              0.2582572  1.0557268          1.1085242
##   [915,]  1.3037140              0.2582572  1.7440961         -0.2141095
##   [916,]  0.5473952             -1.4137925 -1.0093811         -0.8754263
##   [917,] -0.9652426             -1.4137925 -1.0093811         -0.8754263
##   [918,] -0.9652426             -1.4137925 -1.0093811         -0.8754263
##   [919,]  0.5473952              0.2582572 -0.3210118         -0.8754263
##   [920,] -0.2089237             -1.4137925  1.7440961          1.7698410
##   [921,] -0.2089237             -1.4137925 -1.0093811         -0.8754263
##   [922,] -0.2089237             -0.5777676 -0.3210118          1.1085242
##   [923,] -0.9652426              0.2582572 -1.0093811         -0.8754263
##   [924,] -0.9652426             -0.5777676  0.3673575          0.4472073
##   [925,] -0.9652426              0.2582572 -0.3210118         -0.8754263
##   [926,] -0.9652426             -0.5777676  1.7440961         -0.2141095
##   [927,]  0.5473952              0.2582572 -1.0093811         -0.8754263
##   [928,]  0.5473952             -0.5777676  1.0557268         -0.8754263
##   [929,] -0.2089237              0.2582572 -0.3210118          0.4472073
##   [930,] -0.2089237             -0.5777676  1.0557268          1.1085242
##   [931,]  0.5473952              0.2582572 -0.3210118          1.1085242
##   [932,] -0.9652426             -1.4137925 -1.0093811         -0.8754263
##   [933,] -0.9652426              1.0942820  0.3673575         -0.8754263
```

```
## [934,] -0.2089237          -1.4137925 -0.3210118          1.1085242
## [935,] -0.9652426          -1.4137925 -1.0093811         -0.8754263
## [936,] -0.9652426           1.0942820 -1.0093811         -0.8754263
## [937,] -0.2089237          -0.5777676  0.3673575          0.4472073
## [938,]  0.5473952          -1.4137925 -0.3210118          1.7698410
## [939,]  1.3037140           1.0942820 -1.0093811         -0.8754263
## [940,] -0.9652426           1.0942820  0.3673575          0.4472073
## [941,]  1.3037140           1.0942820 -1.0093811          1.7698410
## [942,]  0.5473952          -0.5777676 -1.0093811          1.7698410
## [943,] -0.2089237          -0.5777676 -1.0093811         -0.8754263
## [944,] -0.2089237           0.2582572 -0.3210118         -0.8754263
## [945,] -0.9652426           1.0942820 -0.3210118         -0.2141095
## [946,] -0.2089237           1.0942820 -1.0093811         -0.8754263
## [947,] -0.9652426          -0.5777676 -1.0093811          1.7698410
## [948,] -0.9652426          -1.4137925  0.3673575          1.1085242
## [949,] -0.9652426           0.2582572  1.7440961         -0.8754263
## [950,] -0.9652426           1.0942820 -1.0093811         -0.2141095
## [951,] -0.2089237           0.2582572 -1.0093811          1.7698410
## [952,] -0.9652426           1.0942820 -1.0093811         -0.8754263
## [953,] -0.9652426           1.0942820 -0.3210118          1.7698410
## [954,] -0.9652426          -2.2498173  1.7440961          0.4472073
## [955,]  0.5473952           0.2582572  1.7440961          1.7698410
## [956,] -0.9652426           1.0942820  1.0557268         -0.8754263
## [957,] -0.9652426          -0.5777676 -1.0093811         -0.8754263
## [958,] -0.9652426          -0.5777676 -1.0093811         -0.8754263
## [959,]  0.5473952           1.0942820  1.7440961          1.1085242
## [960,] -0.9652426           0.2582572 -1.0093811         -0.8754263
## [961,]  0.5473952          -0.5777676  0.3673575         -0.8754263
## [962,]  2.0600329           1.0942820 -0.3210118         -0.8754263
## [963,] -0.2089237          -2.2498173 -1.0093811         -0.2141095
## [964,]  2.0600329          -2.2498173 -1.0093811         -0.8754263
## [965,]  0.5473952           0.2582572 -0.3210118          1.1085242
## [966,] -0.9652426          -1.4137925  1.0557268         -0.2141095
## [967,] -0.9652426          -2.2498173  1.7440961          1.7698410
## [968,] -0.2089237           1.0942820 -0.3210118          1.1085242
## [969,] -0.9652426           0.2582572 -0.3210118         -0.8754263
## [970,] -0.9652426           0.2582572  1.7440961         -0.8754263
## [971,] -0.9652426          -2.2498173 -1.0093811          1.7698410
## [972,] -0.2089237          -0.5777676 -1.0093811         -0.8754263
## [973,] -0.9652426          -0.5777676 -0.3210118         -0.2141095
## [974,] -0.9652426           1.0942820 -1.0093811          0.4472073
## [975,] -0.9652426           0.2582572 -1.0093811         -0.8754263
## [976,]  0.5473952           1.0942820  1.7440961          1.7698410
## [977,] -0.2089237           0.2582572  1.7440961          1.1085242
## [978,] -0.2089237          -0.5777676 -1.0093811         -0.8754263
## [979,] -0.9652426           0.2582572 -1.0093811         -0.8754263
## [980,] -0.2089237          -1.4137925 -0.3210118         -0.8754263
## [981,]  0.5473952          -2.2498173 -1.0093811          0.4472073
## [982,] -0.2089237           0.2582572  0.3673575          0.4472073
## [983,] -0.9652426          -0.5777676 -1.0093811         -0.2141095
```

```
##  [984,] -0.9652426                 0.2582572  1.7440961          -0.2141095
##  [985,] -0.2089237                -1.4137925  0.3673575          -0.8754263
##  [986,] -0.9652426                 0.2582572 -0.3210118           1.1085242
##  [987,]  2.0600329                 1.0942820 -1.0093811           1.7698410
##  [988,] -0.2089237                 0.2582572 -1.0093811           1.7698410
##  [989,]  2.0600329                 1.0942820  1.7440961           1.1085242
##  [990,]  0.5473952                 1.0942820  1.7440961           1.7698410
##  [991,] -0.9652426                -0.5777676 -1.0093811           0.4472073
##  [992,] -0.9652426                -0.5777676 -1.0093811          -0.8754263
##  [993,] -0.9652426                -2.2498173 -1.0093811          -0.8754263
##  [994,] -0.9652426                -1.4137925  0.3673575          -0.8754263
##  [995,]  1.3037140                 0.2582572 -1.0093811          -0.8754263
##  [996,] -0.2089237                -1.4137925 -0.3210118          -0.8754263
##  [997,] -0.9652426                -0.5777676 -1.0093811           1.1085242
##  [998,]  0.5473952                 1.0942820  1.0557268           0.4472073
##  [999,]  0.5473952                 1.0942820 -1.0093811           0.4472073
## [1000,]  1.3037140                 1.0942820  1.7440961           1.7698410
## [1001,] -0.9652426                 0.2582572  1.7440961          -0.2141095
## [1002,] -0.9652426                -1.4137925  0.3673575          -0.8754263
## [1003,] -0.9652426                -2.2498173 -1.0093811           1.7698410
## [1004,]  0.5473952                 0.2582572  0.3673575          -0.2141095
## [1005,] -0.9652426                -0.5777676  0.3673575           1.1085242
## [1006,] -0.9652426                -1.4137925 -0.3210118           0.4472073
## [1007,]  2.0600329                 1.0942820  1.7440961           1.7698410
## [1008,] -0.9652426                -2.2498173 -1.0093811          -0.2141095
## [1009,] -0.9652426                 1.0942820  1.0557268          -0.8754263
## [1010,] -0.9652426                 0.2582572 -0.3210118          -0.8754263
##              Writing Passive.sport Active.sport   Gardening Celebrities
##     [1,]  0.07616101   -1.7010481    1.1349430  2.62648423  -1.0700304
##     [2,] -0.70083518   -1.7010481   -1.5262117 -0.77120911  -0.2828995
##     [3,]  2.40714959    1.1505014   -0.8609231 -0.77120911  -1.0700304
##     [4,]  0.85315721   -1.7010481   -1.5262117 -0.77120911  -0.2828995
##     [5,] -0.70083518   -0.2752733   -1.5262117  1.77706090   0.5042314
##     [6,] -0.70083518    1.1505014    0.4696543  0.07821423  -1.0700304
##     [7,] -0.70083518    1.1505014   -0.1956344  0.92763756  -1.0700304
##     [8,] -0.70083518    0.4376140    1.1349430 -0.77120911   0.5042314
##     [9,] -0.70083518    0.4376140   -1.5262117 -0.77120911   2.0784931
##    [10,] -0.70083518    0.4376140    0.4696543 -0.77120911  -0.2828995
##    [11,] -0.70083518    1.1505014   -1.5262117  0.92763756  -0.2828995
##    [12,] -0.70083518    1.1505014   -0.1956344 -0.77120911  -0.2828995
##    [13,] -0.70083518    1.1505014   -0.1956344  1.77706090   0.5042314
##    [14,] -0.70083518   -0.2752733   -0.1956344 -0.77120911   2.0784931
##    [15,]  2.40714959   -0.2752733   -1.5262117  2.62648423   2.0784931
##    [16,]  0.07616101    1.1505014   -0.1956344  0.92763756  -1.0700304
##    [17,] -0.70083518    1.1505014   -1.5262117 -0.77120911   0.5042314
##    [18,]  0.07616101   -1.7010481   -0.1956344  0.92763756   0.5042314
##    [19,] -0.70083518   -0.2752733   -0.1956344 -0.77120911  -1.0700304
##    [20,] -0.70083518    0.4376140   -0.8609231 -0.77120911   0.5042314
##    [21,]  0.85315721    1.1505014    1.1349430  0.07821423  -0.2828995
##    [22,]  1.63015340    1.1505014   -0.1956344  0.92763756  -1.0700304
```

```
##    [23,] -0.70083518 -0.2752733 -0.1956344 -0.77120911 -1.0700304
##    [24,]  0.85315721 -0.9881607  0.4696543  0.92763756  0.5042314
##    [25,]  0.85315721  0.4376140  1.1349430  0.92763756  1.2913622
##    [26,] -0.70083518 -0.2752733  0.4696543 -0.77120911  2.0784931
##    [27,]  0.07616101  0.4376140  1.1349430  2.62648423  1.2913622
##    [28,] -0.70083518 -0.2752733  0.4696543  0.07821423 -0.2828995
##    [29,] -0.70083518  1.1505014  1.1349430 -0.77120911  0.5042314
##    [30,]  0.07616101  1.1505014  0.4696543  0.92763756  1.2913622
##    [31,] -0.70083518 -1.7010481  1.1349430 -0.77120911 -0.2828995
##    [32,]  0.07616101 -0.2752733 -1.5262117  0.92763756 -1.0700304
##    [33,] -0.70083518 -0.9881607 -0.8609231 -0.77120911  1.2913622
##    [34,] -0.70083518  1.1505014  0.4696543  1.77706090  0.5042314
##    [35,]  0.07616101  1.1505014 -0.1956344 -0.77120911 -1.0700304
##    [36,] -0.70083518 -0.2752733 -0.1956344  0.92763756  0.5042314
##    [37,] -0.70083518 -0.9881607 -1.5262117  0.07821423  1.2913622
##    [38,] -0.70083518 -0.2752733  1.1349430  2.62648423 -0.2828995
##    [39,]  2.40714959 -0.2752733  0.4696543  1.77706090 -0.2828995
##    [40,] -0.70083518  1.1505014  1.1349430  0.07821423 -0.2828995
##    [41,] -0.70083518 -0.2752733 -1.5262117 -0.77120911  2.0784931
##    [42,] -0.70083518 -1.7010481  1.1349430 -0.77120911 -1.0700304
##    [43,] -0.70083518 -0.2752733 -1.5262117 -0.77120911 -0.2828995
##    [44,]  2.40714959  0.4376140 -0.1956344 -0.77120911  0.5042314
##    [45,]  0.85315721  0.4376140 -0.8609231  0.07821423  2.0784931
##    [46,] -0.70083518  0.4376140  1.1349430 -0.77120911  1.2913622
##    [47,] -0.70083518 -0.2752733  1.1349430 -0.77120911  1.2913622
##    [48,] -0.70083518 -0.9881607 -0.8609231 -0.77120911 -0.2828995
##    [49,] -0.70083518 -0.2752733  0.4696543  0.07821423 -0.2828995
##    [50,] -0.70083518 -0.9881607 -1.5262117 -0.77120911 -0.2828995
##    [51,] -0.70083518 -0.2752733  0.4696543 -0.77120911  1.2913622
##    [52,] -0.70083518  1.1505014  1.1349430  0.07821423 -0.2828995
##    [53,]  2.40714959  1.1505014  1.1349430  0.92763756 -1.0700304
##    [54,] -0.70083518  1.1505014  1.1349430  0.92763756 -1.0700304
##    [55,]  0.07616101  1.1505014  0.4696543 -0.77120911 -1.0700304
##    [56,] -0.70083518 -1.7010481 -0.1956344 -0.77120911  0.5042314
##    [57,]  0.85315721  1.1505014 -1.5262117  0.07821423 -0.2828995
##    [58,] -0.70083518  1.1505014 -0.1956344 -0.77120911  2.0784931
##    [59,] -0.70083518  1.1505014 -0.1956344  0.92763756 -0.2828995
##    [60,]  0.85315721 -1.7010481 -1.5262117 -0.77120911 -1.0700304
##    [61,]  2.40714959 -0.2752733  0.4696543  0.07821423 -1.0700304
##    [62,] -0.70083518  0.4376140 -1.5262117 -0.77120911 -0.2828995
##    [63,] -0.70083518  1.1505014  1.1349430 -0.77120911 -1.0700304
##    [64,] -0.70083518  1.1505014  1.1349430 -0.77120911 -0.2828995
##    [65,] -0.70083518 -0.9881607 -1.5262117 -0.77120911  0.5042314
##    [66,] -0.70083518 -0.2752733 -0.1956344 -0.77120911 -0.2828995
##    [67,] -0.70083518  1.1505014  1.1349430 -0.77120911  0.5042314
##    [68,]  0.07616101 -1.7010481 -0.1956344  1.77706090  0.5042314
##    [69,] -0.70083518  1.1505014 -1.5262117 -0.77120911 -1.0700304
##    [70,] -0.70083518 -1.7010481 -1.5262117 -0.77120911  2.0784931
##    [71,] -0.70083518 -1.7010481  1.1349430  0.07821423 -0.2828995
##    [72,] -0.70083518 -1.7010481  1.1349430 -0.77120911  1.2913622
```

```
##    [73,] -0.70083518    0.4376140   -0.1956344  0.07821423  -0.2828995
##    [74,] -0.70083518   -0.2752733    1.1349430 -0.77120911  -0.2828995
##    [75,]  0.85315721   -0.9881607    1.1349430 -0.77120911  -1.0700304
##    [76,]  0.07616101    1.1505014    1.1349430 -0.77120911   0.5042314
##    [77,] -0.70083518   -0.2752733    1.1349430 -0.77120911  -1.0700304
##    [78,] -0.70083518   -0.2752733    1.1349430 -0.77120911  -1.0700304
##    [79,]  0.85315721   -1.7010481    1.1349430  2.62648423  -1.0700304
##    [80,] -0.70083518    0.4376140   -0.1956344  0.07821423  -1.0700304
##    [81,] -0.70083518    1.1505014    1.1349430 -0.77120911   0.5042314
##    [82,] -0.70083518    0.4376140    1.1349430 -0.77120911  -0.2828995
##    [83,]  0.07616101    1.1505014   -1.5262117  1.77706090  -1.0700304
##    [84,] -0.70083518   -0.2752733   -1.5262117  0.92763756  -1.0700304
##    [85,] -0.70083518    1.1505014   -1.5262117 -0.77120911  -1.0700304
##    [86,] -0.70083518    0.4376140    0.4696543  0.07821423  -0.2828995
##    [87,]  1.63015340    1.1505014    1.1349430  0.07821423  -1.0700304
##    [88,] -0.70083518   -0.9881607    1.1349430 -0.77120911  -0.2828995
##    [89,]  2.40714959   -1.7010481   -1.5262117  0.07821423   2.0784931
##    [90,] -0.70083518   -0.9881607   -0.8609231 -0.77120911   0.5042314
##    [91,] -0.70083518    1.1505014   -1.5262117 -0.77120911  -1.0700304
##    [92,] -0.70083518    1.1505014   -0.1956344 -0.77120911   0.5042314
##    [93,]  1.63015340   -0.9881607   -0.8609231 -0.77120911  -0.2828995
##    [94,] -0.70083518    0.4376140    0.4696543 -0.77120911  -1.0700304
##    [95,] -0.70083518   -0.9881607   -1.5262117 -0.77120911  -1.0700304
##    [96,] -0.70083518    0.4376140   -0.8609231 -0.77120911   0.5042314
##    [97,] -0.70083518   -1.7010481    0.4696543 -0.77120911  -1.0700304
##    [98,] -0.70083518   -1.7010481    1.1349430  0.07821423  -1.0700304
##    [99,] -0.70083518    1.1505014    1.1349430 -0.77120911  -1.0700304
##   [100,] -0.70083518    0.4376140   -0.8609231 -0.77120911  -1.0700304
##   [101,] -0.70083518    0.4376140   -1.5262117  0.92763756   0.5042314
##   [102,] -0.70083518    1.1505014   -1.5262117 -0.77120911  -0.2828995
##   [103,]  0.07616101   -1.7010481    1.1349430  0.07821423  -1.0700304
##   [104,] -0.70083518    1.1505014   -0.1956344 -0.77120911   1.2913622
##   [105,]  0.85315721   -0.2752733   -0.1956344  0.07821423  -1.0700304
##   [106,] -0.70083518    0.4376140    1.1349430  0.92763756  -1.0700304
##   [107,] -0.70083518    1.1505014   -0.8609231 -0.77120911  -0.2828995
##   [108,]  1.63015340   -0.9881607    1.1349430  0.07821423  -1.0700304
##   [109,]  1.63015340    0.4376140   -1.5262117 -0.77120911  -1.0700304
##   [110,] -0.70083518   -0.9881607   -0.8609231 -0.77120911  -1.0700304
##   [111,]  0.85315721   -0.9881607    0.4696543 -0.77120911  -1.0700304
##   [112,]  1.63015340   -1.7010481   -0.1956344  0.07821423  -0.2828995
##   [113,] -0.70083518   -0.2752733   -0.8609231  0.92763756  -1.0700304
##   [114,] -0.70083518    1.1505014    1.1349430  2.62648423   1.2913622
##   [115,]  1.63015340   -1.7010481   -1.5262117  0.07821423  -0.2828995
##   [116,]  0.85315721   -0.2752733    0.4696543  0.92763756  -1.0700304
##   [117,]  2.40714959   -1.7010481   -1.5262117 -0.77120911  -1.0700304
##   [118,] -0.70083518   -1.7010481   -1.5262117  0.07821423   1.2913622
##   [119,]  0.07616101    0.4376140   -1.5262117  0.07821423  -1.0700304
##   [120,]  0.85315721   -0.9881607   -1.5262117  0.07821423  -1.0700304
##   [121,]  0.07616101   -1.7010481    0.4696543 -0.77120911  -1.0700304
##   [122,] -0.70083518   -0.2752733   -0.8609231 -0.77120911   0.5042314
```

```
##  [123,]  0.85315721   0.4376140  -0.8609231  0.07821423  -0.2828995
##  [124,]  1.63015340  -0.9881607   0.4696543  1.77706090  -1.0700304
##  [125,]  0.85315721   0.4376140   1.1349430 -0.77120911  -1.0700304
##  [126,]  2.40714959   0.4376140  -0.1956344  1.77706090  -1.0700304
##  [127,]  0.07616101  -1.7010481  -1.5262117  0.07821423   0.5042314
##  [128,]  0.85315721   0.4376140  -1.5262117  0.07821423  -1.0700304
##  [129,]  2.40714959  -1.7010481  -0.1956344  2.62648423  -1.0700304
##  [130,] -0.70083518  -0.9881607  -1.5262117 -0.77120911  -1.0700304
##  [131,]  1.63015340   1.1505014  -0.1956344  0.07821423   1.2913622
##  [132,] -0.70083518   1.1505014  -1.5262117 -0.77120911  -0.2828995
##  [133,] -0.70083518  -0.9881607  -1.5262117 -0.77120911   0.5042314
##  [134,]  0.85315721  -0.2752733   0.4696543  0.92763756  -1.0700304
##  [135,] -0.70083518  -1.7010481  -0.1956344  0.92763756  -0.2828995
##  [136,] -0.70083518   0.4376140   0.4696543  0.07821423   0.5042314
##  [137,]  0.07616101   1.1505014   1.1349430  1.77706090  -1.0700304
##  [138,]  1.63015340  -0.2752733  -1.5262117 -0.77120911  -0.2828995
##  [139,]  0.85315721  -0.9881607   0.4696543 -0.77120911  -0.2828995
##  [140,]  0.85315721  -0.9881607   0.4696543  0.07821423   1.2913622
##  [141,]  0.85315721  -0.9881607  -1.5262117 -0.77120911  -0.2828995
##  [142,] -0.70083518  -1.7010481  -0.1956344 -0.77120911  -1.0700304
##  [143,] -0.70083518  -0.2752733   0.4696543 -0.77120911   0.5042314
##  [144,] -0.70083518   1.1505014  -0.8609231 -0.77120911  -0.2828995
##  [145,] -0.70083518   0.4376140   0.4696543 -0.77120911  -1.0700304
##  [146,]  1.63015340  -0.9881607  -1.5262117 -0.77120911  -0.2828995
##  [147,] -0.70083518   1.1505014   1.1349430 -0.77120911  -0.2828995
##  [148,]  0.85315721   0.4376140  -1.5262117 -0.77120911  -1.0700304
##  [149,]  0.85315721  -0.2752733   0.4696543 -0.77120911  -0.2828995
##  [150,] -0.70083518  -0.9881607  -0.1956344 -0.77120911  -1.0700304
##  [151,] -0.70083518   1.1505014   0.4696543 -0.77120911  -0.2828995
##  [152,] -0.70083518   0.4376140   1.1349430 -0.77120911   1.2913622
##  [153,]  2.40714959  -0.2752733   1.1349430 -0.77120911  -1.0700304
##  [154,] -0.70083518  -0.2752733  -0.1956344  0.07821423   1.2913622
##  [155,] -0.70083518  -1.7010481  -1.5262117 -0.77120911  -1.0700304
##  [156,]  1.63015340  -0.2752733  -0.1956344  0.92763756  -0.2828995
##  [157,] -0.70083518  -0.2752733  -0.8609231 -0.77120911  -1.0700304
##  [158,] -0.70083518  -0.2752733  -1.5262117 -0.77120911  -0.2828995
##  [159,]  1.63015340   1.1505014   1.1349430  0.92763756   1.2913622
##  [160,]  0.07616101   1.1505014   0.4696543  0.92763756  -0.2828995
##  [161,]  1.63015340   1.1505014   1.1349430 -0.77120911  -1.0700304
##  [162,]  1.63015340   0.4376140  -0.8609231  0.92763756   1.2913622
##  [163,] -0.70083518  -1.7010481   1.1349430 -0.77120911  -1.0700304
##  [164,] -0.70083518  -1.7010481  -1.5262117 -0.77120911  -1.0700304
##  [165,]  1.63015340  -1.7010481  -0.1956344  0.07821423   2.0784931
##  [166,]  0.07616101  -0.9881607  -0.8609231 -0.77120911  -0.2828995
##  [167,] -0.70083518  -0.9881607   1.1349430 -0.77120911  -1.0700304
##  [168,] -0.70083518   1.1505014  -0.8609231 -0.77120911  -1.0700304
##  [169,]  1.63015340   0.4376140   0.4696543 -0.77120911   0.5042314
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##  [172,]  1.63015340   0.4376140   0.4696543 -0.77120911   1.2913622
```

```
##  [173,]  2.40714959   1.1505014  -0.8609231 -0.77120911  -1.0700304
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##  [175,]  2.40714959   1.1505014  -0.1956344  2.62648423   0.5042314
##  [176,] -0.70083518   1.1505014   0.4696543  0.07821423   0.5042314
##  [177,] -0.70083518  -1.7010481   1.1349430 -0.77120911  -1.0700304
##  [178,]  1.63015340   0.4376140   0.4696543  1.77706090   0.5042314
##  [179,]  1.63015340  -1.7010481  -1.5262117  0.92763756  -0.2828995
##  [180,]  0.07616101  -0.9881607  -0.1956344  0.07821423  -1.0700304
##  [181,] -0.70083518  -1.7010481  -1.5262117 -0.77120911  -1.0700304
##  [182,]  0.07616101  -0.2752733  -0.1956344  0.07821423  -0.2828995
##  [183,] -0.70083518  -0.2752733   0.4696543  0.07821423  -0.2828995
##  [184,]  0.85315721  -0.2752733   1.1349430  0.92763756  -1.0700304
##  [185,]  2.40714959  -0.9881607  -0.8609231 -0.77120911  -1.0700304
##  [186,] -0.70083518   1.1505014  -0.1956344  2.62648423  -1.0700304
##  [187,] -0.70083518  -0.2752733   0.4696543  1.77706090   0.5042314
##  [188,]  0.85315721  -0.9881607  -1.5262117 -0.77120911  -0.2828995
##  [189,]  0.85315721  -0.2752733  -0.1956344  0.92763756  -0.2828995
##  [190,] -0.70083518  -0.9881607  -0.1956344 -0.77120911  -1.0700304
##  [191,] -0.70083518   0.4376140   1.1349430  1.77706090  -1.0700304
##  [192,] -0.70083518  -0.9881607  -0.8609231  1.77706090   0.5042314
##  [193,]  2.40714959  -0.9881607   0.4696543 -0.77120911   2.0784931
##  [194,]  1.63015340   0.4376140   0.4696543  1.77706090  -1.0700304
##  [195,]  0.85315721   1.1505014  -0.8609231 -0.77120911  -1.0700304
##  [196,]  0.85315721   0.4376140   0.4696543  0.92763756   1.2913622
##  [197,] -0.70083518   1.1505014   1.1349430 -0.77120911  -0.2828995
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##  [199,] -0.70083518  -0.9881607   0.4696543 -0.77120911  -1.0700304
##  [200,] -0.70083518  -0.2752733   1.1349430 -0.77120911  -1.0700304
##  [201,] -0.70083518   1.1505014  -0.8609231 -0.77120911  -1.0700304
##  [202,]  2.40714959   0.4376140   0.4696543 -0.77120911   1.2913622
##  [203,] -0.70083518  -0.9881607   0.4696543 -0.77120911   0.5042314
##  [204,] -0.70083518   0.4376140  -0.1956344  0.92763756  -1.0700304
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##  [206,]  2.40714959  -1.7010481   0.4696543  1.77706090  -1.0700304
##  [207,]  0.85315721  -0.2752733  -0.1956344 -0.77120911  -1.0700304
##  [208,]  0.07616101   1.1505014   1.1349430  0.07821423   0.5042314
##  [209,]  0.07616101  -0.2752733   1.1349430 -0.77120911   1.2913622
##  [210,] -0.70083518   1.1505014   1.1349430 -0.77120911  -1.0700304
##  [211,]  0.85315721  -0.9881607   1.1349430  2.62648423   2.0784931
##  [212,] -0.70083518  -0.2752733   1.1349430 -0.77120911   2.0784931
##  [213,]  2.40714959   1.1505014  -1.5262117  1.77706090  -1.0700304
##  [214,] -0.70083518  -0.2752733  -0.1956344  0.92763756   1.2913622
##  [215,]  0.07616101  -0.9881607  -0.1956344  0.07821423   1.2913622
##  [216,] -0.70083518   1.1505014   1.1349430 -0.77120911   0.5042314
##  [217,] -0.70083518  -1.7010481  -0.1956344 -0.77120911  -1.0700304
##  [218,]  0.85315721  -0.2752733  -0.8609231  0.07821423  -0.2828995
##  [219,] -0.70083518  -0.9881607   0.4696543 -0.77120911   0.5042314
##  [220,] -0.70083518   1.1505014   1.1349430 -0.77120911   0.5042314
##  [221,] -0.70083518   1.1505014   1.1349430  0.92763756  -1.0700304
##  [222,]  0.85315721  -0.2752733   1.1349430  0.92763756  -1.0700304
```

```
## [223,]   0.07616101    0.4376140   -0.8609231   0.92763756    0.5042314
## [224,]   1.63015340    1.1505014    1.1349430   0.07821423   -0.2828995
## [225,]  -0.70083518    0.4376140   -1.5262117  -0.77120911   -1.0700304
## [226,]  -0.70083518    0.4376140   -0.8609231  -0.77120911   -1.0700304
## [227,]  -0.70083518    1.1505014   -0.1956344   2.62648423    2.0784931
## [228,]   0.07616101    0.4376140   -0.8609231  -0.77120911   -1.0700304
## [229,]  -0.70083518    0.4376140   -0.8609231   1.77706090   -1.0700304
## [230,]  -0.70083518    1.1505014   -0.1956344   0.07821423   -1.0700304
## [231,]  -0.70083518    1.1505014    0.4696543  -0.77120911    0.5042314
## [232,]   0.85315721    0.4376140   -0.8609231   1.77706090    2.0784931
## [233,]  -0.70083518    1.1505014   -0.8609231   0.92763756   -0.2828995
## [234,]   0.85315721    1.1505014    1.1349430   0.92763756    0.5042314
## [235,]  -0.70083518    0.4376140   -0.8609231   0.92763756    0.5042314
## [236,]   0.85315721    1.1505014   -1.5262117   0.92763756   -1.0700304
## [237,]   0.07616101    0.4376140    0.4696543   0.92763756   -0.2828995
## [238,]  -0.70083518    1.1505014   -0.8609231  -0.77120911   -0.2828995
## [239,]  -0.70083518   -0.9881607   -0.8609231  -0.77120911    0.5042314
## [240,]   0.85315721   -0.9881607    0.4696543   0.92763756   -1.0700304
## [241,]  -0.70083518    1.1505014    1.1349430   0.07821423    0.5042314
## [242,]   0.07616101    1.1505014   -0.1956344  -0.77120911    2.0784931
## [243,]   0.07616101   -0.9881607   -0.8609231   0.07821423   -0.2828995
## [244,]   1.63015340   -0.9881607   -1.5262117   1.77706090    0.5042314
## [245,]  -0.70083518   -0.9881607   -0.1956344  -0.77120911    2.0784931
## [246,]   2.40714959    1.1505014    1.1349430   0.07821423   -0.2828995
## [247,]  -0.70083518   -1.7010481    1.1349430  -0.77120911   -1.0700304
## [248,]  -0.70083518   -0.9881607    1.1349430   0.92763756    0.5042314
## [249,]  -0.70083518   -0.9881607   -0.8609231  -0.77120911   -1.0700304
## [250,]   0.85315721    1.1505014   -0.1956344   0.07821423   -1.0700304
## [251,]   0.07616101    1.1505014   -0.1956344  -0.77120911    1.2913622
## [252,]  -0.70083518    1.1505014    0.4696543   0.92763756   -1.0700304
## [253,]   2.40714959    1.1505014   -0.1956344   2.62648423    0.5042314
## [254,]  -0.70083518    1.1505014   -0.8609231   2.62648423   -0.2828995
## [255,]  -0.70083518    0.4376140   -1.5262117   0.92763756    2.0784931
## [256,]   2.40714959   -0.2752733    1.1349430  -0.77120911   -1.0700304
## [257,]  -0.70083518   -1.7010481    1.1349430  -0.77120911    2.0784931
## [258,]  -0.70083518    1.1505014    1.1349430  -0.77120911    0.5042314
## [259,]  -0.70083518    0.4376140   -0.8609231  -0.77120911   -1.0700304
## [260,]   0.07616101    1.1505014   -0.8609231  -0.77120911   -1.0700304
## [261,]   0.85315721   -0.2752733   -1.5262117   0.92763756    0.5042314
## [262,]   2.40714959   -0.9881607    1.1349430   1.77706090    1.2913622
## [263,]   2.40714959    0.4376140   -1.5262117   1.77706090   -1.0700304
## [264,]   0.85315721    1.1505014    0.4696543   0.07821423   -0.2828995
## [265,]  -0.70083518   -1.7010481    1.1349430   0.92763756    0.5042314
## [266,]  -0.70083518   -0.2752733   -1.5262117  -0.77120911    0.5042314
## [267,]  -0.70083518   -0.9881607    0.4696543   0.92763756    0.5042314
## [268,]   0.07616101   -0.2752733   -0.1956344  -0.77120911   -1.0700304
## [269,]  -0.70083518    1.1505014   -0.8609231   1.77706090   -0.2828995
## [270,]   0.07616101   -1.7010481   -1.5262117   0.07821423   -1.0700304
## [271,]  -0.70083518   -1.7010481   -1.5262117  -0.77120911    2.0784931
## [272,]  -0.70083518    0.4376140    1.1349430  -0.77120911    1.2913622
```

```
##   [273,]   0.07616101   -1.7010481   -0.8609231   0.07821423   -1.0700304
##   [274,]   0.07616101    0.4376140    0.4696543  -0.77120911   -0.2828995
##   [275,]   1.63015340   -0.9881607    0.4696543   2.62648423   -1.0700304
##   [276,]   2.40714959    0.4376140   -0.8609231   0.07821423    1.2913622
##   [277,]  -0.70083518    1.1505014   -0.8609231  -0.77120911   -0.2828995
##   [278,]  -0.70083518    0.4376140    1.1349430  -0.77120911   -1.0700304
##   [279,]  -0.70083518   -1.7010481    1.1349430   2.62648423    0.5042314
##   [280,]  -0.70083518   -0.2752733   -1.5262117  -0.77120911   -0.2828995
##   [281,]   2.40714959    1.1505014    1.1349430  -0.77120911   -0.2828995
##   [282,]  -0.70083518    1.1505014   -1.5262117  -0.77120911   -1.0700304
##   [283,]  -0.70083518   -0.9881607   -1.5262117  -0.77120911   -0.2828995
##   [284,]  -0.70083518    1.1505014    1.1349430   0.92763756   -0.2828995
##   [285,]  -0.70083518    1.1505014    1.1349430   0.92763756   -0.2828995
##   [286,]   0.07616101    0.4376140   -0.8609231  -0.77120911   -0.2828995
##   [287,]  -0.70083518   -0.2752733    1.1349430   0.07821423    0.5042314
##   [288,]  -0.70083518   -0.2752733    0.4696543   0.07821423   -0.2828995
##   [289,]   0.07616101    1.1505014    1.1349430  -0.77120911   -0.2828995
##   [290,]  -0.70083518    1.1505014    0.4696543  -0.77120911   -0.2828995
##   [291,]   2.40714959   -0.2752733    0.4696543  -0.77120911   -1.0700304
##   [292,]  -0.70083518   -0.2752733    1.1349430  -0.77120911   -1.0700304
##   [293,]   1.63015340   -1.7010481   -0.8609231  -0.77120911    2.0784931
##   [294,]   0.85315721   -1.7010481   -0.8609231  -0.77120911   -1.0700304
##   [295,]  -0.70083518   -0.2752733    0.4696543  -0.77120911   -1.0700304
##   [296,]  -0.70083518    0.4376140    1.1349430  -0.77120911   -0.2828995
##   [297,]  -0.70083518    1.1505014    1.1349430  -0.77120911   -1.0700304
##   [298,]   0.85315721    0.4376140   -1.5262117   0.92763756   -1.0700304
##   [299,]   2.40714959   -1.7010481    1.1349430   0.07821423   -0.2828995
##   [300,]  -0.70083518    1.1505014   -0.8609231  -0.77120911   -0.2828995
##   [301,]   0.85315721   -1.7010481   -0.1956344   0.92763756   -1.0700304
##   [302,]   0.07616101   -0.9881607   -1.5262117   0.07821423   -1.0700304
##   [303,]  -0.70083518   -0.9881607   -0.1956344  -0.77120911    0.5042314
##   [304,]  -0.70083518    1.1505014    0.4696543   1.77706090    1.2913622
##   [305,]  -0.70083518   -0.9881607   -0.1956344   0.92763756   -1.0700304
##   [306,]   0.07616101   -0.2752733   -0.1956344  -0.77120911    0.5042314
##   [307,]  -0.70083518    1.1505014    1.1349430   0.07821423   -0.2828995
##   [308,]   2.40714959    1.1505014    0.4696543   0.07821423   -1.0700304
##   [309,]  -0.70083518    1.1505014    1.1349430   0.07821423    0.5042314
##   [310,]  -0.70083518   -0.9881607    0.4696543   2.62648423   -1.0700304
##   [311,]  -0.70083518   -0.2752733   -0.1956344   0.07821423   -0.2828995
##   [312,]   0.07616101    1.1505014    0.4696543   0.07821423    0.5042314
##   [313,]  -0.70083518    1.1505014    1.1349430  -0.77120911   -1.0700304
##   [314,]  -0.70083518    0.4376140    0.4696543  -0.77120911    1.2913622
##   [315,]   1.63015340    1.1505014    1.1349430   0.07821423    0.5042314
##   [316,]  -0.70083518    1.1505014   -0.1956344  -0.77120911    1.2913622
##   [317,]  -0.70083518    0.4376140    0.4696543   1.77706090    1.2913622
##   [318,]  -0.70083518    1.1505014    1.1349430  -0.77120911   -0.2828995
##   [319,]   0.07616101    1.1505014   -0.1956344   2.62648423    0.5042314
##   [320,]   0.85315721    0.4376140   -1.5262117  -0.77120911    1.2913622
##   [321,]   0.85315721    0.4376140   -0.1956344   0.92763756    1.2913622
##   [322,]   0.07616101   -0.2752733    0.4696543   0.07821423    0.5042314
```

```
##    [323,] -0.70083518   0.4376140    1.1349430  0.07821423   0.5042314
##    [324,] -0.70083518   1.1505014    0.4696543  1.77706090   0.5042314
##    [325,] -0.70083518  -0.2752733   -1.5262117 -0.77120911   1.2913622
##    [326,]  0.07616101   1.1505014    1.1349430  2.62648423  -0.2828995
##    [327,] -0.70083518   0.4376140   -0.1956344  0.92763756   0.5042314
##    [328,]  0.85315721   0.4376140   -0.8609231  0.07821423   2.0784931
##    [329,] -0.70083518  -0.2752733    1.1349430 -0.77120911  -1.0700304
##    [330,] -0.70083518   1.1505014   -0.1956344  0.07821423   2.0784931
##    [331,] -0.70083518  -0.2752733    0.4696543 -0.77120911   1.2913622
##    [332,]  1.63015340  -1.7010481    1.1349430  1.77706090   0.5042314
##    [333,]  1.63015340   1.1505014   -0.1956344  0.92763756  -1.0700304
##    [334,]  1.63015340   1.1505014    1.1349430  0.92763756  -0.2828995
##    [335,] -0.70083518  -0.2752733   -0.8609231  0.07821423  -0.2828995
##    [336,]  0.07616101  -0.2752733    1.1349430  0.07821423  -0.2828995
##    [337,] -0.70083518  -1.7010481   -1.5262117  0.07821423   0.5042314
##    [338,] -0.70083518  -1.7010481    1.1349430  1.77706090   1.2913622
##    [339,]  0.07616101   0.4376140   -0.8609231 -0.77120911   1.2913622
##    [340,] -0.70083518   0.4376140    1.1349430  0.07821423   0.5042314
##    [341,]  2.40714959  -0.9881607   -1.5262117 -0.77120911  -0.2828995
##    [342,]  1.63015340   1.1505014    1.1349430  0.92763756   1.2913622
##    [343,] -0.70083518   1.1505014   -0.1956344 -0.77120911  -0.2828995
##    [344,] -0.70083518  -0.2752733    0.4696543  2.62648423  -0.2828995
##    [345,] -0.70083518   1.1505014   -0.8609231  1.77706090   2.0784931
##    [346,] -0.70083518   1.1505014   -0.8609231  0.92763756   0.5042314
##    [347,] -0.70083518   1.1505014   -0.1956344 -0.77120911  -0.2828995
##    [348,] -0.70083518  -0.2752733    1.1349430 -0.77120911   0.5042314
##    [349,] -0.70083518  -1.7010481    1.1349430  2.62648423  -1.0700304
##    [350,] -0.70083518   0.4376140    1.1349430 -0.77120911   0.5042314
##    [351,] -0.70083518   0.4376140   -0.1956344 -0.77120911  -1.0700304
##    [352,] -0.70083518   1.1505014    1.1349430  1.77706090   1.2913622
##    [353,] -0.70083518   1.1505014   -1.5262117  0.92763756  -1.0700304
##    [354,]  0.85315721  -1.7010481   -0.1956344  0.07821423  -0.2828995
##    [355,]  1.63015340  -1.7010481    0.4696543  0.92763756   1.2913622
##    [356,]  0.07616101   1.1505014    1.1349430 -0.77120911   0.5042314
##    [357,] -0.70083518   1.1505014   -0.1956344 -0.77120911   0.5042314
##    [358,] -0.70083518   1.1505014    1.1349430  0.07821423  -1.0700304
##    [359,] -0.70083518  -0.2752733    0.4696543  0.07821423   0.5042314
##    [360,] -0.70083518  -1.7010481    1.1349430 -0.77120911   0.5042314
##    [361,]  0.07616101   1.1505014    1.1349430 -0.77120911   1.2913622
##    [362,]  1.63015340  -0.2752733    1.1349430  0.07821423  -1.0700304
##    [363,]  0.07616101  -0.2752733   -0.1956344 -0.77120911  -0.2828995
##    [364,]  0.07616101  -1.7010481    0.4696543 -0.77120911  -0.2828995
##    [365,] -0.70083518   1.1505014    1.1349430 -0.77120911   0.5042314
##    [366,]  0.07616101   0.4376140   -0.1956344 -0.77120911  -1.0700304
##    [367,] -0.70083518   0.4376140   -0.1956344 -0.77120911   0.5042314
##    [368,] -0.70083518   1.1505014    1.1349430 -0.77120911  -1.0700304
##    [369,] -0.70083518   1.1505014   -0.8609231  0.92763756   2.0784931
##    [370,] -0.70083518  -0.2752733    1.1349430  0.92763756   0.5042314
##    [371,] -0.70083518  -0.2752733   -0.1956344  0.92763756  -1.0700304
##    [372,]  0.85315721  -0.9881607    1.1349430  0.92763756  -1.0700304
```

```
##  [373,] -0.70083518  -1.7010481  -1.5262117 -0.77120911  -1.0700304
##  [374,] -0.70083518   1.1505014   0.4696543 -0.77120911   0.5042314
##  [375,] -0.70083518   1.1505014   0.4696543 -0.77120911   0.5042314
##  [376,] -0.70083518   1.1505014   1.1349430  0.07821423  -0.2828995
##  [377,] -0.70083518   0.4376140   1.1349430  0.07821423   0.5042314
##  [378,]  0.85315721   1.1505014  -0.1956344  0.07821423  -1.0700304
##  [379,] -0.70083518   1.1505014  -0.8609231  0.07821423  -1.0700304
##  [380,] -0.70083518  -0.2752733   1.1349430 -0.77120911  -0.2828995
##  [381,] -0.70083518  -0.2752733  -0.1956344 -0.77120911   1.2913622
##  [382,] -0.70083518   0.4376140  -1.5262117 -0.77120911  -1.0700304
##  [383,]  0.07616101  -0.2752733   1.1349430 -0.77120911   2.0784931
##  [384,] -0.70083518  -1.7010481   0.4696543 -0.77120911  -1.0700304
##  [385,] -0.70083518   0.4376140  -1.5262117 -0.77120911  -1.0700304
##  [386,] -0.70083518   1.1505014  -0.1956344 -0.77120911   0.5042314
##  [387,]  2.40714959   1.1505014  -0.1956344 -0.77120911  -1.0700304
##  [388,] -0.70083518   0.4376140  -0.1956344 -0.77120911   2.0784931
##  [389,]  2.40714959  -0.9881607   0.4696543  0.92763756  -1.0700304
##  [390,]  1.63015340   1.1505014   1.1349430  0.92763756  -0.2828995
##  [391,]  0.07616101  -0.2752733  -0.1956344 -0.77120911  -0.2828995
##  [392,] -0.70083518  -0.2752733   0.4696543 -0.77120911  -0.2828995
##  [393,] -0.70083518  -0.9881607  -1.5262117  0.07821423   0.5042314
##  [394,] -0.70083518  -1.7010481   1.1349430  0.07821423  -1.0700304
##  [395,]  0.07616101   1.1505014  -0.1956344 -0.77120911   2.0784931
##  [396,] -0.70083518   0.4376140   1.1349430 -0.77120911  -1.0700304
##  [397,] -0.70083518  -0.9881607  -1.5262117 -0.77120911  -0.2828995
##  [398,]  0.07616101   0.4376140  -0.8609231 -0.77120911   2.0784931
##  [399,]  0.85315721   1.1505014   0.4696543 -0.77120911   1.2913622
##  [400,]  0.07616101   0.4376140  -0.8609231  0.92763756  -0.2828995
##  [401,] -0.70083518  -1.7010481  -1.5262117 -0.77120911  -1.0700304
##  [402,] -0.70083518  -0.9881607  -1.5262117 -0.77120911  -1.0700304
##  [403,] -0.70083518  -0.2752733  -0.1956344  0.07821423   0.5042314
##  [404,]  0.07616101  -0.9881607  -0.1956344  0.07821423  -0.2828995
##  [405,] -0.70083518   1.1505014  -0.1956344  0.07821423  -1.0700304
##  [406,]  0.85315721  -1.7010481  -0.1956344  0.07821423  -0.2828995
##  [407,] -0.70083518   1.1505014  -1.5262117 -0.77120911  -1.0700304
##  [408,]  0.85315721  -1.7010481  -0.1956344 -0.77120911   0.5042314
##  [409,] -0.70083518  -0.2752733  -1.5262117 -0.77120911  -1.0700304
##  [410,]  0.07616101  -1.7010481   1.1349430 -0.77120911   2.0784931
##  [411,] -0.70083518   1.1505014   1.1349430 -0.77120911  -1.0700304
##  [412,] -0.70083518  -1.7010481   1.1349430 -0.77120911  -0.2828995
##  [413,] -0.70083518  -1.7010481  -0.8609231 -0.77120911  -1.0700304
##  [414,] -0.70083518   1.1505014   0.4696543 -0.77120911   0.5042314
##  [415,]  2.40714959  -1.7010481  -1.5262117 -0.77120911  -1.0700304
##  [416,] -0.70083518   1.1505014  -1.5262117 -0.77120911   2.0784931
##  [417,]  0.07616101   1.1505014  -0.8609231  0.07821423  -0.2828995
##  [418,] -0.70083518  -0.2752733   0.4696543 -0.77120911  -1.0700304
##  [419,] -0.70083518  -1.7010481  -0.1956344  0.92763756   0.5042314
##  [420,]  0.07616101  -0.2752733  -1.5262117 -0.77120911  -1.0700304
##  [421,] -0.70083518  -0.2752733  -1.5262117 -0.77120911  -0.2828995
##  [422,]  2.40714959   1.1505014  -0.8609231  0.92763756   1.2913622
```

```
##  [423,]  0.07616101   1.1505014   1.1349430  1.77706090   2.0784931
##  [424,]  0.07616101  -0.2752733  -1.5262117  0.92763756   0.5042314
##  [425,] -0.70083518  -0.9881607  -1.5262117  0.07821423  -1.0700304
##  [426,] -0.70083518  -1.7010481   1.1349430  1.77706090   2.0784931
##  [427,] -0.70083518   0.4376140  -1.5262117 -0.77120911  -1.0700304
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##  [429,]  0.07616101   1.1505014  -0.1956344  0.07821423   2.0784931
##  [430,]  1.63015340  -0.2752733   1.1349430 -0.77120911   1.2913622
##  [431,] -0.70083518  -1.7010481   1.1349430  0.92763756  -1.0700304
##  [432,] -0.70083518   0.4376140  -1.5262117  0.92763756  -0.2828995
##  [433,] -0.70083518   0.4376140  -0.1956344 -0.77120911  -1.0700304
##  [434,] -0.70083518  -0.9881607  -1.5262117 -0.77120911   0.5042314
##  [435,] -0.70083518   0.4376140   1.1349430 -0.77120911  -0.2828995
##  [436,] -0.70083518  -0.2752733  -0.8609231  0.07821423   0.5042314
##  [437,] -0.70083518  -0.9881607   0.4696543 -0.77120911  -0.2828995
##  [438,]  0.07616101   0.4376140  -0.8609231 -0.77120911  -0.2828995
##  [439,]  1.63015340  -0.9881607  -1.5262117  0.92763756   1.2913622
##  [440,] -0.70083518   1.1505014   1.1349430 -0.77120911   0.5042314
##  [441,] -0.70083518  -0.2752733  -0.1956344  0.07821423   1.2913622
##  [442,] -0.70083518  -0.9881607   1.1349430 -0.77120911  -0.2828995
##  [443,]  0.07616101  -0.2752733   0.4696543  0.07821423   1.2913622
##  [444,] -0.70083518   0.4376140  -1.5262117 -0.77120911  -1.0700304
##  [445,]  0.07616101  -0.2752733   0.4696543 -0.77120911  -1.0700304
##  [446,] -0.70083518   0.4376140   1.1349430  0.92763756   2.0784931
##  [447,] -0.70083518   1.1505014  -0.1956344 -0.77120911  -1.0700304
##  [448,]  2.40714959  -1.7010481  -1.5262117  0.92763756  -1.0700304
##  [449,] -0.70083518  -0.2752733  -1.5262117 -0.77120911   0.5042314
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##  [451,] -0.70083518   1.1505014   0.4696543  1.77706090   2.0784931
##  [452,] -0.70083518   1.1505014   1.1349430 -0.77120911  -1.0700304
##  [453,] -0.70083518   1.1505014   1.1349430  0.07821423   0.5042314
##  [454,] -0.70083518  -0.9881607  -1.5262117  0.07821423  -0.2828995
##  [455,] -0.70083518   0.4376140  -1.5262117  0.07821423   2.0784931
##  [456,]  0.07616101  -0.2752733   1.1349430  1.77706090   1.2913622
##  [457,] -0.70083518   1.1505014   1.1349430 -0.77120911  -1.0700304
##  [458,]  0.07616101   1.1505014  -0.1956344 -0.77120911  -1.0700304
##  [459,] -0.70083518  -1.7010481  -1.5262117 -0.77120911  -1.0700304
##  [460,] -0.70083518   0.4376140  -1.5262117 -0.77120911  -1.0700304
##  [461,] -0.70083518   1.1505014   1.1349430 -0.77120911  -1.0700304
##  [462,]  0.85315721  -0.2752733  -0.1956344  0.92763756   0.5042314
##  [463,] -0.70083518   0.4376140  -0.8609231  0.92763756  -1.0700304
##  [464,] -0.70083518  -0.2752733  -1.5262117  0.92763756  -1.0700304
##  [465,] -0.70083518   0.4376140  -1.5262117 -0.77120911   0.5042314
##  [466,] -0.70083518  -1.7010481  -0.1956344 -0.77120911  -0.2828995
##  [467,] -0.70083518  -1.7010481   1.1349430  0.07821423   2.0784931
##  [468,] -0.70083518  -0.9881607  -0.8609231 -0.77120911  -0.2828995
##  [469,] -0.70083518  -0.9881607   0.4696543  0.07821423   0.5042314
##  [470,] -0.70083518  -0.2752733  -0.1956344 -0.77120911   0.5042314
##  [471,] -0.70083518   0.4376140  -1.5262117  0.07821423   0.5042314
##  [472,] -0.70083518  -0.9881607   1.1349430 -0.77120911  -1.0700304
```

```
##  [473,]   0.85315721    1.1505014   -0.8609231 -0.77120911   -1.0700304
##  [474,]   0.85315721   -1.7010481   -1.5262117 -0.77120911   -1.0700304
##  [475,]   1.63015340   -0.9881607    1.1349430 -0.77120911   -0.2828995
##  [476,]   0.85315721   -0.2752733   -0.1956344 -0.77120911    1.2913622
##  [477,]   1.63015340   -0.9881607   -0.1956344  0.07821423   -0.2828995
##  [478,]   0.07616101   -0.9881607   -0.1956344 -0.77120911   -1.0700304
##  [479,]   2.40714959   -0.9881607   -1.5262117 -0.77120911   -0.2828995
##  [480,]  -0.70083518   -0.2752733   -0.8609231  0.92763756   -0.2828995
##  [481,]  -0.70083518    1.1505014   -0.1956344  1.77706090   -0.2828995
##  [482,]   2.40714959   -1.7010481   -0.8609231 -0.77120911   -1.0700304
##  [483,]   0.07616101   -0.2752733   -0.1956344 -0.77120911   -0.2828995
##  [484,]   0.07616101    0.4376140   -0.8609231 -0.77120911    0.5042314
##  [485,]  -0.70083518    0.4376140   -0.1956344  0.92763756   -0.2828995
##  [486,]  -0.70083518   -0.2752733   -1.5262117 -0.77120911    1.2913622
##  [487,]  -0.70083518   -0.2752733    0.4696543 -0.77120911    2.0784931
##  [488,]  -0.70083518    1.1505014    1.1349430 -0.77120911    2.0784931
##  [489,]   0.07616101   -0.2752733    1.1349430 -0.77120911   -1.0700304
##  [490,]   0.85315721    1.1505014    1.1349430 -0.77120911    0.5042314
##  [491,]  -0.70083518    1.1505014    1.1349430 -0.77120911    1.2913622
##  [492,]  -0.70083518   -1.7010481    1.1349430 -0.77120911    0.5042314
##  [493,]   2.40714959   -1.7010481   -0.8609231  0.07821423    1.2913622
##  [494,]  -0.70083518    1.1505014   -0.1956344  0.07821423   -0.2828995
##  [495,]  -0.70083518   -0.2752733   -0.1956344  0.07821423    0.5042314
##  [496,]  -0.70083518    1.1505014   -1.5262117  2.62648423    1.2913622
##  [497,]  -0.70083518   -1.7010481   -1.5262117  0.92763756   -0.2828995
##  [498,]   0.85315721    0.4376140    0.4696543 -0.77120911   -1.0700304
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##  [500,]  -0.70083518    0.4376140   -0.8609231 -0.77120911   -1.0700304
##  [501,]   0.07616101    1.1505014   -1.5262117  0.07821423    0.5042314
##  [502,]  -0.70083518   -0.2752733    1.1349430 -0.77120911   -0.2828995
##  [503,]  -0.70083518   -0.9881607   -0.1956344 -0.77120911   -1.0700304
##  [504,]  -0.70083518   -1.7010481   -1.5262117 -0.77120911    0.5042314
##  [505,]  -0.70083518    1.1505014   -0.1956344  2.62648423    2.0784931
##  [506,]  -0.70083518    0.4376140    1.1349430 -0.77120911    0.5042314
##  [507,]  -0.70083518    1.1505014    1.1349430 -0.77120911   -1.0700304
##  [508,]  -0.70083518   -0.9881607    1.1349430  0.92763756   -0.2828995
##  [509,]   0.85315721    1.1505014   -0.8609231 -0.77120911   -0.2828995
##  [510,]  -0.70083518    0.4376140    1.1349430 -0.77120911   -1.0700304
##  [511,]  -0.70083518    1.1505014    1.1349430 -0.77120911   -1.0700304
##  [512,]  -0.70083518   -0.9881607    0.4696543 -0.77120911   -1.0700304
##  [513,]   2.40714959   -1.7010481   -1.5262117  0.92763756    2.0784931
##  [514,]  -0.70083518    1.1505014    1.1349430  0.92763756    0.5042314
##  [515,]   0.07616101   -0.9881607   -1.5262117 -0.77120911    0.5042314
##  [516,]  -0.70083518    1.1505014   -1.5262117  0.92763756    0.5042314
##  [517,]   0.85315721    1.1505014    1.1349430  0.92763756   -1.0700304
##  [518,]   1.63015340   -1.7010481    1.1349430 -0.77120911    2.0784931
##  [519,]  -0.70083518   -0.2752733    1.1349430 -0.77120911    0.5042314
##  [520,]  -0.70083518   -0.2752733    1.1349430  2.62648423   -1.0700304
##  [521,]  -0.70083518    0.4376140    0.4696543  0.92763756    0.5042314
##  [522,]   0.85315721   -0.2752733   -1.5262117 -0.77120911    1.2913622
```

```
## [523,] -0.70083518  -0.2752733   0.4696543 -0.77120911  -0.2828995
## [524,]  0.85315721   1.1505014   1.1349430 -0.77120911  -1.0700304
## [525,] -0.70083518   1.1505014  -1.5262117 -0.77120911   2.0784931
## [526,]  0.85315721  -0.9881607   1.1349430  0.92763756  -0.2828995
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## [531,] -0.70083518  -1.7010481  -1.5262117 -0.77120911  -0.2828995
## [532,]  0.07616101   1.1505014  -0.1956344  0.07821423  -1.0700304
## [533,]  0.85315721   1.1505014  -0.1956344  0.07821423   0.5042314
## [534,]  0.07616101   1.1505014   1.1349430 -0.77120911  -1.0700304
## [535,] -0.70083518  -0.2752733  -1.5262117 -0.77120911  -0.2828995
## [536,]  1.63015340   0.4376140   0.4696543  0.92763756   0.5042314
## [537,] -0.70083518   1.1505014   1.1349430 -0.77120911   2.0784931
## [538,] -0.70083518   1.1505014   0.4696543 -0.77120911  -1.0700304
## [539,] -0.70083518  -0.2752733  -1.5262117  0.07821423   0.5042314
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## [544,] -0.70083518  -0.9881607  -1.5262117 -0.77120911  -1.0700304
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## [547,]  0.07616101   1.1505014   1.1349430  0.92763756  -1.0700304
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## [549,] -0.70083518  -0.2752733  -0.8609231  0.07821423   0.5042314
## [550,] -0.70083518  -0.9881607  -1.5262117  0.92763756  -0.2828995
## [551,]  0.85315721   0.4376140  -0.8609231  0.07821423  -0.2828995
## [552,] -0.70083518   1.1505014  -0.1956344  0.92763756   1.2913622
## [553,]  2.40714959   1.1505014   0.4696543  0.07821423   2.0784931
## [554,]  0.07616101   0.4376140  -0.1956344 -0.77120911  -1.0700304
## [555,]  0.07616101   0.4376140   1.1349430  0.07821423   0.5042314
## [556,] -0.70083518  -0.2752733  -0.8609231  0.07821423   2.0784931
## [557,]  0.07616101   0.4376140   0.4696543 -0.77120911   0.5042314
## [558,]  1.63015340  -0.2752733  -1.5262117 -0.77120911  -1.0700304
## [559,]  1.63015340  -0.9881607  -0.1956344 -0.77120911  -0.2828995
## [560,] -0.70083518  -0.2752733  -0.8609231 -0.77120911   1.2913622
## [561,]  2.40714959  -1.7010481   1.1349430  2.62648423  -0.2828995
## [562,]  0.07616101   1.1505014   1.1349430  0.92763756  -0.2828995
## [563,] -0.70083518   1.1505014   1.1349430  0.07821423   0.5042314
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## [565,] -0.70083518  -0.2752733   1.1349430 -0.77120911  -1.0700304
## [566,]  0.07616101   1.1505014   1.1349430  2.62648423   2.0784931
## [567,]  0.85315721   1.1505014  -1.5262117  0.92763756  -0.2828995
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## [571,] -0.70083518   1.1505014   1.1349430 -0.77120911   0.5042314
## [572,]  0.07616101  -0.2752733   1.1349430 -0.77120911  -1.0700304
```

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##   [573,] -0.70083518  1.1505014   1.1349430  1.77706090 -1.0700304
##   [574,] -0.70083518  1.1505014   1.1349430 -0.77120911 -0.2828995
##   [575,] -0.70083518  1.1505014   1.1349430  0.92763756  0.5042314
##   [576,]  0.85315721 -0.2752733   1.1349430  0.92763756 -0.2828995
##   [577,] -0.70083518  1.1505014   1.1349430 -0.77120911 -0.2828995
##   [578,] -0.70083518 -0.2752733  -0.1956344 -0.77120911 -0.2828995
##   [579,]  2.40714959  1.1505014  -1.5262117  0.07821423  1.2913622
##   [580,] -0.70083518  1.1505014   1.1349430 -0.77120911  1.2913622
##   [581,] -0.70083518 -1.7010481   1.1349430 -0.77120911 -1.0700304
##   [582,] -0.70083518  1.1505014   0.4696543  0.07821423  0.5042314
##   [583,]  0.07616101  1.1505014  -0.8609231 -0.77120911 -1.0700304
##   [584,]  2.40714959  0.4376140  -0.1956344  0.07821423 -1.0700304
##   [585,] -0.70083518 -0.2752733  -1.5262117  0.07821423 -0.2828995
##   [586,] -0.70083518 -0.9881607   1.1349430 -0.77120911  0.5042314
##   [587,]  2.40714959 -1.7010481   1.1349430 -0.77120911  0.5042314
##   [588,] -0.70083518 -0.9881607   1.1349430  0.07821423 -0.2828995
##   [589,] -0.70083518 -0.9881607   1.1349430  1.77706090  0.5042314
##   [590,]  0.85315721 -0.2752733   1.1349430  0.07821423 -1.0700304
##   [591,] -0.70083518 -0.9881607   0.4696543  0.07821423 -1.0700304
##   [592,]  1.63015340 -0.2752733   1.1349430 -0.77120911 -0.2828995
##   [593,] -0.70083518 -1.7010481  -1.5262117 -0.77120911  1.2913622
##   [594,] -0.70083518  1.1505014  -0.8609231  0.07821423 -1.0700304
##   [595,] -0.70083518 -1.7010481  -0.1956344 -0.77120911 -1.0700304
##   [596,]  0.85315721 -0.9881607   0.4696543 -0.77120911 -1.0700304
##   [597,] -0.70083518 -0.2752733  -0.8609231  0.07821423 -1.0700304
##   [598,] -0.70083518  1.1505014   1.1349430  0.07821423 -0.2828995
##   [599,] -0.70083518  1.1505014  -0.1956344  0.07821423  0.5042314
##   [600,]  0.07616101  1.1505014   0.4696543 -0.77120911  0.5042314
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##   [603,] -0.70083518  1.1505014   1.1349430 -0.77120911 -0.2828995
##   [604,] -0.70083518 -0.2752733   1.1349430  0.07821423  1.2913622
##   [605,]  0.85315721  1.1505014   1.1349430 -0.77120911  0.5042314
##   [606,] -0.70083518  1.1505014   1.1349430  0.92763756 -0.2828995
##   [607,] -0.70083518 -0.2752733  -1.5262117 -0.77120911 -0.2828995
##   [608,] -0.70083518 -0.9881607  -0.8609231 -0.77120911 -1.0700304
##   [609,]  1.63015340 -0.2752733  -0.1956344  0.92763756  0.5042314
##   [610,] -0.70083518 -0.2752733   1.1349430 -0.77120911 -1.0700304
##   [611,] -0.70083518 -0.9881607  -0.1956344 -0.77120911  1.2913622
##   [612,] -0.70083518  0.4376140  -1.5262117 -0.77120911  1.2913622
##   [613,] -0.70083518 -0.9881607  -0.8609231 -0.77120911  0.5042314
##   [614,]  0.07616101  1.1505014  -0.1956344 -0.77120911 -0.2828995
##   [615,] -0.70083518 -0.9881607   1.1349430  2.62648423 -0.2828995
##   [616,]  0.85315721  1.1505014  -0.8609231  0.07821423 -1.0700304
##   [617,] -0.70083518  1.1505014   0.4696543 -0.77120911 -1.0700304
##   [618,] -0.70083518 -1.7010481   1.1349430 -0.77120911 -1.0700304
##   [619,] -0.70083518  1.1505014  -1.5262117 -0.77120911  1.2913622
##   [620,] -0.70083518 -0.9881607  -1.5262117 -0.77120911 -1.0700304
##   [621,]  1.63015340 -0.2752733  -0.1956344 -0.77120911 -1.0700304
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```

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## [623,] -0.70083518   1.1505014    1.1349430 -0.77120911  -1.0700304
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## [625,]  1.63015340  -0.2752733    1.1349430 -0.77120911   0.5042314
## [626,] -0.70083518   1.1505014    1.1349430  0.07821423   0.5042314
## [627,] -0.70083518   0.4376140   -0.1956344  1.77706090   1.2913622
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## [629,] -0.70083518   1.1505014    1.1349430 -0.77120911  -1.0700304
## [630,] -0.70083518   1.1505014   -1.5262117 -0.77120911   0.5042314
## [631,] -0.70083518   1.1505014    1.1349430  0.07821423  -0.2828995
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## [633,] -0.70083518   1.1505014    1.1349430 -0.77120911  -0.2828995
## [634,] -0.70083518  -0.2752733    1.1349430 -0.77120911  -1.0700304
## [635,]  0.07616101   0.4376140    0.4696543  0.07821423   0.5042314
## [636,] -0.70083518  -1.7010481   -0.1956344 -0.77120911  -0.2828995
## [637,] -0.70083518   0.4376140    0.4696543  1.77706090  -0.2828995
## [638,] -0.70083518  -0.2752733    1.1349430  0.92763756  -0.2828995
## [639,] -0.70083518  -0.2752733    0.4696543  0.92763756   0.5042314
## [640,] -0.70083518  -0.9881607    0.4696543 -0.77120911  -1.0700304
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## [642,] -0.70083518  -0.2752733   -0.8609231 -0.77120911  -1.0700304
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## [645,] -0.70083518  -1.7010481    0.4696543  2.62648423   1.2913622
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## [647,] -0.70083518  -0.2752733    1.1349430 -0.77120911  -0.2828995
## [648,] -0.70083518   0.4376140   -1.5262117  0.92763756   0.5042314
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## [650,]  0.85315721  -0.2752733   -0.8609231 -0.77120911   1.2913622
## [651,] -0.70083518  -0.2752733    1.1349430 -0.77120911  -0.2828995
## [652,] -0.70083518   1.1505014   -0.1956344 -0.77120911  -1.0700304
## [653,] -0.70083518  -0.9881607   -1.5262117 -0.77120911  -1.0700304
## [654,] -0.70083518   0.4376140   -1.5262117 -0.77120911  -0.2828995
## [655,] -0.70083518   1.1505014    0.4696543  0.07821423   0.5042314
## [656,] -0.70083518  -0.2752733   -0.1956344 -0.77120911  -1.0700304
## [657,]  1.63015340   1.1505014    1.1349430  0.92763756  -0.2828995
## [658,]  0.07616101   0.4376140   -1.5262117  0.07821423  -1.0700304
## [659,] -0.70083518   1.1505014    1.1349430 -0.77120911  -1.0700304
## [660,]  0.85315721   1.1505014   -1.5262117  0.07821423  -1.0700304
## [661,]  1.63015340  -0.2752733   -0.8609231 -0.77120911   1.2913622
## [662,]  1.63015340   0.4376140   -0.8609231  0.07821423   0.5042314
## [663,] -0.70083518  -0.2752733   -1.5262117 -0.77120911  -0.2828995
## [664,]  0.85315721   0.4376140    0.4696543  1.77706090  -1.0700304
## [665,]  0.07616101   0.4376140    0.4696543  1.77706090   0.5042314
## [666,] -0.70083518   0.4376140   -0.1956344  0.07821423  -1.0700304
## [667,]  1.63015340   1.1505014   -0.1956344 -0.77120911  -1.0700304
## [668,] -0.70083518   1.1505014   -0.1956344  1.77706090  -1.0700304
## [669,]  1.63015340  -0.2752733   -0.1956344 -0.77120911  -1.0700304
## [670,]  0.07616101   0.4376140    0.4696543  0.07821423  -0.2828995
## [671,] -0.70083518  -0.9881607   -0.1956344  0.07821423  -0.2828995
## [672,] -0.70083518  -0.9881607    0.4696543  0.07821423   1.2913622
```

```
##  [673,] -0.70083518  0.4376140  0.4696543 -0.77120911  0.5042314
##  [674,]  0.07616101  0.4376140 -0.8609231  0.92763756  1.2913622
##  [675,] -0.70083518  1.1505014  1.1349430 -0.77120911 -1.0700304
##  [676,]  0.85315721 -0.2752733 -1.5262117  0.92763756  1.2913622
##  [677,] -0.70083518  1.1505014  1.1349430  0.07821423  1.2913622
##  [678,] -0.70083518 -0.2752733 -0.1956344  0.92763756  0.5042314
##  [679,] -0.70083518  1.1505014  0.4696543  0.07821423 -1.0700304
##  [680,]  0.85315721 -1.7010481  1.1349430  0.92763756 -0.2828995
##  [681,] -0.70083518 -0.2752733  1.1349430 -0.77120911 -0.2828995
##  [682,] -0.70083518 -1.7010481  1.1349430  1.77706090 -1.0700304
##  [683,] -0.70083518  0.4376140 -1.5262117 -0.77120911 -0.2828995
##  [684,] -0.70083518 -0.2752733 -0.1956344  2.62648423  0.5042314
##  [685,]  0.07616101  1.1505014  0.4696543  2.62648423  1.2913622
##  [686,]  1.63015340 -0.2752733 -0.1956344  0.07821423  1.2913622
##  [687,]  0.85315721 -0.2752733 -0.1956344  0.92763756  0.5042314
##  [688,]  0.07616101  1.1505014  1.1349430 -0.77120911 -0.2828995
##  [689,]  0.85315721 -0.2752733 -0.1956344 -0.77120911  0.5042314
##  [690,] -0.70083518 -0.2752733 -0.1956344 -0.77120911  0.5042314
##  [691,]  0.07616101  1.1505014  1.1349430  0.07821423 -0.2828995
##  [692,] -0.70083518 -1.7010481  0.4696543 -0.77120911 -0.2828995
##  [693,]  2.40714959  1.1505014  0.4696543 -0.77120911 -0.2828995
##  [694,] -0.70083518 -0.2752733 -0.1956344 -0.77120911  0.5042314
##  [695,] -0.70083518  0.4376140  1.1349430 -0.77120911 -0.2828995
##  [696,] -0.70083518 -0.2752733  0.4696543 -0.77120911  0.5042314
##  [697,]  0.85315721 -0.9881607 -0.1956344 -0.77120911 -1.0700304
##  [698,]  1.63015340  0.4376140 -1.5262117  0.07821423  0.5042314
##  [699,]  0.07616101 -0.9881607  1.1349430  0.92763756  2.0784931
##  [700,] -0.70083518  0.4376140  1.1349430  2.62648423  1.2913622
##  [701,] -0.70083518 -0.9881607 -1.5262117  1.77706090 -0.2828995
##  [702,]  0.07616101 -1.7010481  1.1349430  0.07821423 -1.0700304
##  [703,]  0.07616101 -0.2752733 -1.5262117 -0.77120911 -1.0700304
##  [704,] -0.70083518  1.1505014  1.1349430  0.92763756  0.5042314
##  [705,] -0.70083518 -0.9881607  1.1349430 -0.77120911  0.5042314
##  [706,]  0.85315721  1.1505014  1.1349430  0.07821423  0.5042314
##  [707,] -0.70083518  1.1505014  1.1349430  0.07821423 -0.2828995
##  [708,]  0.07616101 -1.7010481  1.1349430 -0.77120911 -0.2828995
##  [709,] -0.70083518 -0.9881607 -0.1956344 -0.77120911 -1.0700304
##  [710,] -0.70083518 -1.7010481 -0.1956344 -0.77120911  1.2913622
##  [711,] -0.70083518  0.4376140 -0.8609231 -0.77120911 -1.0700304
##  [712,] -0.70083518 -0.2752733 -0.8609231  0.07821423  0.5042314
##  [713,] -0.70083518  0.4376140 -0.1956344  0.07821423  0.5042314
##  [714,]  1.63015340 -0.2752733 -0.1956344 -0.77120911 -1.0700304
##  [715,] -0.70083518 -0.2752733  1.1349430  2.62648423  1.2913622
##  [716,] -0.70083518  0.4376140  1.1349430  0.07821423 -1.0700304
##  [717,]  0.85315721  0.4376140 -0.1956344  0.07821423 -1.0700304
##  [718,]  0.07616101  0.4376140 -1.5262117  0.92763756 -1.0700304
##  [719,]  0.07616101  1.1505014  1.1349430  0.92763756  0.5042314
##  [720,] -0.70083518 -1.7010481  1.1349430 -0.77120911 -0.2828995
##  [721,]  2.40714959 -0.2752733  1.1349430  2.62648423  0.5042314
##  [722,] -0.70083518  1.1505014 -1.5262117  0.92763756 -1.0700304
```

```
##  [723,]  2.40714959   -0.9881607    0.4696543 -0.77120911  -1.0700304
##  [724,] -0.70083518    0.4376140   -1.5262117  0.07821423  -1.0700304
##  [725,] -0.70083518   -0.2752733   -0.8609231 -0.77120911   0.5042314
##  [726,]  2.40714959    0.4376140   -0.1956344 -0.77120911   1.2913622
##  [727,] -0.70083518   -0.9881607   -1.5262117 -0.77120911  -1.0700304
##  [728,]  0.85315721   -1.7010481    1.1349430 -0.77120911  -0.2828995
##  [729,]  0.07616101    1.1505014    1.1349430 -0.77120911   2.0784931
##  [730,]  0.07616101    1.1505014    1.1349430  0.07821423  -1.0700304
##  [731,] -0.70083518   -0.9881607   -1.5262117 -0.77120911  -0.2828995
##  [732,] -0.70083518   -0.2752733    0.4696543 -0.77120911   1.2913622
##  [733,] -0.70083518   -0.9881607    1.1349430 -0.77120911  -1.0700304
##  [734,]  0.07616101    1.1505014    1.1349430  1.77706090  -0.2828995
##  [735,] -0.70083518    0.4376140    0.4696543  0.07821423  -1.0700304
##  [736,]  0.07616101   -1.7010481   -1.5262117  0.92763756   0.5042314
##  [737,]  0.07616101    0.4376140   -0.1956344 -0.77120911   0.5042314
##  [738,]  1.63015340   -0.2752733    0.4696543  0.07821423   0.5042314
##  [739,] -0.70083518    1.1505014    1.1349430 -0.77120911  -1.0700304
##  [740,] -0.70083518    1.1505014    1.1349430 -0.77120911  -1.0700304
##  [741,]  0.07616101   -0.2752733    1.1349430  0.92763756   1.2913622
##  [742,] -0.70083518   -0.9881607   -1.5262117 -0.77120911  -1.0700304
##  [743,]  1.63015340   -0.2752733    1.1349430 -0.77120911  -1.0700304
##  [744,] -0.70083518    0.4376140    0.4696543 -0.77120911  -1.0700304
##  [745,]  0.85315721    1.1505014   -1.5262117  0.07821423  -1.0700304
##  [746,] -0.70083518   -0.2752733   -0.8609231 -0.77120911  -1.0700304
##  [747,] -0.70083518   -0.2752733    0.4696543 -0.77120911   0.5042314
##  [748,]  2.40714959   -0.9881607    0.4696543  2.62648423  -0.2828995
##  [749,]  2.40714959   -1.7010481    0.4696543  2.62648423  -0.2828995
##  [750,]  0.85315721   -0.2752733   -0.1956344 -0.77120911   0.5042314
##  [751,]  0.85315721   -0.9881607    1.1349430  1.77706090  -0.2828995
##  [752,]  0.07616101   -1.7010481   -0.8609231 -0.77120911   2.0784931
##  [753,] -0.70083518   -0.9881607   -0.1956344  0.07821423   2.0784931
##  [754,] -0.70083518   -0.9881607   -1.5262117  0.07821423  -0.2828995
##  [755,]  0.07616101    0.4376140    0.4696543  0.07821423   0.5042314
##  [756,]  1.63015340   -1.7010481    1.1349430 -0.77120911   1.2913622
##  [757,]  0.07616101   -0.2752733   -0.8609231  0.07821423   0.5042314
##  [758,] -0.70083518    0.4376140    1.1349430 -0.77120911  -0.2828995
##  [759,] -0.70083518    1.1505014    1.1349430  0.92763756  -1.0700304
##  [760,]  2.40714959   -0.2752733    0.4696543  2.62648423   0.5042314
##  [761,] -0.70083518   -1.7010481    0.4696543 -0.77120911   0.5042314
##  [762,] -0.70083518    1.1505014    1.1349430 -0.77120911  -1.0700304
##  [763,] -0.70083518    1.1505014    1.1349430 -0.77120911  -1.0700304
##  [764,]  0.85315721    1.1505014    1.1349430  0.92763756  -1.0700304
##  [765,]  0.07616101   -0.2752733   -0.8609231  1.77706090  -1.0700304
##  [766,] -0.70083518    1.1505014    1.1349430 -0.77120911  -0.2828995
##  [767,]  2.40714959    1.1505014    0.4696543  2.62648423   1.2913622
##  [768,]  2.40714959    1.1505014   -0.1956344  1.77706090   1.2913622
##  [769,] -0.70083518   -1.7010481   -1.5262117 -0.77120911  -0.2828995
##  [770,]  1.63015340    0.4376140    0.4696543  1.77706090   1.2913622
##  [771,]  0.07616101   -1.7010481   -0.8609231  0.92763756   1.2913622
##  [772,] -0.70083518   -0.9881607   -1.5262117 -0.77120911  -1.0700304
```

```
##  [773,]   0.07616101  -0.2752733  -0.1956344   0.92763756   1.2913622
##  [774,]   0.07616101  -0.9881607   0.4696543  -0.77120911   0.5042314
##  [775,]  -0.70083518  -0.2752733   1.1349430  -0.77120911  -1.0700304
##  [776,]   1.63015340  -0.2752733   0.4696543   1.77706090   1.2913622
##  [777,]   2.40714959  -1.7010481   1.1349430   0.92763756   0.5042314
##  [778,]  -0.70083518   0.4376140   1.1349430  -0.77120911   1.2913622
##  [779,]  -0.70083518   1.1505014   1.1349430  -0.77120911   2.0784931
##  [780,]   0.07616101   0.4376140   1.1349430   2.62648423   0.5042314
##  [781,]   0.07616101  -0.2752733  -0.1956344  -0.77120911   0.5042314
##  [782,]   0.07616101  -1.7010481   1.1349430   2.62648423  -0.2828995
##  [783,]   2.40714959  -0.2752733  -0.1956344   1.77706090  -0.2828995
##  [784,]  -0.70083518  -0.2752733  -1.5262117  -0.77120911   1.2913622
##  [785,]  -0.70083518   1.1505014  -0.8609231  -0.77120911   0.5042314
##  [786,]  -0.70083518   1.1505014   1.1349430  -0.77120911   0.5042314
##  [787,]  -0.70083518   0.4376140  -0.8609231  -0.77120911  -1.0700304
##  [788,]  -0.70083518   0.4376140   1.1349430  -0.77120911   0.5042314
##  [789,]  -0.70083518  -0.2752733   1.1349430  -0.77120911  -0.2828995
##  [790,]  -0.70083518   1.1505014  -1.5262117   0.92763756   2.0784931
##  [791,]   2.40714959  -0.9881607  -0.8609231   0.07821423  -1.0700304
##  [792,]   1.63015340  -1.7010481  -0.1956344  -0.77120911  -1.0700304
##  [793,]  -0.70083518  -1.7010481   1.1349430  -0.77120911   0.5042314
##  [794,]   0.07616101   0.4376140  -0.8609231   0.92763756   1.2913622
##  [795,]  -0.70083518   1.1505014   1.1349430  -0.77120911  -0.2828995
##  [796,]   0.07616101  -0.9881607   0.4696543  -0.77120911   2.0784931
##  [797,]   1.63015340   0.4376140   0.4696543   2.62648423   1.2913622
##  [798,]  -0.70083518  -0.2752733   1.1349430  -0.77120911   2.0784931
##  [799,]  -0.70083518   1.1505014  -0.1956344  -0.77120911   0.5042314
##  [800,]   0.85315721  -0.2752733  -0.8609231   1.77706090   0.5042314
##  [801,]  -0.70083518  -0.9881607   1.1349430  -0.77120911  -1.0700304
##  [802,]  -0.70083518   1.1505014   1.1349430  -0.77120911  -1.0700304
##  [803,]   0.85315721   0.4376140   1.1349430   0.07821423  -0.2828995
##  [804,]  -0.70083518   0.4376140   1.1349430   0.92763756   0.5042314
##  [805,]   2.40714959   1.1505014   0.4696543   1.77706090   0.5042314
##  [806,]   1.63015340  -0.2752733   0.4696543  -0.77120911   2.0784931
##  [807,]  -0.70083518  -0.9881607   1.1349430   2.62648423  -1.0700304
##  [808,]  -0.70083518   0.4376140  -0.8609231   0.07821423   0.5042314
##  [809,]  -0.70083518   1.1505014   1.1349430  -0.77120911  -1.0700304
##  [810,]  -0.70083518  -1.7010481  -1.5262117  -0.77120911  -1.0700304
##  [811,]   2.40714959   0.4376140  -0.1956344   0.07821423   1.2913622
##  [812,]   1.63015340  -0.2752733   0.4696543   0.92763756  -1.0700304
##  [813,]   0.85315721   1.1505014   1.1349430   2.62648423  -1.0700304
##  [814,]  -0.70083518   1.1505014   1.1349430  -0.77120911  -1.0700304
##  [815,]   0.85315721  -0.2752733  -0.1956344   0.07821423   0.5042314
##  [816,]  -0.70083518  -1.7010481   1.1349430   0.07821423  -1.0700304
##  [817,]  -0.70083518   0.4376140  -0.1956344   2.62648423   2.0784931
##  [818,]   1.63015340   1.1505014   1.1349430   1.77706090  -1.0700304
##  [819,]  -0.70083518   1.1505014   1.1349430   2.62648423  -0.2828995
##  [820,]  -0.70083518   0.4376140  -1.5262117   0.07821423  -0.2828995
##  [821,]  -0.70083518  -0.9881607  -0.1956344  -0.77120911   1.2913622
##  [822,]   0.85315721  -1.7010481  -1.5262117  -0.77120911   0.5042314
```

```
## [823,]  0.85315721  -0.2752733  -1.5262117   0.07821423   1.2913622
## [824,]  2.40714959  -0.2752733  -0.1956344  -0.77120911   0.5042314
## [825,] -0.70083518  -0.9881607  -1.5262117  -0.77120911  -1.0700304
## [826,] -0.70083518  -0.2752733  -1.5262117   0.92763756  -1.0700304
## [827,]  0.07616101   1.1505014  -0.8609231   0.07821423   0.5042314
## [828,] -0.70083518  -0.2752733  -1.5262117  -0.77120911   1.2913622
## [829,]  0.07616101  -0.2752733   0.4696543  -0.77120911   0.5042314
## [830,] -0.70083518  -0.9881607   0.4696543  -0.77120911  -0.2828995
## [831,]  0.07616101  -0.9881607   1.1349430   0.07821423  -1.0700304
## [832,]  0.07616101   0.4376140  -1.5262117   0.07821423   1.2913622
## [833,]  0.85315721  -0.9881607  -1.5262117   2.62648423  -1.0700304
## [834,] -0.70083518   0.4376140  -0.1956344  -0.77120911  -1.0700304
## [835,] -0.70083518  -0.2752733   1.1349430   0.07821423  -0.2828995
## [836,] -0.70083518   1.1505014   1.1349430  -0.77120911  -1.0700304
## [837,]  0.07616101   1.1505014   1.1349430  -0.77120911   1.2913622
## [838,] -0.70083518  -0.2752733   1.1349430   0.07821423  -1.0700304
## [839,] -0.70083518   1.1505014   0.4696543  -0.77120911  -0.2828995
## [840,] -0.70083518  -1.7010481   0.4696543  -0.77120911   0.5042314
## [841,]  0.85315721   0.4376140  -0.1956344   0.07821423   2.0784931
## [842,]  2.40714959   1.1505014   1.1349430  -0.77120911  -1.0700304
## [843,] -0.70083518   1.1505014  -0.1956344   0.07821423  -1.0700304
## [844,]  0.07616101   1.1505014   1.1349430   0.92763756   1.2913622
## [845,]  2.40714959   1.1505014   1.1349430   2.62648423   0.5042314
## [846,]  0.85315721  -0.9881607  -0.1956344  -0.77120911   1.2913622
## [847,] -0.70083518  -0.9881607  -0.8609231   0.07821423  -1.0700304
## [848,]  0.85315721  -1.7010481  -0.1956344   0.07821423  -0.2828995
## [849,] -0.70083518   1.1505014  -1.5262117   0.07821423  -1.0700304
## [850,]  1.63015340   0.4376140   1.1349430   0.92763756  -0.2828995
## [851,] -0.70083518   0.4376140  -1.5262117  -0.77120911   1.2913622
## [852,] -0.70083518   1.1505014   1.1349430  -0.77120911   0.5042314
## [853,] -0.70083518   1.1505014   1.1349430   0.07821423   2.0784931
## [854,]  1.63015340   1.1505014  -0.1956344   1.77706090   0.5042314
## [855,] -0.70083518   1.1505014   0.4696543  -0.77120911   0.5042314
## [856,] -0.70083518   0.4376140   0.4696543   0.92763756  -1.0700304
## [857,] -0.70083518   1.1505014   0.4696543   0.07821423   2.0784931
## [858,]  0.07616101  -0.9881607  -1.5262117  -0.77120911   1.2913622
## [859,]  0.07616101   1.1505014  -0.1956344  -0.77120911  -1.0700304
## [860,] -0.70083518   1.1505014  -0.8609231  -0.77120911  -0.2828995
## [861,] -0.70083518  -0.2752733  -1.5262117  -0.77120911  -1.0700304
## [862,]  0.07616101   0.4376140  -1.5262117  -0.77120911   1.2913622
## [863,] -0.70083518  -1.7010481   1.1349430  -0.77120911   1.2913622
## [864,]  0.07616101  -1.7010481  -1.5262117  -0.77120911   1.2913622
## [865,] -0.70083518   1.1505014   1.1349430  -0.77120911  -0.2828995
## [866,]  1.63015340  -0.9881607  -0.1956344   0.07821423   0.5042314
## [867,] -0.70083518  -0.2752733   1.1349430  -0.77120911  -0.2828995
## [868,] -0.70083518   0.4376140  -1.5262117   0.07821423  -0.2828995
## [869,]  1.63015340   0.4376140   1.1349430   0.07821423   0.5042314
## [870,] -0.70083518  -0.9881607   0.4696543  -0.77120911  -0.2828995
## [871,] -0.70083518  -0.9881607  -0.8609231   0.92763756  -0.2828995
## [872,] -0.70083518  -0.2752733  -1.5262117   0.07821423  -1.0700304
```

```
##  [873,] -0.70083518    0.4376140    0.4696543 -0.77120911  -0.2828995
##  [874,] -0.70083518    1.1505014    1.1349430 -0.77120911  -1.0700304
##  [875,] -0.70083518    1.1505014    1.1349430 -0.77120911  -0.2828995
##  [876,] -0.70083518   -1.7010481    1.1349430  0.92763756   0.5042314
##  [877,] -0.70083518    1.1505014    1.1349430 -0.77120911   0.5042314
##  [878,]  0.85315721    1.1505014    1.1349430 -0.77120911  -1.0700304
##  [879,]  0.85315721    0.4376140    1.1349430 -0.77120911   1.2913622
##  [880,] -0.70083518    1.1505014    1.1349430 -0.77120911  -0.2828995
##  [881,] -0.70083518    1.1505014    1.1349430 -0.77120911  -0.2828995
##  [882,] -0.70083518   -0.2752733   -0.1956344 -0.77120911  -1.0700304
##  [883,]  0.85315721    1.1505014    0.4696543  2.62648423   0.5042314
##  [884,] -0.70083518   -0.2752733   -1.5262117  0.07821423   0.5042314
##  [885,] -0.70083518    1.1505014   -0.1956344 -0.77120911   2.0784931
##  [886,] -0.70083518   -0.2752733   -1.5262117  2.62648423   1.2913622
##  [887,] -0.70083518   -1.7010481    0.4696543 -0.77120911  -1.0700304
##  [888,]  0.85315721   -0.2752733   -0.1956344  0.07821423   1.2913622
##  [889,] -0.70083518    1.1505014    0.4696543  0.07821423   1.2913622
##  [890,]  2.40714959   -1.7010481   -0.1956344  2.62648423   2.0784931
##  [891,] -0.70083518    1.1505014    1.1349430 -0.77120911   2.0784931
##  [892,] -0.70083518   -0.9881607    0.4696543  0.07821423   0.5042314
##  [893,] -0.70083518    0.4376140   -0.1956344 -0.77120911  -1.0700304
##  [894,]  0.07616101   -0.2752733    0.4696543  0.07821423   0.5042314
##  [895,]  0.07616101    0.4376140    1.1349430  0.07821423   0.5042314
##  [896,] -0.70083518    1.1505014    1.1349430  0.07821423  -0.2828995
##  [897,]  1.63015340   -0.2752733   -0.8609231 -0.77120911  -1.0700304
##  [898,]  0.85315721   -0.9881607   -0.1956344  0.07821423   0.5042314
##  [899,] -0.70083518   -0.2752733   -0.1956344  1.77706090  -1.0700304
##  [900,]  0.85315721   -0.2752733   -0.1956344  0.92763756  -1.0700304
##  [901,] -0.70083518    0.4376140    1.1349430  0.07821423   1.2913622
##  [902,] -0.70083518   -0.2752733   -1.5262117 -0.77120911  -1.0700304
##  [903,] -0.70083518    1.1505014    1.1349430 -0.77120911  -1.0700304
##  [904,]  0.85315721    1.1505014   -0.8609231  0.92763756   1.2913622
##  [905,] -0.70083518   -0.9881607    0.4696543  0.07821423   2.0784931
##  [906,] -0.70083518    1.1505014    1.1349430 -0.77120911   0.5042314
##  [907,] -0.70083518    0.4376140   -1.5262117  2.62648423  -1.0700304
##  [908,]  0.07616101   -0.2752733   -0.1956344 -0.77120911   1.2913622
##  [909,]  0.85315721   -0.2752733    0.4696543  0.07821423   0.5042314
##  [910,]  1.63015340    0.4376140    0.4696543  1.77706090   1.2913622
##  [911,] -0.70083518    1.1505014   -0.8609231  2.62648423   1.2913622
##  [912,]  2.40714959   -0.9881607    1.1349430 -0.77120911  -0.2828995
##  [913,]  0.07616101    0.4376140    0.4696543  0.07821423   0.5042314
##  [914,]  0.85315721   -1.7010481    0.4696543  0.92763756  -1.0700304
##  [915,]  2.40714959   -0.2752733    0.4696543  2.62648423  -0.2828995
##  [916,] -0.70083518   -0.2752733   -1.5262117 -0.77120911   2.0784931
##  [917,] -0.70083518   -0.2752733   -0.8609231 -0.77120911  -0.2828995
##  [918,] -0.70083518   -0.2752733    0.4696543 -0.77120911   0.5042314
##  [919,] -0.70083518   -0.2752733   -0.1956344 -0.77120911  -1.0700304
##  [920,]  1.63015340    1.1505014    1.1349430  0.92763756  -0.2828995
##  [921,] -0.70083518   -1.7010481   -1.5262117 -0.77120911   0.5042314
##  [922,]  0.85315721    0.4376140    1.1349430 -0.77120911  -0.2828995
```

```
## [923,] -0.70083518   1.1505014  -1.5262117 -0.77120911   0.5042314
## [924,]  0.07616101  -1.7010481  -0.8609231  0.92763756   1.2913622
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## [926,]  0.07616101   1.1505014   0.4696543  0.92763756   2.0784931
## [927,] -0.70083518   0.4376140   0.4696543 -0.77120911  -1.0700304
## [928,] -0.70083518  -0.2752733   1.1349430  0.07821423   0.5042314
## [929,] -0.70083518  -0.2752733  -1.5262117  0.07821423   1.2913622
## [930,]  1.63015340  -0.9881607   0.4696543  0.92763756   1.2913622
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## [940,] -0.70083518   0.4376140   0.4696543 -0.77120911  -0.2828995
## [941,] -0.70083518   1.1505014  -1.5262117 -0.77120911  -1.0700304
## [942,]  0.85315721   0.4376140  -0.8609231  0.07821423   1.2913622
## [943,]  0.85315721   0.4376140   1.1349430  0.07821423   2.0784931
## [944,] -0.70083518   0.4376140  -0.8609231 -0.77120911   0.5042314
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## [946,] -0.70083518   1.1505014  -0.1956344  0.92763756  -1.0700304
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## [948,]  0.07616101  -0.2752733  -0.1956344  0.07821423   0.5042314
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## [955,]  0.85315721  -0.9881607   0.4696543 -0.77120911   1.2913622
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## [957,] -0.70083518  -1.7010481  -1.5262117 -0.77120911  -0.2828995
## [958,] -0.70083518  -0.9881607  -1.5262117 -0.77120911  -1.0700304
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## [960,] -0.70083518  -0.2752733  -0.1956344 -0.77120911  -1.0700304
## [961,] -0.70083518  -0.2752733   0.4696543 -0.77120911  -0.2828995
## [962,] -0.70083518   1.1505014   1.1349430  2.62648423   1.2913622
## [963,]  1.63015340  -0.9881607  -1.5262117  0.07821423  -0.2828995
## [964,] -0.70083518  -0.2752733  -0.1956344 -0.77120911   1.2913622
## [965,]  0.07616101  -0.9881607   1.1349430  0.92763756  -1.0700304
## [966,]  2.40714959  -0.2752733   1.1349430  0.07821423   2.0784931
## [967,]  2.40714959  -1.7010481   1.1349430  0.07821423   2.0784931
## [968,] -0.70083518   1.1505014   0.4696543  0.07821423  -1.0700304
## [969,] -0.70083518   1.1505014   0.4696543  0.07821423   0.5042314
## [970,] -0.70083518  -0.2752733  -0.8609231 -0.77120911  -1.0700304
## [971,] -0.70083518  -0.9881607  -1.5262117 -0.77120911  -0.2828995
## [972,] -0.70083518   0.4376140   0.4696543 -0.77120911  -1.0700304
```

```
##  [973,]   1.63015340    1.1505014  -0.1956344  0.07821423  -1.0700304
##  [974,]   1.63015340   -1.7010481  -1.5262117  0.92763756  -0.2828995
##  [975,]  -0.70083518    1.1505014   1.1349430 -0.77120911  -0.2828995
##  [976,]   2.40714959    1.1505014   0.4696543  0.07821423  -1.0700304
##  [977,]   0.07616101   -0.2752733   0.4696543 -0.77120911   0.5042314
##  [978,]  -0.70083518    0.4376140  -0.1956344 -0.77120911  -0.2828995
##  [979,]  -0.70083518    1.1505014  -1.5262117 -0.77120911   0.5042314
##  [980,]   0.07616101   -1.7010481  -0.1956344 -0.77120911   0.5042314
##  [981,]   0.85315721   -1.7010481  -1.5262117 -0.77120911  -0.2828995
##  [982,]   1.63015340   -0.2752733  -1.5262117 -0.77120911  -0.2828995
##  [983,]  -0.70083518    0.4376140  -1.5262117 -0.77120911   0.5042314
##  [984,]  -0.70083518    1.1505014   0.4696543 -0.77120911   0.5042314
##  [985,]  -0.70083518   -0.2752733  -1.5262117 -0.77120911  -1.0700304
##  [986,]  -0.70083518   -0.2752733  -0.1956344 -0.77120911   0.5042314
##  [987,]  -0.70083518   -1.7010481   0.4696543  0.07821423  -1.0700304
##  [988,]  -0.70083518    0.4376140  -0.1956344 -0.77120911  -1.0700304
##  [989,]   0.85315721   -0.2752733   1.1349430  2.62648423  -1.0700304
##  [990,]   2.40714959   -0.9881607   1.1349430  0.07821423  -1.0700304
##  [991,]  -0.70083518    0.4376140  -0.8609231 -0.77120911  -1.0700304
##  [992,]  -0.70083518   -0.9881607  -1.5262117 -0.77120911  -0.2828995
##  [993,]   2.40714959    0.4376140  -1.5262117 -0.77120911  -1.0700304
##  [994,]   0.07616101   -0.2752733  -0.1956344 -0.77120911   1.2913622
##  [995,]   0.07616101   -0.2752733  -0.8609231 -0.77120911  -0.2828995
##  [996,]  -0.70083518   -0.2752733  -0.1956344 -0.77120911  -1.0700304
##  [997,]  -0.70083518   -0.9881607  -0.8609231 -0.77120911  -1.0700304
##  [998,]   0.07616101    1.1505014   1.1349430  0.07821423   0.5042314
##  [999,]   1.63015340   -1.7010481   1.1349430  0.07821423   0.5042314
## [1000,]   2.40714959    1.1505014   1.1349430  0.07821423  -1.0700304
## [1001,]  -0.70083518    1.1505014   1.1349430  0.07821423   0.5042314
## [1002,]  -0.70083518   -0.9881607   0.4696543 -0.77120911   0.5042314
## [1003,]   1.63015340   -0.9881607  -1.5262117 -0.77120911  -1.0700304
## [1004,]  -0.70083518    0.4376140  -0.1956344  0.07821423  -1.0700304
## [1005,]  -0.70083518    1.1505014  -0.8609231  0.07821423  -1.0700304
## [1006,]   1.63015340    0.4376140   0.4696543  0.07821423   1.2913622
## [1007,]  -0.70083518   -1.7010481   1.1349430  2.62648423  -1.0700304
## [1008,]  -0.70083518   -0.9881607  -0.8609231 -0.77120911  -1.0700304
## [1009,]   1.63015340   -0.9881607   0.4696543 -0.77120911   0.5042314
## [1010,]   0.07616101    1.1505014   0.4696543  2.62648423   0.5042314
##             Shopping Science.and.technology      Theatre Fun.with.friends
##    [1,]    0.5612378            0.6002088 -0.76692202        0.5998996
##    [2,]   -0.2163344           -0.1779823 -0.76692202       -0.7555783
##    [3,]    0.5612378           -0.9561735  1.49136148        0.5998996
##    [4,]    0.5612378           -0.1779823 -1.51968319       -3.4665342
##    [5,]   -0.2163344           -0.1779823 -0.76692202       -0.7555783
##    [6,]   -0.9939067           -0.1779823 -1.51968319       -2.1110562
##    [7,]   -0.2163344            0.6002088 -0.01416085        0.5998996
##    [8,]   -0.2163344           -0.9561735 -0.76692202       -0.7555783
##    [9,]   -0.9939067           -1.7343646  1.49136148       -0.7555783
##   [10,]    0.5612378           -0.1779823  1.49136148        0.5998996
##   [11,]    1.3388100            0.6002088 -0.76692202       -0.7555783
```

```
##    [12,] -0.2163344              -0.1779823 -1.51968319   -2.1110562
##    [13,] -0.9939067              -0.1779823 -0.76692202   -0.7555783
##    [14,]  1.3388100              -0.9561735 -0.01416085    0.5998996
##    [15,]  1.3388100              -0.9561735  0.73860031    0.5998996
##    [16,] -0.2163344               1.3783999 -0.01416085    0.5998996
##    [17,]  0.5612378              -0.9561735 -1.51968319    0.5998996
##    [18,] -0.2163344               0.6002088 -0.01416085   -2.1110562
##    [19,] -0.9939067               1.3783999 -1.51968319   -2.1110562
##    [20,] -0.2163344               0.6002088 -0.76692202    0.5998996
##    [21,] -1.7714789               1.3783999 -0.76692202   -0.7555783
##    [22,] -1.7714789               1.3783999  0.73860031    0.5998996
##    [23,] -1.7714789              -0.1779823 -0.76692202    0.5998996
##    [24,]  0.5612378              -0.1779823  1.49136148    0.5998996
##    [25,]  1.3388100               1.3783999  1.49136148    0.5998996
##    [26,]  1.3388100              -1.7343646 -0.01416085    0.5998996
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##    [28,]  1.3388100              -0.9561735 -1.51968319   -0.7555783
##    [29,]  1.3388100              -0.1779823 -1.51968319    0.5998996
##    [30,]  0.5612378              -0.1779823  0.73860031    0.5998996
##    [31,]  0.5612378               0.6002088 -0.76692202    0.5998996
##    [32,] -0.9939067              -1.7343646 -0.01416085   -0.7555783
##    [33,]  1.3388100              -0.1779823 -0.01416085    0.5998996
##    [34,] -0.2163344              -0.1779823  0.73860031    0.5998996
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##    [37,]  0.5612378               0.6002088  0.73860031    0.5998996
##    [38,]  0.5612378               0.6002088 -1.51968319    0.5998996
##    [39,]  0.5612378              -0.1779823 -0.01416085    0.5998996
##    [40,]  0.5612378               1.3783999 -0.76692202   -2.1110562
##    [41,]  1.3388100              -0.1779823 -1.51968319   -3.4665342
##    [42,] -1.7714789              -0.1779823 -1.51968319    0.5998996
##    [43,]  0.5612378               0.6002088 -0.76692202    0.5998996
##    [44,]  1.3388100              -0.1779823 -0.01416085    0.5998996
##    [45,]  1.3388100               0.6002088  0.73860031    0.5998996
##    [46,] -0.2163344               1.3783999 -0.76692202    0.5998996
##    [47,]  1.3388100              -0.9561735 -0.01416085    0.5998996
##    [48,]  0.5612378              -0.9561735  0.73860031    0.5998996
##    [49,] -0.2163344              -0.1779823  0.73860031   -2.1110562
##    [50,]  1.3388100              -0.1779823 -0.76692202    0.5998996
##    [51,]  0.5612378               0.6002088 -0.76692202   -0.7555783
##    [52,] -0.2163344               1.3783999 -0.76692202   -0.7555783
##    [53,]  0.5612378               0.6002088  0.73860031    0.5998996
##    [54,] -0.2163344              -0.1779823  1.49136148    0.5998996
##    [55,] -0.9939067              -0.1779823  1.49136148    0.5998996
##    [56,] -0.2163344               0.6002088 -0.76692202   -0.7555783
##    [57,] -0.9939067              -0.1779823  0.73860031    0.5998996
##    [58,]  1.3388100              -0.1779823  1.49136148    0.5998996
##    [59,]  0.5612378               0.6002088 -1.51968319    0.5998996
##    [60,] -1.7714789              -1.7343646 -1.51968319   -2.1110562
##    [61,] -0.9939067               0.6002088  0.73860031   -0.7555783
```

```
##    [62,] -0.2163344          -0.1779823 -0.01416085     0.5998996
##    [63,] -0.9939067           1.3783999 -0.76692202     0.5998996
##    [64,] -0.2163344           0.6002088 -0.76692202     0.5998996
##    [65,]  1.3388100           0.6002088  1.49136148     0.5998996
##    [66,] -0.9939067          -0.9561735 -1.51968319    -2.1110562
##    [67,] -0.2163344           0.6002088 -0.76692202    -0.7555783
##    [68,] -0.2163344          -0.9561735 -0.01416085     0.5998996
##    [69,] -0.2163344           0.6002088 -0.01416085     0.5998996
##    [70,]  1.3388100          -0.9561735 -0.76692202     0.5998996
##    [71,]  0.5612378          -0.1779823 -1.51968319     0.5998996
##    [72,]  0.5612378           0.6002088 -1.51968319     0.5998996
##    [73,] -0.2163344          -1.7343646 -0.76692202     0.5998996
##    [74,]  1.3388100           1.3783999 -0.76692202     0.5998996
##    [75,] -0.2163344          -0.9561735 -0.76692202    -0.7555783
##    [76,]  0.5612378           0.6002088  0.73860031     0.5998996
##    [77,]  0.5612378           1.3783999 -1.51968319     0.5998996
##    [78,]  1.3388100          -0.1779823  1.49136148     0.5998996
##    [79,] -0.9939067           1.3783999  1.49136148     0.5998996
##    [80,]  1.3388100           0.6002088 -0.01416085     0.5998996
##    [81,]  0.5612378          -0.1779823 -0.76692202     0.5998996
##    [82,] -0.2163344           1.3783999 -0.76692202     0.5998996
##    [83,] -0.2163344          -0.9561735 -0.01416085    -0.7555783
##    [84,] -0.2163344          -0.1779823  1.49136148     0.5998996
##    [85,]  0.5612378           0.6002088  1.49136148     0.5998996
##    [86,]  0.5612378           1.3783999  1.49136148    -0.7555783
##    [87,] -0.9939067           1.3783999  1.49136148     0.5998996
##    [88,]  1.3388100          -0.1779823  0.73860031     0.5998996
##    [89,]  1.3388100          -0.1779823 -0.01416085     0.5998996
##    [90,] -0.2163344          -1.7343646  0.73860031    -0.7555783
##    [91,]  0.5612378          -0.1779823 -0.76692202     0.5998996
##    [92,] -0.2163344          -1.7343646 -0.01416085     0.5998996
##    [93,] -0.2163344          -0.9561735  0.73860031    -0.7555783
##    [94,] -1.7714789           1.3783999 -1.51968319     0.5998996
##    [95,] -0.9939067           0.6002088 -0.76692202    -0.7555783
##    [96,] -0.2163344           1.3783999 -0.01416085     0.5998996
##    [97,] -1.7714789          -1.7343646 -1.51968319     0.5998996
##    [98,] -1.7714789           0.6002088 -1.51968319    -2.1110562
##    [99,] -0.2163344           1.3783999 -1.51968319     0.5998996
##   [100,]  1.3388100          -0.1779823 -0.01416085    -0.7555783
##   [101,]  0.5612378          -0.1779823 -0.01416085     0.5998996
##   [102,] -1.7714789          -0.1779823 -1.51968319     0.5998996
##   [103,] -1.7714789          -0.9561735  0.73860031     0.5998996
##   [104,]  0.5612378           1.3783999  0.73860031     0.5998996
##   [105,] -0.9939067          -0.1779823 -0.01416085    -0.7555783
##   [106,] -0.2163344           0.6002088 -0.01416085    -2.1110562
##   [107,] -0.9939067           1.3783999 -0.76692202     0.5998996
##   [108,] -0.2163344          -0.9561735  1.49136148     0.5998996
##   [109,]  0.5612378          -0.9561735 -0.01416085    -3.4665342
##   [110,] -0.9939067           0.6002088 -1.51968319    -0.7555783
##   [111,] -0.9939067           0.6002088 -1.51968319    -0.7555783
```

```
## [112,] -0.9939067   -0.1779823  0.73860031   0.5998996
## [113,] -0.2163344    1.3783999  1.49136148  -0.7555783
## [114,]  0.5612378   -0.9561735 -0.76692202  -0.7555783
## [115,]  1.3388100    0.6002088  0.73860031   0.5998996
## [116,]  1.3388100    0.6002088  0.73860031   0.5998996
## [117,] -0.2163344   -1.7343646 -0.76692202  -0.7555783
## [118,] -0.2163344   -0.1779823 -0.76692202  -3.4665342
## [119,] -0.9939067   -0.1779823 -0.76692202  -0.7555783
## [120,] -1.7714789   -0.9561735 -0.76692202  -2.1110562
## [121,] -1.7714789    1.3783999  1.49136148   0.5998996
## [122,] -0.9939067    0.6002088 -1.51968319   0.5998996
## [123,] -0.2163344   -1.7343646  1.49136148   0.5998996
## [124,] -0.9939067   -0.1779823  0.73860031   0.5998996
## [125,] -1.7714789    1.3783999  0.73860031  -0.7555783
## [126,]  0.5612378   -0.1779823  1.49136148   0.5998996
## [127,]  0.5612378   -0.9561735 -0.76692202   0.5998996
## [128,] -0.9939067    0.6002088 -0.01416085   0.5998996
## [129,] -0.9939067    1.3783999  1.49136148   0.5998996
## [130,]  1.3388100   -0.1779823 -1.51968319   0.5998996
## [131,]  1.3388100    0.6002088  0.73860031   0.5998996
## [132,]  0.5612378    0.6002088 -0.01416085   0.5998996
## [133,] -0.9939067    0.6002088 -0.76692202  -2.1110562
## [134,] -0.2163344   -1.7343646  1.49136148  -0.7555783
## [135,] -0.9939067    0.6002088  0.73860031  -0.7555783
## [136,] -0.9939067    1.3783999  0.73860031   0.5998996
## [137,] -0.2163344    1.3783999  1.49136148   0.5998996
## [138,] -0.2163344   -0.9561735 -0.76692202  -2.1110562
## [139,] -0.2163344   -0.9561735 -0.76692202  -0.7555783
## [140,]  0.5612378   -0.9561735 -0.01416085   0.5998996
## [141,] -0.2163344   -0.9561735  0.73860031  -0.7555783
## [142,] -1.7714789    1.3783999 -0.01416085  -2.1110562
## [143,]  1.3388100    1.3783999  0.73860031  -0.7555783
## [144,]  0.5612378   -1.7343646 -1.51968319   0.5998996
## [145,] -0.2163344    1.3783999  0.73860031   0.5998996
## [146,] -0.9939067   -0.9561735 -0.76692202  -0.7555783
## [147,]  0.5612378   -0.1779823  0.73860031   0.5998996
## [148,] -1.7714789    1.3783999 -0.76692202  -3.4665342
## [149,] -0.9939067    0.6002088 -0.76692202  -2.1110562
## [150,] -0.9939067    0.6002088 -0.76692202  -2.1110562
## [151,] -0.2163344    1.3783999 -0.01416085   0.5998996
## [152,] -0.9939067   -0.1779823  0.73860031   0.5998996
## [153,] -0.2163344    0.6002088 -0.76692202   0.5998996
## [154,]  1.3388100    0.6002088 -0.76692202  -2.1110562
## [155,] -0.9939067    1.3783999 -1.51968319   0.5998996
## [156,] -0.2163344    0.6002088 -0.01416085  -2.1110562
## [157,]  0.5612378   -1.7343646 -1.51968319  -0.7555783
## [158,] -0.9939067   -0.1779823 -0.76692202   0.5998996
## [159,]  1.3388100    0.6002088  0.73860031   0.5998996
## [160,] -0.9939067   -0.1779823  0.73860031   0.5998996
## [161,] -1.7714789    0.6002088 -0.76692202   0.5998996
```

```
##   [162,]   1.3388100          -0.1779823 -0.76692202      0.5998996
##   [163,] -1.7714789          -0.9561735 -1.51968319     -2.1110562
##   [164,] -1.7714789          -1.7343646 -1.51968319     -2.1110562
##   [165,]   1.3388100          -1.7343646  0.73860031     -0.7555783
##   [166,]   1.3388100           0.6002088  1.49136148      0.5998996
##   [167,] -0.9939067          -0.1779823  0.73860031     -0.7555783
##   [168,] -0.9939067           0.6002088 -1.51968319     -2.1110562
##   [169,]   0.5612378           1.3783999 -0.01416085      0.5998996
##   [170,] -0.2163344          -1.7343646  1.49136148     -0.7555783
##   [171,] -1.7714789          -1.7343646 -0.01416085      0.5998996
##   [172,]   0.5612378           1.3783999 -0.01416085      0.5998996
##   [173,] -1.7714789           1.3783999 -0.01416085      0.5998996
##   [174,]   0.5612378           1.3783999 -0.01416085      0.5998996
##   [175,]   1.3388100           1.3783999  1.49136148     -0.7555783
##   [176,] -1.7714789          -1.7343646 -0.01416085     -2.1110562
##   [177,] -0.2163344           0.6002088 -0.01416085     -0.7555783
##   [178,] -0.9939067           0.6002088 -0.01416085      0.5998996
##   [179,] -0.2163344          -0.1779823 -0.01416085     -2.1110562
##   [180,]   0.5612378           0.6002088 -0.76692202     -2.1110562
##   [181,]   1.3388100           0.6002088  0.73860031      0.5998996
##   [182,] -0.9939067          -0.1779823 -0.01416085     -0.7555783
##   [183,]   1.3388100           1.3783999  1.49136148      0.5998996
##   [184,] -0.2163344           1.3783999  0.73860031      0.5998996
##   [185,] -0.2163344          -0.9561735  1.49136148     -2.1110562
##   [186,] -0.2163344          -0.9561735  1.49136148      0.5998996
##   [187,]   0.5612378          -1.7343646  0.73860031     -0.7555783
##   [188,] -1.7714789          -0.9561735 -1.51968319     -3.4665342
##   [189,] -0.9939067          -0.1779823 -0.01416085     -2.1110562
##   [190,] -0.9939067          -0.1779823 -1.51968319     -2.1110562
##   [191,] -0.2163344          -0.1779823 -0.76692202     -0.7555783
##   [192,] -0.9939067          -1.7343646  1.49136148     -0.7555783
##   [193,]   0.5612378          -1.7343646 -0.76692202      0.5998996
##   [194,] -0.9939067          -0.1779823 -0.01416085      0.5998996
##   [195,] -0.9939067           0.6002088 -0.76692202     -0.7555783
##   [196,]   0.5612378           1.3783999 -0.01416085     -0.7555783
##   [197,] -0.2163344          -0.1779823 -0.01416085      0.5998996
##   [198,]   0.5612378          -1.7343646  0.73860031      0.5998996
##   [199,] -0.9939067          -0.1779823 -1.51968319      0.5998996
##   [200,] -0.2163344           0.6002088 -1.51968319      0.5998996
##   [201,] -0.9939067           0.6002088 -0.76692202     -3.4665342
##   [202,]   1.3388100           1.3783999  1.49136148      0.5998996
##   [203,]   0.5612378           0.6002088 -1.51968319      0.5998996
##   [204,]   0.5612378          -1.7343646 -0.76692202      0.5998996
##   [205,] -1.7714789           0.6002088  0.73860031     -0.7555783
##   [206,] -1.7714789           0.6002088  1.49136148      0.5998996
##   [207,] -1.7714789           0.6002088  1.49136148     -0.7555783
##   [208,] -0.2163344           0.6002088 -0.01416085     -0.7555783
##   [209,]   1.3388100          -0.1779823 -0.76692202      0.5998996
##   [210,] -1.7714789           0.6002088  0.73860031      0.5998996
##   [211,]   1.3388100           0.6002088  0.73860031      0.5998996
```

```
##  [212,]  1.3388100                 -1.7343646  0.73860031        0.5998996
##  [213,]  0.5612378                  0.6002088  1.49136148        0.5998996
##  [214,]  0.5612378                  1.3783999  0.73860031        0.5998996
##  [215,]  0.5612378                  1.3783999  0.73860031       -0.7555783
##  [216,] -0.2163344                 -1.7343646 -1.51968319        0.5998996
##  [217,]  0.5612378                 -1.7343646 -0.76692202       -0.7555783
##  [218,] -0.9939067                 -0.9561735  1.49136148        0.5998996
##  [219,] -0.2163344                  1.3783999 -0.01416085        0.5998996
##  [220,]  1.3388100                  1.3783999 -1.51968319        0.5998996
##  [221,] -0.2163344                  0.6002088 -0.76692202        0.5998996
##  [222,] -0.9939067                  1.3783999 -0.01416085        0.5998996
##  [223,]  0.5612378                 -0.1779823 -0.76692202       -2.1110562
##  [224,] -0.2163344                 -0.1779823 -0.01416085        0.5998996
##  [225,] -0.9939067                  0.6002088 -0.76692202       -2.1110562
##  [226,] -0.9939067                  1.3783999 -0.01416085        0.5998996
##  [227,]  1.3388100                 -0.1779823 -0.01416085        0.5998996
##  [228,] -0.2163344                 -0.1779823  1.49136148       -2.1110562
##  [229,] -0.9939067                  0.6002088  0.73860031        0.5998996
##  [230,] -0.9939067                  0.6002088 -0.76692202       -0.7555783
##  [231,]  1.3388100                 -0.1779823 -0.01416085        0.5998996
##  [232,]  1.3388100                 -0.9561735 -0.01416085        0.5998996
##  [233,]  0.5612378                 -0.9561735 -1.51968319        0.5998996
##  [234,] -0.2163344                 -0.9561735 -0.01416085       -0.7555783
##  [235,]  1.3388100                 -0.9561735 -1.51968319        0.5998996
##  [236,]  1.3388100                 -1.7343646  0.73860031        0.5998996
##  [237,]  1.3388100                  1.3783999  1.49136148        0.5998996
##  [238,]  0.5612378                 -0.1779823 -0.76692202        0.5998996
##  [239,]  1.3388100                 -0.1779823 -0.01416085        0.5998996
##  [240,]  0.5612378                 -0.1779823  0.73860031       -0.7555783
##  [241,] -0.9939067                 -0.1779823 -0.76692202       -0.7555783
##  [242,]  1.3388100                 -0.1779823  0.73860031        0.5998996
##  [243,]  1.3388100                 -0.9561735  1.49136148        0.5998996
##  [244,] -0.9939067                  1.3783999 -0.01416085       -3.4665342
##  [245,]  1.3388100                 -1.7343646  0.73860031        0.5998996
##  [246,] -0.9939067                 -0.1779823  1.49136148        0.5998996
##  [247,]  1.3388100                  0.6002088 -0.76692202        0.5998996
##  [248,]  0.5612378                 -0.1779823  0.73860031        0.5998996
##  [249,]  0.5612378                 -0.1779823  0.73860031        0.5998996
##  [250,]  0.5612378                  0.6002088 -0.01416085        0.5998996
##  [251,]  1.3388100                 -1.7343646 -0.01416085        0.5998996
##  [252,]  0.5612378                  0.6002088  0.73860031        0.5998996
##  [253,]  1.3388100                 -0.1779823 -0.01416085        0.5998996
##  [254,]  1.3388100                  1.3783999 -1.51968319        0.5998996
##  [255,]  1.3388100                 -1.7343646 -0.76692202        0.5998996
##  [256,] -1.7714789                  0.6002088  1.49136148        0.5998996
##  [257,]  1.3388100                 -1.7343646 -1.51968319        0.5998996
##  [258,] -0.2163344                  1.3783999 -0.01416085        0.5998996
##  [259,] -1.7714789                  0.6002088 -0.01416085        0.5998996
##  [260,] -1.7714789                 -0.1779823  1.49136148        0.5998996
##  [261,] -0.2163344                 -0.1779823 -0.01416085       -2.1110562
```

```
## [262,]  1.3388100         -0.9561735 -0.76692202         0.5998996
## [263,] -0.2163344         -0.1779823  0.73860031        -0.7555783
## [264,]  1.3388100         -1.7343646 -0.01416085         0.5998996
## [265,] -0.2163344          1.3783999  1.49136148         0.5998996
## [266,]  0.5612378         -1.7343646 -0.76692202         0.5998996
## [267,]  0.5612378         -0.1779823 -0.01416085         0.5998996
## [268,] -0.2163344          0.6002088  1.49136148         0.5998996
## [269,]  1.3388100          0.6002088 -1.51968319         0.5998996
## [270,] -0.9939067          1.3783999 -0.76692202        -0.7555783
## [271,]  1.3388100         -0.9561735  1.49136148         0.5998996
## [272,]  0.5612378         -0.1779823 -0.01416085         0.5998996
## [273,] -0.9939067          0.6002088  1.49136148         0.5998996
## [274,]  0.5612378          0.6002088 -0.01416085         0.5998996
## [275,] -1.7714789          0.6002088  0.73860031         0.5998996
## [276,]  1.3388100          0.6002088  1.49136148         0.5998996
## [277,]  0.5612378         -1.7343646 -0.01416085         0.5998996
## [278,] -0.9939067         -0.1779823 -0.76692202         0.5998996
## [279,] -0.9939067          1.3783999 -0.76692202         0.5998996
## [280,]  1.3388100         -1.7343646 -0.76692202        -0.7555783
## [281,]  1.3388100         -0.9561735  1.49136148        -0.7555783
## [282,] -0.9939067          0.6002088 -0.76692202         0.5998996
## [283,]  0.5612378         -0.9561735 -0.01416085        -0.7555783
## [284,] -0.9939067          1.3783999 -0.01416085        -0.7555783
## [285,] -1.7714789         -0.9561735 -1.51968319        -2.1110562
## [286,]  0.5612378         -0.1779823 -0.01416085         0.5998996
## [287,]  1.3388100         -0.1779823  0.73860031         0.5998996
## [288,]  0.5612378         -0.1779823 -0.01416085         0.5998996
## [289,] -0.2163344          0.6002088 -1.51968319        -3.4665342
## [290,] -0.9939067         -0.1779823  0.73860031         0.5998996
## [291,]  1.3388100          1.3783999  1.49136148         0.5998996
## [292,] -0.9939067         -0.1779823  0.73860031        -0.7555783
## [293,]  1.3388100          0.6002088  1.49136148         0.5998996
## [294,] -0.9939067          0.6002088  0.73860031         0.5998996
## [295,] -0.2163344         -0.9561735 -0.01416085        -2.1110562
## [296,]  1.3388100         -0.1779823 -0.76692202        -0.7555783
## [297,] -0.9939067          1.3783999 -1.51968319         0.5998996
## [298,] -1.7714789         -0.1779823 -0.76692202         0.5998996
## [299,] -0.2163344         -0.9561735 -1.51968319         0.5998996
## [300,]  0.5612378         -0.9561735 -0.01416085         0.5998996
## [301,] -0.2163344         -0.1779823  0.73860031        -3.4665342
## [302,] -0.9939067          1.3783999  0.73860031        -0.7555783
## [303,]  1.3388100         -0.1779823 -0.01416085         0.5998996
## [304,]  1.3388100         -0.1779823 -0.01416085        -2.1110562
## [305,]  0.5612378         -0.1779823 -1.51968319         0.5998996
## [306,] -0.2163344         -0.1779823 -0.01416085         0.5998996
## [307,]  1.3388100          1.3783999  0.73860031         0.5998996
## [308,] -1.7714789          1.3783999 -1.51968319        -3.4665342
## [309,]  0.5612378          0.6002088 -0.76692202         0.5998996
## [310,]  1.3388100         -0.1779823  0.73860031         0.5998996
## [311,]  0.5612378         -0.1779823 -0.76692202        -0.7555783
```

```
##   [312,]   0.5612378          -0.1779823  1.49136148    0.5998996
##   [313,]  -1.7714789          -0.9561735 -1.51968319   -0.7555783
##   [314,]   1.3388100          -0.9561735 -1.51968319   -3.4665342
##   [315,]  -0.2163344           1.3783999  0.73860031    0.5998996
##   [316,]   1.3388100           0.6002088 -0.01416085    0.5998996
##   [317,]   1.3388100          -0.1779823 -0.76692202    0.5998996
##   [318,]  -0.9939067           1.3783999 -1.51968319    0.5998996
##   [319,]   1.3388100          -0.9561735  1.49136148    0.5998996
##   [320,]  -0.2163344          -0.1779823  1.49136148    0.5998996
##   [321,]   0.5612378           0.6002088 -0.01416085    0.5998996
##   [322,]   0.5612378          -0.1779823 -0.01416085   -0.7555783
##   [323,]   0.5612378          -0.9561735 -0.76692202   -0.7555783
##   [324,]   0.5612378           1.3783999 -0.76692202   -0.7555783
##   [325,]   0.5612378          -0.9561735 -0.01416085    0.5998996
##   [326,]  -0.2163344           1.3783999 -0.76692202    0.5998996
##   [327,]  -0.9939067          -1.7343646 -0.76692202    0.5998996
##   [328,]   0.5612378           0.6002088 -0.01416085   -3.4665342
##   [329,]  -0.2163344          -1.7343646 -0.01416085    0.5998996
##   [330,]   1.3388100          -0.1779823 -0.76692202    0.5998996
##   [331,]  -0.2163344          -0.1779823  1.49136148   -0.7555783
##   [332,]  -0.9939067           0.6002088 -0.01416085    0.5998996
##   [333,]  -0.2163344          -0.1779823  0.73860031   -2.1110562
##   [334,]   0.5612378          -0.1779823 -0.01416085    0.5998996
##   [335,]   0.5612378          -0.1779823  0.73860031    0.5998996
##   [336,]  -0.2163344           1.3783999  1.49136148    0.5998996
##   [337,]  -0.9939067           1.3783999 -1.51968319   -0.7555783
##   [338,]  -1.7714789           1.3783999 -0.76692202    0.5998996
##   [339,]   1.3388100           0.6002088  1.49136148    0.5998996
##   [340,]   0.5612378          -0.9561735 -0.76692202   -2.1110562
##   [341,]  -1.7714789           0.6002088 -0.76692202   -0.7555783
##   [342,]   1.3388100           1.3783999 -1.51968319    0.5998996
##   [343,]  -0.2163344          -0.9561735 -0.01416085    0.5998996
##   [344,]  -0.2163344          -0.1779823 -0.01416085   -0.7555783
##   [345,]   0.5612378          -1.7343646 -1.51968319   -0.7555783
##   [346,]  -0.2163344          -0.9561735 -0.76692202   -0.7555783
##   [347,]  -0.2163344          -0.9561735 -1.51968319    0.5998996
##   [348,]  -0.9939067           0.6002088 -1.51968319   -0.7555783
##   [349,]   0.5612378           0.6002088  1.49136148    0.5998996
##   [350,]   1.3388100          -1.7343646 -0.01416085    0.5998996
##   [351,]  -1.7714789           1.3783999 -1.51968319    0.5998996
##   [352,]   1.3388100          -0.1779823 -0.01416085    0.5998996
##   [353,]  -1.7714789          -0.9561735 -1.51968319    0.5998996
##   [354,]   0.5612378          -0.9561735  1.49136148    0.5998996
##   [355,]   1.3388100           0.6002088  1.49136148    0.5998996
##   [356,]  -0.2163344          -0.1779823 -0.01416085    0.5998996
##   [357,]  -1.7714789           1.3783999 -0.76692202   -0.7555783
##   [358,]  -0.2163344          -0.9561735 -0.01416085   -2.1110562
##   [359,]  -0.9939067          -0.9561735 -0.76692202   -0.7555783
##   [360,]   1.3388100          -0.9561735 -0.01416085    0.5998996
##   [361,]   1.3388100           0.6002088 -1.51968319   -0.7555783
```

```
##    [362,] -0.2163344             -0.1779823  1.49136148          0.5998996
##    [363,] -0.9939067              0.6002088  1.49136148          0.5998996
##    [364,] -1.7714789              0.6002088  1.49136148          0.5998996
##    [365,]  0.5612378             -0.1779823 -0.76692202         -0.7555783
##    [366,] -0.2163344             -0.9561735 -0.01416085         -0.7555783
##    [367,] -0.9939067              1.3783999 -1.51968319          0.5998996
##    [368,] -0.9939067              0.6002088 -0.01416085          0.5998996
##    [369,]  1.3388100             -0.1779823 -0.76692202          0.5998996
##    [370,] -0.2163344             -0.1779823 -0.76692202         -2.1110562
##    [371,]  1.3388100             -0.1779823 -0.01416085          0.5998996
##    [372,] -0.2163344             -0.1779823 -0.01416085          0.5998996
##    [373,] -0.2163344              1.3783999 -1.51968319         -3.4665342
##    [374,] -1.7714789             -0.1779823 -1.51968319          0.5998996
##    [375,]  1.3388100              0.6002088 -0.01416085          0.5998996
##    [376,] -0.2163344             -0.9561735  0.73860031         -2.1110562
##    [377,] -0.2163344             -0.9561735 -0.76692202         -0.7555783
##    [378,] -0.9939067             -0.1779823  0.73860031          0.5998996
##    [379,] -0.2163344             -1.7343646  0.73860031          0.5998996
##    [380,] -0.2163344              1.3783999  0.73860031         -0.7555783
##    [381,]  1.3388100             -0.1779823 -0.76692202          0.5998996
##    [382,]  0.5612378             -0.1779823  1.49136148          0.5998996
##    [383,]  1.3388100             -0.9561735 -0.76692202          0.5998996
##    [384,] -0.9939067              1.3783999 -0.01416085          0.5998996
##    [385,]  1.3388100             -0.9561735  0.73860031          0.5998996
##    [386,] -0.9939067              1.3783999  0.73860031          0.5998996
##    [387,]  0.5612378              0.6002088 -0.76692202         -0.7555783
##    [388,]  1.3388100             -0.1779823 -0.01416085          0.5998996
##    [389,]  0.5612378             -0.1779823 -0.01416085         -2.1110562
##    [390,]  1.3388100             -0.9561735 -0.76692202         -0.7555783
##    [391,] -0.2163344             -0.1779823 -0.01416085          0.5998996
##    [392,]  0.5612378             -1.7343646  0.73860031          0.5998996
##    [393,]  0.5612378             -0.9561735  0.73860031          0.5998996
##    [394,] -0.9939067             -0.1779823 -1.51968319         -2.1110562
##    [395,] -0.2163344             -0.1779823  0.73860031          0.5998996
##    [396,] -0.2163344              1.3783999 -1.51968319          0.5998996
##    [397,] -0.9939067             -0.1779823  0.73860031          0.5998996
##    [398,]  1.3388100             -0.1779823  0.73860031         -2.1110562
##    [399,]  1.3388100              1.3783999 -0.01416085          0.5998996
##    [400,] -0.2163344              0.6002088  1.49136148          0.5998996
##    [401,] -0.9939067              1.3783999 -0.76692202         -0.7555783
##    [402,] -0.9939067             -0.9561735  1.49136148          0.5998996
##    [403,] -0.9939067              0.6002088 -1.51968319          0.5998996
##    [404,] -1.7714789             -1.7343646 -0.01416085         -0.7555783
##    [405,] -0.2163344             -0.1779823 -0.01416085          0.5998996
##    [406,]  0.5612378             -0.9561735 -0.01416085          0.5998996
##    [407,] -0.9939067             -1.7343646 -0.01416085         -0.7555783
##    [408,]  0.5612378             -0.1779823  1.49136148          0.5998996
##    [409,] -0.2163344              0.6002088  1.49136148          0.5998996
##    [410,]  1.3388100             -0.1779823 -1.51968319          0.5998996
##    [411,]  1.3388100              1.3783999 -1.51968319          0.5998996
```

```
##  [412,]  1.3388100              -0.9561735  0.73860031          0.5998996
##  [413,]  1.3388100              -1.7343646 -0.01416085         -0.7555783
##  [414,] -0.9939067               0.6002088 -0.76692202          0.5998996
##  [415,]  0.5612378               1.3783999  0.73860031          0.5998996
##  [416,]  1.3388100              -1.7343646  0.73860031          0.5998996
##  [417,] -0.2163344              -0.9561735 -0.76692202          0.5998996
##  [418,] -1.7714789               0.6002088 -0.01416085          0.5998996
##  [419,]  1.3388100              -0.1779823  1.49136148         -2.1110562
##  [420,] -1.7714789               1.3783999  0.73860031         -0.7555783
##  [421,] -0.2163344              -0.9561735  0.73860031          0.5998996
##  [422,]  0.5612378               0.6002088  1.49136148          0.5998996
##  [423,]  1.3388100               1.3783999  1.49136148          0.5998996
##  [424,]  0.5612378               1.3783999 -0.01416085          0.5998996
##  [425,] -0.2163344              -0.9561735 -1.51968319          0.5998996
##  [426,]  1.3388100              -0.1779823  1.49136148          0.5998996
##  [427,] -1.7714789              -1.7343646  0.73860031          0.5998996
##  [428,] -0.9939067               0.6002088  1.49136148          0.5998996
##  [429,]  1.3388100              -0.9561735  0.73860031         -0.7555783
##  [430,] -0.2163344              -0.1779823  1.49136148          0.5998996
##  [431,]  0.5612378              -0.1779823 -0.01416085          0.5998996
##  [432,] -0.9939067               1.3783999  0.73860031          0.5998996
##  [433,] -1.7714789               1.3783999 -0.01416085          0.5998996
##  [434,] -0.9939067               0.6002088 -0.76692202          0.5998996
##  [435,]  0.5612378               0.6002088 -0.01416085          0.5998996
##  [436,]  1.3388100              -0.9561735  0.73860031          0.5998996
##  [437,]  0.5612378               0.6002088 -0.76692202         -0.7555783
##  [438,] -0.9939067              -0.9561735 -0.76692202          0.5998996
##  [439,] -0.2163344               1.3783999 -0.76692202         -0.7555783
##  [440,] -0.2163344              -1.7343646 -1.51968319          0.5998996
##  [441,]  0.5612378              -0.1779823 -0.01416085          0.5998996
##  [442,] -0.2163344              -0.1779823 -0.01416085          0.5998996
##  [443,] -0.2163344               0.6002088  0.73860031          0.5998996
##  [444,] -0.2163344              -0.9561735 -0.01416085          0.5998996
##  [445,] -0.9939067              -0.1779823 -0.01416085          0.5998996
##  [446,]  1.3388100              -0.1779823 -0.76692202          0.5998996
##  [447,] -0.9939067              -0.9561735 -1.51968319          0.5998996
##  [448,] -1.7714789              -0.1779823  1.49136148         -2.1110562
##  [449,]  1.3388100              -0.1779823  0.73860031          0.5998996
##  [450,] -0.2163344              -0.1779823  1.49136148          0.5998996
##  [451,] -0.2163344               1.3783999 -1.51968319          0.5998996
##  [452,] -0.2163344               0.6002088  0.73860031         -0.7555783
##  [453,]  1.3388100              -0.1779823  0.73860031          0.5998996
##  [454,] -0.2163344              -0.1779823  1.49136148          0.5998996
##  [455,]  1.3388100              -0.9561735 -0.76692202          0.5998996
##  [456,]  1.3388100              -0.9561735 -0.01416085         -0.7555783
##  [457,] -1.7714789               0.6002088 -0.76692202          0.5998996
##  [458,] -1.7714789               0.6002088 -1.51968319          0.5998996
##  [459,]  1.3388100              -1.7343646  1.49136148          0.5998996
##  [460,] -0.2163344              -0.1779823  1.49136148          0.5998996
##  [461,] -1.7714789              -0.1779823 -1.51968319          0.5998996
```

```
## [462,]  0.5612378       0.6002088  0.73860031    -0.7555783
## [463,] -0.9939067       0.6002088 -0.01416085    -0.7555783
## [464,]  1.3388100      -1.7343646 -0.01416085     0.5998996
## [465,]  1.3388100      -0.1779823 -0.76692202    -3.4665342
## [466,] -0.2163344       0.6002088  0.73860031    -0.7555783
## [467,]  0.5612378       0.6002088 -1.51968319     0.5998996
## [468,] -0.2163344      -1.7343646 -0.76692202    -0.7555783
## [469,]  0.5612378       0.6002088 -0.76692202    -0.7555783
## [470,] -0.9939067       1.3783999 -0.76692202     0.5998996
## [471,] -0.2163344      -0.9561735  1.49136148     0.5998996
## [472,] -0.2163344       1.3783999 -1.51968319     0.5998996
## [473,] -1.7714789      -0.9561735 -1.51968319    -3.4665342
## [474,] -1.7714789      -1.7343646 -0.76692202    -2.1110562
## [475,] -0.2163344       1.3783999  0.73860031     0.5998996
## [476,] -0.9939067      -0.9561735 -0.01416085     0.5998996
## [477,] -0.2163344      -0.1779823 -0.76692202     0.5998996
## [478,] -1.7714789      -0.1779823 -0.01416085    -0.7555783
## [479,]  0.5612378      -0.1779823  1.49136148     0.5998996
## [480,] -0.2163344       0.6002088 -0.01416085     0.5998996
## [481,]  1.3388100       0.6002088  1.49136148     0.5998996
## [482,] -1.7714789       0.6002088 -0.01416085     0.5998996
## [483,] -1.7714789      -0.1779823 -0.76692202    -0.7555783
## [484,]  1.3388100       1.3783999 -1.51968319     0.5998996
## [485,]  0.5612378      -1.7343646 -0.76692202     0.5998996
## [486,] -0.9939067       0.6002088 -1.51968319    -2.1110562
## [487,]  0.5612378      -0.1779823  1.49136148    -0.7555783
## [488,]  1.3388100       1.3783999 -1.51968319     0.5998996
## [489,] -0.9939067       1.3783999  0.73860031    -0.7555783
## [490,]  1.3388100       1.3783999 -0.01416085     0.5998996
## [491,]  1.3388100      -1.7343646 -1.51968319    -0.7555783
## [492,] -0.2163344      -0.1779823 -0.01416085    -0.7555783
## [493,] -0.9939067      -0.9561735  1.49136148     0.5998996
## [494,] -0.9939067       1.3783999 -0.76692202     0.5998996
## [495,]  0.5612378      -0.9561735 -0.01416085     0.5998996
## [496,]  1.3388100      -0.1779823 -0.01416085     0.5998996
## [497,]  0.5612378      -0.9561735 -1.51968319    -0.7555783
## [498,] -0.2163344      -0.1779823  1.49136148     0.5998996
## [499,] -0.9939067      -0.9561735 -0.01416085     0.5998996
## [500,] -1.7714789       1.3783999 -0.76692202     0.5998996
## [501,]  0.5612378      -0.1779823 -0.01416085     0.5998996
## [502,] -0.2163344      -0.9561735 -0.76692202     0.5998996
## [503,]  0.5612378       1.3783999 -1.51968319     0.5998996
## [504,] -0.2163344       1.3783999 -0.76692202    -2.1110562
## [505,]  1.3388100       1.3783999 -1.51968319     0.5998996
## [506,] -0.9939067       0.6002088 -1.51968319     0.5998996
## [507,] -0.2163344       0.6002088 -1.51968319     0.5998996
## [508,] -0.9939067       0.6002088  0.73860031    -0.7555783
## [509,] -0.9939067      -1.7343646 -0.76692202     0.5998996
## [510,]  1.3388100      -1.7343646 -1.51968319     0.5998996
## [511,] -0.2163344       1.3783999  1.49136148     0.5998996
```

```
## [512,] -0.2163344       1.3783999  0.73860031      0.5998996
## [513,]  1.3388100       1.3783999 -0.76692202     -0.7555783
## [514,] -0.9939067       0.6002088 -0.01416085      0.5998996
## [515,] -0.2163344      -0.9561735 -0.01416085     -0.7555783
## [516,]  1.3388100      -0.9561735  0.73860031      0.5998996
## [517,]  1.3388100      -1.7343646 -1.51968319      0.5998996
## [518,]  1.3388100       1.3783999  1.49136148      0.5998996
## [519,]  0.5612378      -0.9561735 -0.76692202      0.5998996
## [520,] -0.9939067      -0.9561735 -1.51968319      0.5998996
## [521,]  1.3388100      -0.1779823 -0.01416085      0.5998996
## [522,]  1.3388100      -0.1779823 -0.01416085      0.5998996
## [523,]  0.5612378      -0.1779823  0.73860031      0.5998996
## [524,] -0.2163344       0.6002088 -1.51968319      0.5998996
## [525,] -0.2163344      -1.7343646  0.73860031      0.5998996
## [526,]  0.5612378      -0.1779823  0.73860031      0.5998996
## [527,] -1.7714789       1.3783999 -0.01416085      0.5998996
## [528,] -0.2163344      -0.1779823  0.73860031     -2.1110562
## [529,] -1.7714789       1.3783999 -1.51968319      0.5998996
## [530,] -0.9939067      -0.9561735 -1.51968319     -0.7555783
## [531,] -0.9939067       0.6002088 -0.01416085     -2.1110562
## [532,] -0.9939067       0.6002088 -1.51968319      0.5998996
## [533,]  1.3388100      -0.1779823  1.49136148      0.5998996
## [534,] -0.2163344       0.6002088  0.73860031      0.5998996
## [535,]  0.5612378       0.6002088  0.73860031     -2.1110562
## [536,]  1.3388100       1.3783999 -0.76692202      0.5998996
## [537,]  1.3388100      -1.7343646 -0.76692202      0.5998996
## [538,] -0.2163344       1.3783999  1.49136148      0.5998996
## [539,]  0.5612378      -0.9561735 -0.76692202      0.5998996
## [540,]  1.3388100       1.3783999  0.73860031     -2.1110562
## [541,]  0.5612378       1.3783999  1.49136148      0.5998996
## [542,]  1.3388100      -0.1779823 -0.76692202      0.5998996
## [543,]  0.5612378       0.6002088  0.73860031      0.5998996
## [544,] -0.2163344      -0.1779823  0.73860031     -0.7555783
## [545,]  0.5612378       1.3783999  0.73860031      0.5998996
## [546,]  1.3388100       1.3783999  1.49136148      0.5998996
## [547,] -0.2163344       1.3783999  1.49136148      0.5998996
## [548,] -1.7714789      -0.9561735  1.49136148      0.5998996
## [549,] -0.2163344      -0.9561735 -0.76692202     -0.7555783
## [550,]  0.5612378      -0.1779823 -1.51968319     -2.1110562
## [551,]  0.5612378      -0.1779823 -1.51968319     -0.7555783
## [552,] -0.2163344      -0.9561735 -1.51968319      0.5998996
## [553,]  1.3388100      -0.1779823  1.49136148      0.5998996
## [554,]  1.3388100      -0.9561735 -0.01416085      0.5998996
## [555,] -0.2163344       0.6002088 -0.76692202     -0.7555783
## [556,]  1.3388100      -1.7343646 -1.51968319      0.5998996
## [557,]  1.3388100      -1.7343646 -1.51968319      0.5998996
## [558,]  1.3388100      -0.1779823  0.73860031      0.5998996
## [559,]  0.5612378      -0.9561735  1.49136148      0.5998996
## [560,] -0.2163344      -1.7343646 -0.01416085      0.5998996
## [561,] -0.9939067      -0.9561735 -0.01416085      0.5998996
```

```
##  [562,] -0.9939067    -0.1779823  0.73860031    -0.7555783
##  [563,] -0.2163344    -0.9561735 -0.01416085     0.5998996
##  [564,]  1.3388100     0.6002088 -0.76692202    -0.7555783
##  [565,] -0.2163344     1.3783999 -1.51968319     0.5998996
##  [566,]  1.3388100    -0.9561735 -0.01416085     0.5998996
##  [567,] -1.7714789    -0.9561735  1.49136148    -0.7555783
##  [568,] -0.2163344    -0.9561735 -0.76692202    -0.7555783
##  [569,]  1.3388100    -1.7343646 -1.51968319     0.5998996
##  [570,]  0.5612378    -0.9561735 -0.01416085     0.5998996
##  [571,]  1.3388100     0.6002088 -0.01416085    -0.7555783
##  [572,] -0.2163344    -1.7343646 -0.76692202     0.5998996
##  [573,]  1.3388100     1.3783999  0.73860031     0.5998996
##  [574,]  1.3388100    -0.1779823 -1.51968319     0.5998996
##  [575,]  0.5612378     0.6002088 -0.76692202     0.5998996
##  [576,] -0.9939067     1.3783999  1.49136148     0.5998996
##  [577,] -0.2163344     1.3783999  1.49136148     0.5998996
##  [578,]  1.3388100    -0.9561735 -0.01416085     0.5998996
##  [579,]  0.5612378     1.3783999  0.73860031    -0.7555783
##  [580,] -0.9939067     0.6002088 -0.76692202     0.5998996
##  [581,] -0.9939067    -0.1779823 -1.51968319    -2.1110562
##  [582,]  1.3388100    -0.1779823  0.73860031     0.5998996
##  [583,] -0.9939067    -0.1779823 -0.76692202     0.5998996
##  [584,] -1.7714789     1.3783999 -0.01416085    -0.7555783
##  [585,] -0.9939067    -0.1779823 -0.76692202    -2.1110562
##  [586,] -0.2163344    -0.1779823 -1.51968319     0.5998996
##  [587,]  1.3388100     1.3783999 -0.76692202     0.5998996
##  [588,] -0.2163344    -0.9561735 -0.76692202     0.5998996
##  [589,]  1.3388100    -1.7343646  1.49136148     0.5998996
##  [590,]  0.5612378     0.6002088  1.49136148     0.5998996
##  [591,] -0.9939067     1.3783999 -0.01416085     0.5998996
##  [592,]  0.5612378     0.6002088  1.49136148    -2.1110562
##  [593,]  1.3388100     1.3783999  1.49136148     0.5998996
##  [594,] -0.9939067    -0.1779823 -0.01416085     0.5998996
##  [595,] -0.2163344    -0.1779823  0.73860031     0.5998996
##  [596,] -1.7714789    -1.7343646 -1.51968319    -2.1110562
##  [597,] -1.7714789     0.6002088 -1.51968319    -0.7555783
##  [598,] -0.9939067    -0.9561735 -0.76692202     0.5998996
##  [599,] -0.9939067     1.3783999 -0.01416085    -0.7555783
##  [600,] -0.2163344    -0.9561735 -0.76692202     0.5998996
##  [601,] -0.2163344    -0.9561735  0.73860031     0.5998996
##  [602,] -0.2163344    -1.7343646  0.73860031     0.5998996
##  [603,] -0.9939067     0.6002088 -1.51968319     0.5998996
##  [604,]  0.5612378     0.6002088 -0.76692202     0.5998996
##  [605,]  1.3388100     0.6002088 -0.01416085     0.5998996
##  [606,] -0.2163344     1.3783999  1.49136148    -0.7555783
##  [607,] -0.9939067     0.6002088 -0.76692202    -0.7555783
##  [608,]  1.3388100     1.3783999 -0.01416085     0.5998996
##  [609,]  0.5612378    -0.9561735 -0.76692202    -0.7555783
##  [610,]  0.5612378     1.3783999 -0.01416085    -0.7555783
##  [611,] -0.9939067     0.6002088 -1.51968319     0.5998996
```

```
## [612,]  1.3388100     0.6002088 -0.01416085    0.5998996
## [613,] -0.2163344    -0.9561735 -0.76692202   -0.7555783
## [614,]  0.5612378    -0.9561735 -0.01416085    0.5998996
## [615,]  1.3388100     1.3783999  0.73860031    0.5998996
## [616,] -0.9939067     0.6002088 -0.01416085   -0.7555783
## [617,] -0.9939067     1.3783999 -1.51968319    0.5998996
## [618,]  0.5612378     0.6002088  1.49136148    0.5998996
## [619,] -0.2163344    -0.1779823  1.49136148    0.5998996
## [620,] -1.7714789     1.3783999 -1.51968319    0.5998996
## [621,] -1.7714789     0.6002088 -0.01416085    0.5998996
## [622,] -1.7714789    -1.7343646 -1.51968319   -2.1110562
## [623,] -0.2163344    -0.9561735  0.73860031    0.5998996
## [624,] -0.9939067    -0.1779823 -1.51968319    0.5998996
## [625,]  1.3388100    -1.7343646 -0.01416085    0.5998996
## [626,]  0.5612378    -0.1779823 -0.76692202    0.5998996
## [627,]  0.5612378    -0.9561735 -0.76692202   -0.7555783
## [628,]  0.5612378    -0.9561735 -0.76692202    0.5998996
## [629,] -0.9939067     0.6002088 -1.51968319   -0.7555783
## [630,]  1.3388100    -1.7343646  1.49136148    0.5998996
## [631,]  1.3388100    -0.9561735 -0.01416085    0.5998996
## [632,]  0.5612378    -0.1779823  1.49136148    0.5998996
## [633,] -0.9939067    -0.9561735 -0.76692202   -2.1110562
## [634,] -0.2163344     0.6002088 -0.01416085    0.5998996
## [635,]  1.3388100    -0.1779823  1.49136148    0.5998996
## [636,] -0.9939067     0.6002088 -0.01416085   -2.1110562
## [637,]  0.5612378    -0.9561735 -1.51968319    0.5998996
## [638,]  0.5612378     1.3783999  0.73860031    0.5998996
## [639,] -0.2163344    -0.1779823 -0.01416085   -0.7555783
## [640,] -1.7714789     0.6002088 -1.51968319   -3.4665342
## [641,]  1.3388100    -0.1779823 -0.76692202    0.5998996
## [642,] -0.9939067    -0.9561735 -1.51968319    0.5998996
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## [644,] -0.9939067    -0.1779823  1.49136148    0.5998996
## [645,]  0.5612378    -0.9561735 -0.01416085   -0.7555783
## [646,]  0.5612378     1.3783999 -0.01416085    0.5998996
## [647,] -0.9939067    -0.1779823 -1.51968319    0.5998996
## [648,]  1.3388100    -1.7343646 -1.51968319    0.5998996
## [649,] -0.2163344    -0.9561735  1.49136148    0.5998996
## [650,]  0.5612378    -0.1779823  0.73860031    0.5998996
## [651,] -0.2163344    -1.7343646 -1.51968319   -0.7555783
## [652,] -0.2163344    -0.9561735 -0.01416085   -0.7555783
## [653,] -1.7714789     1.3783999 -1.51968319   -0.7555783
## [654,] -0.2163344     1.3783999 -0.01416085    0.5998996
## [655,] -0.2163344     0.6002088 -0.76692202   -2.1110562
## [656,] -0.2163344    -0.9561735 -0.01416085   -0.7555783
## [657,]  1.3388100     0.6002088  0.73860031    0.5998996
## [658,]  1.3388100     0.6002088  0.73860031    0.5998996
## [659,] -0.9939067     0.6002088 -1.51968319    0.5998996
## [660,] -0.9939067    -1.7343646 -0.76692202    0.5998996
## [661,] -0.2163344    -0.9561735 -0.01416085    0.5998996
```

```
## [662,]  0.5612378            -0.9561735 -0.01416085    -0.7555783
## [663,]  0.5612378            -0.1779823  0.73860031     0.5998996
## [664,] -0.9939067            -0.1779823  0.73860031     0.5998996
## [665,]  0.5612378             0.6002088 -0.01416085    -0.7555783
## [666,] -0.2163344             0.6002088  1.49136148     0.5998996
## [667,] -1.7714789            -0.1779823  0.73860031     0.5998996
## [668,] -1.7714789            -0.1779823 -0.01416085     0.5998996
## [669,] -0.9939067             1.3783999  0.73860031    -2.1110562
## [670,]  0.5612378            -0.1779823 -0.76692202    -0.7555783
## [671,] -0.2163344            -0.1779823 -0.76692202    -0.7555783
## [672,]  0.5612378            -0.1779823  0.73860031     0.5998996
## [673,]  0.5612378            -0.1779823  1.49136148    -0.7555783
## [674,] -0.2163344            -0.9561735 -0.01416085    -0.7555783
## [675,] -0.9939067             0.6002088 -0.01416085     0.5998996
## [676,]  1.3388100            -0.9561735  1.49136148     0.5998996
## [677,] -0.2163344            -0.1779823  1.49136148     0.5998996
## [678,] -0.2163344            -1.7343646  0.73860031     0.5998996
## [679,] -1.7714789             1.3783999  1.49136148     0.5998996
## [680,] -0.2163344            -0.1779823 -0.01416085     0.5998996
## [681,] -0.2163344             0.6002088 -0.01416085     0.5998996
## [682,] -0.2163344             1.3783999  1.49136148     0.5998996
## [683,] -0.2163344             0.6002088 -0.01416085    -0.7555783
## [684,] -0.2163344            -0.1779823 -0.01416085     0.5998996
## [685,]  1.3388100            -1.7343646 -0.76692202    -0.7555783
## [686,]  0.5612378             0.6002088 -0.01416085    -0.7555783
## [687,] -0.2163344            -0.1779823 -0.01416085    -2.1110562
## [688,]  0.5612378             1.3783999  0.73860031     0.5998996
## [689,]  1.3388100            -1.7343646 -0.01416085    -2.1110562
## [690,]  0.5612378            -0.9561735 -0.76692202    -0.7555783
## [691,] -0.9939067             0.6002088  0.73860031    -0.7555783
## [692,]  0.5612378            -0.9561735 -0.76692202     0.5998996
## [693,] -0.2163344             0.6002088 -0.01416085     0.5998996
## [694,]  1.3388100            -0.1779823  0.73860031     0.5998996
## [695,] -0.9939067             1.3783999 -0.76692202     0.5998996
## [696,] -0.2163344            -0.9561735  1.49136148     0.5998996
## [697,] -0.9939067            -0.9561735  0.73860031     0.5998996
## [698,] -0.2163344            -1.7343646 -0.76692202    -2.1110562
## [699,]  1.3388100            -1.7343646 -0.01416085     0.5998996
## [700,]  0.5612378            -0.9561735 -0.01416085     0.5998996
## [701,] -0.9939067            -1.7343646 -1.51968319    -0.7555783
## [702,] -0.9939067            -0.1779823 -0.01416085    -2.1110562
## [703,] -1.7714789             1.3783999  1.49136148     0.5998996
## [704,] -0.9939067            -0.1779823 -0.76692202     0.5998996
## [705,]  0.5612378            -0.9561735 -0.01416085     0.5998996
## [706,]  1.3388100             1.3783999  1.49136148     0.5998996
## [707,] -0.2163344             0.6002088  0.73860031     0.5998996
## [708,] -0.2163344             0.6002088  0.73860031    -0.7555783
## [709,] -0.9939067            -0.1779823 -1.51968319     0.5998996
## [710,]  1.3388100            -0.9561735 -0.01416085     0.5998996
## [711,] -0.2163344            -0.9561735  1.49136148     0.5998996
```

```
##  [712,] -0.2163344             -0.9561735 -0.01416085          -2.1110562
##  [713,]  0.5612378              0.6002088  0.73860031           0.5998996
##  [714,] -0.2163344             -1.7343646  1.49136148           0.5998996
##  [715,] -0.2163344             -0.9561735  1.49136148           0.5998996
##  [716,] -0.2163344              1.3783999 -0.76692202          -0.7555783
##  [717,]  0.5612378              0.6002088  1.49136148          -0.7555783
##  [718,] -0.2163344             -1.7343646  0.73860031           0.5998996
##  [719,] -0.2163344             -0.1779823  0.73860031           0.5998996
##  [720,] -0.9939067             -0.1779823 -1.51968319          -0.7555783
##  [721,]  0.5612378              0.6002088  1.49136148           0.5998996
##  [722,] -1.7714789              0.6002088  1.49136148           0.5998996
##  [723,] -0.2163344             -0.9561735  1.49136148          -0.7555783
##  [724,] -0.2163344             -0.9561735  1.49136148           0.5998996
##  [725,] -0.9939067             -1.7343646 -0.01416085          -0.7555783
##  [726,] -0.9939067              0.6002088 -0.01416085           0.5998996
##  [727,] -0.2163344              0.6002088 -1.51968319           0.5998996
##  [728,] -0.9939067              1.3783999 -1.51968319           0.5998996
##  [729,]  1.3388100              1.3783999  1.49136148           0.5998996
##  [730,] -0.9939067              0.6002088 -0.01416085           0.5998996
##  [731,] -1.7714789             -0.1779823  1.49136148          -0.7555783
##  [732,] -0.2163344             -0.9561735 -0.01416085           0.5998996
##  [733,] -0.2163344             -1.7343646 -0.76692202           0.5998996
##  [734,]  1.3388100              1.3783999  0.73860031          -0.7555783
##  [735,] -0.9939067             -1.7343646 -0.01416085          -0.7555783
##  [736,] -0.9939067             -1.7343646  0.73860031          -3.4665342
##  [737,] -0.2163344             -0.1779823  0.73860031          -0.7555783
##  [738,]  0.5612378             -1.7343646 -0.01416085           0.5998996
##  [739,] -0.2163344              0.6002088 -1.51968319           0.5998996
##  [740,] -0.2163344              1.3783999 -0.76692202           0.5998996
##  [741,]  0.5612378              0.6002088 -0.01416085           0.5998996
##  [742,] -0.9939067             -0.9561735  1.49136148           0.5998996
##  [743,] -0.2163344              0.6002088  0.73860031           0.5998996
##  [744,] -1.7714789              0.6002088 -0.01416085           0.5998996
##  [745,] -0.2163344              1.3783999  0.73860031           0.5998996
##  [746,] -0.9939067              1.3783999 -0.76692202          -0.7555783
##  [747,]  0.5612378             -0.9561735  0.73860031           0.5998996
##  [748,]  0.5612378             -0.1779823  1.49136148          -0.7555783
##  [749,]  0.5612378             -0.1779823 -0.01416085           0.5998996
##  [750,] -0.2163344             -0.1779823 -0.76692202          -0.7555783
##  [751,]  1.3388100              1.3783999  1.49136148           0.5998996
##  [752,]  1.3388100             -0.9561735  1.49136148           0.5998996
##  [753,]  1.3388100              0.6002088  0.73860031           0.5998996
##  [754,] -0.9939067             -0.9561735  0.73860031           0.5998996
##  [755,] -0.9939067              0.6002088 -0.76692202           0.5998996
##  [756,]  0.5612378              1.3783999  0.73860031           0.5998996
##  [757,]  0.5612378              0.6002088 -0.76692202           0.5998996
##  [758,]  0.5612378              1.3783999  0.73860031           0.5998996
##  [759,]  0.5612378              1.3783999 -0.76692202          -2.1110562
##  [760,]  1.3388100              1.3783999  1.49136148           0.5998996
##  [761,]  0.5612378             -0.9561735  0.73860031           0.5998996
```

```
##    [762,] -0.9939067        1.3783999 -1.51968319    0.5998996
##    [763,]  0.5612378        0.6002088 -0.76692202    0.5998996
##    [764,] -0.9939067        0.6002088  1.49136148    0.5998996
##    [765,]  0.5612378       -0.1779823  0.73860031    0.5998996
##    [766,] -0.9939067        1.3783999 -1.51968319   -0.7555783
##    [767,]  0.5612378       -0.1779823  0.73860031   -2.1110562
##    [768,]  0.5612378       -0.1779823 -0.01416085   -2.1110562
##    [769,] -0.2163344       -0.1779823 -1.51968319   -0.7555783
##    [770,]  0.5612378        0.6002088  0.73860031   -0.7555783
##    [771,]  1.3388100        0.6002088 -0.01416085   -3.4665342
##    [772,] -1.7714789        1.3783999 -0.76692202    0.5998996
##    [773,]  1.3388100       -0.9561735 -0.01416085    0.5998996
##    [774,] -0.2163344       -0.9561735 -0.76692202    0.5998996
##    [775,] -1.7714789       -0.9561735 -0.01416085    0.5998996
##    [776,]  1.3388100        1.3783999  1.49136148    0.5998996
##    [777,] -0.2163344        1.3783999 -0.01416085    0.5998996
##    [778,]  1.3388100       -1.7343646 -1.51968319    0.5998996
##    [779,]  1.3388100       -1.7343646  1.49136148    0.5998996
##    [780,]  1.3388100        0.6002088  1.49136148    0.5998996
##    [781,]  0.5612378       -0.1779823 -0.76692202   -2.1110562
##    [782,] -0.2163344       -1.7343646  1.49136148    0.5998996
##    [783,]  0.5612378        1.3783999 -0.01416085    0.5998996
##    [784,]  0.5612378        1.3783999 -0.01416085    0.5998996
##    [785,] -0.2163344        0.6002088  0.73860031   -3.4665342
##    [786,]  0.5612378       -1.7343646 -0.01416085   -0.7555783
##    [787,] -0.9939067       -0.1779823 -0.01416085    0.5998996
##    [788,]  0.5612378       -0.9561735 -0.01416085    0.5998996
##    [789,] -0.2163344       -1.7343646 -0.01416085    0.5998996
##    [790,]  1.3388100        0.6002088  0.73860031    0.5998996
##    [791,] -0.9939067        1.3783999 -0.76692202   -0.7555783
##    [792,]  1.3388100       -0.1779823 -1.51968319   -2.1110562
##    [793,]  0.5612378        1.3783999 -1.51968319    0.5998996
##    [794,]  0.5612378       -0.1779823 -0.01416085    0.5998996
##    [795,] -0.2163344       -1.7343646 -0.76692202    0.5998996
##    [796,]  1.3388100        1.3783999  0.73860031    0.5998996
##    [797,] -0.2163344        1.3783999  0.73860031   -3.4665342
##    [798,]  0.5612378       -1.7343646 -1.51968319    0.5998996
##    [799,] -0.2163344        0.6002088 -0.76692202    0.5998996
##    [800,] -0.2163344        0.6002088  1.49136148   -0.7555783
##    [801,]  0.5612378        0.6002088  1.49136148    0.5998996
##    [802,] -1.7714789        1.3783999 -1.51968319    0.5998996
##    [803,]  0.5612378       -0.1779823 -0.01416085    0.5998996
##    [804,] -0.2163344       -1.7343646 -0.01416085    0.5998996
##    [805,]  0.5612378       -0.1779823  1.49136148    0.5998996
##    [806,]  1.3388100       -0.9561735  0.73860031    0.5998996
##    [807,]  1.3388100        1.3783999 -1.51968319    0.5998996
##    [808,]  0.5612378       -0.1779823  0.73860031    0.5998996
##    [809,]  0.5612378       -0.1779823 -0.76692202    0.5998996
##    [810,]  1.3388100        1.3783999 -1.51968319    0.5998996
##    [811,] -0.9939067        0.6002088  1.49136148    0.5998996
```

```
##  [812,] -0.9939067      1.3783999  0.73860031       0.5998996
##  [813,]  1.3388100     -0.1779823 -1.51968319       0.5998996
##  [814,]  0.5612378      0.6002088 -1.51968319       0.5998996
##  [815,]  1.3388100     -0.1779823  1.49136148       0.5998996
##  [816,] -0.2163344      1.3783999  0.73860031       0.5998996
##  [817,]  1.3388100      1.3783999  1.49136148       0.5998996
##  [818,] -1.7714789     -1.7343646 -0.01416085      -2.1110562
##  [819,] -0.9939067      0.6002088 -1.51968319       0.5998996
##  [820,] -0.2163344     -0.1779823 -0.01416085       0.5998996
##  [821,]  0.5612378     -1.7343646  0.73860031       0.5998996
##  [822,] -0.2163344      1.3783999  0.73860031       0.5998996
##  [823,] -0.2163344     -1.7343646 -0.76692202       0.5998996
##  [824,]  0.5612378     -0.1779823 -0.76692202       0.5998996
##  [825,] -1.7714789     -1.7343646  1.49136148       0.5998996
##  [826,] -0.2163344     -0.1779823 -0.01416085      -0.7555783
##  [827,]  0.5612378     -0.9561735  1.49136148       0.5998996
##  [828,]  1.3388100     -1.7343646  0.73860031       0.5998996
##  [829,] -1.7714789     -0.9561735 -0.01416085      -0.7555783
##  [830,] -0.9939067      0.6002088  1.49136148      -0.7555783
##  [831,] -0.2163344      0.6002088  0.73860031       0.5998996
##  [832,]  0.5612378      0.6002088  0.73860031       0.5998996
##  [833,]  1.3388100     -1.7343646  1.49136148       0.5998996
##  [834,] -0.2163344     -0.1779823  1.49136148       0.5998996
##  [835,] -0.2163344      0.6002088 -0.01416085      -0.7555783
##  [836,] -1.7714789     -0.1779823 -0.76692202       0.5998996
##  [837,]  0.5612378      1.3783999 -0.01416085      -0.7555783
##  [838,] -1.7714789      1.3783999  1.49136148       0.5998996
##  [839,] -0.2163344     -0.9561735 -0.01416085       0.5998996
##  [840,]  1.3388100     -0.9561735  0.73860031       0.5998996
##  [841,]  0.5612378     -0.1779823 -0.01416085      -0.7555783
##  [842,] -1.7714789     -1.7343646 -1.51968319       0.5998996
##  [843,]  0.5612378      1.3783999  0.73860031       0.5998996
##  [844,]  1.3388100      1.3783999  0.73860031       0.5998996
##  [845,] -0.2163344      0.6002088  1.49136148      -0.7555783
##  [846,]  0.5612378     -1.7343646 -0.01416085       0.5998996
##  [847,]  1.3388100     -0.9561735 -0.76692202       0.5998996
##  [848,]  0.5612378     -1.7343646  1.49136148       0.5998996
##  [849,]  0.5612378     -0.1779823 -1.51968319       0.5998996
##  [850,] -0.2163344     -1.7343646  0.73860031       0.5998996
##  [851,]  1.3388100     -0.1779823 -0.01416085      -0.7555783
##  [852,]  0.5612378     -0.1779823 -0.01416085       0.5998996
##  [853,]  0.5612378     -0.1779823 -1.51968319       0.5998996
##  [854,]  0.5612378     -0.1779823  1.49136148       0.5998996
##  [855,]  0.5612378      0.6002088 -0.76692202       0.5998996
##  [856,] -0.2163344      1.3783999  0.73860031       0.5998996
##  [857,]  1.3388100     -0.1779823  0.73860031       0.5998996
##  [858,]  0.5612378      1.3783999 -0.01416085       0.5998996
##  [859,] -0.9939067     -0.1779823 -0.76692202       0.5998996
##  [860,] -0.2163344      0.6002088 -0.76692202       0.5998996
##  [861,] -0.9939067      1.3783999  0.73860031       0.5998996
```

```
##  [862,]  0.5612378      0.6002088  0.73860031    0.5998996
##  [863,]  1.3388100      1.3783999 -0.01416085    0.5998996
##  [864,]  0.5612378      0.6002088 -0.01416085    0.5998996
##  [865,] -0.9939067      0.6002088 -0.76692202    0.5998996
##  [866,]  0.5612378     -0.1779823 -0.76692202   -0.7555783
##  [867,] -1.7714789      0.6002088 -0.01416085   -3.4665342
##  [868,] -0.2163344      1.3783999 -1.51968319   -2.1110562
##  [869,] -0.2163344     -0.9561735 -1.51968319   -0.7555783
##  [870,]  1.3388100      1.3783999  1.49136148    0.5998996
##  [871,]  0.5612378     -0.9561735 -0.01416085   -0.7555783
##  [872,]  1.3388100      1.3783999  1.49136148    0.5998996
##  [873,] -0.2163344      1.3783999 -0.01416085    0.5998996
##  [874,] -0.2163344     -0.1779823 -0.01416085    0.5998996
##  [875,]  1.3388100     -0.9561735 -0.01416085    0.5998996
##  [876,] -0.2163344      0.6002088 -1.51968319    0.5998996
##  [877,] -0.2163344      0.6002088 -0.76692202    0.5998996
##  [878,] -1.7714789     -0.1779823  1.49136148    0.5998996
##  [879,] -0.9939067      0.6002088 -0.76692202    0.5998996
##  [880,] -0.2163344      0.6002088 -1.51968319    0.5998996
##  [881,]  1.3388100     -0.9561735 -0.01416085    0.5998996
##  [882,]  1.3388100      1.3783999  1.49136148    0.5998996
##  [883,]  0.5612378     -1.7343646 -0.76692202    0.5998996
##  [884,] -0.9939067     -0.9561735  0.73860031    0.5998996
##  [885,]  1.3388100     -1.7343646  1.49136148    0.5998996
##  [886,]  0.5612378      0.6002088  0.73860031    0.5998996
##  [887,] -1.7714789      1.3783999 -0.01416085    0.5998996
##  [888,] -0.9939067     -0.1779823 -0.76692202   -0.7555783
##  [889,]  0.5612378     -0.9561735  1.49136148    0.5998996
##  [890,] -0.9939067      0.6002088  1.49136148    0.5998996
##  [891,]  0.5612378      1.3783999 -1.51968319    0.5998996
##  [892,] -0.2163344     -0.1779823 -0.76692202    0.5998996
##  [893,] -0.9939067      0.6002088 -0.01416085   -0.7555783
##  [894,] -0.9939067     -0.1779823 -0.01416085   -0.7555783
##  [895,]  1.3388100      0.6002088 -0.01416085    0.5998996
##  [896,] -0.9939067     -0.9561735 -0.76692202   -0.7555783
##  [897,] -0.9939067      0.6002088  0.73860031    0.5998996
##  [898,] -0.9939067      0.6002088 -0.01416085   -0.7555783
##  [899,] -0.2163344     -0.1779823 -0.76692202   -0.7555783
##  [900,] -0.9939067      1.3783999 -0.01416085    0.5998996
##  [901,] -0.2163344     -0.1779823 -0.01416085   -2.1110562
##  [902,] -0.9939067     -1.7343646  1.49136148   -0.7555783
##  [903,] -0.2163344     -0.9561735 -0.01416085   -0.7555783
##  [904,] -1.7714789      1.3783999 -1.51968319    0.5998996
##  [905,] -0.2163344     -0.1779823 -0.01416085   -0.7555783
##  [906,]  1.3388100      1.3783999 -0.01416085    0.5998996
##  [907,] -0.9939067     -0.1779823 -0.76692202    0.5998996
##  [908,]  0.5612378     -0.9561735 -0.76692202   -0.7555783
##  [909,]  0.5612378     -0.1779823 -0.76692202    0.5998996
##  [910,]  0.5612378      0.6002088 -0.01416085   -0.7555783
##  [911,]  1.3388100     -0.1779823  1.49136148    0.5998996
```

```
##   [912,] -0.2163344           -0.1779823  0.73860031   -0.7555783
##   [913,] -0.2163344            0.6002088 -0.01416085   -3.4665342
##   [914,] -0.9939067           -0.1779823  1.49136148   -0.7555783
##   [915,]  0.5612378           -0.1779823  1.49136148   -0.7555783
##   [916,]  0.5612378           -0.9561735 -0.01416085    0.5998996
##   [917,] -1.7714789           -0.1779823 -0.76692202   -2.1110562
##   [918,] -0.2163344           -0.1779823 -0.76692202   -0.7555783
##   [919,] -0.2163344           -0.1779823  0.73860031    0.5998996
##   [920,]  1.3388100           -1.7343646  1.49136148    0.5998996
##   [921,] -0.2163344           -1.7343646 -0.01416085    0.5998996
##   [922,] -0.2163344           -0.9561735 -1.51968319    0.5998996
##   [923,]  1.3388100            1.3783999 -0.76692202    0.5998996
##   [924,]  0.5612378           -0.1779823 -0.01416085    0.5998996
##   [925,]  0.5612378           -0.1779823 -0.01416085    0.5998996
##   [926,]  1.3388100           -0.9561735  1.49136148    0.5998996
##   [927,] -0.9939067            1.3783999 -0.01416085   -0.7555783
##   [928,]  0.5612378           -0.9561735  0.73860031   -0.7555783
##   [929,]  0.5612378           -0.9561735 -0.01416085    0.5998996
##   [930,]  0.5612378            0.6002088  0.73860031   -2.1110562
##   [931,]  1.3388100           -0.1779823 -0.76692202    0.5998996
##   [932,] -0.9939067           -0.1779823 -0.76692202   -0.7555783
##   [933,]  0.5612378           -0.1779823 -0.76692202    0.5998996
##   [934,]  1.3388100            1.3783999  1.49136148    0.5998996
##   [935,] -1.7714789           -0.9561735 -0.76692202    0.5998996
##   [936,]  1.3388100           -1.7343646 -1.51968319    0.5998996
##   [937,]  0.5612378           -0.1779823 -0.01416085   -0.7555783
##   [938,] -0.2163344           -0.1779823  0.73860031    0.5998996
##   [939,]  1.3388100            0.6002088  0.73860031   -2.1110562
##   [940,] -0.9939067           -0.1779823 -1.51968319   -0.7555783
##   [941,] -0.2163344           -0.9561735 -0.76692202    0.5998996
##   [942,]  1.3388100           -0.1779823 -0.01416085    0.5998996
##   [943,]  0.5612378           -1.7343646 -0.01416085   -0.7555783
##   [944,]  1.3388100           -0.9561735  0.73860031    0.5998996
##   [945,]  1.3388100            0.6002088  1.49136148    0.5998996
##   [946,] -1.7714789            1.3783999 -0.76692202    0.5998996
##   [947,] -0.9939067            1.3783999 -1.51968319    0.5998996
##   [948,]  0.5612378           -0.9561735 -0.01416085    0.5998996
##   [949,]  0.5612378            0.6002088  1.49136148    0.5998996
##   [950,] -1.7714789           -1.7343646 -1.51968319    0.5998996
##   [951,] -0.2163344            1.3783999 -1.51968319   -2.1110562
##   [952,] -1.7714789            1.3783999 -1.51968319    0.5998996
##   [953,] -0.2163344            0.6002088 -0.76692202    0.5998996
##   [954,]  0.5612378            0.6002088 -0.01416085   -0.7555783
##   [955,]  0.5612378           -1.7343646  0.73860031    0.5998996
##   [956,]  0.5612378            1.3783999 -0.01416085    0.5998996
##   [957,] -1.7714789           -0.1779823 -0.01416085    0.5998996
##   [958,] -0.9939067            0.6002088 -0.76692202   -0.7555783
##   [959,]  1.3388100           -0.9561735 -0.01416085    0.5998996
##   [960,] -0.9939067           -0.9561735 -0.01416085   -0.7555783
##   [961,] -0.9939067           -0.9561735  0.73860031    0.5998996
```

```
##  [962,]   0.5612378               1.3783999 -1.51968319          0.5998996
##  [963,] -0.2163344              -1.7343646  0.73860031         -0.7555783
##  [964,] -0.9939067               1.3783999 -1.51968319          0.5998996
##  [965,] -0.9939067               0.6002088 -0.01416085         -0.7555783
##  [966,]  1.3388100              -0.1779823 -0.01416085          0.5998996
##  [967,]  1.3388100              -1.7343646  1.49136148          0.5998996
##  [968,] -0.9939067               1.3783999  0.73860031          0.5998996
##  [969,] -0.9939067               1.3783999 -0.76692202          0.5998996
##  [970,] -0.9939067              -1.7343646 -0.76692202          0.5998996
##  [971,]  1.3388100               1.3783999  0.73860031          0.5998996
##  [972,] -0.2163344               0.6002088 -0.76692202         -0.7555783
##  [973,]  1.3388100               1.3783999  1.49136148          0.5998996
##  [974,]  1.3388100               1.3783999 -0.01416085         -0.7555783
##  [975,] -0.9939067               0.6002088 -0.01416085          0.5998996
##  [976,]  0.5612378              -0.1779823  0.73860031          0.5998996
##  [977,]  0.5612378              -0.1779823  0.73860031          0.5998996
##  [978,]  0.5612378              -1.7343646 -0.76692202          0.5998996
##  [979,] -0.9939067              -0.9561735  1.49136148          0.5998996
##  [980,] -0.2163344              -0.1779823 -0.01416085          0.5998996
##  [981,] -1.7714789              -0.1779823  1.49136148          0.5998996
##  [982,] -0.2163344              -0.1779823  1.49136148         -2.1110562
##  [983,]  1.3388100               1.3783999  0.73860031          0.5998996
##  [984,]  0.5612378              -1.7343646 -0.01416085          0.5998996
##  [985,] -0.9939067              -0.1779823  1.49136148         -0.7555783
##  [986,] -0.9939067              -0.1779823  1.49136148         -0.7555783
##  [987,] -0.9939067              -0.1779823  0.73860031         -0.7555783
##  [988,] -1.7714789               0.6002088 -0.01416085         -0.7555783
##  [989,]  1.3388100               1.3783999  1.49136148          0.5998996
##  [990,] -0.2163344              -0.1779823  1.49136148          0.5998996
##  [991,] -1.7714789               0.6002088 -1.51968319          0.5998996
##  [992,] -1.7714789              -0.1779823 -1.51968319         -2.1110562
##  [993,] -1.7714789               1.3783999 -0.76692202          0.5998996
##  [994,] -0.2163344              -0.9561735  0.73860031          0.5998996
##  [995,] -0.2163344              -0.1779823 -0.01416085         -0.7555783
##  [996,] -0.2163344              -0.1779823 -0.76692202          0.5998996
##  [997,] -1.7714789              -0.9561735 -0.76692202          0.5998996
##  [998,] -1.7714789              -0.9561735 -0.76692202          0.5998996
##  [999,] -0.9939067               1.3783999  0.73860031          0.5998996
## [1000,] -1.7714789               1.3783999  0.73860031          0.5998996
## [1001,]  1.3388100              -0.1779823  0.73860031          0.5998996
## [1002,]  1.3388100              -0.9561735  0.73860031          0.5998996
## [1003,] -1.7714789              -0.1779823 -1.51968319          0.5998996
## [1004,] -0.2163344              -0.9561735 -0.01416085         -0.7555783
## [1005,] -0.9939067              -0.9561735 -0.76692202          0.5998996
## [1006,]  1.3388100              -0.1779823  1.49136148          0.5998996
## [1007,] -0.9939067               1.3783999 -1.51968319          0.5998996
## [1008,] -0.9939067              -0.1779823 -0.76692202         -2.1110562
## [1009,]  1.3388100               1.3783999  1.49136148          0.5998996
## [1010,] -0.2163344              -0.1779823 -1.51968319          0.5998996
##         Adrenaline.sports      Pets
```

```
##     [1,]        0.73871905  0.4317731
##     [2,]       -0.66770177  1.0787922
##     [3,]        1.44192947  1.0787922
##     [4,]       -1.37091218 -1.5092841
##     [5,]       -0.66770177 -1.5092841
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## [399,]         0.73871905 -1.5092841
## [400,]        -0.66770177  1.0787922
```

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##    [402,]       -1.37091218 -1.5092841
##    [403,]        0.03550864  1.0787922
##    [404,]        1.44192947  0.4317731
##    [405,]        1.44192947  1.0787922
##    [406,]       -1.37091218 -0.2152459
##    [407,]       -1.37091218 -1.5092841
##    [408,]        0.73871905  1.0787922
##    [409,]       -1.37091218 -1.5092841
##    [410,]        0.73871905 -0.2152459
##    [411,]        1.44192947  1.0787922
##    [412,]       -1.37091218 -0.2152459
##    [413,]       -1.37091218  1.0787922
##    [414,]        1.44192947  0.4317731
##    [415,]       -1.37091218 -0.2152459
##    [416,]        1.44192947 -1.5092841
##    [417,]        0.03550864 -0.2152459
##    [418,]        0.73871905  1.0787922
##    [419,]       -0.66770177  1.0787922
##    [420,]       -1.37091218 -0.8622650
##    [421,]        0.03550864 -0.8622650
##    [422,]       -0.66770177  1.0787922
##    [423,]        1.44192947  1.0787922
##    [424,]       -0.66770177  1.0787922
##    [425,]       -0.66770177  1.0787922
##    [426,]        0.03550864  1.0787922
##    [427,]       -1.37091218 -1.5092841
##    [428,]       -1.37091218 -1.5092841
##    [429,]       -0.66770177  1.0787922
##    [430,]        0.73871905  0.4317731
##    [431,]        0.73871905  0.4317731
##    [432,]        0.73871905 -0.2152459
##    [433,]       -1.37091218 -0.2152459
##    [434,]       -0.66770177 -1.5092841
##    [435,]        0.73871905  0.4317731
##    [436,]       -0.66770177  1.0787922
##    [437,]       -1.37091218 -0.8622650
##    [438,]        0.03550864 -1.5092841
##    [439,]       -1.37091218  0.4317731
##    [440,]       -0.66770177 -1.5092841
##    [441,]        0.03550864 -0.2152459
##    [442,]       -0.66770177  1.0787922
##    [443,]       -0.66770177  1.0787922
##    [444,]        0.73871905 -1.5092841
##    [445,]        1.44192947 -1.5092841
##    [446,]        0.03550864  1.0787922
##    [447,]        0.03550864 -0.8622650
##    [448,]       -1.37091218  0.4317731
##    [449,]        0.03550864  0.4317731
##    [450,]       -0.66770177  1.0787922
```

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##  [451,]           -1.37091218  1.0787922
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##  [453,]            0.73871905  1.0787922
##  [454,]           -0.66770177 -0.2152459
##  [455,]            0.73871905  1.0787922
##  [456,]           -1.37091218 -0.2152459
##  [457,]            0.73871905  1.0787922
##  [458,]            0.73871905 -0.8622650
##  [459,]           -1.37091218 -1.5092841
##  [460,]            1.44192947 -0.8622650
##  [461,]            1.44192947  1.0787922
##  [462,]            0.73871905 -0.2152459
##  [463,]           -0.66770177 -0.8622650
##  [464,]           -1.37091218  0.4317731
##  [465,]           -0.66770177 -1.5092841
##  [466,]           -0.66770177 -1.5092841
##  [467,]            1.44192947 -1.5092841
##  [468,]           -1.37091218 -1.5092841
##  [469,]           -0.66770177  0.4317731
##  [470,]            0.03550864 -1.5092841
##  [471,]            0.03550864 -0.8622650
##  [472,]            1.44192947 -1.5092841
##  [473,]           -0.66770177 -0.8622650
##  [474,]           -1.37091218  1.0787922
##  [475,]            1.44192947  1.0787922
##  [476,]           -0.66770177  1.0787922
##  [477,]           -0.66770177  1.0787922
##  [478,]            0.73871905  0.4317731
##  [479,]           -1.37091218  0.4317731
##  [480,]           -0.66770177  1.0787922
##  [481,]            0.03550864  1.0787922
##  [482,]           -1.37091218 -1.5092841
##  [483,]           -0.66770177  1.0787922
##  [484,]            0.73871905 -0.2152459
##  [485,]            1.44192947 -1.5092841
##  [486,]           -1.37091218 -1.5092841
##  [487,]           -1.37091218 -1.5092841
##  [488,]            0.73871905 -1.5092841
##  [489,]            0.03550864 -0.2152459
##  [490,]            1.44192947 -0.8622650
##  [491,]           -1.37091218 -1.5092841
##  [492,]           -0.66770177 -0.8622650
##  [493,]            0.03550864  1.0787922
##  [494,]            0.73871905  1.0787922
##  [495,]            0.73871905 -1.5092841
##  [496,]            0.73871905  0.4317731
##  [497,]           -0.66770177 -0.8622650
##  [498,]            0.03550864 -1.5092841
##  [499,]           -1.37091218  1.0787922
##  [500,]           -1.37091218 -1.5092841
```

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## [504,]          0.03550864 -0.2152459
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## [516,]          0.03550864 -1.5092841
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## [520,]          0.73871905 -0.8622650
## [521,]          0.03550864 -0.2152459
## [522,]         -0.66770177  0.4317731
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## [524,]          0.03550864  0.4317731
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## [528,]          0.73871905  1.0787922
## [529,]          0.73871905 -1.5092841
## [530,]         -1.37091218 -0.2152459
## [531,]          0.73871905 -0.8622650
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## [533,]          0.03550864 -1.5092841
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## [536,]          1.44192947  1.0787922
## [537,]          1.44192947  1.0787922
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## [539,]         -0.66770177  1.0787922
## [540,]          0.73871905 -1.5092841
## [541,]          1.44192947  1.0787922
## [542,]          0.03550864 -0.2152459
## [543,]          0.03550864 -0.8622650
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## [550,]         -1.37091218 -0.8622650
```

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## [555,]        0.03550864 -0.2152459
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## [565,]        1.44192947 -0.2152459
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## [568,]        1.44192947 -0.8622650
## [569,]       -0.66770177 -1.5092841
## [570,]        0.03550864  1.0787922
## [571,]        0.73871905 -0.2152459
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## [579,]        0.03550864  1.0787922
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## [600,]        0.73871905 -0.8622650
```

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## [601,]      -0.66770177  1.0787922
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## [612,]       0.03550864  1.0787922
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## [616,]      -0.66770177 -0.8622650
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## [618,]       1.44192947 -1.5092841
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## [624,]       0.03550864 -0.2152459
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## [626,]      -0.66770177  1.0787922
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## [632,]      -0.66770177  1.0787922
## [633,]       1.44192947  0.4317731
## [634,]       0.03550864 -0.2152459
## [635,]       0.03550864 -0.8622650
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## [638,]       0.73871905  1.0787922
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## [640,]      -0.66770177 -1.5092841
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## [642,]      -0.66770177 -0.2152459
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## [646,]       0.03550864  1.0787922
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## [650,]       0.73871905  1.0787922
```

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##    [651,]        0.73871905  1.0787922
##    [652,]       -0.66770177 -0.8622650
##    [653,]       -1.37091218 -1.5092841
##    [654,]       -0.66770177  1.0787922
##    [655,]       -0.66770177  0.4317731
##    [656,]       -0.66770177 -1.5092841
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##    [658,]        0.03550864 -0.2152459
##    [659,]        1.44192947  0.4317731
##    [660,]       -1.37091218 -0.8622650
##    [661,]        0.03550864 -1.5092841
##    [662,]       -0.66770177  0.4317731
##    [663,]       -0.66770177  1.0787922
##    [664,]        0.73871905 -1.5092841
##    [665,]       -0.66770177 -0.8622650
##    [666,]        1.44192947  1.0787922
##    [667,]        1.44192947  1.0787922
##    [668,]        0.73871905  0.4317731
##    [669,]       -1.37091218 -0.8622650
##    [670,]        0.03550864 -0.2152459
##    [671,]        0.03550864  0.4317731
##    [672,]       -0.66770177  1.0787922
##    [673,]       -1.37091218  1.0787922
##    [674,]       -1.37091218  1.0787922
##    [675,]        0.73871905 -0.2152459
##    [676,]       -0.66770177 -0.8622650
##    [677,]       -0.66770177 -0.2152459
##    [678,]        0.73871905  1.0787922
##    [679,]        1.44192947  1.0787922
##    [680,]       -0.66770177  1.0787922
##    [681,]        1.44192947  1.0787922
##    [682,]        0.03550864 -0.2152459
##    [683,]        0.03550864  1.0787922
##    [684,]       -1.37091218  1.0787922
##    [685,]       -1.37091218 -0.2152459
##    [686,]        0.03550864  1.0787922
##    [687,]        0.03550864 -0.2152459
##    [688,]        1.44192947 -0.8622650
##    [689,]       -1.37091218 -1.5092841
##    [690,]       -0.66770177  1.0787922
##    [691,]       -0.66770177 -0.8622650
##    [692,]        0.73871905 -0.2152459
##    [693,]       -0.66770177 -0.2152459
##    [694,]        0.73871905 -0.2152459
##    [695,]        0.03550864 -1.5092841
##    [696,]        0.03550864  1.0787922
##    [697,]       -1.37091218 -0.2152459
##    [698,]       -1.37091218 -1.5092841
##    [699,]        0.73871905 -0.8622650
##    [700,]       -0.66770177 -1.5092841
```

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##   [706,]         1.44192947   1.0787922
##   [707,]         0.73871905  -1.5092841
##   [708,]         0.73871905  -0.8622650
##   [709,]         0.03550864   1.0787922
##   [710,]         1.44192947  -0.2152459
##   [711,]         1.44192947  -0.8622650
##   [712,]        -0.66770177   1.0787922
##   [713,]        -1.37091218  -0.2152459
##   [714,]        -0.66770177  -0.2152459
##   [715,]         0.73871905   1.0787922
##   [716,]        -1.37091218   1.0787922
##   [717,]        -0.66770177  -0.8622650
##   [718,]        -1.37091218   1.0787922
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##   [720,]        -0.66770177  -0.2152459
##   [721,]         1.44192947  -1.5092841
##   [722,]         0.73871905  -1.5092841
##   [723,]        -0.66770177  -1.5092841
##   [724,]        -1.37091218  -1.5092841
##   [725,]        -1.37091218  -0.8622650
##   [726,]         1.44192947  -0.2152459
##   [727,]        -0.66770177   1.0787922
##   [728,]        -0.66770177  -1.5092841
##   [729,]         1.44192947   1.0787922
##   [730,]         1.44192947   1.0787922
##   [731,]         1.44192947   1.0787922
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##   [733,]         0.73871905  -1.5092841
##   [734,]        -0.66770177   1.0787922
##   [735,]        -1.37091218  -1.5092841
##   [736,]        -1.37091218  -0.2152459
##   [737,]         0.03550864   0.4317731
##   [738,]         0.03550864   1.0787922
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##   [740,]         1.44192947   0.4317731
##   [741,]         1.44192947   0.4317731
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##   [743,]         0.73871905  -1.5092841
##   [744,]         0.73871905  -0.8622650
##   [745,]         1.44192947  -0.2152459
##   [746,]         0.03550864   0.4317731
##   [747,]        -0.66770177   0.4317731
##   [748,]         0.73871905  -1.5092841
##   [749,]         0.03550864   1.0787922
##   [750,]        -0.66770177   0.4317731
```

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## [755,]        0.73871905 -0.8622650
## [756,]        0.73871905  1.0787922
## [757,]        0.03550864  1.0787922
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## [759,]        0.73871905  0.4317731
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## [761,]        0.03550864 -1.5092841
## [762,]        1.44192947 -0.8622650
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## [764,]       -1.37091218  1.0787922
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## [767,]       -0.66770177  0.4317731
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## [777,]        1.44192947 -0.2152459
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## [779,]        0.03550864  1.0787922
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## [785,]       -1.37091218 -1.5092841
## [786,]        0.73871905  0.4317731
## [787,]        0.73871905 -1.5092841
## [788,]        1.44192947 -0.8622650
## [789,]        0.03550864 -1.5092841
## [790,]        0.03550864  1.0787922
## [791,]        0.03550864 -1.5092841
## [792,]       -1.37091218 -1.5092841
## [793,]        1.44192947 -0.2152459
## [794,]        0.03550864 -0.8622650
## [795,]        0.73871905  1.0787922
## [796,]        1.44192947  1.0787922
## [797,]        1.44192947  0.4317731
## [798,]        1.44192947 -1.5092841
## [799,]       -1.37091218 -1.5092841
## [800,]        0.03550864  1.0787922
```

```
## [801,]         0.03550864 -1.5092841
## [802,]         1.44192947 -0.8622650
## [803,]         0.03550864  0.4317731
## [804,]         1.44192947 -0.2152459
## [805,]         1.44192947  1.0787922
## [806,]         0.03550864  0.4317731
## [807,]         1.44192947  1.0787922
## [808,]         0.03550864  1.0787922
## [809,]         1.44192947 -1.5092841
## [810,]         1.44192947 -1.5092841
## [811,]         0.73871905  1.0787922
## [812,]         0.03550864  1.0787922
## [813,]        -0.66770177  0.4317731
## [814,]        -0.66770177  1.0787922
## [815,]         0.73871905  1.0787922
## [816,]         1.44192947  1.0787922
## [817,]         1.44192947  1.0787922
## [818,]         0.73871905 -0.8622650
## [819,]         1.44192947  0.4317731
## [820,]        -0.66770177  1.0787922
## [821,]        -1.37091218 -1.5092841
## [822,]        -1.37091218  1.0787922
## [823,]        -0.66770177  0.4317731
## [824,]         1.44192947 -1.5092841
## [825,]        -1.37091218  1.0787922
## [826,]        -1.37091218  1.0787922
## [827,]         0.03550864 -1.5092841
## [828,]        -1.37091218 -0.8622650
## [829,]        -0.66770177 -0.8622650
## [830,]        -1.37091218 -0.8622650
## [831,]         1.44192947  1.0787922
## [832,]         0.73871905 -0.2152459
## [833,]        -1.37091218 -0.8622650
## [834,]        -1.37091218 -1.5092841
## [835,]        -0.66770177 -0.2152459
## [836,]        -1.37091218 -1.5092841
## [837,]         0.73871905  0.4317731
## [838,]         0.03550864 -0.2152459
## [839,]         0.03550864  1.0787922
## [840,]        -0.66770177  1.0787922
## [841,]         0.03550864 -0.2152459
## [842,]         0.73871905 -1.5092841
## [843,]        -0.66770177  0.4317731
## [844,]         1.44192947  1.0787922
## [845,]         0.73871905  0.4317731
## [846,]        -0.66770177  0.4317731
## [847,]        -0.66770177  1.0787922
## [848,]         0.03550864  1.0787922
## [849,]         0.73871905 -0.8622650
## [850,]        -0.66770177  0.4317731
```

```
##   [851,]         -1.37091218  1.0787922
##   [852,]          1.44192947 -0.2152459
##   [853,]          0.73871905  1.0787922
##   [854,]          0.03550864  1.0787922
##   [855,]          0.03550864 -0.2152459
##   [856,]          0.73871905 -0.2152459
##   [857,]         -0.66770177  1.0787922
##   [858,]         -0.66770177  1.0787922
##   [859,]          1.44192947 -1.5092841
##   [860,]          0.03550864  1.0787922
##   [861,]          0.73871905  0.4317731
##   [862,]          1.44192947  1.0787922
##   [863,]          0.73871905  1.0787922
##   [864,]         -1.37091218  1.0787922
##   [865,]         -0.66770177 -0.2152459
##   [866,]         -0.66770177 -0.2152459
##   [867,]         -0.66770177 -0.2152459
##   [868,]         -1.37091218  1.0787922
##   [869,]          0.03550864  0.4317731
##   [870,]          0.73871905  1.0787922
##   [871,]         -0.66770177 -0.8622650
##   [872,]          1.44192947  1.0787922
##   [873,]         -0.66770177 -0.8622650
##   [874,]          0.03550864 -0.8622650
##   [875,]          1.44192947  0.4317731
##   [876,]          1.44192947  1.0787922
##   [877,]          1.44192947  0.4317731
##   [878,]         -0.66770177 -0.8622650
##   [879,]          1.44192947  0.4317731
##   [880,]          0.73871905  1.0787922
##   [881,]          0.73871905  0.4317731
##   [882,]          0.73871905  1.0787922
##   [883,]         -0.66770177 -1.5092841
##   [884,]          0.03550864 -1.5092841
##   [885,]         -1.37091218  1.0787922
##   [886,]         -0.66770177  1.0787922
##   [887,]          1.44192947 -1.5092841
##   [888,]         -0.66770177 -0.2152459
##   [889,]          1.44192947  1.0787922
##   [890,]          1.44192947 -1.5092841
##   [891,]          1.44192947 -0.2152459
##   [892,]          0.73871905  0.4317731
##   [893,]          0.73871905 -0.8622650
##   [894,]         -0.66770177 -0.8622650
##   [895,]          1.44192947  0.4317731
##   [896,]          0.73871905  0.4317731
##   [897,]          0.73871905 -0.2152459
##   [898,]          0.03550864 -0.2152459
##   [899,]         -1.37091218 -0.2152459
##   [900,]          1.44192947  1.0787922
```

```
## [901,]      -0.66770177 -0.2152459
## [902,]      -0.66770177  1.0787922
## [903,]       0.73871905 -0.2152459
## [904,]       0.03550864 -0.2152459
## [905,]       1.44192947 -1.5092841
## [906,]       1.44192947 -0.8622650
## [907,]      -1.37091218 -1.5092841
## [908,]      -1.37091218 -0.8622650
## [909,]       0.03550864 -0.8622650
## [910,]       0.73871905 -0.2152459
## [911,]      -1.37091218 -1.5092841
## [912,]       1.44192947  1.0787922
## [913,]       0.03550864  0.4317731
## [914,]       0.73871905 -0.8622650
## [915,]       0.73871905 -0.2152459
## [916,]      -1.37091218  1.0787922
## [917,]      -1.37091218  0.4317731
## [918,]      -0.66770177 -0.2152459
## [919,]       0.03550864  0.4317731
## [920,]       0.03550864 -1.5092841
## [921,]      -1.37091218 -1.5092841
## [922,]       0.03550864  0.4317731
## [923,]       1.44192947  1.0787922
## [924,]      -1.37091218 -0.2152459
## [925,]      -0.66770177  1.0787922
## [926,]      -1.37091218  1.0787922
## [927,]      -0.66770177 -1.5092841
## [928,]      -1.37091218  1.0787922
## [929,]      -1.37091218  1.0787922
## [930,]       0.03550864 -0.2152459
## [931,]      -0.66770177 -1.5092841
## [932,]      -0.66770177 -0.2152459
## [933,]       0.03550864 -0.8622650
## [934,]       0.03550864  1.0787922
## [935,]      -1.37091218  0.4317731
## [936,]      -1.37091218  1.0787922
## [937,]      -0.66770177 -0.8622650
## [938,]       0.73871905  1.0787922
## [939,]      -1.37091218  1.0787922
## [940,]       0.73871905  0.4317731
## [941,]       0.03550864  0.4317731
## [942,]      -0.66770177 -0.8622650
## [943,]       1.44192947  1.0787922
## [944,]       0.73871905  1.0787922
## [945,]       0.03550864  1.0787922
## [946,]       1.44192947  1.0787922
## [947,]      -1.37091218 -1.5092841
## [948,]      -1.37091218 -0.2152459
## [949,]       1.44192947  1.0787922
## [950,]       0.73871905  1.0787922
```

```
##    [951,]          0.73871905  1.0787922
##    [952,]          1.44192947 -1.5092841
##    [953,]         -1.37091218 -0.8622650
##    [954,]          0.73871905  0.4317731
##    [955,]          0.03550864  0.4317731
##    [956,]          0.03550864  1.0787922
##    [957,]         -1.37091218  0.4317731
##    [958,]         -1.37091218 -1.5092841
##    [959,]         -0.66770177  1.0787922
##    [960,]         -0.66770177  0.4317731
##    [961,]         -1.37091218 -1.5092841
##    [962,]          0.03550864  1.0787922
##    [963,]         -1.37091218 -1.5092841
##    [964,]          0.73871905 -0.2152459
##    [965,]          1.44192947  0.4317731
##    [966,]          0.03550864 -1.5092841
##    [967,]          1.44192947  1.0787922
##    [968,]         -0.66770177  0.4317731
##    [969,]          0.03550864  0.4317731
##    [970,]          0.03550864 -1.5092841
##    [971,]         -1.37091218 -0.2152459
##    [972,]          0.73871905 -0.2152459
##    [973,]         -0.66770177  1.0787922
##    [974,]         -0.66770177  0.4317731
##    [975,]         -1.37091218 -0.2152459
##    [976,]          0.03550864  1.0787922
##    [977,]          0.03550864 -0.8622650
##    [978,]          0.03550864 -0.2152459
##    [979,]         -0.66770177  0.4317731
##    [980,]         -0.66770177  0.4317731
##    [981,]          0.03550864 -0.2152459
##    [982,]         -0.66770177 -1.5092841
##    [983,]          0.73871905  0.4317731
##    [984,]          0.03550864  0.4317731
##    [985,]          0.03550864  0.4317731
##    [986,]         -0.66770177 -0.8622650
##    [987,]         -0.66770177 -1.5092841
##    [988,]         -1.37091218 -0.8622650
##    [989,]          1.44192947 -1.5092841
##    [990,]          0.03550864 -1.5092841
##    [991,]          0.73871905 -1.5092841
##    [992,]         -1.37091218  1.0787922
##    [993,]         -1.37091218 -1.5092841
##    [994,]          0.03550864 -0.8622650
##    [995,]          0.03550864  1.0787922
##    [996,]         -0.66770177  1.0787922
##    [997,]         -1.37091218 -0.8622650
##    [998,]          1.44192947  1.0787922
##    [999,]          0.03550864 -1.5092841
## [1000,]          1.44192947 -1.5092841
```

```
## [1001,]        0.73871905  1.0787922
## [1002,]       -0.66770177  0.4317731
## [1003,]        0.03550864 -0.8622650
## [1004,]       -0.66770177  1.0787922
## [1005,]        0.73871905  0.4317731
## [1006,]        0.73871905  0.4317731
## [1007,]       -1.37091218  1.0787922
## [1008,]       -1.37091218  1.0787922
## [1009,]       -1.37091218  0.4317731
## [1010,]       -0.66770177  1.0787922
## attr(,"scaled:center")
##            Psychology              Politics            Mathematics
##              3.137624              2.596040               2.333663
##               Physics              Internet                     PC
##              2.064356              4.179208               3.138614
##   Economy.Management               Biology              Chemistry
##              2.642574              2.677228               2.160396
##               Reading             Geography      Foreign.languages
##              3.157426              3.083168               3.781188
##              Medicine                   Law                   Cars
##              2.517822              2.255446               2.684158
##       Art.exhibitions              Religion    Countryside..outdoors
##              2.594059              2.276238               3.691089
##               Dancing    Musical.instruments                Writing
##              2.466337              2.323762               1.901980
##         Passive.sport           Active.sport               Gardening
##              3.386139              3.294059               1.907921
##           Celebrities               Shopping  Science.and.technology
##              2.359406              3.278218               3.228713
##               Theatre       Fun.with.friends       Adrenaline.sports
##              3.018812              4.557426               2.949505
##                  Pets
##              3.332673
## attr(,"scaled:scale")
##            Psychology              Politics            Mathematics
##             1.2568426             1.2938768              1.3528062
##               Physics              Internet                     PC
##             1.2260861             0.9202939              1.3201924
##   Economy.Management               Biology              Chemistry
##             1.3452443             1.3890326              1.3758557
##               Reading             Geography      Foreign.languages
##             1.4959374             1.2783994              1.1397158
##              Medicine                   Law                   Cars
##             1.3809475             1.2426573              1.4399945
##       Art.exhibitions              Religion    Countryside..outdoors
##             1.3228061             1.3221936              1.1961367
##               Dancing    Musical.instruments                Writing
##             1.4527086             1.5121345              1.2870076
##         Passive.sport           Active.sport               Gardening
##             1.4027461             1.5031069              1.1772693
```

```
##          Celebrities                Shopping Science.and.technology
##            1.2704368               1.2860542               1.2850314
##              Theatre         Fun.with.friends        Adrenaline.sports
##            1.3284426               0.7377472               1.4220495
##                 Pets
##            1.5455495
```

```
#as.matrix(scale.hobbies)%*%fact.load.hobbies%*%solve(t(fact.load.hobbies)%*%
fact.load.hobbies)
```

```
library(psych)
```

```
## Warning: package 'psych' was built under R version 3.6.2
```

```
##
## Attaching package: 'psych'
```

```
## The following objects are masked from 'package:ggplot2':
##
##     %+%, alpha
```

```
## The following object is masked from 'package:outliers':
##
##     outlier
```

```
fit.pc.hobbies<- principal(hobbies_transformed[-1], nfactors=4,
rotate="varimax")
fit.pc.hobbies
```

```
## Principal Components Analysis
## Call: principal(r = hobbies_transformed[-1], nfactors = 4, rotate =
"varimax")
## Standardized loadings (pattern matrix) based upon correlation matrix
##                       RC1   RC2   RC3   RC4   h2   u2 com
## Psychology            0.52 -0.02  0.07  0.00 0.27 0.73 1.0
## Politics              0.45  0.34 -0.28 -0.15 0.42 0.58 2.9
## Mathematics           0.11  0.41  0.17 -0.43 0.39 0.61 2.5
## Physics               0.10  0.43  0.37 -0.53 0.62 0.38 2.8
## Internet             -0.06  0.49 -0.15  0.04 0.27 0.73 1.2
## PC                   -0.08  0.62 -0.04 -0.30 0.48 0.52 1.5
## Economy.Management    0.20  0.42 -0.39  0.09 0.37 0.63 2.6
## Biology               0.15 -0.02  0.83  0.03 0.71 0.29 1.1
## Chemistry             0.05  0.01  0.80 -0.13 0.66 0.34 1.1
## Reading               0.62 -0.35  0.12  0.03 0.52 0.48 1.7
## Geography             0.38  0.29 -0.03 -0.01 0.23 0.77 1.9
## Foreign.languages     0.52  0.06 -0.09  0.18 0.32 0.68 1.3
## Medicine              0.23  0.03  0.74  0.00 0.60 0.40 1.2
## Law                   0.40  0.34 -0.19  0.13 0.33 0.67 2.6
## Cars                 -0.17  0.66 -0.04  0.01 0.47 0.53 1.1
## Art.exhibitions       0.66 -0.09  0.15  0.12 0.48 0.52 1.2
## Religion              0.49  0.00  0.18 -0.16 0.30 0.70 1.5
## Countryside..outdoors 0.28  0.12  0.28  0.16 0.20 0.80 3.0
```

```
## Dancing                    0.36  0.07   0.25   0.44 0.39 0.61 2.6
## Musical.instruments        0.45  0.02   0.18  -0.09 0.24 0.76 1.4
## Writing                    0.56 -0.13   0.07  -0.06 0.34 0.66 1.2
## Passive.sport             -0.13  0.35   0.02   0.19 0.18 0.82 1.9
## Active.sport               0.00  0.47   0.15   0.23 0.29 0.71 1.7
## Gardening                  0.19  0.03   0.40   0.24 0.26 0.74 2.1
## Celebrities               -0.01  0.04  -0.04   0.60 0.37 0.63 1.0
## Shopping                   0.08  0.02   0.04   0.72 0.52 0.48 1.0
## Science.and.technology     0.09  0.54   0.23  -0.31 0.44 0.56 2.1
## Theatre                    0.62 -0.17   0.15   0.18 0.47 0.53 1.5
## Fun.with.friends           0.06  0.24   0.03   0.40 0.22 0.78 1.7
## Adrenaline.sports          0.03  0.55   0.12   0.19 0.35 0.65 1.3
## Pets                      -0.03  0.04   0.28   0.35 0.21 0.79 2.0
##
##                            RC1  RC2  RC3  RC4
## SS loadings              3.47 3.10 2.96 2.40
## Proportion Var           0.11 0.10 0.10 0.08
## Cumulative Var           0.11 0.21 0.31 0.38
## Proportion Explained     0.29 0.26 0.25 0.20
## Cumulative Proportion    0.29 0.55 0.80 1.00
##
## Mean item complexity =  1.7
## Test of the hypothesis that 4 components are sufficient.
##
## The root mean square of the residuals (RMSR) is  0.07
##  with the empirical chi square  4069.24  with prob <  0
##
## Fit based upon off diagonal values = 0.83
```

```r
round(fit.pc.hobbies$values, 3)
```

```
##  [1] 4.127 3.196 2.505 2.099 1.563 1.347 1.141 1.125 1.028 0.992 0.921
## 0.891
## [13] 0.854 0.773 0.732 0.717 0.656 0.639 0.623 0.564 0.550 0.519 0.503
## 0.471
## [25] 0.444 0.429 0.380 0.368 0.309 0.300 0.235
```

```r
fit.pc.hobbies$loadings
```

```
##
## Loadings:
##                        RC1     RC2     RC3     RC4
## Psychology            0.516
## Politics              0.453   0.340  -0.282  -0.148
## Mathematics           0.109   0.407   0.172  -0.428
## Physics                       0.432   0.371  -0.533
## Internet                      0.491  -0.152
## PC                            0.620          -0.297
## Economy.Management    0.201   0.415  -0.391
## Biology               0.150           0.829
## Chemistry                             0.800  -0.126
```

```
## Reading                0.619 -0.352  0.117
## Geography              0.384  0.289
## Foreign.languages      0.523               0.183
## Medicine               0.231         0.741
## Law                    0.405  0.340 -0.190  0.127
## Cars                  -0.172  0.664
## Art.exhibitions        0.658         0.155  0.118
## Religion               0.490         0.176 -0.164
## Countryside..outdoors  0.276  0.120  0.280  0.163
## Dancing                0.356         0.255  0.439
## Musical.instruments    0.445         0.179
## Writing                0.557 -0.133
## Passive.sport         -0.132  0.354        0.193
## Active.sport                  0.468  0.153  0.227
## Gardening              0.186         0.404  0.238
## Celebrities                                0.604
## Shopping                                   0.718
## Science.and.technology        0.537  0.231 -0.307
## Theatre                0.624 -0.170  0.150  0.182
## Fun.with.friends              0.244        0.397
## Adrenaline.sports             0.548  0.119  0.185
## Pets                                0.280  0.352
##
##                  RC1   RC2   RC3   RC4
## SS loadings    3.466 3.103 2.962 2.395
## Proportion Var 0.112 0.100 0.096 0.077
## Cumulative Var 0.112 0.212 0.307 0.385

# Loadings with more digits
for (i in c(1,3,2,4)) { print(fit.pc.hobbies$loadings[[1,i]])}

## [1] 0.5155466
## [1] 0.06925773
## [1] -0.01927374
## [1] -0.003369323

# Communalities
fit.pc.hobbies$communality

##          Psychology              Politics            Mathematics
##           0.2709678             0.4227214              0.3897846
##             Physics              Internet                     PC
##           0.6174207             0.2693811              0.4806961
##   Economy.Management               Biology              Chemistry
##           0.3742250             0.7110589              0.6590204
##             Reading             Geography      Foreign.languages
##           0.5213924             0.2316020              0.3194685
##            Medicine                   Law                   Cars
##           0.6039169             0.3314568              0.4728379
##     Art.exhibitions              Religion  Countryside..outdoors
##           0.4777840             0.2982826              0.1953626
```

```
##              Dancing    Musical.instruments                     Writing
##            0.3884363              0.2387178                  0.3357812
##         Passive.sport           Active.sport                  Gardening
##            0.1802493              0.2940541                  0.2551064
##           Celebrities               Shopping Science.and.technology
##            0.3679212              0.5241852                  0.4437837
##              Theatre       Fun.with.friends         Adrenaline.sports
##            0.4744532              0.2215583                  0.3497875
##                 Pets
##            0.2052340
```

Rotated factor scores, Notice the columns ordering: RC1, RC3, RC2 and RC4
fit.pc.hobbies$scores

```
##                    RC1             RC2             RC3             RC4
##    [1,] -0.013510277   0.4653126347   0.917318248   0.3105168598
##    [2,]  0.133862917  -0.1379748048  -1.738352054  -1.1610100427
##    [3,]  1.956079019  -0.3301226183  -0.431162349   0.3823538415
##    [4,]  1.459731308  -1.7092300568  -1.063138469  -1.8472695001
##    [5,] -0.304038372  -1.2511368710   0.513893953  -0.7516882539
##    [6,] -0.310119912   0.5700252284   0.961317222  -1.3779489423
##    [7,] -0.832481547  -0.6185245510   1.863435585   0.6647612899
##    [8,] -1.246746643  -0.3306023215  -0.665115403   0.2609972209
##    [9,] -1.037982087  -2.9315306246  -0.248073698  -0.0649522268
##   [10,]  1.083461655  -0.3913669616  -0.949061694   0.6661685406
##   [11,] -0.137667093   0.0803661872  -0.778955546   0.3006072080
##   [12,] -0.152159766  -0.3342430614  -1.473779928  -0.7695700908
##   [13,] -0.004065369  -0.8442354420   1.588221071   0.0730379195
##   [14,] -0.491047636  -0.8813027109  -0.593901992   1.9540969471
##   [15,]  0.242585729  -1.8096864741  -0.376793230   1.4363149855
##   [16,]  0.595061201   1.5344083441   0.359551002  -0.6936162427
##   [17,] -2.027620450  -0.6932184739   0.959235869   1.1573162668
##   [18,] -1.117371071  -1.4586021965   2.028186441  -0.4500616006
##   [19,] -0.737913843   0.4149694940   0.389719721  -2.2490305794
##   [20,] -0.167344464   0.9145522217  -0.938801743  -0.5959489508
##   [21,] -0.117681446   1.1520542400   1.032346374  -1.1167401401
##   [22,]  0.387131512   1.1363542400  -0.538191127  -0.5517468872
##   [23,] -0.542754237  -0.2811938604   0.044681169  -0.3714159754
##   [24,]  0.530078433  -0.1596719869   1.809094600   0.6405676267
##   [25,]  1.960569926   1.1387891760   0.061340726   1.4643831482
##   [26,] -0.348710702  -0.5491029127  -1.492212078   1.7459694354
##   [27,] -0.915943551   0.2670222327   2.233221446   0.9526354413
##   [28,] -1.456972909  -0.7702247738   1.525479888   0.2908272231
##   [29,] -1.718545502   0.9307869783  -0.482099225   1.5013467879
##   [30,]  0.835683390   0.0517686135   0.368146451   1.2492445234
##   [31,] -0.056472553   0.4889762704  -0.388286248   0.4254218018
##   [32,]  0.561644284  -1.3921198259  -0.437629917  -0.5133050548
##   [33,] -0.019360140  -0.3398237218  -1.374666850   0.6835689824
##   [34,]  1.352629562   0.9712163093   0.567483236   1.2808919052
##   [35,]  0.973155869   1.3087977151  -0.572920172  -0.5196268745
```

```
##    [36,]   0.078984755 -0.2784430030 -0.786929076  1.5617727016
##    [37,]   0.305939085 -0.0748224151  1.451869472 -0.0088067032
##    [38,]   0.171508023  0.9208274071  1.261938596 -0.1586765720
##    [39,]   1.770997927 -0.1452488779  0.291612074  0.7775731921
##    [40,]  -1.845052816  0.1445482196  1.860459728  0.1917804267
##    [41,]  -1.719084954 -0.7586795268 -0.888473457 -0.0247295158
##    [42,]   0.322204052  0.7339524662  0.761546083 -2.4132613515
##    [43,]  -0.200457000  0.6438450173  0.277824858 -0.1594630387
##    [44,]   0.962010680 -0.0497351736 -1.555894728  1.1317135722
##    [45,]   1.417539675  0.6735736714 -0.451873497  0.6107740806
##    [46,]   0.016165179  0.9062337373 -0.158104240 -1.0520495116
##    [47,]   0.517266327  0.6574975012 -0.113902625  1.3771539157
##    [48,]  -0.390855624 -0.8065627046 -0.682165317  0.5000031174
##    [49,]   0.347115870 -0.3512491162 -0.121267189 -0.0422368892
##    [50,]  -1.039321162 -0.8933112877 -1.019117060  0.4200357378
##    [51,]  -0.577777201 -0.6240603475  1.947796869  0.1606211220
##    [52,]   0.002539722  1.4604652159  2.004121501 -1.0849204563
##    [53,]   1.344758009  0.3285074773  0.899800910  0.4840387249
##    [54,]   1.618807554  0.2036952915  0.404404973  0.5396529611
##    [55,]   1.172899765 -0.9619039727  0.681755701 -0.6902013203
##    [56,]   0.300931659  0.4323476824  0.501068013 -0.0557240105
##    [57,]   1.408545232  0.1669832772 -1.107841690 -0.7733320151
##    [58,]   0.718143532 -0.8495272546 -0.051947797  1.7376712454
##    [59,]  -1.488770048  0.2408301109  1.903084653  0.2527071721
##    [60,]   0.745067893 -1.9772326454 -2.166309680 -2.0323122208
##    [61,]   2.319296097  0.5278623362 -0.395137348 -1.9903938108
##    [62,]  -0.571214912  0.8104719422 -0.776675758 -0.5227069129
##    [63,]  -0.146087250  2.4536993479  0.168153299 -1.4666819032
##    [64,]  -0.542441131  1.3126998241 -1.028020146  0.3071445207
##    [65,]  -1.058989196 -0.7878184471  1.699681876  0.5844762179
##    [66,]  -1.224949989 -0.3168017885 -0.866861698 -0.8282313286
##    [67,]  -1.454206369  0.8764617192 -0.212368326 -1.2486769023
##    [68,]   0.479115416 -0.6440293934 -0.143642067  0.5173940505
##    [69,]   0.032850124  0.4217842755 -0.031628834 -0.9711987833
##    [70,]  -1.352593272 -1.9475084988  1.456903745  1.1815621191
##    [71,]  -1.003036438  0.6033740831 -1.035838246  0.8226333463
##    [72,]  -0.782629271  0.9831352620 -1.527044442  0.7846540451
##    [73,]  -1.328177826 -0.5474833289 -0.435811795  0.6266140328
##    [74,]   0.277423332  1.2506790920 -0.528300502  0.7921901873
##    [75,]   0.690247740  0.6534347050 -1.676636784 -0.2030782324
##    [76,]   1.568446021  1.4934391520 -0.041334524  0.6820146216
##    [77,]  -0.963576399  1.1045865420 -1.091947565  0.1780052540
##    [78,]   0.214882565 -1.2184290274  1.433697783  1.0988134593
##    [79,]   1.385727483  0.0976762576  1.855899312  0.2323769812
##    [80,]   0.216166374  1.4884701786 -0.986071976  1.1177719476
##    [81,]  -0.313341393  1.1544959759 -0.641851736  1.5241052485
##    [82,]  -0.564755137  1.6249769474 -0.808661928  0.5509253881
##    [83,]   0.652025056 -1.5763494697 -0.127838976  0.1808598037
##    [84,]  -0.365449198  0.3173334058  1.167060309  1.0659832568
##    [85,]   0.922530624 -0.0697978769  0.418700378  0.0872346856
```

```
##   [86,]   0.185903058   1.1446543322   0.525508372 -1.0073417944
##   [87,]   2.720359582   1.8578304660   0.593030681 -1.0747556339
##   [88,]   0.823518478   0.4946143863 -1.057520893   1.3664074836
##   [89,]   1.368764269 -1.2001991787 -0.744329673   1.1050032420
##   [90,]   0.411796239 -2.0739947289 -1.017407458 -0.0210240783
##   [91,] -1.205036011 -1.1827295839   0.345822576   0.0409893042
##   [92,] -1.491411079 -0.2369227469   0.837321703   1.1768604171
##   [93,]   1.441705454 -1.5311155690 -0.171927279 -0.7855007976
##   [94,] -1.137772619   1.7827648591 -0.076694797 -1.4721207031
##   [95,] -0.883024319 -0.0965171465 -0.584592081 -0.9635159773
##   [96,] -0.348988301   1.4558318229 -0.918227952   0.1590841579
##   [97,] -2.467997720 -2.3063615842   0.937175445 -1.0323596218
##   [98,] -0.905125480   0.0303587801 -0.601140621 -1.4812687909
##   [99,] -0.885126236   0.2306250381 -0.118974054 -0.1733022922
##  [100,] -0.388144190 -0.3537393048   1.074393329 -0.7222170124
##  [101,] -0.491002813 -0.0454775759   1.808271846 -0.3115690460
##  [102,] -0.732665390 -0.6974646247 -1.291117344 -0.8696530648
##  [103,]   2.035260890   0.5292270051   0.720379210 -1.3603197429
##  [104,]   1.402617026   1.2547545944 -0.966305959   0.1682670150
##  [105,]   1.070427901   0.2897204723 -1.080489642 -1.0282445778
##  [106,] -1.061232219 -0.7422575893   0.263852519 -0.4128183630
##  [107,] -0.218748880   0.7559727969 -1.335904178 -0.5552673307
##  [108,]   0.465729108 -0.4461629676   1.826809336 -0.0741434528
##  [109,] -0.542585629 -1.4620706351 -1.015591679 -1.6017016418
##  [110,] -0.742072123   0.4580454976 -0.756716864 -1.7103588782
##  [111,] -0.685063255 -0.1058323084   0.559307935 -0.9746678149
##  [112,]   1.270395689 -1.6758856754   0.143847706 -0.0644003065
##  [113,]   0.523375661 -1.6937377990   1.896215666 -0.1208168460
##  [114,] -2.266732188 -0.1825131103   1.250787133   1.4230237343
##  [115,]   0.555199509 -0.9037580935 -0.439740124   0.6783764339
##  [116,]   0.993458112   0.6565051566   0.739394484   0.6335669695
##  [117,]   0.326342953 -2.7462935566 -0.519107831 -1.1200377308
##  [118,] -1.679701893   0.0383539341 -0.489253516 -1.0539849713
##  [119,] -0.038590241 -0.2592561362 -0.218409331 -1.2538697901
##  [120,] -0.431348936 -1.5442044601   0.538359965 -2.0413366156
##  [121,]   1.190413164   0.7998552143   0.904473214 -1.6395326808
##  [122,] -1.383196247   1.2553581957 -0.128466857 -0.6829401353
##  [123,]   0.260182479 -1.5205581617 -0.621259089   0.4546570888
##  [124,]   0.730878984 -0.8537389213   0.912161851 -0.6830067677
##  [125,]   1.603232142   1.1798512287 -0.048068886 -1.0578361487
##  [126,]   1.755480981 -0.9611086435   0.501943538   0.4267774480
##  [127,] -0.525795761 -1.2099465493 -1.216147102 -0.0952834237
##  [128,]   0.941125524   0.6412928530 -0.777443623 -1.1717572335
##  [129,]   2.452695764   0.3703747465   1.472249928 -1.1479041630
##  [130,] -0.673724613 -1.5066003179   1.396110741   0.0001112662
##  [131,]   1.778307032   0.6291055219 -1.728075773   0.7029583491
##  [132,] -1.155765686   0.5378325406 -0.868523091   0.5240648399
##  [133,] -0.035232819 -0.5571431732 -0.202696319 -0.9370988994
##  [134,]   1.094886902 -2.3788845393   0.489095262   0.3808736635
##  [135,] -0.057259525 -0.2778718302   0.580166250 -0.2221097197
```

```
## [136,]   0.320440072  0.4394790098 -0.040596862 -0.0262577807
## [137,]   0.192003099  1.0539711701  1.872647018 -0.4900919493
## [138,]   0.528068015 -0.2824469185 -0.173331571 -1.6195691303
## [139,]   0.473513215 -1.8645994670  1.270367688 -0.4251940023
## [140,]   0.349885085 -0.8245692012  0.343673350  1.3709706640
## [141,]   1.448111005 -1.1808219809 -0.594218014 -0.3995013304
## [142,]  -0.288671523  0.0026997239  0.397865058 -2.4434398999
## [143,]  -0.246105267  0.3432637786 -1.080991196  0.5284088823
## [144,]  -1.511882102 -0.5709072910 -0.905050264  0.8547517581
## [145,]  -0.495024347  0.2663057248  2.261738454 -0.5175853386
## [146,]   0.104615326 -1.5825268022 -0.499136124 -1.1108745387
## [147,]   0.902919506  1.1402385821 -1.100332590  0.5236953613
## [148,]   0.239724208  0.1412996868  0.019570376 -3.1052725543
## [149,]   0.507267640  0.5956094686  0.300806272 -2.0655678560
## [150,]  -0.875238957  0.0577505126  0.334230095 -2.6791101744
## [151,]   0.091254051  0.9816095234 -0.719756102 -0.6955280393
## [152,]  -0.020385215 -0.3839475177 -0.380244939 -0.3242604976
## [153,]   0.605115391  0.2463217248 -0.779772307 -0.3239832486
## [154,]   0.017637095 -0.3086784104 -0.962933886 -0.1809515676
## [155,]   0.084949794  1.0749441236 -1.227754409 -1.9489677292
## [156,]   1.124190998 -0.5531964049  0.934683915 -0.2986102820
## [157,]   0.084291302 -1.0518190882 -1.732454183 -0.1377422951
## [158,]  -0.218004750 -0.3139158975 -0.374230093 -0.9872457009
## [159,]   0.216773350 -0.1077628726  0.984391235  1.1136756906
## [160,]   1.266213403  0.9290952879  0.362040080  0.2304244623
## [161,]   0.688871679  2.0009826742 -0.796570118 -1.5669267495
## [162,]  -0.948181264 -1.2953412178  1.735296249  1.2144403293
## [163,]  -0.338509175 -0.3639344539 -1.649911466 -1.0647207683
## [164,]  -0.689386659 -1.7373127693 -0.673333842 -2.0153505106
## [165,]  -0.106734805 -1.8011530712 -0.935619530  0.7072420380
## [166,]   2.301107611  0.5456664303 -1.620094646  0.4540930331
## [167,]  -0.111507116 -1.2064105109  0.102802032 -1.0290371313
## [168,]  -1.669515372 -0.3400730524 -0.253774542 -1.2132111599
## [169,]   0.373616914  1.0995561089 -2.086947549  0.1321591656
## [170,]   1.003428014 -2.4434137998 -0.941362723 -0.4137772173
## [171,]   1.549248381  0.1152974677 -0.265206001 -0.9991881493
## [172,]   0.398993765  0.8456757281 -2.120392023  0.2430880690
## [173,]   0.511265411  0.7265009096 -0.701709283 -1.6518143421
## [174,]  -1.518518688  0.8985142930  0.359855815 -0.3480088817
## [175,]   1.739601318  0.1271070793 -0.188079998  1.1093540497
## [176,]  -0.563596715 -1.1037761358  0.582654209  0.2228654718
## [177,]  -1.101827649  1.2342823346 -0.153226920 -0.9955859140
## [178,]  -0.346406109 -1.1387273646  0.082859271  0.4723229243
## [179,]   0.250186998 -1.8738538621  0.599724103 -1.5491720408
## [180,]   0.701670212 -0.2050842524  0.489761034 -0.5124294265
## [181,]   0.495761627  0.7695287487 -1.814204461 -0.9440013150
## [182,]   0.216532289 -0.1769913856 -0.155700744 -1.0164705465
## [183,]  -0.232082304 -0.2122827681  1.628712952  0.5824764102
## [184,]   1.011596165 -0.0175592356  0.715039385  0.2669271550
## [185,]   0.604909208 -2.8827496315 -1.007827770 -1.0616815185
```

```
##   [186,]   0.521911448 -0.6526106280   0.982910799 -0.0427199194
##   [187,]   0.173186116 -1.5279686721  -0.710228508   0.9771589323
##   [188,]  -1.224574281 -1.9640154117  -1.074310700  -1.4952692533
##   [189,]   0.208135369   0.1534287762   1.162104516  -1.7707432240
##   [190,]  -0.081332782 -0.7414601091  -1.299859784  -1.0661915752
##   [191,]  -0.970253820   0.4438014968   1.460537611  -0.9589919711
##   [192,]  -0.059073440 -1.8590266363  -0.374986744  -0.0149178511
##   [193,]  -0.079856740 -0.5129637695  -0.959905195   1.5622203986
##   [194,]  -0.226675490 -1.4639726313   0.736576634  -0.4991745498
##   [195,]   0.331626176   0.0043729971  -1.529573116  -0.9123057019
##   [196,]  -0.033081897   0.9517957276  -0.413076967   0.4540627947
##   [197,]  -0.049853835   0.4775824625  -0.249341214   0.7940008530
##   [198,]  -1.151062257 -0.6487624968  -0.883731172   1.3266280237
##   [199,]  -1.532826853 -0.4390694744  -0.554477080  -0.4344748675
##   [200,]  -0.909563172   0.2407524050  -0.200103390   0.3412390291
##   [201,]  -0.796302901   0.1583849048  -1.100718115  -1.4948168124
##   [202,]   1.563286510 -0.0130074491  -1.463226850   1.2229513528
##   [203,]  -1.393835043   0.4414221979   0.891626172   0.9505823475
##   [204,]  -0.890800968   0.3949514873   1.722680028   0.7519862855
##   [205,]  -0.646182693 -1.0101474342  -0.554691779  -2.2164678915
##   [206,]   1.461384587 -1.9903961499   1.714386872  -0.8538820469
##   [207,]   1.837364924   0.5217068267  -0.130426463  -2.0364900283
##   [208,]   0.291212411   0.3637342065  -0.201734438   0.6955594007
##   [209,]  -0.248640557 -0.5663101971   0.313477165   1.5761527894
##   [210,]   0.772127347   1.3289705351  -0.521011206  -1.3333303077
##   [211,]   2.062880502   1.8360738091   1.407969981   0.8468393486
##   [212,]  -0.646249146   0.3081885965  -1.145409698   2.1669143609
##   [213,]   2.098810148   0.9898836819   0.184109869  -1.2524157292
##   [214,]   0.660735520   1.5849700859   1.550082271   0.3821819323
##   [215,]   0.610836675   0.2726747583   1.180328168  -0.3686926279
##   [216,]  -2.222641556 -0.5682877360  -0.416573884   1.1598497355
##   [217,]  -0.934546630 -1.2660499721   1.108752086  -0.9772017342
##   [218,]   1.236197830 -0.5018419257  -0.528277818   0.2264412553
##   [219,]   0.010281016   1.3952763534   1.674032169   0.0171712762
##   [220,]  -0.979425586   1.8274246368  -1.266837869   0.8201025816
##   [221,]  -0.759908005   0.0012722011   1.888404474   0.4341473076
##   [222,]   0.834737338   1.5606581201   0.168312020  -0.8764347648
##   [223,]  -0.858965725 -1.4707304193  -0.618653106  -0.4806258873
##   [224,]   0.818052471   0.3582326769   1.044662816   0.6024648284
##   [225,]  -1.095974862 -0.4977637366  -1.407499118  -2.0625591777
##   [226,]   0.607742312   1.4773927575  -0.212911946  -1.2614813822
##   [227,]  -1.209597333   0.3184572674  -0.248906690   2.2357639808
##   [228,]   1.242808368 -0.2026828860   0.618139970  -1.6667266671
##   [229,]   0.748917631 -0.4916497019   1.869777376  -0.4140424930
##   [230,]  -0.849278089   0.9579812437   0.289364382  -1.0400252974
##   [231,]   0.759760879   0.2333014914  -0.642957835   1.3051256815
##   [232,]   0.694746987   0.3447447710  -0.208303006   2.2142782303
##   [233,]   0.073442221   0.6447974339  -1.640507680   0.0155870640
##   [234,]  -0.645918118 -0.7993404915   1.297387887   1.1673394392
##   [235,]  -1.915917151   0.6500579168  -0.113154733   0.5476074060
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##   [236,]   1.014458771 -1.1186696504 -0.983528452  0.2466589622
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##   [238,]  -0.076210150  0.6353010734 -0.911832117  0.9963457238
##   [239,]  -0.848834602 -0.6362570038 -0.990992269  0.5507951436
##   [240,]   0.699778464 -0.7980618748  0.080397416  0.1885923338
##   [241,]  -0.574297742  1.8611462449 -0.889073678 -0.0350210374
##   [242,]   0.116021205  0.9452005194 -0.373952920  0.5520484436
##   [243,]   0.966100543 -1.4255523997 -0.990827249  0.4577660483
##   [244,]   0.450218084 -1.6217122153  0.928245285 -1.7983310169
##   [245,]  -0.821404180 -1.8414655333 -0.181831638  1.3984594181
##   [246,]   1.120661393 -0.9264803469 -0.570376639  0.7267299408
##   [247,]  -1.252578878  1.4161970840 -0.867796255 -0.6595217447
##   [248,]   0.594000789 -0.5872618158  1.510378353  1.3590052379
##   [249,]   1.109701783 -0.5647930127 -0.704295935  0.0343080145
##   [250,]  -0.229691815 -0.1685686736  2.206789672  0.3579290454
##   [251,]  -0.548653946 -0.6247978973 -1.242441514  1.4077341475
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##   [253,]   0.563344024 -0.3421459516 -0.281307315  1.3586213615
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##   [258,]  -0.439569357  1.9616005227 -0.237278276 -0.6748286660
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##   [260,]   1.197246870 -0.6969075104  0.134568061 -0.6037554532
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##   [262,]   1.237896977  0.8257840837 -0.735480809  1.3429304271
##   [263,]   2.099191899 -1.1562277046 -0.125184553 -0.8344004546
##   [264,]   0.192687082 -0.3268381933 -0.453057062  0.8470402230
##   [265,]  -0.600039851  0.6211250575  1.892326155  0.2912840100
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##   [269,]  -1.704961921  0.2179813845  2.281998224  0.7052062595
##   [270,]   0.719058290 -1.1361748201  1.199257812 -1.5716430294
##   [271,]   0.193408560 -1.0356922436 -1.071015994  1.0515682971
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##   [276,]   1.929900305  0.0769829244 -0.995702486  0.2629131338
##   [277,]  -0.487568849 -0.5996261594 -1.117220330  0.5558940250
##   [278,]  -0.469082885  0.8947460005 -1.766784917 -0.7972414731
##   [279,]  -0.037629074  1.0702223919  1.877000761  0.0907841657
##   [280,]  -1.139432366 -1.5161056808 -1.083708102  0.4340028497
##   [281,]   0.614610324 -0.7187418543  0.266205545  0.9734915026
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##   [284,]  -0.726269386  1.7616112249  0.364799575 -0.7856253241
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##  [286,]   0.168096215 -1.3927989281  1.242676648  0.2987561537
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##  [291,]   1.467284318 -1.4209076839  1.549755270  0.0704854490
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##  [293,]   0.953692119 -0.8726802001 -1.304366155  1.2967233195
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##  [297,]  -1.139929726  1.8559038330 -0.815778613 -0.8901599027
##  [298,]  -0.241382597 -1.0093210102  1.586489633 -1.5533312103
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##  [307,]  -0.189394669  2.0321186733 -0.084904742  1.1245723953
##  [308,]   0.198739873 -0.3329314216  1.619914424 -2.8458192725
##  [309,]  -0.220413519  1.2515859956  0.618648020  1.0050532750
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##  [332,]   0.268107451  0.7181239668  2.019440728 -0.0142863242
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##  [334,]   0.710497128  0.2656653320  0.608784936  0.2087514491
##  [335,]   0.410990417 -0.2413398549 -1.256387315  0.3057853391
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##   [336,] -0.005932612  1.0012023808   0.641273580 -0.1386345976
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##   [339,]  0.693596091 -0.2620459511  -0.507300767  1.0035420608
##   [340,]  0.317203055 -0.1747276291  -1.081916339  0.5121842697
##   [341,]  1.008209656 -1.6601903678  -0.862810029 -1.9302724435
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##   [343,] -0.569614090  0.0286721776  -0.034156481  0.0936456698
##   [344,] -0.175523202 -1.1649022716   1.262835228  0.9676853518
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##   [348,] -1.611436035  0.7661386143  -1.028299979 -0.4724291742
##   [349,] -0.252492103 -0.0814653888   2.209302791  0.2779261240
##   [350,] -1.069312885  0.5059833270  -0.475451745  1.5919622610
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##   [358,] -1.470085353 -0.2287649127   1.072102236 -0.3026980137
##   [359,] -1.156700426 -0.6781252853  -0.249752152 -0.3033155003
##   [360,] -0.576783114 -1.5069914360  -0.442713404  1.1831250118
##   [361,] -0.968584529  0.7143461121  -0.721265379  0.5853490464
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##   [381,] -0.965318705 -0.1574082243   1.689468014  1.2091739720
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##   [384,] -0.872948334  0.5370659727  -0.904361065 -1.6648704612
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## [432,] -0.823402384  1.4356400930  0.698194824 -1.3074505199
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##   [439,]   0.046357335  -1.0996657260  -0.513959404  -0.5222556017
##   [440,]  -0.866070169   0.6749506928  -1.562617318   0.4481050384
##   [441,]  -0.100284657  -0.0009862945  -0.746577459   1.1897533641
##   [442,]  -0.653439342  -1.1061726209   2.130626686   0.2425180635
##   [443,]   0.116487377  -0.0955441411   0.496046845  -0.0171086466
##   [444,]   1.303958242  -0.6393689136  -1.397705916  -0.7732773535
##   [445,]   0.550986642   0.0498628864   0.847383415  -0.9566625427
##   [446,]  -0.189863901   0.2549911376  -1.037015935   2.5611559856
##   [447,]  -1.171591041   0.1543992964  -1.513561195  -0.5261126579
##   [448,]   2.977741903  -1.0458175915   0.496957799  -2.2921820118
##   [449,]   0.212592985  -0.5500612853  -1.450704263   0.7400988719
##   [450,]  -0.515199353  -1.2393981139   1.968232514  -0.0315513744
##   [451,]  -1.785567331  -0.0214555754   1.646441937   0.9127330041
##   [452,]  -0.929547116  -0.2668970626   1.312610795  -0.1133194421
##   [453,]   0.914024757   1.0897556804   0.252867164   1.9926031847
##   [454,]  -0.492044666  -1.4567858818   1.697901882   0.0622942371
##   [455,]   0.729175330   0.3620699724  -1.195130591   1.6218074391
##   [456,]   0.060248542  -0.6888888050   0.502207771   1.2610897902
##   [457,]  -0.333697075   2.5035886097   0.497095582  -1.5804762402
##   [458,]  -0.689864338   1.5830139427  -0.303600011  -1.7854918211
##   [459,]   2.154152180  -0.0932480275   0.545356300   0.3399770157
##   [460,]   0.555239769  -1.3734833352   0.859820914   0.0299960858
##   [461,]  -0.305555156   1.2843596683  -1.632358087  -0.3824655113
##   [462,]   0.883901154   0.6741980058  -0.299087508   0.1707604009
##   [463,]  -0.380692927  -0.5186424420   0.689677569  -1.4084888108
##   [464,]  -0.138090228  -1.5989628388   0.464056235   0.2831027510
##   [465,]  -0.400702478  -0.3127926919  -1.083905688  -0.1679684498
##   [466,]   0.532558481  -0.2517279507  -0.961165937  -0.6939765080
##   [467,]  -1.481217881   1.0731744627  -1.291692295   1.0766709440
##   [468,]  -1.112921709  -1.2754470935  -1.776297080  -0.5823253311
##   [469,]  -0.321214693   0.5182791195  -1.035988101  -0.3859481526
##   [470,]  -0.522750109   0.9845625868  -0.607548987  -0.5527194693
##   [471,]  -0.125994278  -0.2201909424  -0.656186989  -0.0663083446
##   [472,]  -1.453119732   1.3433420927   0.821270623  -1.1180149947
##   [473,]  -1.756167650  -1.0209933568   0.527472026  -2.3861653405
##   [474,]   0.112317362  -1.6771937176   1.399487237  -1.8051704780
##   [475,]   0.039618636   1.4427132110   2.220626141  -1.3942203449
##   [476,]   0.693459244  -0.8407878853  -0.143370698  -0.0966195363
##   [477,]  -0.199411942  -1.7058876937   1.501546559   0.0430247973
##   [478,]  -0.529746532  -1.1399294427   0.736123128  -1.4527417447
##   [479,]   1.666444896  -0.6908690702  -0.958083149   0.2725033043
##   [480,]  -0.301177968  -0.6710032425   1.410009125  -0.0028827345
##   [481,]   0.371352228   0.4149822239   1.691925825   0.9978143640
##   [482,]   1.630650886  -0.9783618580   0.145266375  -2.2397923861
##   [483,]  -0.858576115  -0.0378536123  -0.442990937  -1.3281544747
##   [484,]  -0.853167554   0.0417194673   1.804411576  -0.3713441247
##   [485,]  -0.334746816   0.0469841827  -1.356637699   0.3424694908
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##   [486,]  -1.094076179  -0.7790140276  -0.697319309  -0.5882640290
##   [487,]   1.509429484  -0.4195396663  -0.938849484   0.4583233109
##   [488,]  -0.498172750   1.8653860393   1.373359817   1.0846210344
##   [489,]   1.245653034   1.1584267831  -0.492678348  -1.3716239034
##   [490,]   0.873098138   0.3201097552  -0.773270154   1.0478209492
##   [491,]  -0.813096524  -0.5507032250  -1.168513032   1.3837512847
##   [492,]  -0.371196345  -0.9427554829   0.970669235   0.1187957769
##   [493,]   1.907397882  -1.1673107566   0.997703020   0.1039987419
##   [494,]  -1.928974512   0.9781320184  -0.405417734   0.0162684055
##   [495,]   0.236402137   0.0537031687   0.037590726   0.0739278272
##   [496,]  -0.109866952  -0.3936722964   0.588998546   1.5378468590
##   [497,]  -0.245332389  -0.6788530430   0.210028685  -0.8500015942
##   [498,]   1.091489913  -1.1482926165  -0.932931578  -0.2878724277
##   [499,]   0.718110694  -1.0299001239  -0.252710303   0.3872713641
##   [500,]  -0.954478624   0.1254264422  -0.594418957  -1.6908601868
##   [501,]   0.751804590  -0.2011189401   1.841675785  -0.2872216275
##   [502,]   0.318181422   0.0147206052  -0.627866630   0.0023511272
##   [503,]  -1.170309849   1.1238303966  -1.543586941  -0.7466042042
##   [504,]   0.185465671   0.1900644115   1.354338786  -2.2497671955
##   [505,]  -0.374191095   1.5489164857   1.313178797   1.7125506665
##   [506,]  -1.431249303   0.5869704233   0.260476081  -0.8142524730
##   [507,]  -1.804220142   1.1307510450  -0.205675527  -0.4832172797
##   [508,]  -0.165385231  -0.3596492240   1.876975104  -0.1622640800
##   [509,]   0.668211592  -0.1302308088  -1.897232455  -0.2618778882
##   [510,]  -0.176218527   0.7573445388  -0.424431516   1.4801987775
##   [511,]   0.143359255   1.7188327486   0.474868296   0.1119551046
##   [512,]  -0.325982095   1.4746326003   0.872433836  -0.8923305008
##   [513,]   1.855853482  -0.3699133916  -1.360486023   0.4376786211
##   [514,]  -1.097687691   1.5560879757  -0.219942230  -0.2587091462
##   [515,]  -0.541832037  -1.3164217456  -1.021588260  -0.3859886330
##   [516,]   0.088189320   0.1085949165  -0.886877317   0.3391057005
##   [517,]  -0.342246885   1.3589796022   0.302322578   1.7160381134
##   [518,]   1.725070514   1.1328924740   1.007043964   0.8678548366
##   [519,]  -0.389822991  -1.3970024591   1.859232326   0.8342045656
##   [520,]  -0.738666312   0.2514795558  -0.238744429   0.0187938889
##   [521,]   0.216872282   0.4438417797   0.029938543   1.0738787521
##   [522,]  -0.167262776  -0.9741715546   1.080790053   0.9521940001
##   [523,]   0.163961367   0.0497344064  -0.790806787   1.0349620964
##   [524,]  -1.005580860   1.1321033684  -0.243928157  -0.9040897248
##   [525,]  -0.534385258  -0.5466616697   1.731639590   0.9624933896
##   [526,]   0.673610537   0.4415062642   0.704571404   0.3869210269
##   [527,]  -0.375653535   1.8801330389   2.165729973  -1.1200564481
##   [528,]   1.002778370   1.0976025208   0.061647693  -0.7876757480
##   [529,]  -1.219814852   1.8299545509  -0.240783599  -1.9402687967
##   [530,]  -0.731173979  -0.4096026311  -1.468825617  -0.4721803904
##   [531,]   0.920356020  -0.1390236113   0.358619953  -1.3833133912
##   [532,]   0.774281043   1.6427443686  -0.971014791  -1.3966334948
##   [533,]   0.901545619  -0.3062279239  -1.252452543   1.4458415517
##   [534,]   0.263911248   0.8916072407  -0.228709316  -0.2413184842
##   [535,]  -0.572417653  -1.5480302543  -0.429408365  -0.0879293146
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##   [536,]   0.670536107   1.3921814824   0.151455090   0.9450070266
##   [537,]  -0.576709936   0.7887560614  -1.340883348   2.0294316468
##   [538,]   1.022426179   1.7369885067  -0.472252144  -0.8011940039
##   [539,]  -1.160072697  -0.5575700804   1.410997974   0.3915639243
##   [540,]   1.233899909   1.1024598704   0.544131136  -1.0959411306
##   [541,]   0.475298724   1.1374095331   2.235427146  -0.4224024643
##   [542,]  -1.545807900  -0.9904426824   1.166320717   0.5197418865
##   [543,]   0.910970474   1.3004765214  -0.891633192   0.6512889644
##   [544,]  -0.593378120   0.3995042044  -0.716823349  -1.0268399317
##   [545,]  -1.197173978  -1.0483707947   2.194470785   0.2784029092
##   [546,]  -1.264659912   0.2681162829  -0.401632455   0.6007412161
##   [547,]   1.116940690   2.0603972581   0.396325904  -0.5577010352
##   [548,]   1.790971572  -0.5399079189  -0.737085779  -0.4498770405
##   [549,]  -1.218285349  -1.6771704098   0.127884599   0.0466921688
##   [550,]  -0.688351187  -1.4923386148  -0.736358418  -0.0992654576
##   [551,]   1.117634040  -0.6053019599  -0.228681854   0.3644006841
##   [552,]  -0.378526599  -1.1579428048   0.099389035   0.0293292929
##   [553,]   2.518681691   0.1810114034  -0.174230601   1.7140087610
##   [554,]   0.241138088   0.3353675927  -0.376506834   0.9650705823
##   [555,]   0.453049835   1.4304201656   0.344032544  -0.4131294315
##   [556,]  -0.674707640  -1.0813795245  -1.022117005   1.6795677800
##   [557,]  -1.425406531  -0.9736347753  -1.065128358   1.1935147415
##   [558,]   0.594555126  -0.2832361274  -0.818710324   0.8150138810
##   [559,]   0.770573158  -1.3285008236  -0.119127675   0.1613331477
##   [560,]  -1.542156870  -0.9163401296  -1.030434071   0.6676849198
##   [561,]   1.482641608   1.1135083213   1.565794693   0.6856793259
##   [562,]   0.912177636   0.2557225781  -0.117034047  -0.6386221389
##   [563,]  -1.108697452   1.5582127963  -0.155343809   0.8840211981
##   [564,]  -1.049737540   1.2118694156   0.239602619   1.4522111716
##   [565,]  -1.228084905   0.9887983583  -1.386477300  -0.4011869165
##   [566,]  -0.134545340   0.8207309128   0.566095785   2.4942868332
##   [567,]   0.731207991  -1.4660028257  -0.560327475  -0.3907162911
##   [568,]  -1.786813526  -0.2897187529   0.640251946  -0.2455085694
##   [569,]  -1.077086455  -0.0084053941  -0.696997898   1.7573325421
##   [570,]   0.642097073   0.7617953528   0.340485321   0.4571533854
##   [571,]  -1.031712715   0.9115503288  -0.625320642   1.0873305468
##   [572,]   0.027908659   1.3740196961   0.465020524  -0.0267851115
##   [573,]  -0.770914685   0.5268659643   2.125921746   1.2667906994
##   [574,]  -1.500443202   0.7131734285   0.006618884   0.7253468195
##   [575,]  -1.406448482   0.5890166114   1.626745145   1.3560130329
##   [576,]   1.074519123   0.0329400289   1.919015304   0.1310715172
##   [577,]  -0.672509022   2.0056436000   0.183588534   0.1946044255
##   [578,]  -0.245655767   0.2007803283  -0.012734003   0.4019444344
##   [579,]  -0.224743798  -0.7656293893   1.652936592   0.8419183061
##   [580,]  -1.211626982   1.1526991628  -0.212635763  -1.0220828888
##   [581,]  -1.034028736  -0.0990006239  -1.110350949  -1.2148555952
##   [582,]  -0.883525140   0.3282643581  -0.339791923   1.2420142322
##   [583,]   0.485480208  -0.3389679913  -0.797316238  -0.8771758883
##   [584,]   1.078162984   0.9153152651  -1.482783023  -1.3058220677
##   [585,]  -1.651502530  -1.2837831741  -0.278661333  -0.9945892276
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##  [586,]  -1.629722884  -0.8458921907  -0.949590367   0.0270923155
##  [587,]   1.266832374   0.2847418491  -0.873867704  -0.1737441260
##  [588,]  -1.357221966  -0.2000918684   0.501371911   0.7218158321
##  [589,]   0.102803891  -0.3280627219  -0.169580862   1.9611320593
##  [590,]   1.431120968   0.5892229190  -0.380675730   0.9693929168
##  [591,]   0.626981745   0.9873966201   0.964300508  -1.1225160470
##  [592,]   1.792656029   0.3463371373  -0.660035358   0.5052875016
##  [593,]   0.727714303   0.7271995882  -0.438754800   1.4800606477
##  [594,]  -0.717069639  -1.4908631909   2.381634015   0.0512202714
##  [595,]   0.742942830  -0.8912105502  -0.474077836  -0.8180723394
##  [596,]  -0.208875134  -1.7945942612   0.665285345  -0.8841814314
##  [597,]  -1.353571792   0.2833166396  -0.120802387  -1.0331457440
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##  [599,]  -1.331123711   0.4039216296   0.185445082   0.0506881709
##  [600,]  -0.414732288   1.1317599442  -0.581679460   0.0994948901
##  [601,]  -0.313089244  -0.6702812623   0.041405016   1.4538015184
##  [602,]   0.696285793  -1.8095672483   0.629787861   0.4048232590
##  [603,]  -0.664960798   0.5849853451  -0.333679218  -0.0922546040
##  [604,]  -0.530583380   0.6246936691  -0.864162076   1.2951701690
##  [605,]   0.393033722   0.2427576747  -0.143276193   1.5248592332
##  [606,]  -0.773483140   0.4931802457   0.919365940  -0.3231844134
##  [607,]  -1.550219870  -0.5721616995  -0.008784268  -1.2361901112
##  [608,]  -0.425929638  -1.2560451875   1.410679344  -0.5049604728
##  [609,]   0.537334661   0.5208371991   0.546749614  -0.8423897492
##  [610,]   0.498023174   0.8974957136  -0.755496892  -1.0740851448
##  [611,]  -1.262739352  -0.1678791193   1.028433678  -0.9615857844
##  [612,]  -0.506180423   0.5279296458  -0.363323955   1.2264462356
##  [613,]  -0.466164267   0.0740621626  -0.745482803  -1.4161796042
##  [614,]  -0.062652463  -0.5850359124  -0.716059118   0.7107113083
##  [615,]   0.352763658  -0.4661987357   0.322589126   1.4242977078
##  [616,]   0.630817178  -1.2934951186   0.299851670  -1.5349327764
##  [617,]  -1.776494997   1.4231792525   1.866290876  -1.3771903714
##  [618,]   1.862778139   0.3168825534  -2.044272590   0.2024695139
##  [619,]   0.783085708   1.0408955491  -1.229743284   0.3007597540
##  [620,]  -0.975228093   1.0935991652  -0.212727297  -2.3929896532
##  [621,]   0.395720199  -0.5237252721  -1.316548086  -0.8197941803
##  [622,]  -1.770814879  -2.8695094636  -0.779740957  -1.2461052930
##  [623,]   0.364824670   0.4074003624  -1.431914603   1.0084302678
##  [624,]  -1.818826667  -0.4104093949  -0.180294406  -0.0207928292
##  [625,]   0.101111725  -0.9211709468   0.046925033   1.7491603015
##  [626,]  -0.144427102   0.7214556049  -0.578213806   0.8669059482
##  [627,]  -0.630544162   0.4278626091   0.350839260   0.8557093702
##  [628,]  -0.512994850  -0.1855098459   0.358881316   0.1943638402
##  [629,]  -1.424391456   1.0821048810   0.409834172  -1.3214296216
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##  [631,]  -0.371155336   1.0840335289  -0.611155100   0.8263665790
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##  [633,]  -1.213695030   0.3574885950   0.769194405  -0.7561102837
##  [634,]  -1.499211623   0.3587654980  -0.410043538  -0.1139499815
##  [635,]   0.689637532  -0.8872405733   0.447918736   1.0314217497
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##   [636,]   0.262805205 -1.1564586261   0.995993417 -1.1521061040
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##   [638,]   0.014863848  1.3083382488   1.340446839 -0.4698518961
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##   [640,]  -0.995840420 -0.4460006835  -0.406714463 -2.0778438461
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##   [646,]   0.319561639  1.8313513311   0.843646913  0.5357798806
##   [647,]  -1.807590277 -0.4317804771  -1.205050000 -0.4750512852
##   [648,]  -0.984707161 -0.6146120423   0.500836132  1.5100316974
##   [649,]  -0.225577113 -0.7702434451   1.437121595  0.4091569637
##   [650,]   0.529472865 -0.1513145616   0.165085750  1.3932981311
##   [651,]  -1.566557203  0.6551432443   0.357127620 -0.2336101931
##   [652,]   0.313013189  0.8661347027  -2.166785713 -0.1677579812
##   [653,]  -1.030773141 -0.1103372529  -1.231374046 -2.5081728050
##   [654,]   0.441404547 -0.4836819133  -0.521476107  0.3560941837
##   [655,]  -0.649211957  0.9084150058  -0.032271911 -0.2298143071
##   [656,]  -0.272258786 -1.4539435715   0.012133243 -0.7092718913
##   [657,]   2.258850160  1.9289263917   1.850805345  0.1417493027
##   [658,]  -0.440504703 -0.7296155870  -0.424685444  0.6080484539
##   [659,]  -0.622883984  2.1704094452  -0.640358441 -0.3780801536
##   [660,]   0.380726980 -0.3655681059  -0.821834838 -0.6399953334
##   [661,]   0.875900381 -1.2255016009  -0.698594729  0.3378113524
##   [662,]  -0.089905076 -0.8814760216  -0.319780756  0.3828870437
##   [663,]  -0.495938464 -0.4332404493  -0.112989169 -0.0189170557
##   [664,]   0.459686749 -0.5798233407   0.529615947 -0.8145547368
##   [665,]   0.010432227 -0.0441890784   0.954099364  1.0470133001
##   [666,]   0.468494911  0.2463725471  -0.519797274  0.4781429245
##   [667,]   0.850989983 -0.8284467193  -0.761494125 -0.2247468462
##   [668,]   0.219228795  0.4117334252  -0.093052037 -0.5350559079
##   [669,]   1.263879172 -0.8308205224   1.540725572 -2.7286585841
##   [670,]  -0.161051242  0.1689966457   0.256917163  0.1555881014
##   [671,]   0.057525850 -0.2627273308  -0.313218376 -0.0139377019
##   [672,]   0.535173522  0.6784420243   0.618817703  0.8477960052
##   [673,]  -0.287124208 -0.6842557119  -0.201798463  0.9430813318
##   [674,]  -0.165749637 -1.3612831928  -0.289472435  0.5150834339
##   [675,]  -0.552168776  1.4380312042  -0.803629884 -0.7336511996
##   [676,]   0.178216809 -0.9016640983   0.026705815  0.9563217002
##   [677,]  -0.702996329 -0.1464642059  -0.876718202  1.4158739998
##   [678,]  -0.180461945  0.4611459973  -0.513908413  0.8450610564
##   [679,]   0.145705799  0.6023071755   0.761752443 -0.1863643555
##   [680,]   1.307750991 -0.6881749367   0.021558735  0.2048681627
##   [681,]  -0.066084549  1.0644073189   1.610123019  0.8379656150
##   [682,]   1.010615473  0.8218903065   1.587661298 -0.1850435147
##   [683,]  -0.379461432  0.2184145116  -0.291520616 -0.8288161309
##   [684,]   0.184341332 -0.2416120417   1.567634379  0.7726530539
##   [685,]  -0.549088743  0.2213092820   0.635700382  1.3239055677
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## [686,]   0.944281227 -0.1096475454   0.418644081   0.7058917446
## [687,]   0.370166258 -0.2385169078   0.436551516  -0.6750959975
## [688,]   0.288320351  1.7013426801  -0.730586053   0.4058106734
## [689,]   0.012925808 -1.3693228272   0.527786763  -0.4271902616
## [690,]   0.220522698  0.4194959315  -0.476115723   0.5005153777
## [691,]   0.875634839  0.7909618655  -0.191748374  -0.4243372582
## [692,]  -0.893065673 -0.3565887516  -0.736217821   0.9234798167
## [693,]   2.045684529  0.5505866772  -0.321987700  -0.9417914511
## [694,]  -0.799027362  0.4806843635  -1.032400389   1.2444449224
## [695,]   1.209150926  1.8847654718  -0.810924825  -1.4063244893
## [696,]   0.362732368 -0.5420146665  -0.441695252   1.0679205845
## [697,]   0.512571248 -0.9728359726  -0.565128198  -0.0141131386
## [698,]   0.388825670 -0.9292309546  -1.676239485  -0.7147517309
## [699,]   0.032492857 -0.0973442099   0.605252191   1.9222892906
## [700,]  -0.532298202 -0.3640189780   0.141908854   1.6010294206
## [701,]  -1.383257496 -1.3809791279  -0.564203720  -0.1822005438
## [702,]  -0.104525261  0.0125921652   1.468102107  -0.8848737427
## [703,]   1.305242385  1.1612452395  -0.235511025  -2.6877525741
## [704,]  -0.766546020  1.2344426746   0.450183857   0.6807848028
## [705,]  -0.337805885  0.1721557874   0.114921748   1.5816314282
## [706,]   1.534872999  1.8191258256   0.989948520   0.6478309461
## [707,]  -0.291118846  0.8094528741  -1.267298638   0.5662832921
## [708,]   0.235857880 -0.7187235212   1.542943377  -0.5910155429
## [709,]  -0.889894088  0.7282312395  -0.892192949  -0.7421988008
## [710,]  -0.530033306 -0.3291238926  -0.756909158   1.3946482100
## [711,]  -0.307028916 -0.5002139211   0.330534462  -1.1792479497
## [712,]  -1.284159678 -1.9595274717  -0.397585621   0.1903388258
## [713,]   0.340389644 -0.6406076382   0.093235947   0.2796130450
## [714,]   1.817584187 -1.5771940443  -0.404478630   0.3641841253
## [715,]   0.635866004  0.5427037333   0.930028487   1.4407602576
## [716,]  -1.263761414  0.5449374861   0.682833482  -0.8919400347
## [717,]   1.753183637  1.1201207355   0.620027055  -1.4205861635
## [718,]   0.054458428 -1.5846551006   0.608700035   0.5481734204
## [719,]   0.106446871  0.1485055413   1.711864434   0.8366333296
## [720,]  -1.167843743 -0.4395103683  -0.771638155  -1.3812398074
## [721,]   1.586830037 -0.0370510581   1.337262805  -0.1218004522
## [722,]   0.921995940 -0.1321810487   1.645818558  -0.5630076710
## [723,]   1.279443680 -1.3952782122  -1.005041880  -0.6127255675
## [724,]   1.074224697 -0.9676219276  -1.362221832  -0.1527996324
## [725,]  -1.208862181 -1.9330434047  -0.521081255  -0.3439655837
## [726,]   0.792630153  1.1071182602  -1.694405977  -0.0378808031
## [727,]  -1.267095535  0.0063978808  -0.576853740  -0.0785577535
## [728,]  -1.771929280  0.2663385166  -0.460494301  -1.5111789960
## [729,]  -0.165741635  1.4183661831  -0.680908652   1.4399407014
## [730,]  -0.421675829  1.5684056800   1.902705483  -0.5220374438
## [731,]   1.914112646 -0.9155508013   0.606731452  -0.4792886109
## [732,]   0.481514300  0.3888195145  -1.421167572   0.0881071805
## [733,]   0.991153520  0.1498238668  -0.945864942   0.0829704987
## [734,]   2.259107744  0.9180530703   0.057381493   0.2378150412
## [735,]   0.275887443 -1.3800917359   0.004960807  -1.3906045756
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##  [736,]   0.604162506 -2.7069613166 -0.115238167 -1.6654653698
##  [737,]   1.329237177  0.1013962988  0.057887359  0.0157159603
##  [738,]   0.987530205 -0.9623988815  0.353114309  1.5632423658
##  [739,]  -1.038395020  2.2087311378 -0.399090865 -0.3311430087
##  [740,]   0.873370639  2.9617150566  0.070091189 -1.0029404551
##  [741,]   1.065440503  2.0713453901 -0.479946515  0.8731139339
##  [742,]   1.168158443 -1.1915475874  1.244556753 -1.1356309845
##  [743,]   2.252499723  1.0317129125 -0.200186144 -0.7143766237
##  [744,]  -1.113587233  0.5478166220 -0.390033953 -1.2537626593
##  [745,]   0.002399713 -0.1261690884  2.280591729 -0.7847499134
##  [746,]  -0.452190875  1.2714230337 -0.134465874 -1.6955452688
##  [747,]  -1.061111163 -0.1047009074 -0.435328484  0.4839284332
##  [748,]   1.830110522 -1.2523210696  1.138788478 -0.2867249527
##  [749,]   0.461387556  0.0224913135  0.997167280  0.2954002717
##  [750,]   0.121803339 -0.6789474643 -0.005879442  0.1319161473
##  [751,]   0.783280584  0.7189937822  1.216191945  0.1505514736
##  [752,]   0.810579642 -1.6774333719 -0.827598694  0.9509899893
##  [753,]  -0.011196496 -0.4019646177  0.699444356  1.2654196690
##  [754,]   1.054141754 -1.6980037106 -0.504763342  0.1526091227
##  [755,]   0.584855814  1.0631874545 -0.177386776 -0.6629002762
##  [756,]   0.390945410  0.6574267146  1.326153834  0.0301612621
##  [757,]   0.360920202  0.7237820815  0.293913538  0.0057876178
##  [758,]   0.123589471 -0.1142755719  2.122805170  0.4508376808
##  [759,]  -1.641679122  1.4006945765  0.719998654 -0.6190294121
##  [760,]   1.596198129  0.2815657452  2.755480463  0.6674362818
##  [761,]   1.603167756  0.0665148743 -1.041876730  0.1846369048
##  [762,]  -1.789444130  1.4764884984 -0.665320301 -1.0895653263
##  [763,]   0.606136523  1.9842202305 -0.307880440 -0.1011200565
##  [764,]   0.904412784 -1.1148565053  0.163729780 -0.0277480652
##  [765,]   0.044362207 -1.7401338013  1.766412987  0.0055671450
##  [766,]  -0.761292245  1.6289165582  0.846103995 -1.0210066108
##  [767,]   0.483297932  0.6552052441  1.912981021  0.3628037690
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##  [769,]  -0.910397536  0.1953181630 -1.082250562 -0.7090995883
##  [770,]   1.681100484  1.2961458598  1.118905491  0.0850100275
##  [771,]   0.366008776 -0.8498220257 -0.105432179 -0.5314932079
##  [772,]  -0.530013646  0.6478397590 -1.089480392 -1.6696541307
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##  [774,]  -0.212333771  0.3262654875  0.434959440  0.2427070172
##  [775,]   0.838694261 -0.2983358895 -0.971269025 -0.0445245697
##  [776,]   1.859462828  1.2901555808  0.262652896  1.6015930760
##  [777,]   1.157673166  1.6130560442 -0.709028061  0.3801309299
##  [778,]  -1.874743698  0.6869293212 -1.173665007  1.4089890754
##  [779,]  -0.938556775 -0.5060913976 -0.503923403  2.2233829696
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##  [781,]   0.547148272  0.5409904243 -0.339261424 -0.0401844714
##  [782,]   0.022587064 -1.8561990299  1.547208285  0.9879544412
##  [783,]   0.918259882  0.3545244304  1.571027256 -0.0366646828
##  [784,]  -0.302643007  0.7698556624  0.346019647 -0.0767766511
##  [785,]   0.492565661 -0.1542621875  1.178292490 -0.5561150444
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##  [786,]   0.204211147   0.5507048271  -1.146305098   1.0686030503
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##  [788,]   0.543063337   0.6234021653  -1.131347444   0.6273988858
##  [789,]  -0.217183785  -0.6907220352  -0.685864712   0.4936833794
##  [790,]  -0.002701459   0.3035083319   0.085752568   1.9384771493
##  [791,]  -0.194052728  -0.9493652047   1.917475207  -1.7273993979
##  [792,]   0.845431479  -1.4698352964  -0.146736384  -1.0448488707
##  [793,]  -1.647067621   0.6384751268  -0.310467705   0.3842180222
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##  [795,]  -2.485011129  -0.2402476478  -0.301300146   0.8945430066
##  [796,]   1.005279636   1.8584771079   1.034315090   0.8920614265
##  [797,]   1.478264004   1.3121350582   0.227955433  -0.3372256260
##  [798,]  -1.616804251   1.2096288441  -1.151156897   1.1451518459
##  [799,]   1.038140145   0.8466614146  -1.083403826   0.0722179334
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##  [801,]  -0.556307864  -0.0456759166   1.971112008  -1.0436187721
##  [802,]  -2.177327736   0.5194250374  -0.155340996  -0.4342227168
##  [803,]  -0.338747362  -0.4027749670   0.203384823   1.3513171402
##  [804,]  -0.633990675   0.1078086461  -0.498276540   0.9166483833
##  [805,]   1.200037746   0.1636459951  -0.669424590   1.4168204214
##  [806,]   1.684855316  -0.3779334520   0.327027687   1.5043815752
##  [807,]  -0.431731431   1.7144737015  -0.380880448   1.1181849590
##  [808,]   0.138154788   0.9153414309  -1.682319682   1.1967470173
##  [809,]  -1.650488404   0.5295445091  -0.807593163   0.5020435016
##  [810,]  -0.612761419   0.7413769370  -1.390922114  -0.4254145641
##  [811,]   1.585349922  -0.5093728908   0.106258222   0.6373119861
##  [812,]   1.599509777  -0.1056964660   0.748619497  -0.7681449296
##  [813,]  -1.025869745   1.3477216946  -0.738910301   1.6001633595
##  [814,]  -2.130238584   0.5708427530  -0.151512065   0.8093727096
##  [815,]   1.439833307   0.4824416158   0.291197537   1.1897631178
##  [816,]   0.403861828   1.1581435568   2.077530392  -0.7871043997
##  [817,]   1.375536299   2.0143169288   0.139228824   1.3061702445
##  [818,]  -0.490487983  -0.1572806637   0.452555831  -0.6568358462
##  [819,]  -0.630772432   1.5534041429  -0.445823033   0.5130090966
##  [820,]  -0.486622061   0.6107040206   1.563905684  -0.0540369071
##  [821,]  -0.116223543  -0.8410904398  -1.318381622   0.7860236629
##  [822,]   0.179643846  -0.7060772366   0.776774795  -0.3899379027
##  [823,]  -0.466270355  -1.6517316256  -1.509097450   0.5293243043
##  [824,]   0.048661014   0.0852320983  -1.697885339   0.1517039833
##  [825,]  -0.331229135  -2.2533628060  -0.980277696  -0.5937961761
##  [826,]  -0.536062480  -1.3797397364  -0.039556055  -0.4629360780
##  [827,]   0.864932594  -1.4716167122   0.229926053   0.6636682879
##  [828,]   0.526447405  -1.5936432408  -0.831765831   1.0556445667
##  [829,]  -0.225119186  -0.1348077340  -0.840426006  -1.0300770692
##  [830,]   2.261740089   0.0908662881  -1.280363592  -0.5219573422
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##   [863,] -0.084926775  2.0854983248 -1.035547962  0.9426109107
##   [864,] -0.371485457 -0.9085072567 -0.793951996  0.5529796323
##   [865,] -0.495541483  0.3111521586 -0.718087584 -0.2150804199
##   [866,] -0.184071688 -0.0757098226 -0.433889903 -0.1788309231
##   [867,]  0.373359744 -0.0422627762  0.733547230 -2.0086648602
##   [868,] -0.583332795  0.5213544401  0.374186777 -1.2272432742
##   [869,] -0.404497425 -0.0362615821 -0.432455384  0.2320147441
##   [870,]  0.204332879 -0.7634233568  1.027823013  1.1944498471
##   [871,]  0.183354250 -0.9848397531 -0.459450119 -0.2262597495
##   [872,]  1.195674803  2.0990891043  0.769852152 -0.7728400744
##   [873,] -1.180917025  0.1719926861  2.139507517 -1.0313838266
##   [874,] -0.617420543  0.3716211877 -0.419913853  0.2099594666
##   [875,] -1.337583454  0.2291764254 -0.367828358  1.3475606408
##   [876,] -1.777108072  0.7912216128  0.978781591  0.8108628782
##   [877,] -1.154575898  1.8695975449  2.081010082 -0.4718248729
##   [878,]  2.475907042  0.6989759354 -0.966261488 -0.6119405442
##   [879,]  1.109179672  1.3954383789  0.904079527 -0.1755366047
##   [880,] -0.541546902  1.5158889977 -0.235659382 -0.6335700700
##   [881,] -1.037794378  0.4110290271 -0.543415883  1.3651992269
##   [882,]  0.743548024 -0.7169746923  0.682656724  0.8175844317
##   [883,] -0.472397095 -1.4676290619  1.655278037  0.8467915566
##   [884,]  0.398107424 -0.8688849388 -1.266390630  0.1363223079
##   [885,]  0.094682429  0.1635760959 -1.096753414  1.6829708079
```

```
##   [886,]   0.009957098 -0.3391811792   1.002783846   1.2335289486
##   [887,]  -0.397041685   1.5808360137  -1.073233133  -2.2023030468
##   [888,]   0.019692654  -0.4307508709   0.029088122  -0.2581853371
##   [889,]   0.482151796   0.2572189627   1.425042444   1.9006539877
##   [890,]   1.581577048   0.1923325426   0.175921580   0.8267839106
##   [891,]  -1.564884156   2.4155787524  -0.324542370   0.3548938736
##   [892,]  -0.659521906   0.3285291839  -0.109135339   0.6306697317
##   [893,]  -0.803098306   1.0041930712  -0.609978544  -1.3710723219
##   [894,]  -0.293853271  -0.3769153552  -0.184609822  -0.6436547075
##   [895,]  -0.454319031   0.5146955517   0.139853973   1.7742240054
##   [896,]  -1.530072494  -0.6224529786   0.190202159   0.0235334197
##   [897,]   0.815835454  -0.2258329867  -1.389374701  -0.6104000559
##   [898,]   0.132942265  -0.3538061043  -0.558517963  -0.7754902833
##   [899,]   0.380114131  -0.8438322495  -0.090793113  -0.2699127970
##   [900,]   0.133241248   1.8419662157  -1.209899608  -0.9073918421
##   [901,]   0.403619447  -0.2215443249  -1.463009780  -0.0271026376
##   [902,]  -0.286406821  -1.3696198704  -1.269379043  -0.4979422727
##   [903,]  -0.622658051  -0.0700765740   0.089664330  -0.5630293192
##   [904,]  -0.516552626   1.0040919449   1.133982148  -1.1751519606
##   [905,]   0.589995378   0.7117440990  -0.717025625   0.5966326612
##   [906,]   0.167450700   1.7114196820  -1.443131359   1.1023567632
##   [907,]  -0.161095299  -0.2208389170  -1.508222437  -0.1488408142
##   [908,]  -0.644909980  -1.1401530711  -1.296987745   0.1042098234
##   [909,]   0.092760449   0.0962521279   0.189267406  -0.3089987599
##   [910,]   1.052574915   0.8183792222  -0.130074561   0.4288700288
##   [911,]   1.433927420   0.5242987262  -0.985556732   0.5848219818
##   [912,]   0.691532982   0.5030656747   0.060572942  -0.7586618572
##   [913,]  -0.441681183  -0.4724297773   0.802746944  -0.5966328754
##   [914,]   1.690524140  -1.2728329059   0.092908537  -0.5949376820
##   [915,]   2.300967555  -0.4093466337   0.284789934   0.4450485382
##   [916,]  -0.365651477  -0.6920320816  -1.038074643   0.8764721496
##   [917,]  -0.647500086  -0.2269598519  -1.589492065  -1.3019898007
##   [918,]  -1.016566113   0.5477780420  -0.923422704  -0.3691931728
##   [919,]   0.427447998  -0.7848418581  -0.009694263  -0.2547588134
##   [920,]   1.796599541  -1.2017041793  -0.080489201   1.0609938299
##   [921,]  -0.557008716  -2.5826127657  -0.810046819  -0.3153350307
##   [922,]  -0.846893868   0.5703764615   0.086671208  -0.2909397810
##   [923,]   0.249217976   2.4191030357  -0.124779350   0.2111577789
##   [924,]   0.198537713  -1.1924232778   0.472232259   0.5320684617
##   [925,]  -0.363290997  -0.8850436525   0.268542098   1.1818209320
##   [926,]  -0.183677834  -1.2746186813   0.192979098   2.2122698049
##   [927,]  -0.925495473   0.7566877907  -1.074314742  -1.2563424898
##   [928,]  -0.350491230  -0.3686576988   0.806268894   1.2010727344
##   [929,]  -0.529556994  -1.5652781532   1.289824082   0.8938072449
##   [930,]   1.151013751  -0.2270570415   0.306312061  -0.4066853827
##   [931,]  -0.542980053   0.1778224891  -0.585574309   0.1924454787
##   [932,]  -0.962611929   0.1631349678  -0.642645597  -0.3345159992
##   [933,]  -1.446229166   0.5624158141   1.382528356   1.0288773369
##   [934,]   0.557177104  -0.2199140508  -0.348205017   0.9151907537
##   [935,]  -0.282668700  -0.9647331122  -0.842461996  -0.9364424225
```

```
##    [936,]  -1.445701137 -1.4374077367 -0.660958895  1.2693778509
##    [937,]  -0.844271185 -1.0753847602 -0.042079889  0.2586786829
##    [938,]   0.641821817  0.3940854936  0.662704458 -0.8613301167
##    [939,]   1.058704109 -0.7249560765  0.444179910 -0.6511968493
##    [940,]   0.107500672  0.3039086287  0.418694714 -0.3010921345
##    [941,]  -0.650177823 -0.2443167966 -0.177959577 -0.9517802351
##    [942,]   1.437485375 -0.6356715130 -0.922227440  0.3499455061
##    [943,]  -0.129356773 -0.1901560182 -0.946816496  1.3680554185
##    [944,]  -0.176705029  0.5647921860 -0.271275626  0.7875259636
##    [945,]  -0.152618885  0.2528170139  0.522956663  1.0600288375
##    [946,]  -0.891774938  1.9881555353 -0.327685211 -1.2261685220
##    [947,]  -0.747120473  0.5589840198 -0.568832095 -0.4069912019
##    [948,]  -0.819215992 -1.4779022732 -0.145141108  0.7478662708
##    [949,]  -0.259130230  0.0650778501  2.576654961  0.3033871154
##    [950,]  -1.489255769 -0.8584417212 -0.210503611 -0.2355125171
##    [951,]  -0.977755688  0.6953591970 -0.468967284 -0.7668966814
##    [952,]  -1.808154093  1.9267999101 -0.422271192 -1.2789505186
##    [953,]  -0.128097985  0.3104801506 -0.155124594 -1.6698712140
##    [954,]   0.101474849 -0.3307048221  1.646127126  0.6285821308
##    [955,]   0.817445489 -0.4183655842  0.119193135  1.1785911226
##    [956,]  -0.161891762  0.3787032370  1.514757728 -0.4081523257
##    [957,]  -1.262432212 -1.3799795294 -0.633515777 -1.3055173379
##    [958,]  -1.756883433 -0.6963061297 -1.018721698 -1.4641026006
##    [959,]  -0.004466022 -1.1648495652  1.730298475  2.0268527381
##    [960,]  -0.902432884 -0.6728746275 -0.415076608 -0.5033132979
##    [961,]   0.826858029 -0.1398680838 -0.594624524 -0.6464417353
##    [962,]   0.328952006  2.3173175115  1.681731742  0.2242278839
##    [963,]   0.684281851 -1.6671768849 -0.337908208 -1.2402988444
##    [964,]  -0.468265316  1.5742963678 -0.501768368 -1.0107949347
##    [965,]   0.479367625  0.4137536945  0.472135006 -0.4534190385
##    [966,]   0.781810001 -0.3594440655 -0.445402489  1.1803276604
##    [967,]   2.461577886 -1.0595087155 -0.152468903  2.0165763119
##    [968,]   0.528624365  0.8057373615  1.270545273 -1.2902179523
##    [969,]  -1.931175531  1.3812334509  0.360949087 -0.5805593263
##    [970,]  -0.647123796 -0.2693596870 -1.242696476 -0.1502711774
##    [971,]   0.269675520  0.5088579955 -1.174013986 -0.9506883907
##    [972,]  -0.241709768  0.6584978845 -0.349341216 -0.9089445326
##    [973,]   0.749243332 -0.2103832590  1.855949512  0.1049770055
##    [974,]  -0.177496995 -1.0234897874  0.022798094 -0.4716419345
##    [975,]   0.114533950  0.1948597662  0.444770923 -0.7592264683
##    [976,]   1.979763461 -0.3504580226  0.410083613  0.4903816772
##    [977,]   0.788689738  0.6492665463  0.060987033  0.1747288569
##    [978,]  -0.881456634 -0.2596090322 -1.173033264  0.3201045990
##    [979,]   0.494150974 -0.3112696869 -0.859413376  0.1017367634
##    [980,]   0.944494859  0.8206103014 -1.138990309 -0.0779093340
##    [981,]   1.142460000 -1.5099510803 -1.312208382 -1.2231446795
##    [982,]   1.008466095 -1.8641617131 -0.725975213 -0.8626947646
##    [983,]  -0.865889229  0.6597010328 -0.341752438 -0.0669748953
##    [984,]  -0.481995935 -0.5427662828 -0.783753552  1.6809898641
##    [985,]  -0.153880782 -1.0015160528 -1.316075804 -0.4710829660
```

```
##  [986,]   0.465129845 -1.4895264671 -0.947912202 -0.3174259258
##  [987,]   1.694297281 -0.5390831497 -0.507549319 -2.0575169254
##  [988,]   0.632630707 -0.4901047360 -0.661159251 -1.4558335760
##  [989,]   2.427050888  1.8079321446  1.702176925 -0.4424693992
##  [990,]   2.609594485  0.4161349725 -0.190739115 -0.1247252630
##  [991,]  -0.613185384  0.8429028101 -1.502931933 -1.1671968540
##  [992,]  -1.611391634 -0.8826797822 -1.106739457 -1.1372814990
##  [993,]  -0.820109859 -0.2514967980  0.457353787 -2.8985041326
##  [994,]   0.628294886 -0.6234968105 -1.976959104  0.7358637828
##  [995,]   0.358716948 -1.2236223580  0.089701922  0.0078966457
##  [996,]  -0.048766237  1.0929392074 -1.334796717 -0.4139528307
##  [997,]  -1.168297597 -1.1441959683 -0.685151131 -1.0306590105
##  [998,]   0.471818559  0.3456823559 -0.073062235  1.1562020103
##  [999,]   0.751649988  0.5335170061  0.481971887 -1.6854355599
## [1000,]   1.744102191  1.5612373637  0.718071975 -1.2431756705
## [1001,]  -1.116141486 -0.4023475284  1.796745606  1.9574460151
## [1002,]  -0.830047788 -0.3012755628 -1.084560660  1.1503056306
## [1003,]  -1.111560895 -0.4724648749 -0.996801880 -1.7517230388
## [1004,]   0.001262349 -1.2436659511 -0.206117339  0.2604245601
## [1005,]  -0.487159304  0.2940337244  0.175441993 -0.0970928106
## [1006,]   0.940923679 -0.7004614808 -0.332859940  1.1593730846
## [1007,]  -1.049311064  1.1890934459  0.956772684 -0.9997233640
## [1008,]  -0.750923700 -1.6190153305 -1.053104632 -1.5164567797
## [1009,]   1.134152886 -0.0963284274  0.069800430  0.9284038148
## [1010,]  -1.456714583  0.0384581747  1.956798118  0.9061885496

# Play with FA utilities

fa.parallel(hobbies_transformed[-1]) # See factor recommendation
```

Parallel Analysis Scree Plots

eigenvalues of principal components and factor analys

Factor/Component Number
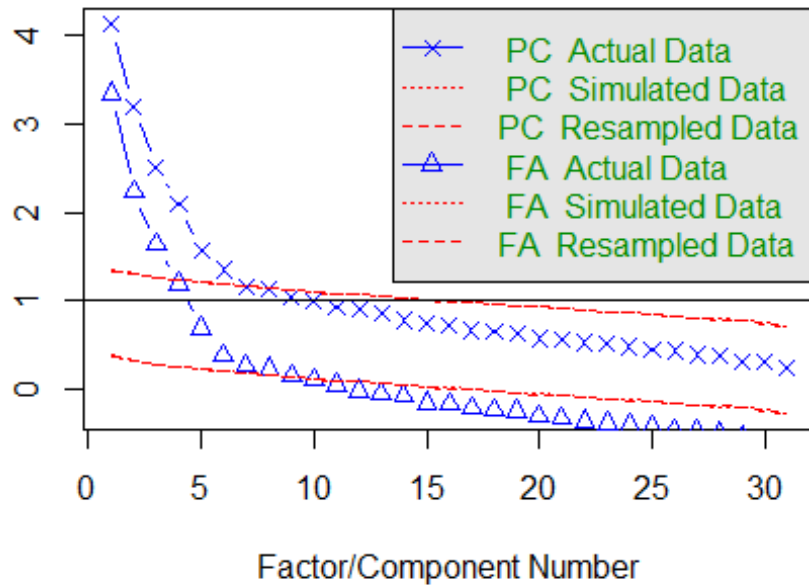
```
## Parallel analysis suggests that the number of factors =  8  and the number
of components =  6
```

```r
fa.plot(fit.pc.hobbies) # See Correlations within Factors
```

Principal Component Analysis
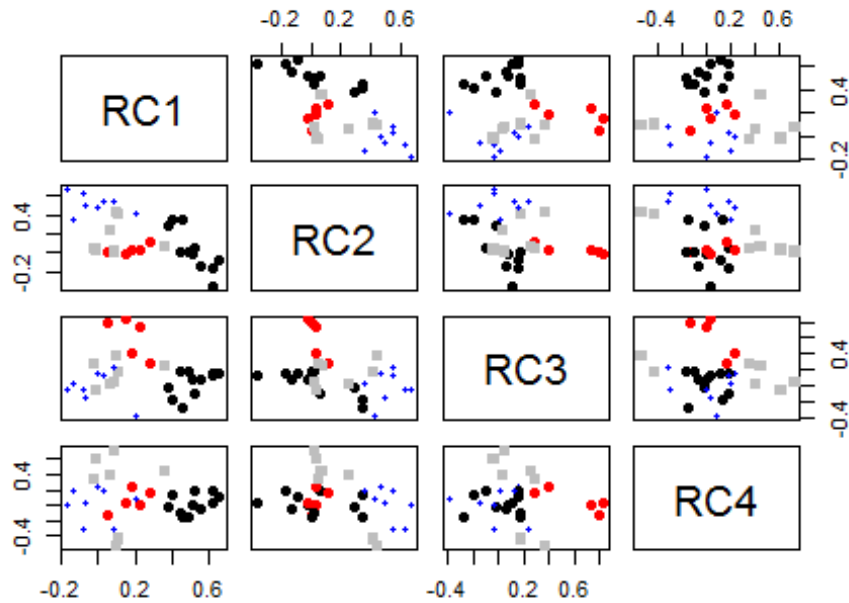

```r
fa.diagram(fit.pc.hobbies) # Visualize the relationship
```

Components Analysis
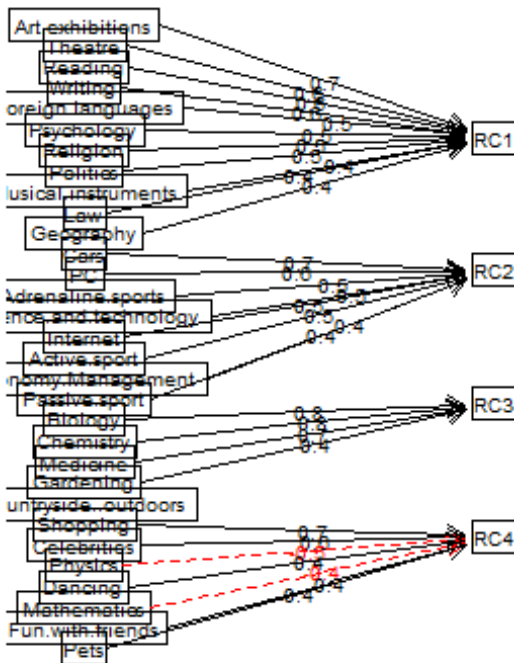
```
vss(hobbies_transformed[-1]) # See Factor recommendations for a simple
structure
```

Very Simple Structure
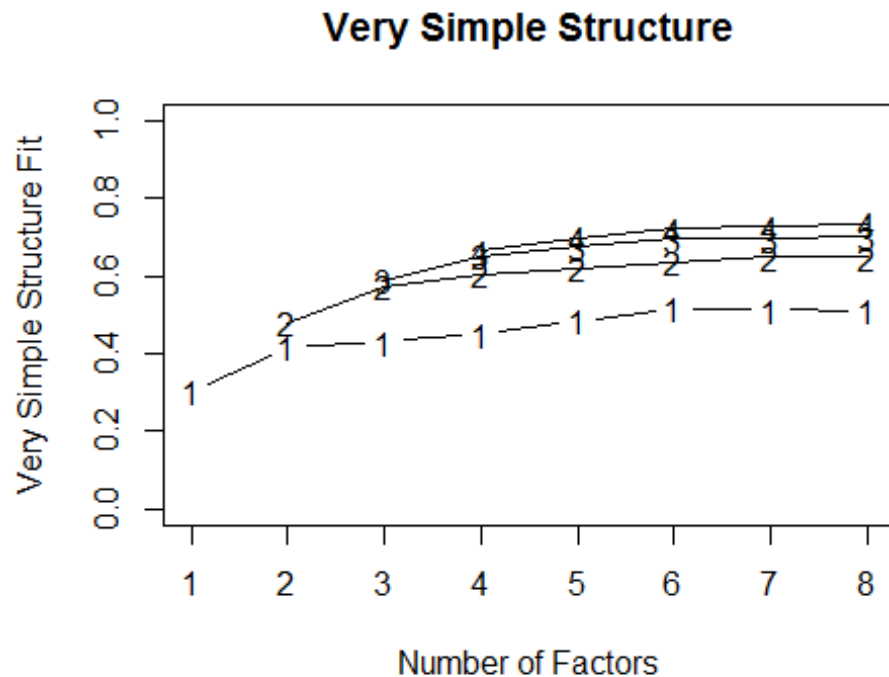

```
##
## Very Simple Structure
## Call: vss(x = hobbies_transformed[-1])
## VSS complexity 1 achieves a maximimum of 0.52  with  6  factors
## VSS complexity 2 achieves a maximimum of 0.65  with  8  factors
##
## The Velicer MAP achieves a minimum of 0.01  with  5  factors
## BIC achieves a minimum of  -873.28  with  7  factors
## Sample Size adjusted BIC achieves a minimum of  -84.44  with  8  factors
##
## Statistics by number of factors
##   vss1 vss2   map dof chisq      prob sqresid  fit RMSEA  BIC SABIC complex
## 1 0.30 0.00 0.019 434  5922   0.0e+00      38 0.30 0.112 2920  4298     1.0
## 2 0.42 0.48 0.016 404  4425   0.0e+00      28 0.48 0.099 1630  2913     1.2
## 3 0.43 0.57 0.015 375  3041   0.0e+00      22 0.59 0.084  447  1638     1.5
## 4 0.45 0.61 0.013 347  2146 2.2e-256      18 0.66 0.072 -254   848     1.7
## 5 0.48 0.62 0.012 320  1639 9.7e-176      16 0.71 0.064 -575   442     1.8
## 6 0.52 0.63 0.013 294  1291 7.9e-125      14 0.74 0.058 -743   191     1.8
## 7 0.51 0.65 0.014 269   988  1.1e-82      13 0.75 0.051 -873   -19     1.9
## 8 0.51 0.65 0.016 245   832  5.2e-65      12 0.77 0.049 -863   -84     2.0
##   eChisq  SRMR eCRMS    eBIC
## 1  12973 0.118 0.122  9970.6
## 2   7412 0.089 0.095  4616.8
## 3   4262 0.067 0.075  1668.2
```

```
## 4    2392 0.050 0.058    -8.1
## 5    1591 0.041 0.050  -623.1
## 6    1105 0.034 0.043  -928.4
## 7     856 0.030 0.040 -1005.0
## 8     655 0.026 0.036 -1040.3
```

@Conclusion: The proportion of the total variance for RC1 is about 52% which restores maximum of the total variance. Also the components for RC1 contribute to Art exhibition, Theatre, Reading, Writing, Foreign Language, Psychology, Religion, Politics, Musical Instrument, Law and Geography.

```
#movie_pca
eigvec.movie<- movie_pca$rotation

pcafactors.movies<- eigvec.movie[,1:4]
pcafactors.movies

##                            PC1         PC2         PC3         PC4
## Movies             -0.18067387 0.2943522148 -0.29434144  0.1753636709
## Horror             -0.29774492 0.0281326824 -0.48865014 -0.3468640042
## Thriller           -0.38637808 0.0264578000 -0.39885764 -0.3255496550
## Comedy              0.00957783 0.3601720121 -0.23777270  0.5045943972
## Romantic            0.25313650 0.3635153351 -0.09666751  0.2900854864
## Sci.fi             -0.37660398 0.1182255631  0.04518061  0.1849454105
## War                -0.40483304 0.0003113374  0.24428376 -0.0005316756
## Fantasy.Fairy.tales 0.13147403 0.5530319979  0.14626774 -0.2789775438
## Animated            0.05080348 0.5454401638  0.10708136 -0.3574114799
## Documentary        -0.18889650 0.1506598727  0.47688883 -0.1906702214
## Western            -0.36669650 0.0334098269  0.35553267  0.1424325175
## Action             -0.41171847 0.0941099146  0.03483277  0.3282782261

unrot.fact.movies<- sweep(pcafactors.movies,MARGIN=2,movie_pca$sdev[1:4],`*`)
unrot.fact.movies

##                            PC1         PC2         PC3         PC4
## Movies             -0.28754331 0.4281207554 -0.35572299  0.1756920182
## Horror             -0.47386244 0.0409175969 -0.59055256 -0.3475134652
## Thriller           -0.61492253 0.0384815632 -0.48203485 -0.3261592075
## Comedy              0.01524316 0.5238523992 -0.28735749  0.5055391894
## Romantic            0.40286793 0.5287150974 -0.11682641  0.2906286365
## Sci.fi             -0.59936701 0.1719532412  0.05460252  0.1852916985
## War                -0.64429368 0.0004528249  0.29522636 -0.0005326711
## Fantasy.Fairy.tales 0.20924153 0.8043577213  0.17677022 -0.2794998957
## Animated            0.08085397 0.7933157736  0.12941196 -0.3580806898
## Documentary        -0.30062967 0.2191273422  0.57633856 -0.1910272284
## Western            -0.58359919 0.0485929428  0.42967496  0.1426992052
## Action             -0.65525187 0.1368782217  0.04209675  0.3288928876

communalities.movies<- rowSums(unrot.fact.movies^2)
communalities.movies # 1 - this would be your unique variance
```

```
##              Movies              Horror             Thriller
Comedy
##           0.4233751           0.6957378           0.7183480
0.6127979
##            Romantic              Sci.fi                  War
Fantasy.Fairy.tales
##           0.5399556           0.4261232           0.5022734
0.8001413
##            Animated         Documentary              Western
Action
##           0.7808565           0.5070525           0.5479329
0.5580333

rot.fact.movies<- varimax(unrot.fact.movies)
View(unrot.fact.movies)
rot.fact.movies

## $loadings
##
## Loadings:
##                     PC1    PC2    PC3    PC4
## Movies            -0.160  0.119 -0.348  0.512
## Horror                          -0.833
## Thriller          -0.199        -0.823
## Comedy                                  0.776
## Romantic           0.255  0.305  0.241  0.569
## Sci.fi            -0.590        -0.210  0.184
## War               -0.678        -0.142 -0.150
## Fantasy.Fairy.tales       0.868         0.198
## Animated                  0.867         0.153
## Documentary       -0.511  0.393  0.143 -0.267
## Western           -0.734
## Action            -0.661 -0.131 -0.182  0.267
##
##                     PC1    PC2    PC3    PC4
## SS loadings       2.180 1.795 1.681 1.457
## Proportion Var    0.182 0.150 0.140 0.121
## Cumulative Var    0.182 0.331 0.471 0.593
##
## $rotmat
##            [,1]        [,2]         [,3]         [,4]
## [1,]  0.8288249  0.1368652  0.54148538  0.03332804
## [2,] -0.1220026  0.8082738 -0.05285963  0.57359801
## [3,] -0.4882471  0.2804133  0.70318260 -0.43418587
## [4,] -0.2444983 -0.4993293  0.45774848  0.69379910

fact.load.movies<- rot.fact.movies$loadings[1:9,1:4]
fact.load.movies

##                              PC1         PC2         PC3         PC4
## Movies              -0.159830557  0.119206482 -0.348046265  0.51233082
```

```
## Horror              -0.024439028 -0.023857816 -0.833092518  0.02298240
## Thriller            -0.199260476 -0.025366021 -0.823263087 -0.01541745
## Comedy              -0.034579417  0.092493050  0.009908317  0.77649792
## Romantic             0.255384335  0.304606113  0.241083925  0.56905899
## Sci.fi              -0.589712060 -0.020257509 -0.210425326  0.18350388
## War                 -0.678075076 -0.004764028 -0.141545337 -0.14976599
## Fantasy.Fairy.tales  0.057320579  0.867910376  0.067144264  0.19768369
## Animated            -0.005407689  0.867371471 -0.071063792  0.15311415
```

```r
scale.movies<- scale(movie_transformed[-1])
scale.movies
```

```
##              Horror    Thriller     Comedy    Romantic       Sci.fi         War
##    [1,]   0.8561814 -1.1535953  0.6468366  0.4229256  0.67817250 -1.5967598
##    [2,]  -0.5614304 -1.1535953 -0.6366702 -0.4048938  0.67817250 -1.5967598
##    [3,]   0.1473755  0.5156472 -0.6366702 -1.2327132  0.67817250 -0.8559571
##    [4,]   0.8561814  0.5156472 -1.9201769 -0.4048938  0.67817250 -0.1151545
##    [5,]   0.8561814  0.5156472  0.6468366 -1.2327132 -0.08288775 -0.1151545
##    [6,]   1.5649873  1.3502685  0.6468366 -1.2327132 -0.08288775 -0.1151545
##    [7,]  -0.5614304 -1.9882166  0.6468366 -0.4048938 -1.60500825 -0.1151545
##    [8,]   0.8561814  0.5156472  0.6468366 -1.2327132 -0.08288775 -0.1151545
##    [9,]  -1.2702363  1.3502685  0.6468366  0.4229256  0.67817250  1.3664509
##   [10,]  -0.5614304 -1.9882166  0.6468366  1.2507450 -1.60500825 -0.1151545
##   [11,]   1.5649873  0.5156472  0.6468366 -0.4048938 -0.08288775 -0.8559571
##   [12,]   0.1473755  0.5156472 -0.6366702 -0.4048938 -0.84394800  1.3664509
##   [13,]  -1.2702363  1.3502685 -0.6366702 -0.4048938 -1.60500825  0.6256482
##   [14,]   0.1473755 -1.1535953  0.6468366  1.2507450 -0.84394800 -1.5967598
##   [15,]  -1.2702363 -0.3189741  0.6468366  0.4229256 -1.60500825 -1.5967598
##   [16,]   1.5649873  1.3502685  0.6468366 -0.4048938 -0.08288775  1.3664509
##   [17,]   0.1473755 -0.3189741  0.6468366 -0.4048938 -0.84394800 -0.8559571
##   [18,]   0.8561814 -1.1535953  0.6468366  1.2507450  1.43923275 -0.8559571
##   [19,]  -0.5614304  0.5156472  0.6468366  0.4229256  1.43923275  1.3664509
##   [20,]  -1.2702363  0.5156472 -0.6366702 -1.2327132 -0.08288775  1.3664509
##   [21,]   1.5649873  1.3502685  0.6468366 -0.4048938 -0.08288775  0.6256482
##   [22,]   1.5649873  1.3502685  0.6468366 -1.2327132  1.43923275 -0.1151545
##   [23,]  -0.5614304 -0.3189741  0.6468366  0.4229256  0.67817250 -0.8559571
##   [24,]  -0.5614304  0.5156472  0.6468366  1.2507450  0.67817250 -0.1151545
##   [25,]   0.8561814 -1.1535953  0.6468366  1.2507450 -0.84394800 -0.8559571
##   [26,]  -1.2702363 -1.1535953  0.6468366  1.2507450 -1.60500825 -1.5967598
##   [27,]   0.1473755 -1.1535953  0.6468366  0.4229256 -0.84394800  1.3664509
##   [28,]  -0.5614304  0.5156472 -1.9201769  0.4229256  1.43923275 -0.1151545
##   [29,]   0.1473755 -0.3189741  0.6468366 -0.4048938 -1.60500825  1.3664509
##   [30,]   0.1473755 -1.1535953  0.6468366  1.2507450 -0.84394800  0.6256482
##   [31,]  -0.5614304  1.3502685 -0.6366702 -0.4048938  0.67817250  0.6256482
##   [32,]  -1.2702363 -1.9882166  0.6468366  1.2507450 -0.84394800 -0.8559571
##   [33,]   1.5649873  1.3502685  0.6468366  1.2507450 -0.84394800 -0.1151545
##   [34,]   0.1473755  0.5156472 -0.6366702 -0.4048938 -1.60500825 -0.1151545
##   [35,]  -0.5614304 -0.3189741  0.6468366  0.4229256  0.67817250 -0.8559571
##   [36,]  -1.2702363 -1.1535953  0.6468366  1.2507450 -0.08288775  0.6256482
##   [37,]   0.1473755  1.3502685 -0.6366702  0.4229256  0.67817250  0.6256482
```

```
##       [38,]   0.1473755 -1.1535953   0.6468366 -1.2327132 -0.08288775   0.6256482
##       [39,]  -1.2702363  0.5156472   0.6468366  1.2507450 -0.08288775  -0.1151545
##       [40,]   1.5649873  1.3502685   0.6468366  1.2507450 -0.08288775   0.6256482
##       [41,]  -1.2702363  1.3502685   0.6468366 -0.4048938 -0.84394800  -1.5967598
##       [42,]  -1.2702363  1.3502685   0.6468366 -2.0605326  1.43923275   1.3664509
##       [43,]   0.8561814  0.5156472   0.6468366  1.2507450  1.43923275  -0.1151545
##       [44,]  -1.2702363 -1.9882166   0.6468366  0.4229256 -0.08288775  -0.8559571
##       [45,]   0.1473755  0.5156472   0.6468366  0.4229256 -0.08288775  -1.5967598
##       [46,]   1.5649873  0.5156472   0.6468366 -1.2327132  0.67817250  -1.5967598
##       [47,]   1.5649873  1.3502685   0.6468366 -0.4048938  1.43923275  -1.5967598
##       [48,]   0.1473755 -0.3189741  -0.6366702 -1.2327132 -0.84394800  -0.1151545
##       [49,]  -0.5614304 -1.1535953  -1.9201769 -1.2327132 -0.84394800  -1.5967598
##       [50,]   0.1473755  0.5156472   0.6468366 -0.4048938 -0.08288775  -0.1151545
##       [51,]  -1.2702363  1.3502685   0.6468366  0.4229256 -0.84394800   0.6256482
##       [52,]  -0.5614304  0.5156472   0.6468366  1.2507450  0.67817250  -0.1151545
##       [53,]   1.5649873  1.3502685   0.6468366  1.2507450  1.43923275   1.3664509
##       [54,]   0.1473755 -0.3189741   0.6468366  1.2507450 -1.60500825   1.3664509
##       [55,]   1.5649873  1.3502685   0.6468366  1.2507450  1.43923275  -0.1151545
##       [56,]  -0.5614304  0.5156472  -1.9201769 -0.4048938 -0.84394800  -0.1151545
##       [57,]   0.8561814 -1.1535953   0.6468366  1.2507450 -0.08288775  -0.8559571
##       [58,]   0.8561814  0.5156472   0.6468366 -0.4048938  1.43923275  -0.1151545
##       [59,]  -0.5614304  0.5156472   0.6468366 -2.0605326 -0.08288775  -0.8559571
##       [60,]   1.5649873 -0.3189741  -1.9201769 -0.4048938  0.67817250  -0.1151545
##       [61,]  -1.2702363  0.5156472  -0.6366702  0.4229256  0.67817250   1.3664509
##       [62,]   0.1473755  0.5156472   0.6468366  1.2507450  1.43923275  -0.1151545
##       [63,]   0.8561814  1.3502685   0.6468366 -2.0605326  1.43923275   1.3664509
##       [64,]   0.8561814  1.3502685  -1.9201769 -1.2327132  0.67817250   1.3664509
##       [65,]  -0.5614304 -1.9882166   0.6468366  1.2507450 -1.60500825  -0.1151545
##       [66,]   1.5649873  1.3502685   0.6468366 -0.4048938  1.43923275   1.3664509
##       [67,]   0.1473755  0.5156472   0.6468366 -0.4048938  1.43923275   1.3664509
##       [68,]   0.1473755 -0.3189741   0.6468366  1.2507450 -1.60500825  -0.8559571
##       [69,]  -1.2702363 -1.1535953   0.6468366  0.4229256  0.67817250  -0.8559571
##       [70,]  -1.2702363 -1.9882166   0.6468366  1.2507450 -1.60500825  -1.5967598
##       [71,]  -1.2702363 -0.3189741   0.6468366 -0.4048938 -0.08288775  -0.1151545
##       [72,]  -0.5614304 -0.3189741   0.6468366 -0.4048938 -1.60500825  -0.1151545
##       [73,]   0.8561814  1.3502685   0.6468366  1.2507450 -0.08288775  -0.1151545
##       [74,]   0.8561814  0.5156472   0.6468366  0.4229256 -0.08288775   1.3664509
##       [75,]  -1.2702363 -1.9882166   0.6468366 -2.0605326  0.67817250   1.3664509
##       [76,]  -0.5614304 -0.3189741   0.6468366 -1.2327132 -1.60500825   0.6256482
##       [77,]  -0.5614304 -1.1535953   0.6468366 -0.4048938 -0.08288775  -0.1151545
##       [78,]  -1.2702363 -1.1535953   0.6468366 -0.4048938 -1.60500825  -1.5967598
##       [79,]   0.1473755 -0.3189741   0.6468366  0.4229256 -0.84394800  -0.1151545
##       [80,]   0.8561814  0.5156472   0.6468366  0.4229256  1.43923275   1.3664509
##       [81,]   1.5649873  0.5156472   0.6468366  0.4229256 -0.08288775   0.6256482
##       [82,]   0.8561814 -0.3189741   0.6468366 -0.4048938  1.43923275  -0.1151545
##       [83,]  -1.2702363 -1.1535953  -1.9201769 -1.2327132  0.67817250  -0.1151545
##       [84,]   0.1473755  1.3502685   0.6468366  1.2507450 -1.60500825  -1.5967598
##       [85,]   1.5649873  1.3502685  -0.6366702 -2.0605326  1.43923275   1.3664509
##       [86,]   0.1473755 -0.3189741   0.6468366  0.4229256 -0.08288775   1.3664509
##       [87,]  -0.5614304  0.5156472  -0.6366702 -2.0605326  0.67817250   0.6256482
```

```
##  [88,] -1.2702363  1.3502685  0.6468366  0.4229256 -1.60500825  1.3664509
##  [89,]  1.5649873  1.3502685  0.6468366 -1.2327132 -0.84394800 -1.5967598
##  [90,] -1.2702363  0.5156472 -0.6366702 -0.4048938 -0.84394800 -0.1151545
##  [91,] -0.5614304 -1.1535953  0.6468366  0.4229256 -0.84394800 -0.8559571
##  [92,]  0.8561814  0.5156472  0.6468366  1.2507450 -0.08288775 -1.5967598
##  [93,] -1.2702363 -0.3189741 -1.9201769  0.4229256 -0.08288775 -0.8559571
##  [94,]  0.8561814 -0.3189741 -1.9201769 -2.0605326  0.67817250 -0.1151545
##  [95,]  1.5649873  1.3502685  0.6468366 -2.0605326  0.67817250 -0.8559571
##  [96,]  0.1473755 -0.3189741  0.6468366 -0.4048938  1.43923275  1.3664509
##  [97,] -1.2702363 -1.9882166  0.6468366 -2.0605326  1.43923275  1.3664509
##  [98,] -0.5614304 -0.3189741  0.6468366 -0.4048938  1.43923275  1.3664509
##  [99,]  0.1473755 -0.3189741 -3.2036837 -1.2327132  1.43923275  1.3664509
## [100,] -0.5614304 -1.9882166  0.6468366  0.4229256 -0.84394800 -1.5967598
## [101,] -0.5614304 -1.1535953  0.6468366  1.2507450 -0.08288775 -0.8559571
## [102,] -1.2702363  0.5156472  0.6468366 -0.4048938  0.67817250  1.3664509
## [103,]  0.8561814  1.3502685  0.6468366  0.4229256  1.43923275  0.6256482
## [104,] -1.2702363  1.3502685  0.6468366  1.2507450  0.67817250  0.6256482
## [105,]  0.8561814  0.5156472 -0.6366702 -1.2327132 -0.08288775  1.3664509
## [106,] -1.2702363 -1.1535953 -0.6366702 -0.4048938 -1.60500825  0.6256482
## [107,] -0.5614304 -0.3189741  0.6468366  1.2507450  1.43923275  1.3664509
## [108,] -1.2702363 -1.9882166 -0.6366702 -1.2327132 -0.84394800 -0.1151545
## [109,]  0.1473755  1.3502685  0.6468366  0.4229256 -0.08288775 -0.8559571
## [110,] -1.2702363  0.5156472 -0.6366702 -1.2327132  1.43923275  1.3664509
## [111,] -1.2702363 -1.1535953  0.6468366 -0.4048938  0.67817250  1.3664509
## [112,] -1.2702363 -1.1535953 -0.6366702  0.4229256 -0.84394800 -0.8559571
## [113,] -1.2702363 -0.3189741 -0.6366702  0.4229256 -0.08288775 -1.5967598
## [114,]  0.1473755 -0.3189741  0.6468366  1.2507450 -1.60500825 -1.5967598
## [115,] -1.2702363  0.5156472 -0.6366702 -0.4048938 -0.84394800 -0.8559571
## [116,]  1.5649873  1.3502685  0.6468366 -0.4048938 -0.08288775 -1.5967598
## [117,] -1.2702363 -1.1535953  0.6468366  1.2507450 -0.08288775 -0.1151545
## [118,] -1.2702363 -1.1535953 -0.6366702  1.2507450 -0.84394800 -0.8559571
## [119,]  0.1473755 -1.1535953 -1.9201769 -1.2327132 -0.84394800 -0.1151545
## [120,] -0.5614304 -0.3189741 -0.6366702 -0.4048938 -1.60500825 -0.8559571
## [121,] -1.2702363 -0.3189741  0.6468366  0.4229256 -0.84394800  1.3664509
## [122,]  0.8561814  0.5156472 -0.6366702 -0.4048938 -0.08288775  0.6256482
## [123,]  0.8561814  0.5156472 -1.9201769 -1.2327132 -0.84394800 -0.8559571
## [124,] -1.2702363  0.5156472 -0.6366702 -1.2327132 -1.60500825 -1.5967598
## [125,]  1.5649873  1.3502685  0.6468366  0.4229256  1.43923275  1.3664509
## [126,] -0.5614304 -0.3189741  0.6468366  0.4229256  0.67817250 -0.1151545
## [127,] -1.2702363 -1.1535953 -0.6366702  0.4229256 -1.60500825 -1.5967598
## [128,] -0.5614304  0.5156472 -0.6366702 -0.4048938  0.67817250  0.6256482
## [129,] -1.2702363  0.5156472 -1.9201769  1.2507450  1.43923275  1.3664509
## [130,] -1.2702363 -1.9882166 -0.6366702  1.2507450 -0.84394800 -0.8559571
## [131,]  0.8561814  1.3502685 -0.6366702 -1.2327132 -0.08288775  0.6256482
## [132,]  0.1473755  1.3502685 -3.2036837 -2.0605326  0.67817250 -0.1151545
## [133,]  0.8561814  0.5156472  0.6468366  1.2507450  1.43923275  0.6256482
## [134,] -1.2702363 -1.9882166 -3.2036837 -1.2327132 -1.60500825  0.6256482
## [135,]  1.5649873 -0.3189741  0.6468366  1.2507450  1.43923275 -0.1151545
## [136,]  0.1473755  1.3502685  0.6468366 -1.2327132  0.67817250  1.3664509
## [137,]  0.8561814  0.5156472  0.6468366  0.4229256 -0.08288775  1.3664509
```

```
## [138,] -1.2702363 -0.3189741 -0.6366702 -0.4048938 -1.60500825 -0.8559571
## [139,] -1.2702363 -1.1535953  0.6468366  1.2507450 -1.60500825 -0.1151545
## [140,]  0.1473755 -0.3189741  0.6468366  1.2507450 -0.84394800 -1.5967598
## [141,] -1.2702363 -1.1535953  0.6468366  1.2507450  1.43923275  1.3664509
## [142,]  0.1473755 -1.9882166  0.6468366  1.2507450 -1.60500825 -1.5967598
## [143,] -1.2702363 -1.1535953 -0.6366702  0.4229256  0.67817250 -1.5967598
## [144,]  0.8561814 -1.1535953 -0.6366702 -0.4048938 -0.08288775 -1.5967598
## [145,]  1.5649873 -1.1535953  0.6468366 -0.4048938  1.43923275  1.3664509
## [146,] -0.5614304  0.5156472 -0.6366702  0.4229256 -1.60500825 -0.8559571
## [147,]  0.1473755  1.3502685  0.6468366  0.4229256 -0.08288775  0.6256482
## [148,] -0.5614304 -0.3189741 -1.9201769 -0.4048938  0.67817250 -0.1151545
## [149,]  0.8561814  0.5156472  0.6468366  1.2507450  0.67817250 -0.1151545
## [150,] -0.5614304 -1.1535953 -0.6366702 -1.2327132  1.43923275  1.3664509
## [151,] -0.5614304  0.5156472 -0.6366702 -0.4048938  0.67817250 -0.8559571
## [152,]  0.8561814  0.5156472  0.6468366 -1.2327132 -0.84394800 -0.8559571
## [153,]  1.5649873 -0.3189741  0.6468366 -0.4048938 -0.84394800  1.3664509
## [154,] -0.5614304  0.5156472  0.6468366  0.4229256 -0.08288775 -0.1151545
## [155,]  0.8561814  0.5156472  0.6468366 -0.4048938 -0.84394800  1.3664509
## [156,]  1.5649873  0.5156472 -1.9201769 -0.4048938  0.67817250 -0.8559571
## [157,]  0.8561814  0.5156472 -0.6366702  0.4229256 -0.08288775 -0.1151545
## [158,]  1.5649873  1.3502685 -1.9201769 -1.2327132  0.67817250  1.3664509
## [159,]  0.8561814  0.5156472  0.6468366  1.2507450  0.67817250 -1.5967598
## [160,] -0.5614304  0.5156472 -0.6366702 -0.4048938  0.67817250  0.6256482
## [161,]  1.5649873  0.5156472  0.6468366 -0.4048938  1.43923275  1.3664509
## [162,] -0.5614304  1.3502685  0.6468366 -0.4048938  1.43923275 -0.8559571
## [163,] -0.5614304 -1.1535953  0.6468366  1.2507450 -0.08288775  1.3664509
## [164,]  1.5649873  1.3502685 -1.9201769 -0.4048938  1.43923275 -0.1151545
## [165,] -0.5614304  1.3502685 -1.9201769 -0.4048938 -0.84394800 -1.5967598
## [166,] -1.2702363 -1.9882166  0.6468366  1.2507450 -0.84394800  1.3664509
## [167,]  0.8561814  0.5156472  0.6468366 -0.4048938 -0.08288775 -0.8559571
## [168,] -1.2702363 -1.1535953  0.6468366 -1.2327132 -0.08288775 -1.5967598
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##  [402,]  -0.5614304  -1.9882166   0.6468366  -1.2327132 -1.60500825 -0.1151545
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## [534,]   0.1473755 -0.3189741 -0.6366702 -0.4048938 -0.08288775 -0.1151545
## [535,]  -1.2702363  0.5156472  0.6468366  1.2507450  1.43923275 -1.5967598
## [536,]   0.8561814  0.5156472  0.6468366  1.2507450  1.43923275  1.3664509
## [537,]   1.5649873  1.3502685  0.6468366 -0.4048938 -1.60500825 -0.1151545
```

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## [538,] -0.5614304  0.5156472 -1.9201769  0.4229256 -1.60500825  0.6256482
## [539,]  0.1473755  0.5156472  0.6468366  0.4229256  0.67817250 -0.1151545
## [540,] -0.5614304  1.3502685 -3.2036837 -2.0605326  1.43923275  1.3664509
## [541,]  0.1473755  1.3502685 -0.6366702  0.4229256  1.43923275  1.3664509
## [542,]  0.1473755 -0.3189741  0.6468366  1.2507450 -0.08288775 -0.8559571
## [543,]  0.1473755 -0.3189741 -0.6366702  0.4229256  0.67817250  0.6256482
## [544,] -1.2702363 -1.9882166  0.6468366 -0.4048938 -0.08288775 -0.1151545
## [545,] -1.2702363  0.5156472 -4.4871904 -1.2327132  0.67817250  0.6256482
## [546,]  1.5649873  1.3502685  0.6468366 -0.4048938  1.43923275  1.3664509
## [547,]  1.5649873  1.3502685  0.6468366 -0.4048938  1.43923275  1.3664509
## [548,]  0.1473755  1.3502685  0.6468366 -1.2327132 -0.84394800  0.6256482
## [549,] -1.2702363 -1.9882166 -0.6366702  0.4229256 -0.84394800 -0.1151545
## [550,] -0.5614304 -1.1535953  0.6468366 -1.2327132 -1.60500825 -0.1151545
## [551,] -1.2702363 -0.3189741 -0.6366702 -0.4048938  1.43923275 -0.1151545
## [552,] -1.2702363 -1.1535953  0.6468366  0.4229256 -0.08288775  0.6256482
## [553,] -0.5614304  0.5156472  0.6468366  1.2507450 -1.60500825  1.3664509
## [554,] -0.5614304 -1.1535953  0.6468366  1.2507450 -0.08288775 -0.8559571
## [555,] -1.2702363 -1.1535953 -0.6366702  0.4229256 -0.84394800 -0.1151545
## [556,] -0.5614304  0.5156472  0.6468366  1.2507450 -1.60500825 -0.8559571
## [557,]  0.1473755 -1.1535953 -0.6366702  0.4229256 -0.84394800 -0.8559571
## [558,]  0.1473755  0.5156472  0.6468366  1.2507450  1.43923275 -0.8559571
## [559,] -1.2702363 -1.1535953  0.6468366  0.4229256 -0.84394800 -0.8559571
## [560,]  0.8561814  1.3502685  0.6468366  1.2507450 -0.84394800 -1.5967598
## [561,] -1.2702363 -1.1535953  0.6468366  1.2507450  0.67817250 -0.1151545
## [562,]  0.1473755  0.5156472  0.6468366 -1.2327132  1.43923275  1.3664509
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## [566,]  0.1473755  1.3502685  0.6468366  1.2507450  1.43923275 -0.1151545
## [567,] -1.2702363 -1.1535953  0.6468366  1.2507450 -0.84394800  0.6256482
## [568,]  0.8561814 -0.3189741  0.6468366 -0.4048938 -0.84394800 -0.1151545
## [569,] -0.5614304 -0.3189741  0.6468366  1.2507450 -1.60500825 -1.5967598
## [570,] -0.5614304 -1.1535953  0.6468366  1.2507450  0.67817250 -0.1151545
## [571,]  0.8561814 -1.1535953  0.6468366 -0.4048938 -1.60500825  1.3664509
## [572,]  1.5649873 -1.1535953 -1.9201769  0.4229256  1.43923275 -0.8559571
## [573,] -1.2702363 -0.3189741  0.6468366  0.4229256 -1.60500825 -1.5967598
## [574,] -1.2702363 -0.3189741  0.6468366 -0.4048938 -0.08288775  0.6256482
## [575,] -1.2702363 -0.3189741  0.6468366  1.2507450 -1.60500825 -1.5967598
## [576,] -0.5614304 -1.1535953  0.6468366 -0.4048938 -0.08288775 -0.1151545
## [577,]  0.1473755  1.3502685  0.6468366  1.2507450  1.43923275  1.3664509
## [578,]  0.8561814  0.5156472 -0.6366702  1.2507450  0.67817250 -0.8559571
## [579,]  0.1473755 -0.3189741  0.6468366  1.2507450  1.43923275 -0.8559571
## [580,]  0.1473755  1.3502685  0.6468366 -0.4048938  1.43923275 -0.8559571
## [581,] -0.5614304 -0.3189741  0.6468366 -2.0605326  1.43923275 -0.1151545
## [582,] -0.5614304  0.5156472  0.6468366 -1.2327132 -1.60500825 -1.5967598
## [583,]  0.8561814 -0.3189741 -1.9201769 -1.2327132  0.67817250  0.6256482
## [584,]  0.8561814  1.3502685  0.6468366 -0.4048938  1.43923275 -0.8559571
## [585,] -1.2702363  0.5156472  0.6468366  1.2507450 -0.08288775 -0.1151545
## [586,] -1.2702363  0.5156472  0.6468366  1.2507450  0.67817250  1.3664509
## [587,] -1.2702363  1.3502685 -3.2036837 -0.4048938  1.43923275  0.6256482
```

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##   [588,]   1.5649873 -0.3189741 -1.9201769 -0.4048938  0.67817250  1.3664509
##   [589,]   0.1473755 -0.3189741  0.6468366  1.2507450 -0.84394800 -0.8559571
##   [590,]   0.1473755  0.5156472  0.6468366  0.4229256 -0.08288775  1.3664509
##   [591,]   0.8561814  0.5156472 -0.6366702 -1.2327132  1.43923275  0.6256482
##   [592,]  -1.2702363 -1.9882166  0.6468366 -1.2327132  0.67817250 -0.8559571
##   [593,]  -1.2702363  0.5156472  0.6468366  1.2507450 -0.08288775 -0.1151545
##   [594,]   0.8561814  0.5156472  0.6468366 -0.4048938 -1.60500825 -0.1151545
##   [595,]  -0.5614304 -0.3189741 -3.2036837 -0.4048938 -0.08288775 -0.1151545
##   [596,]   1.5649873 -0.3189741  0.6468366 -2.0605326  0.67817250  1.3664509
##   [597,]   0.8561814  0.5156472 -0.6366702  0.4229256  0.67817250 -0.1151545
##   [598,]   0.8561814  0.5156472  0.6468366 -0.4048938 -0.08288775 -0.1151545
##   [599,]   0.1473755  0.5156472  0.6468366  0.4229256 -0.08288775 -1.5967598
##   [600,]   0.8561814  1.3502685  0.6468366 -0.4048938  0.67817250  1.3664509
##   [601,]  -1.2702363 -1.9882166 -0.6366702  0.4229256 -1.60500825  0.6256482
##   [602,]  -1.2702363 -1.1535953 -1.9201769  0.4229256 -1.60500825 -0.8559571
##   [603,]   1.5649873  0.5156472  0.6468366 -0.4048938  1.43923275  0.6256482
##   [604,]  -0.5614304 -1.1535953  0.6468366  0.4229256 -0.84394800 -0.8559571
##   [605,]   1.5649873  1.3502685  0.6468366  1.2507450  0.67817250 -1.5967598
##   [606,]  -1.2702363  0.5156472  0.6468366 -0.4048938 -0.08288775 -1.5967598
##   [607,]   0.1473755  0.5156472  0.6468366 -1.2327132  0.67817250 -0.1151545
##   [608,]  -1.2702363  1.3502685  0.6468366 -0.4048938 -1.60500825 -0.8559571
##   [609,]   1.5649873  1.3502685  0.6468366  1.2507450  1.43923275  1.3664509
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##   [612,]   0.8561814  0.5156472  0.6468366  0.4229256  0.67817250 -0.1151545
##   [613,]   0.8561814  0.5156472 -0.6366702  0.4229256 -0.08288775  1.3664509
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##   [615,]  -1.2702363 -0.3189741  0.6468366  1.2507450  0.67817250 -1.5967598
##   [616,]  -0.5614304 -0.3189741 -1.9201769 -0.4048938  1.43923275 -0.8559571
##   [617,]   1.5649873  1.3502685  0.6468366 -2.0605326  0.67817250  1.3664509
##   [618,]  -0.5614304 -1.1535953 -0.6366702  0.4229256 -0.84394800  0.6256482
##   [619,]   1.5649873  1.3502685  0.6468366 -0.4048938  1.43923275 -1.5967598
##   [620,]  -0.5614304  0.5156472 -0.6366702 -1.2327132 -0.84394800  1.3664509
##   [621,]  -0.5614304 -1.1535953 -0.6366702 -2.0605326 -0.84394800  0.6256482
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##   [623,]  -1.2702363 -1.1535953  0.6468366  1.2507450  1.43923275  0.6256482
##   [624,]   0.8561814 -0.3189741  0.6468366 -2.0605326 -0.08288775  0.6256482
##   [625,]   0.8561814 -0.3189741  0.6468366  1.2507450 -0.08288775 -1.5967598
##   [626,]  -0.5614304 -0.3189741  0.6468366  1.2507450 -0.08288775 -1.5967598
##   [627,]   0.8561814  0.5156472 -0.6366702  0.4229256 -0.84394800  1.3664509
##   [628,]   0.1473755 -1.1535953  0.6468366  1.2507450 -0.84394800 -1.5967598
##   [629,]   0.1473755  0.5156472 -0.6366702 -1.2327132  1.43923275  0.6256482
##   [630,]   0.8561814  0.5156472  0.6468366  0.4229256 -1.60500825 -0.1151545
##   [631,]   0.1473755 -1.9882166  0.6468366  1.2507450 -1.60500825 -1.5967598
##   [632,]  -1.2702363  0.5156472  0.6468366  1.2507450 -1.60500825 -0.1151545
##   [633,]  -0.5614304 -0.3189741 -0.6366702 -1.2327132 -0.84394800  0.6256482
##   [634,]  -1.2702363 -1.9882166  0.6468366 -0.4048938 -0.08288775 -0.8559571
##   [635,]  -1.2702363 -1.1535953 -0.6366702  1.2507450 -0.84394800 -0.1151545
##   [636,]  -1.2702363  0.5156472 -1.9201769 -0.4048938 -0.84394800 -1.5967598
##   [637,]   0.8561814  0.5156472 -4.4871904  1.2507450 -1.60500825  0.6256482
```

```
## [638,]   0.1473755   0.5156472  -0.6366702  -0.4048938   0.67817250   1.3664509
## [639,]   1.5649873   0.5156472   0.6468366   0.4229256  -0.84394800  -0.8559571
## [640,]   0.1473755  -0.3189741   0.6468366  -0.4048938  -0.08288775   1.3664509
## [641,]  -1.2702363  -0.3189741   0.6468366   1.2507450   1.43923275  -0.8559571
## [642,]   0.1473755  -0.3189741   0.6468366  -0.4048938   1.43923275   1.3664509
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## [644,]  -1.2702363  -1.1535953   0.6468366   1.2507450   0.67817250  -0.8559571
## [645,]  -0.5614304  -1.1535953   0.6468366   1.2507450  -0.84394800   1.3664509
## [646,]  -1.2702363   0.5156472   0.6468366  -2.0605326   0.67817250   1.3664509
## [647,]   0.8561814   0.5156472   0.6468366  -0.4048938   0.67817250   0.6256482
## [648,]  -1.2702363  -0.3189741   0.6468366   1.2507450  -0.08288775   0.6256482
## [649,]   0.1473755  -0.3189741   0.6468366   1.2507450   0.67817250   0.6256482
## [650,]   0.8561814  -0.3189741   0.6468366   0.4229256  -0.08288775  -0.8559571
## [651,]   1.5649873   1.3502685   0.6468366  -1.2327132   1.43923275   0.6256482
## [652,]   0.1473755   0.5156472   0.6468366  -0.4048938  -0.08288775   0.6256482
## [653,]  -1.2702363  -1.1535953   0.6468366  -1.2327132   0.67817250   1.3664509
## [654,]   0.8561814   0.5156472   0.6468366  -1.2327132  -0.08288775  -0.1151545
## [655,]   0.1473755   0.5156472  -0.6366702   0.4229256  -0.84394800   0.6256482
## [656,]  -1.2702363  -1.1535953  -0.6366702   0.4229256  -0.84394800  -0.1151545
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## [658,]  -1.2702363  -1.1535953   0.6468366   1.2507450  -0.84394800  -1.5967598
## [659,]  -0.5614304  -1.1535953   0.6468366  -1.2327132   0.67817250  -1.5967598
## [660,]  -1.2702363  -1.1535953   0.6468366   0.4229256   1.43923275   1.3664509
## [661,]   0.8561814  -1.1535953   0.6468366   1.2507450  -0.84394800  -1.5967598
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## [664,]   0.8561814   0.5156472  -0.6366702  -0.4048938   1.43923275  -0.1151545
## [665,]  -1.2702363  -1.1535953   0.6468366   1.2507450  -1.60500825  -0.1151545
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## [668,]  -0.5614304  -1.1535953   0.6468366  -1.2327132  -0.84394800  -0.8559571
## [669,]   0.8561814   0.5156472  -3.2036837  -1.2327132   1.43923275  -0.1151545
## [670,]   0.8561814   0.5156472  -0.6366702  -0.4048938   0.67817250   1.3664509
## [671,]   0.1473755   0.5156472  -1.9201769  -1.2327132  -0.84394800   0.6256482
## [672,]  -0.5614304  -1.1535953   0.6468366   1.2507450   0.67817250  -0.1151545
## [673,]   1.5649873   1.3502685  -0.6366702   0.4229256  -0.84394800   0.6256482
## [674,]   0.1473755  -0.3189741  -0.6366702   0.4229256  -1.60500825  -0.8559571
## [675,]  -1.2702363   0.5156472  -0.6366702  -0.4048938  -1.60500825   1.3664509
## [676,]  -0.5614304  -0.3189741   0.6468366   1.2507450  -0.84394800   1.3664509
## [677,]  -1.2702363  -1.1535953  -3.2036837  -0.4048938  -1.60500825  -0.8559571
## [678,]   1.5649873   1.3502685   0.6468366   1.2507450  -0.08288775   1.3664509
## [679,]   0.8561814  -1.1535953   0.6468366   0.4229256  -0.08288775  -1.5967598
## [680,]   1.5649873  -0.3189741   0.6468366   1.2507450  -0.08288775  -0.1151545
## [681,]   1.5649873   0.5156472   0.6468366   0.4229256  -0.08288775  -0.8559571
## [682,]  -1.2702363   0.5156472  -0.6366702   0.4229256  -0.08288775  -0.1151545
## [683,]  -0.5614304   0.5156472  -0.6366702  -1.2327132   0.67817250   1.3664509
## [684,]  -1.2702363  -1.9882166   0.6468366   1.2507450   1.43923275   0.6256482
## [685,]  -0.5614304   0.5156472   0.6468366   0.4229256  -0.84394800  -1.5967598
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## [687,]   0.1473755  -0.3189741  -1.9201769  -0.4048938  -0.08288775   1.3664509
```

```
## [688,] -0.5614304 -0.3189741  0.6468366  0.4229256 -0.84394800 -0.1151545
## [689,]  0.1473755  1.3502685  0.6468366  1.2507450 -1.60500825 -0.1151545
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## [694,]  1.5649873  1.3502685  0.6468366 -1.2327132 -0.84394800 -1.5967598
## [695,]  0.8561814  1.3502685  0.6468366 -0.4048938  0.67817250  1.3664509
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## [697,] -1.2702363 -0.3189741  0.6468366  1.2507450 -0.08288775 -1.5967598
## [698,] -0.5614304  0.5156472  0.6468366  0.4229256 -0.84394800  1.3664509
## [699,] -1.2702363 -1.9882166  0.6468366  1.2507450 -1.60500825 -0.8559571
## [700,] -0.5614304 -1.9882166  0.6468366 -0.4048938 -1.60500825 -0.8559571
## [701,]  0.1473755 -0.3189741 -3.2036837  1.2507450 -1.60500825  0.6256482
## [702,] -1.2702363  1.3502685 -1.9201769  0.4229256  1.43923275  1.3664509
## [703,]  0.1473755  1.3502685  0.6468366 -1.2327132  1.43923275  1.3664509
## [704,]  1.5649873  1.3502685 -0.6366702 -1.2327132 -0.08288775  1.3664509
## [705,] -1.2702363 -0.3189741  0.6468366  1.2507450 -0.84394800 -0.8559571
## [706,]  0.1473755 -0.3189741  0.6468366  0.4229256  0.67817250  0.6256482
## [707,]  0.8561814  0.5156472  0.6468366 -1.2327132 -0.08288775  1.3664509
## [708,]  0.1473755  0.5156472 -0.6366702 -0.4048938 -0.84394800  1.3664509
## [709,]  0.8561814  0.5156472  0.6468366 -0.4048938  0.67817250 -0.8559571
## [710,]  0.1473755  0.5156472  0.6468366  0.4229256 -0.84394800 -0.8559571
## [711,]  1.5649873  1.3502685  0.6468366  0.4229256  0.67817250  0.6256482
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## [898,]   -0.5614304 -0.3189741 -3.2036837 -0.4048938 -0.84394800  0.6256482
## [899,]   -1.2702363  1.3502685 -1.9201769 -0.4048938 -0.08288775 -0.1151545
## [900,]   -0.5614304 -0.3189741 -1.9201769 -0.4048938 -0.08288775 -0.1151545
## [901,]   -0.5614304  0.5156472  0.6468366  1.2507450  0.67817250  0.6256482
## [902,]   -0.5614304  0.5156472  0.6468366  1.2507450  0.67817250  1.3664509
## [903,]    0.1473755 -1.1535953 -0.6366702 -1.2327132 -0.08288775  1.3664509
## [904,]   -0.5614304 -1.1535953  0.6468366 -2.0605326  1.43923275  1.3664509
## [905,]   -0.5614304 -0.3189741 -0.6366702  1.2507450 -0.08288775 -0.8559571
## [906,]    0.1473755  0.5156472  0.6468366  0.4229256  1.43923275  1.3664509
## [907,]    1.5649873 -0.3189741 -1.9201769 -2.0605326  0.67817250  1.3664509
## [908,]   -0.5614304 -1.1535953  0.6468366  1.2507450 -0.84394800 -0.8559571
## [909,]    0.1473755  0.5156472 -1.9201769  0.4229256 -0.08288775 -0.8559571
## [910,]    0.8561814 -1.1535953 -3.2036837 -1.2327132  0.67817250  0.6256482
## [911,]   -1.2702363  0.5156472  0.6468366  1.2507450 -0.84394800  0.6256482
## [912,]   -1.2702363 -1.9882166 -0.6366702  0.4229256 -1.60500825  0.6256482
## [913,]   -0.5614304 -0.3189741 -0.6366702 -0.4048938 -0.84394800  0.6256482
## [914,]   -0.5614304 -0.3189741 -3.2036837 -1.2327132 -0.84394800 -0.8559571
## [915,]   -1.2702363  0.5156472 -1.9201769 -1.2327132  0.67817250  0.6256482
## [916,]    0.8561814  0.5156472  0.6468366  0.4229256  0.67817250 -0.1151545
## [917,]   -1.2702363  0.5156472 -0.6366702 -1.2327132 -0.84394800 -0.1151545
## [918,]    0.1473755  0.5156472 -0.6366702 -0.4048938 -0.08288775  0.6256482
## [919,]    0.1473755 -0.3189741 -0.6366702 -1.2327132 -1.60500825  0.6256482
## [920,]    1.5649873 -0.3189741 -0.6366702  1.2507450 -0.08288775 -0.1151545
## [921,]    1.5649873 -0.3189741 -0.6366702 -1.2327132 -0.84394800 -0.1151545
## [922,]    0.1473755 -1.1535953 -1.9201769 -0.4048938 -0.08288775 -0.8559571
## [923,]    0.1473755  0.5156472  0.6468366  1.2507450 -1.60500825 -0.8559571
## [924,]    0.8561814  0.5156472  0.6468366 -0.4048938 -0.84394800 -0.1151545
## [925,]    0.1473755  1.3502685  0.6468366 -1.2327132 -1.60500825  1.3664509
## [926,]    0.8561814  0.5156472  0.6468366  1.2507450 -0.84394800 -0.8559571
## [927,]    0.8561814  0.5156472 -0.6366702 -1.2327132 -0.84394800 -0.8559571
## [928,]   -0.5614304 -0.3189741  0.6468366  1.2507450  0.67817250  0.6256482
## [929,]    1.5649873  0.5156472  0.6468366  1.2507450 -0.08288775 -0.8559571
## [930,]   -0.5614304  0.5156472 -4.4871904  0.4229256  0.67817250  0.6256482
## [931,]    0.1473755 -1.1535953  0.6468366  1.2507450 -0.84394800 -0.1151545
## [932,]    0.8561814  0.5156472 -1.9201769  0.4229256  0.67817250  1.3664509
## [933,]   -1.2702363 -1.9882166  0.6468366  0.4229256 -0.08288775 -1.5967598
## [934,]    0.1473755  0.5156472 -0.6366702  0.4229256  0.67817250  0.6256482
## [935,]    1.5649873  1.3502685 -1.9201769 -1.2327132 -0.08288775 -0.8559571
## [936,]   -1.2702363 -1.9882166  0.6468366  1.2507450 -0.84394800 -0.8559571
## [937,]   -0.5614304 -0.3189741 -0.6366702  0.4229256 -0.08288775 -0.1151545
```

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##   [938,] -1.2702363 -0.3189741  0.6468366  1.2507450  0.67817250 -0.8559571
##   [939,] -1.2702363  1.3502685 -0.6366702 -1.2327132  1.43923275 -1.5967598
##   [940,]  0.8561814 -1.1535953  0.6468366  1.2507450  0.67817250 -1.5967598
##   [941,]  0.8561814 -1.1535953  0.6468366 -0.4048938  1.43923275  1.3664509
##   [942,] -1.2702363 -1.1535953 -1.9201769  0.4229256 -0.84394800 -0.1151545
##   [943,]  1.5649873  0.5156472  0.6468366 -0.4048938 -0.08288775  0.6256482
##   [944,]  1.5649873  0.5156472  0.6468366  0.4229256 -0.84394800 -0.1151545
##   [945,]  0.8561814  0.5156472  0.6468366  0.4229256  1.43923275  0.6256482
##   [946,]  0.8561814  0.5156472 -0.6366702 -1.2327132  1.43923275  1.3664509
##   [947,] -1.2702363  0.5156472 -0.6366702 -0.4048938  1.43923275  1.3664509
##   [948,] -0.5614304 -1.1535953 -1.9201769  0.4229256 -0.08288775 -0.1151545
##   [949,]  0.8561814 -0.3189741  0.6468366  1.2507450  0.67817250 -0.8559571
##   [950,]  1.5649873  0.5156472  0.6468366 -0.4048938  0.67817250 -0.8559571
##   [951,] -0.5614304 -0.3189741  0.6468366 -0.4048938  1.43923275 -0.1151545
##   [952,]  1.5649873  1.3502685 -0.6366702 -1.2327132  1.43923275 -0.1151545
##   [953,] -0.5614304 -0.3189741  0.6468366  0.4229256  1.43923275  0.6256482
##   [954,] -1.2702363  0.5156472 -0.6366702  0.4229256  0.67817250 -0.1151545
##   [955,] -0.5614304  0.5156472 -0.6366702  1.2507450 -0.84394800 -0.1151545
##   [956,] -1.2702363  0.5156472  0.6468366 -2.0605326 -0.08288775 -1.5967598
##   [957,] -0.5614304 -1.1535953 -1.9201769 -0.4048938  0.67817250  0.6256482
##   [958,]  0.8561814  0.5156472  0.6468366  0.4229256  0.67817250  0.6256482
##   [959,]  1.5649873  1.3502685  0.6468366  0.4229256 -0.08288775 -0.8559571
##   [960,]  1.5649873  0.5156472 -0.6366702 -0.4048938 -0.84394800  1.3664509
##   [961,] -0.5614304  0.5156472 -0.6366702 -0.4048938  0.67817250 -0.1151545
##   [962,]  1.5649873  0.5156472  0.6468366  0.4229256  0.67817250  1.3664509
##   [963,]  0.1473755  0.5156472 -0.6366702  0.4229256 -1.60500825 -1.5967598
##   [964,]  1.5649873  1.3502685  0.6468366 -2.0605326  1.43923275  1.3664509
##   [965,]  0.8561814  0.5156472 -0.6366702 -0.4048938 -0.08288775 -0.1151545
##   [966,]  1.5649873  1.3502685  0.6468366  1.2507450  1.43923275  1.3664509
##   [967,]  1.5649873 -1.9882166  0.6468366  1.2507450 -1.60500825 -0.1151545
##   [968,]  0.8561814  0.5156472  0.6468366 -2.0605326  1.43923275  1.3664509
##   [969,]  0.1473755 -0.3189741  0.6468366 -0.4048938  0.67817250  0.6256482
##   [970,]  0.1473755  0.5156472  0.6468366  0.4229256  0.67817250  1.3664509
##   [971,]  1.5649873  0.5156472  0.6468366  1.2507450  0.67817250  1.3664509
##   [972,] -0.5614304 -1.1535953 -0.6366702 -1.2327132  0.67817250 -0.8559571
##   [973,]  0.1473755  0.5156472  0.6468366  1.2507450  1.43923275  0.6256482
##   [974,]  1.5649873 -0.3189741  0.6468366 -0.4048938  0.67817250 -0.8559571
##   [975,]  0.1473755  0.5156472  0.6468366  0.4229256  0.67817250 -0.1151545
##   [976,]  0.1473755  0.5156472 -0.6366702  0.4229256 -0.08288775 -0.8559571
##   [977,] -1.2702363 -0.3189741  0.6468366  1.2507450 -0.08288775 -0.1151545
##   [978,]  0.8561814  1.3502685 -0.6366702  0.4229256 -0.08288775  0.6256482
##   [979,] -0.5614304 -0.3189741  0.6468366 -0.4048938 -0.08288775 -0.8559571
##   [980,] -0.5614304 -0.3189741  0.6468366  0.4229256 -0.08288775  1.3664509
##   [981,]  0.1473755  1.3502685 -1.9201769 -0.4048938 -0.84394800 -0.8559571
##   [982,]  1.5649873  1.3502685 -0.6366702 -0.4048938  1.43923275 -0.1151545
##   [983,] -1.2702363 -1.9882166 -0.6366702 -2.0605326  0.67817250 -0.8559571
##   [984,]  0.8561814 -1.1535953  0.6468366  0.4229256 -1.60500825 -1.5967598
##   [985,]  1.5649873 -1.1535953 -1.9201769 -1.2327132 -1.60500825 -1.5967598
##   [986,]  0.1473755  0.5156472 -0.6366702  1.2507450 -0.84394800 -0.8559571
##   [987,] -1.2702363 -1.9882166 -1.9201769 -0.4048938 -0.84394800 -0.8559571
```

```
##  [988,]  1.5649873  0.5156472 -1.9201769 -2.0605326 -0.08288775 -0.1151545
##  [989,]  0.1473755  1.3502685  0.6468366 -0.4048938  1.43923275  1.3664509
##  [990,] -1.2702363 -1.9882166  0.6468366  1.2507450 -1.60500825 -0.1151545
##  [991,] -0.5614304  0.5156472  0.6468366 -1.2327132 -0.08288775  0.6256482
##  [992,]  0.8561814  1.3502685 -0.6366702 -2.0605326  0.67817250  0.6256482
##  [993,]  0.8561814  0.5156472 -0.6366702 -0.4048938  1.43923275 -0.1151545
##  [994,] -1.2702363 -1.9882166  0.6468366  1.2507450 -1.60500825 -0.8559571
##  [995,]  0.1473755 -0.3189741 -1.9201769 -0.4048938 -0.08288775 -0.1151545
##  [996,]  0.8561814  1.3502685 -0.6366702 -0.4048938  1.43923275 -0.1151545
##  [997,] -0.5614304  0.5156472 -0.6366702 -2.0605326 -0.08288775 -0.8559571
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##  [999,]  0.8561814  1.3502685  0.6468366 -0.4048938  1.43923275  0.6256482
## [1000,]  0.8561814 -0.3189741  0.6468366  0.4229256  1.43923275  0.6256482
## [1001,]  1.5649873  1.3502685  0.6468366  1.2507450 -0.84394800  1.3664509
## [1002,]  0.8561814 -0.3189741  0.6468366  0.4229256 -1.60500825 -1.5967598
## [1003,]  1.5649873  0.5156472 -1.9201769 -2.0605326 -0.84394800 -0.8559571
## [1004,]  0.8561814  0.5156472  0.6468366  0.4229256  0.67817250 -0.1151545
## [1005,]  0.8561814  0.5156472  0.6468366 -0.4048938  0.67817250  0.6256482
## [1006,] -0.5614304 -0.3189741 -0.6366702  1.2507450  0.67817250 -0.8559571
## [1007,] -0.5614304  1.3502685  0.6468366 -2.0605326  1.43923275  1.3664509
## [1008,]  1.5649873  1.3502685 -1.9201769  1.2507450 -0.84394800 -1.5967598
## [1009,]  0.1473755  0.5156472  0.6468366 -0.4048938 -1.60500825 -0.8559571
## [1010,] -0.5614304 -0.3189741  0.6468366 -1.2327132 -0.08288775 -1.5967598
##        Fantasy.Fairy.tales   Animated Documentary    Western     Action
##    [1,]            1.0594802  0.9924396  -0.5661120 -0.9910356 -1.2392572
##    [2,]           -0.6350171  0.9924396   0.3148943 -0.9910356  0.3768174
##    [3,]            1.0594802  0.9924396  -1.4471183 -0.1122420 -2.0472944
##    [4,]           -2.3295144 -1.4663438   1.1959007 -0.9910356 -1.2392572
##    [5,]            0.2122316  0.1728452  -0.5661120 -0.9910356  0.3768174
##    [6,]            0.2122316 -0.6467493  -0.5661120 -0.1122420  0.3768174
##    [7,]            1.0594802  0.9924396  -0.5661120 -0.9910356 -1.2392572
##    [8,]            0.2122316  0.1728452  -0.5661120 -0.9910356 -0.4312199
##    [9,]            0.2122316  0.1728452   1.1959007 -0.9910356 -2.0472944
##   [10,]            0.2122316  0.1728452   0.3148943 -0.9910356 -1.2392572
##   [11,]            1.0594802  0.9924396  -0.5661120 -0.9910356 -0.4312199
##   [12,]            1.0594802  0.9924396   1.1959007 -0.9910356  0.3768174
##   [13,]            1.0594802 -0.6467493  -0.5661120 -0.9910356 -2.0472944
##   [14,]            1.0594802  0.1728452  -1.4471183 -0.9910356 -0.4312199
##   [15,]            1.0594802  0.9924396  -0.5661120 -0.9910356  0.3768174
##   [16,]            0.2122316  0.1728452   1.1959007 -0.1122420  0.3768174
##   [17,]           -1.4822657 -1.4663438   0.3148943 -0.9910356 -1.2392572
##   [18,]            0.2122316  0.1728452   1.1959007 -0.9910356 -0.4312199
##   [19,]            0.2122316  0.1728452   1.1959007  2.5241391  1.1848546
##   [20,]            0.2122316  0.1728452   1.1959007 -0.1122420  1.1848546
##   [21,]           -0.6350171 -0.6467493  -0.5661120 -0.1122420  0.3768174
##   [22,]           -0.6350171  0.1728452   1.1959007 -0.1122420  1.1848546
##   [23,]            0.2122316  0.9924396   1.1959007  0.7665517 -0.4312199
##   [24,]            1.0594802  0.9924396  -0.5661120 -0.1122420 -1.2392572
##   [25,]           -1.4822657 -1.4663438  -0.5661120 -0.9910356  0.3768174
##   [26,]            0.2122316 -0.6467493  -0.5661120 -0.9910356 -2.0472944
```

```
##      [27,]         1.0594802   0.9924396    1.1959007 -0.1122420 -2.0472944
##      [28,]        -1.4822657   0.1728452    1.1959007 -0.1122420  1.1848546
##      [29,]         0.2122316   0.1728452   -0.5661120  1.6453454  0.3768174
##      [30,]         1.0594802   0.9924396    0.3148943 -0.1122420 -1.2392572
##      [31,]        -0.6350171  -0.6467493    0.3148943  0.7665517  1.1848546
##      [32,]         1.0594802   0.9924396    0.3148943 -0.9910356 -2.0472944
##      [33,]         1.0594802   0.9924396   -0.5661120 -0.1122420  0.3768174
##      [34,]         1.0594802   0.1728452    1.1959007 -0.1122420 -0.4312199
##      [35,]        -1.4822657   0.9924396   -0.5661120 -0.9910356  1.1848546
##      [36,]        -2.3295144  -2.2859383   -2.3281247 -0.9910356  1.1848546
##      [37,]         1.0594802   0.9924396   -0.5661120 -0.9910356  1.1848546
##      [38,]        -1.4822657  -1.4663438    0.3148943  0.7665517  0.3768174
##      [39,]         1.0594802   0.9924396    1.1959007 -0.1122420  1.1848546
##      [40,]         1.0594802   0.9924396    0.3148943 -0.1122420 -0.4312199
##      [41,]        -1.4822657  -1.4663438    0.3148943 -0.9910356  1.1848546
##      [42,]        -2.3295144  -2.2859383    1.1959007  2.5241391  1.1848546
##      [43,]         1.0594802   0.9924396    0.3148943  0.7665517  1.1848546
##      [44,]         1.0594802   0.9924396   -0.5661120 -0.9910356  0.3768174
##      [45,]         1.0594802   0.1728452    0.3148943 -0.9910356 -0.4312199
##      [46,]        -1.4822657  -2.2859383    1.1959007 -0.1122420 -1.2392572
##      [47,]        -0.6350171  -1.4663438   -2.3281247 -0.9910356  1.1848546
##      [48,]        -0.6350171   0.9924396   -1.4471183 -0.9910356  1.1848546
##      [49,]        -1.4822657  -1.4663438   -0.5661120 -0.9910356 -1.2392572
##      [50,]         1.0594802  -0.6467493   -2.3281247 -0.9910356  0.3768174
##      [51,]         0.2122316   0.1728452    0.3148943 -0.9910356  1.1848546
##      [52,]         1.0594802   0.9924396    0.3148943  0.7665517  1.1848546
##      [53,]         1.0594802   0.9924396    1.1959007  2.5241391  1.1848546
##      [54,]         1.0594802  -0.6467493   -0.5661120 -0.9910356  1.1848546
##      [55,]         1.0594802   0.9924396    1.1959007 -0.1122420  1.1848546
##      [56,]         0.2122316   0.1728452   -0.5661120 -0.1122420 -0.4312199
##      [57,]         0.2122316   0.1728452   -0.5661120  0.7665517 -0.4312199
##      [58,]         1.0594802   0.9924396    1.1959007 -0.1122420  0.3768174
##      [59,]        -0.6350171  -0.6467493    1.1959007 -0.9910356  0.3768174
##      [60,]        -0.6350171  -1.4663438   -0.5661120 -0.9910356 -0.4312199
##      [61,]        -0.6350171  -1.4663438    0.3148943  0.7665517  0.3768174
##      [62,]         0.2122316   0.1728452   -1.4471183 -0.1122420  0.3768174
##      [63,]         1.0594802   0.9924396    1.1959007 -0.9910356  1.1848546
##      [64,]        -0.6350171  -0.6467493    0.3148943  0.7665517  0.3768174
##      [65,]         1.0594802   0.9924396   -1.4471183 -0.9910356 -1.2392572
##      [66,]         0.2122316   0.1728452   -0.5661120 -0.1122420  1.1848546
##      [67,]         1.0594802   0.9924396    0.3148943  0.7665517 -0.4312199
##      [68,]         0.2122316  -2.2859383   -1.4471183 -0.9910356 -0.4312199
##      [69,]         1.0594802   0.9924396   -1.4471183 -0.9910356 -0.4312199
##      [70,]        -0.6350171   0.9924396   -2.3281247 -0.9910356 -2.0472944
##      [71,]        -1.4822657  -0.6467493   -1.4471183 -0.9910356 -2.0472944
##      [72,]        -0.6350171   0.1728452   -0.5661120 -0.9910356  1.1848546
##      [73,]         1.0594802   0.9924396    0.3148943 -0.1122420  1.1848546
##      [74,]         1.0594802   0.9924396   -0.5661120  0.7665517  1.1848546
##      [75,]        -0.6350171  -2.2859383    0.3148943  2.5241391  1.1848546
##      [76,]        -2.3295144  -1.4663438    0.3148943  1.6453454  0.3768174
```

```
##    [77,]         -2.3295144 -1.4663438  -0.5661120 -0.1122420  0.3768174
##    [78,]          1.0594802  0.9924396   1.1959007 -0.1122420  0.3768174
##    [79,]          1.0594802  0.9924396   1.1959007  0.7665517 -0.4312199
##    [80,]          1.0594802  0.9924396   1.1959007  0.7665517  0.3768174
##    [81,]          1.0594802  0.9924396   0.3148943 -0.1122420 -0.4312199
##    [82,]          1.0594802  0.1728452   0.3148943  0.7665517  1.1848546
##    [83,]          1.0594802  0.9924396   1.1959007  0.7665517  0.3768174
##    [84,]          1.0594802  0.9924396   1.1959007 -0.9910356  1.1848546
##    [85,]         -0.6350171  0.9924396   1.1959007  2.5241391  1.1848546
##    [86,]          1.0594802  0.9924396  -0.5661120  0.7665517 -0.4312199
##    [87,]         -0.6350171  0.1728452   0.3148943  0.7665517  1.1848546
##    [88,]         -0.6350171 -1.4663438   0.3148943 -0.1122420 -0.4312199
##    [89,]         -0.6350171 -0.6467493   0.3148943 -0.9910356  1.1848546
##    [90,]         -0.6350171 -0.6467493  -0.5661120  0.7665517 -0.4312199
##    [91,]          1.0594802  0.9924396  -0.5661120 -0.9910356  1.1848546
##    [92,]          1.0594802  0.9924396  -2.3281247 -0.9910356 -0.4312199
##    [93,]          0.2122316  0.1728452   1.1959007  0.7665517 -0.4312199
##    [94,]         -0.6350171  0.1728452  -0.5661120  0.7665517 -2.0472944
##    [95,]         -1.4822657 -0.6467493  -0.5661120 -0.9910356  1.1848546
##    [96,]          0.2122316  0.1728452  -0.5661120 -0.9910356  1.1848546
##    [97,]          1.0594802  0.9924396  -2.3281247 -0.9910356 -1.2392572
##    [98,]         -0.6350171  0.9924396   1.1959007  0.7665517  1.1848546
##    [99,]         -2.3295144 -0.6467493   1.1959007  0.7665517  1.1848546
##   [100,]          0.2122316 -0.6467493   1.1959007 -0.9910356 -0.4312199
##   [101,]          1.0594802  0.9924396  -0.5661120 -0.1122420 -0.4312199
##   [102,]          0.2122316  0.9924396   1.1959007  1.6453454  1.1848546
##   [103,]          1.0594802  0.9924396   1.1959007 -0.1122420  1.1848546
##   [104,]         -1.4822657  0.9924396   1.1959007  1.6453454  0.3768174
##   [105,]          0.2122316  0.1728452   1.1959007  0.7665517  0.3768174
##   [106,]          0.2122316  0.9924396   1.1959007  0.7665517 -0.4312199
##   [107,]          1.0594802  0.9924396   0.3148943  0.7665517  0.3768174
##   [108,]         -0.6350171 -0.6467493  -1.4471183 -0.9910356 -2.0472944
##   [109,]          0.2122316  0.1728452  -0.5661120 -0.9910356  1.1848546
##   [110,]         -0.6350171 -0.6467493   0.3148943  0.7665517  1.1848546
##   [111,]          0.2122316 -0.6467493   0.3148943  2.5241391  0.3768174
##   [112,]          1.0594802  0.1728452   0.3148943 -0.1122420  0.3768174
##   [113,]          0.2122316  0.1728452   0.3148943 -0.9910356 -1.2392572
##   [114,]          1.0594802  0.9924396   1.1959007 -0.1122420 -0.4312199
##   [115,]          1.0594802  0.9924396  -0.5661120 -0.1122420  0.3768174
##   [116,]         -0.6350171  0.9924396  -0.5661120 -0.9910356  1.1848546
##   [117,]          1.0594802  0.9924396  -0.5661120 -0.9910356 -1.2392572
##   [118,]          0.2122316 -1.4663438   0.3148943 -0.9910356  0.3768174
##   [119,]         -1.4822657 -1.4663438  -0.5661120  0.7665517 -1.2392572
##   [120,]         -0.6350171 -0.6467493  -1.4471183 -0.9910356 -1.2392572
##   [121,]          0.2122316  0.1728452   1.1959007  0.7665517  1.1848546
##   [122,]         -0.6350171  0.1728452  -2.3281247  0.7665517  0.3768174
##   [123,]          0.2122316  0.1728452   1.1959007 -0.1122420  1.1848546
##   [124,]         -1.4822657  0.1728452   1.1959007 -0.9910356  0.3768174
##   [125,]          1.0594802  0.9924396   1.1959007  2.5241391  0.3768174
##   [126,]          0.2122316  0.1728452  -0.5661120 -0.1122420 -1.2392572
```

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## [127,]          1.0594802  0.9924396 -0.5661120 -0.9910356  0.3768174
## [128,]         -0.6350171 -0.6467493  0.3148943 -0.1122420  0.3768174
## [129,]         -1.4822657  0.9924396 -1.4471183 -0.9910356 -2.0472944
## [130,]          1.0594802  0.9924396  1.1959007 -0.1122420 -1.2392572
## [131,]         -1.4822657 -0.6467493 -0.5661120 -0.9910356 -1.2392572
## [132,]         -0.6350171 -0.6467493 -0.5661120  1.6453454  1.1848546
## [133,]         -1.4822657  0.9924396  0.3148943 -0.9910356 -0.4312199
## [134,]          1.0594802  0.1728452  1.1959007 -0.9910356  0.3768174
## [135,]          1.0594802  0.9924396  1.1959007  0.7665517  0.3768174
## [136,]         -0.6350171 -0.6467493  1.1959007 -0.1122420  0.3768174
## [137,]         -1.4822657 -1.4663438  0.3148943  0.7665517  0.3768174
## [138,]          0.2122316  0.9924396 -0.5661120 -0.9910356 -0.4312199
## [139,]          1.0594802  0.1728452  0.3148943  0.7665517 -1.2392572
## [140,]         -0.6350171  0.1728452 -2.3281247 -0.1122420 -0.4312199
## [141,]          1.0594802  0.9924396  1.1959007  1.6453454  1.1848546
## [142,]          1.0594802  0.9924396  1.1959007 -0.9910356 -2.0472944
## [143,]         -0.6350171  0.1728452 -2.3281247 -0.9910356 -1.2392572
## [144,]          0.2122316  0.9924396  0.3148943 -0.9910356 -1.2392572
## [145,]         -0.6350171  0.1728452  1.1959007 -0.9910356  0.3768174
## [146,]         -1.4822657 -1.4663438  0.3148943 -0.9910356 -2.0472944
## [147,]         -1.4822657 -1.4663438  1.1959007 -0.1122420  1.1848546
## [148,]          0.2122316 -1.4663438  0.3148943 -0.1122420  0.3768174
## [149,]         -0.6350171 -0.6467493  0.3148943  0.7665517  0.3768174
## [150,]          0.2122316  0.1728452  0.3148943 -0.1122420 -1.2392572
## [151,]         -1.4822657 -1.4663438 -0.5661120 -0.9910356  0.3768174
## [152,]         -0.6350171 -0.6467493 -1.4471183 -0.9910356  0.3768174
## [153,]         -1.4822657 -0.6467493  1.1959007 -0.1122420  0.3768174
## [154,]         -0.6350171  0.9924396  0.3148943 -0.1122420  0.3768174
## [155,]         -2.3295144 -2.2859383  1.1959007  0.7665517  0.3768174
## [156,]         -0.6350171  0.1728452 -0.5661120 -0.9910356 -1.2392572
## [157,]         -0.6350171 -1.4663438 -0.5661120 -0.1122420  0.3768174
## [158,]         -0.6350171 -0.6467493 -0.5661120  1.6453454  0.3768174
## [159,]          1.0594802  0.9924396 -1.4471183 -0.9910356  0.3768174
## [160,]         -0.6350171  0.1728452 -0.5661120  0.7665517  0.3768174
## [161,]          0.2122316  0.1728452  0.3148943 -0.9910356 -0.4312199
## [162,]          0.2122316  0.1728452 -0.5661120 -0.9910356  1.1848546
## [163,]         -1.4822657 -2.2859383  1.1959007  0.7665517 -1.2392572
## [164,]         -1.4822657 -1.4663438  0.3148943 -0.9910356 -0.4312199
## [165,]         -0.6350171 -1.4663438 -0.5661120 -0.9910356 -1.2392572
## [166,]         -0.6350171 -1.4663438  0.3148943 -0.9910356 -0.4312199
## [167,]         -0.6350171  0.1728452 -0.5661120 -0.9910356  0.3768174
## [168,]         -2.3295144 -1.4663438  1.1959007 -0.1122420 -1.2392572
## [169,]          0.2122316  0.1728452  0.3148943  0.7665517  0.3768174
## [170,]         -0.6350171  0.9924396 -0.5661120 -0.1122420 -0.4312199
## [171,]          0.2122316  0.9924396  0.3148943 -0.9910356 -0.4312199
## [172,]         -0.6350171  0.1728452 -0.5661120 -0.1122420  0.3768174
## [173,]         -0.6350171  0.1728452  1.1959007  0.7665517 -0.4312199
## [174,]         -0.6350171  0.1728452  1.1959007  0.7665517  0.3768174
## [175,]          1.0594802 -2.2859383  1.1959007  0.7665517  1.1848546
## [176,]          0.2122316  0.9924396 -1.4471183 -0.9910356 -1.2392572
```

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## [177,]       -0.6350171  0.1728452 -0.5661120 -0.1122420  0.3768174
## [178,]        0.2122316  0.1728452  1.1959007  0.7665517  0.3768174
## [179,]        1.0594802  0.9924396  0.3148943  0.7665517 -0.4312199
## [180,]        0.2122316  0.9924396  1.1959007 -0.1122420  0.3768174
## [181,]       -2.3295144 -2.2859383  0.3148943 -0.9910356 -0.4312199
## [182,]       -0.6350171 -0.6467493 -0.5661120  0.7665517 -0.4312199
## [183,]        1.0594802  0.9924396  0.3148943 -0.1122420  0.3768174
## [184,]        0.2122316 -0.6467493  1.1959007  0.7665517  1.1848546
## [185,]       -0.6350171 -0.6467493 -0.5661120 -0.1122420 -2.0472944
## [186,]        1.0594802  0.9924396 -0.5661120 -0.1122420 -0.4312199
## [187,]        0.2122316 -2.2859383  1.1959007 -0.1122420 -1.2392572
## [188,]       -1.4822657 -1.4663438 -1.4471183 -0.9910356 -0.4312199
## [189,]        1.0594802  0.9924396  1.1959007  0.7665517 -0.4312199
## [190,]       -0.6350171 -0.6467493  0.3148943  2.5241391  0.3768174
## [191,]        0.2122316  0.1728452  0.3148943 -0.1122420 -1.2392572
## [192,]        1.0594802  0.9924396  0.3148943 -0.9910356 -2.0472944
## [193,]        1.0594802  0.9924396  0.3148943 -0.9910356 -1.2392572
## [194,]       -0.6350171  0.1728452  1.1959007 -0.9910356  0.3768174
## [195,]       -0.6350171 -0.6467493 -1.4471183 -0.1122420 -0.4312199
## [196,]       -0.6350171 -1.4663438 -0.5661120 -0.1122420  0.3768174
## [197,]        1.0594802  0.9924396  0.3148943  0.7665517 -0.4312199
## [198,]       -0.6350171 -1.4663438 -2.3281247 -0.9910356 -2.0472944
## [199,]        1.0594802  0.9924396 -0.5661120 -0.1122420 -0.4312199
## [200,]       -0.6350171 -0.6467493  0.3148943 -0.1122420  0.3768174
## [201,]        0.2122316  0.1728452  1.1959007  1.6453454 -0.4312199
## [202,]        1.0594802  0.9924396  1.1959007 -0.1122420  1.1848546
## [203,]        0.2122316  0.1728452 -1.4471183  0.7665517  1.1848546
## [204,]        1.0594802  0.9924396 -1.4471183 -0.1122420  0.3768174
## [205,]        0.2122316  0.9924396  0.3148943 -0.1122420 -0.4312199
## [206,]        1.0594802  0.1728452  1.1959007 -0.1122420 -2.0472944
## [207,]       -1.4822657 -1.4663438  0.3148943  1.6453454  1.1848546
## [208,]        1.0594802  0.9924396  1.1959007 -0.9910356  0.3768174
## [209,]        1.0594802 -0.6467493  0.3148943 -0.9910356 -0.4312199
## [210,]       -0.6350171  0.1728452  0.3148943  0.7665517  0.3768174
## [211,]        1.0594802  0.9924396  1.1959007  2.5241391  1.1848546
## [212,]        1.0594802 -2.2859383 -0.5661120 -0.1122420  1.1848546
## [213,]        1.0594802  0.9924396  1.1959007  0.7665517  1.1848546
## [214,]        1.0594802  0.9924396  0.3148943 -0.1122420  1.1848546
## [215,]        0.2122316  0.1728452  1.1959007  0.7665517  0.3768174
## [216,]       -2.3295144 -2.2859383 -0.5661120  1.6453454  1.1848546
## [217,]       -2.3295144 -2.2859383 -0.5661120 -0.9910356 -1.2392572
## [218,]        1.0594802  0.9924396  0.3148943 -0.1122420  0.3768174
## [219,]       -0.6350171  0.1728452  1.1959007 -0.9910356  1.1848546
## [220,]       -0.6350171 -0.6467493  1.1959007  0.7665517  1.1848546
## [221,]        0.2122316  0.9924396  0.3148943  0.7665517  0.3768174
## [222,]        0.2122316  0.9924396  0.3148943  0.7665517 -1.2392572
## [223,]        1.0594802  0.9924396 -0.5661120  0.7665517 -0.4312199
## [224,]        0.2122316  0.9924396  0.3148943 -0.9910356  0.3768174
## [225,]       -1.4822657  0.1728452 -0.5661120 -0.9910356  1.1848546
## [226,]       -1.4822657  0.1728452  1.1959007  0.7665517  1.1848546
```

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## [227,]        1.0594802   0.9924396  -0.5661120  -0.9910356   1.1848546
## [228,]        0.2122316   0.9924396   1.1959007  -0.1122420   0.3768174
## [229,]       -0.6350171  -0.6467493   0.3148943   0.7665517  -0.4312199
## [230,]       -0.6350171  -1.4663438  -0.5661120   0.7665517   1.1848546
## [231,]        0.2122316   0.1728452   0.3148943  -0.1122420   0.3768174
## [232,]        0.2122316  -0.6467493  -0.5661120  -0.9910356  -0.4312199
## [233,]       -1.4822657  -0.6467493  -0.5661120  -0.1122420   1.1848546
## [234,]        0.2122316   0.1728452  -0.5661120  -0.1122420  -0.4312199
## [235,]        1.0594802   0.9924396   0.3148943  -0.1122420  -0.4312199
## [236,]        1.0594802   0.9924396  -0.5661120  -0.1122420  -0.4312199
## [237,]        1.0594802   0.9924396   1.1959007  -0.1122420   1.1848546
## [238,]        1.0594802   0.9924396   0.3148943  -0.1122420  -0.4312199
## [239,]        1.0594802   0.9924396  -0.5661120  -0.1122420  -0.4312199
## [240,]        0.2122316   0.1728452  -1.4471183  -0.9910356   0.3768174
## [241,]        1.0594802   0.9924396   0.3148943   0.7665517   0.3768174
## [242,]        0.2122316  -0.6467493  -0.5661120  -0.1122420   0.3768174
## [243,]       -0.6350171  -1.4663438  -1.4471183  -0.9910356  -0.4312199
## [244,]        0.2122316  -0.6467493   0.3148943  -0.1122420  -1.2392572
## [245,]        1.0594802   0.9924396  -1.4471183  -0.9910356   0.3768174
## [246,]        1.0594802   0.9924396  -0.5661120  -0.1122420   1.1848546
## [247,]        1.0594802  -1.4663438   1.1959007   2.5241391   1.1848546
## [248,]        0.2122316   0.9924396   1.1959007  -0.9910356  -1.2392572
## [249,]        1.0594802   0.9924396  -0.5661120  -0.1122420   1.1848546
## [250,]        1.0594802   0.9924396   1.1959007  -0.1122420   1.1848546
## [251,]       -1.4822657  -1.4663438  -1.4471183  -0.1122420  -0.4312199
## [252,]        1.0594802   0.9924396   1.1959007  -0.1122420  -1.2392572
## [253,]        1.0594802   0.9924396   0.3148943   0.7665517   0.3768174
## [254,]       -1.4822657  -2.2859383  -1.4471183  -0.9910356  -1.2392572
## [255,]        1.0594802  -1.4663438  -0.5661120  -0.9910356   0.3768174
## [256,]        1.0594802   0.9924396   1.1959007   1.6453454  -1.2392572
## [257,]        1.0594802   0.9924396  -1.4471183  -0.1122420  -1.2392572
## [258,]        0.2122316   0.9924396   1.1959007   1.6453454   1.1848546
## [259,]        1.0594802   0.9924396  -0.5661120  -0.9910356  -1.2392572
## [260,]       -0.6350171  -2.2859383   1.1959007  -0.9910356  -2.0472944
## [261,]       -0.6350171  -0.6467493  -0.5661120   0.7665517  -0.4312199
## [262,]        0.2122316   0.9924396  -0.5661120  -0.9910356   0.3768174
## [263,]        0.2122316   0.1728452   1.1959007   0.7665517  -0.4312199
## [264,]        0.2122316   0.9924396  -2.3281247  -0.9910356  -0.4312199
## [265,]       -0.6350171   0.9924396  -0.5661120  -0.1122420   1.1848546
## [266,]       -1.4822657  -1.4663438  -1.4471183  -0.9910356  -0.4312199
## [267,]        0.2122316   0.1728452  -0.5661120  -0.1122420  -1.2392572
## [268,]        1.0594802   0.9924396   0.3148943   1.6453454   0.3768174
## [269,]        1.0594802   0.9924396   1.1959007  -0.1122420  -0.4312199
## [270,]        0.2122316   0.1728452   0.3148943  -0.1122420  -0.4312199
## [271,]        1.0594802   0.9924396   1.1959007  -0.1122420   1.1848546
## [272,]       -0.6350171  -0.6467493   0.3148943  -0.1122420   1.1848546
## [273,]       -0.6350171   0.9924396   1.1959007  -0.9910356  -1.2392572
## [274,]        1.0594802   0.9924396   0.3148943   0.7665517  -0.4312199
## [275,]       -0.6350171   0.1728452   1.1959007  -0.1122420  -1.2392572
## [276,]        1.0594802   0.9924396   0.3148943   0.7665517   0.3768174
```

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## [277,]          1.0594802   0.9924396  -0.5661120   0.7665517   1.1848546
## [278,]         -0.6350171  -0.6467493   0.3148943   1.6453454   0.3768174
## [279,]          1.0594802   0.9924396   1.1959007   0.7665517   1.1848546
## [280,]          1.0594802   0.9924396   1.1959007  -0.9910356  -2.0472944
## [281,]         -0.6350171   0.1728452  -0.5661120  -0.1122420   0.3768174
## [282,]          0.2122316  -2.2859383   1.1959007   2.5241391   1.1848546
## [283,]         -0.6350171  -0.6467493  -2.3281247  -0.9910356  -1.2392572
## [284,]         -0.6350171  -0.6467493   1.1959007   1.6453454   0.3768174
## [285,]          1.0594802   0.9924396   0.3148943  -0.1122420   1.1848546
## [286,]         -0.6350171  -0.6467493  -1.4471183  -0.9910356  -0.4312199
## [287,]          0.2122316   0.1728452   0.3148943  -0.9910356   0.3768174
## [288,]          0.2122316   0.1728452  -0.5661120  -0.1122420  -1.2392572
## [289,]          0.2122316   0.1728452   1.1959007   2.5241391   1.1848546
## [290,]         -1.4822657  -0.6467493  -1.4471183  -0.1122420   0.3768174
## [291,]          1.0594802   0.9924396   0.3148943  -0.9910356  -1.2392572
## [292,]          0.2122316   0.1728452  -0.5661120  -0.1122420   0.3768174
## [293,]          1.0594802   0.9924396  -0.5661120  -0.1122420   1.1848546
## [294,]          1.0594802   0.9924396   0.3148943   0.7665517  -2.0472944
## [295,]         -1.4822657  -1.4663438   0.3148943  -0.1122420  -1.2392572
## [296,]          1.0594802   0.1728452   0.3148943   1.6453454  -1.2392572
## [297,]         -2.3295144  -2.2859383  -0.5661120   1.6453454   1.1848546
## [298,]         -1.4822657  -0.6467493  -1.4471183  -0.1122420  -0.4312199
## [299,]          1.0594802   0.9924396   0.3148943  -0.1122420  -0.4312199
## [300,]          1.0594802   0.9924396   1.1959007  -0.9910356   1.1848546
## [301,]          0.2122316   0.9924396   1.1959007  -0.9910356   0.3768174
## [302,]          1.0594802  -1.4663438   1.1959007   1.6453454   1.1848546
## [303,]          1.0594802   0.9924396  -0.5661120  -0.9910356  -2.0472944
## [304,]         -0.6350171  -0.6467493  -0.5661120   1.6453454   1.1848546
## [305,]          0.2122316   0.1728452  -1.4471183  -0.9910356   0.3768174
## [306,]          1.0594802   0.1728452   0.3148943  -0.9910356   0.3768174
## [307,]          1.0594802   0.9924396  -1.4471183  -0.9910356  -2.0472944
## [308,]          1.0594802   0.9924396   1.1959007  -0.9910356  -2.0472944
## [309,]          1.0594802   0.9924396   0.3148943  -0.1122420  -0.4312199
## [310,]         -0.6350171  -0.6467493  -1.4471183  -0.9910356  -0.4312199
## [311,]         -1.4822657   0.1728452  -0.5661120  -0.9910356   1.1848546
## [312,]          0.2122316   0.9924396   1.1959007   0.7665517   1.1848546
## [313,]         -1.4822657  -1.4663438  -0.5661120  -0.9910356  -0.4312199
## [314,]          0.2122316  -0.6467493  -0.5661120  -0.9910356  -0.4312199
## [315,]          1.0594802   0.9924396   1.1959007   1.6453454   1.1848546
## [316,]          0.2122316  -0.6467493  -0.5661120  -0.1122420   0.3768174
## [317,]         -0.6350171   0.9924396  -0.5661120  -0.9910356  -0.4312199
## [318,]         -0.6350171  -0.6467493  -0.5661120  -0.9910356   1.1848546
## [319,]         -1.4822657  -2.2859383  -2.3281247   1.6453454  -0.4312199
## [320,]          1.0594802   0.9924396  -0.5661120  -0.1122420   0.3768174
## [321,]          1.0594802   0.9924396  -0.5661120   1.6453454   1.1848546
## [322,]         -0.6350171   0.9924396  -0.5661120   1.6453454   0.3768174
## [323,]          1.0594802   0.9924396   1.1959007  -0.9910356  -1.2392572
## [324,]         -0.6350171  -1.4663438   1.1959007  -0.9910356   1.1848546
## [325,]          0.2122316   0.1728452  -0.5661120  -0.1122420   0.3768174
## [326,]          0.2122316   0.1728452   1.1959007  -0.1122420   0.3768174
```

```
## [327,]          -0.6350171 -0.6467493    0.3148943 -0.1122420 -1.2392572
## [328,]           0.2122316  0.9924396    1.1959007 -0.9910356  1.1848546
## [329,]          -0.6350171 -0.6467493   -0.5661120  0.7665517 -0.4312199
## [330,]           1.0594802  0.1728452   -0.5661120 -0.9910356 -1.2392572
## [331,]           0.2122316  0.1728452    0.3148943 -0.9910356 -0.4312199
## [332,]          -1.4822657 -1.4663438   -1.4471183  2.5241391 -1.2392572
## [333,]           1.0594802  0.9924396   -0.5661120 -0.1122420 -0.4312199
## [334,]           1.0594802  0.9924396   -0.5661120  0.7665517 -0.4312199
## [335,]          -0.6350171  0.1728452    0.3148943 -0.9910356 -2.0472944
## [336,]          -0.6350171 -0.6467493    0.3148943 -0.1122420 -0.4312199
## [337,]          -0.6350171  0.9924396    1.1959007 -0.9910356 -0.4312199
## [338,]           1.0594802  0.9924396    1.1959007  0.7665517  0.3768174
## [339,]           0.2122316  0.1728452   -0.5661120 -0.9910356 -0.4312199
## [340,]           1.0594802  0.9924396    1.1959007 -0.9910356 -1.2392572
## [341,]          -0.6350171 -0.6467493    1.1959007 -0.9910356 -1.2392572
## [342,]          -2.3295144 -2.2859383    0.3148943  2.5241391  1.1848546
## [343,]           0.2122316  0.1728452   -0.5661120 -0.1122420 -0.4312199
## [344,]           1.0594802  0.9924396    0.3148943 -0.9910356 -2.0472944
## [345,]           1.0594802 -1.4663438   -2.3281247 -0.9910356 -2.0472944
## [346,]          -1.4822657 -2.2859383   -2.3281247 -0.9910356  1.1848546
## [347,]          -1.4822657 -2.2859383   -0.5661120 -0.1122420  1.1848546
## [348,]          -0.6350171 -0.6467493   -0.5661120 -0.1122420  1.1848546
## [349,]           1.0594802  0.9924396    1.1959007  0.7665517  0.3768174
## [350,]           1.0594802  0.9924396   -0.5661120 -0.9910356 -0.4312199
## [351,]          -1.4822657  0.9924396   -1.4471183  0.7665517  1.1848546
## [352,]           1.0594802  0.9924396    0.3148943 -0.1122420 -0.4312199
## [353,]          -0.6350171 -1.4663438    1.1959007  2.5241391  0.3768174
## [354,]          -1.4822657 -1.4663438   -0.5661120 -0.1122420 -1.2392572
## [355,]           1.0594802  0.9924396   -0.5661120 -0.1122420 -0.4312199
## [356,]           1.0594802  0.9924396   -1.4471183 -0.1122420  0.3768174
## [357,]           0.2122316  0.1728452    0.3148943  1.6453454  0.3768174
## [358,]           1.0594802  0.9924396    0.3148943 -0.1122420 -0.4312199
## [359,]          -0.6350171 -1.4663438    0.3148943  0.7665517 -0.4312199
## [360,]           1.0594802  0.9924396    1.1959007  0.7665517  0.3768174
## [361,]           1.0594802 -0.6467493   -0.5661120 -0.1122420  0.3768174
## [362,]           1.0594802  0.9924396   -1.4471183 -0.9910356 -1.2392572
## [363,]          -0.6350171 -0.6467493    0.3148943  0.7665517  0.3768174
## [364,]          -1.4822657 -1.4663438    0.3148943  0.7665517  0.3768174
## [365,]          -2.3295144 -2.2859383    0.3148943  1.6453454  1.1848546
## [366,]          -1.4822657 -1.4663438    1.1959007  0.7665517  0.3768174
## [367,]          -0.6350171 -0.6467493   -0.5661120  1.6453454  1.1848546
## [368,]          -0.6350171 -0.6467493    1.1959007 -0.1122420  1.1848546
## [369,]           1.0594802  0.9924396    1.1959007  0.7665517  1.1848546
## [370,]           1.0594802  0.9924396    0.3148943  2.5241391  1.1848546
## [371,]           1.0594802  0.9924396    1.1959007 -0.1122420  1.1848546
## [372,]           1.0594802  0.9924396   -0.5661120  0.7665517 -1.2392572
## [373,]          -0.6350171  0.9924396    1.1959007 -0.9910356  0.3768174
## [374,]           0.2122316  0.1728452   -2.3281247  0.7665517  1.1848546
## [375,]           1.0594802 -0.6467493   -0.5661120 -0.1122420 -1.2392572
## [376,]           1.0594802  0.9924396   -0.5661120 -0.9910356 -0.4312199
```

```
##   [377,]          1.0594802  0.9924396   1.1959007 -0.9910356 -1.2392572
##   [378,]          0.2122316  0.1728452   0.3148943 -0.9910356 -1.2392572
##   [379,]          1.0594802  0.9924396   0.3148943 -0.9910356 -1.2392572
##   [380,]          1.0594802  0.9924396   0.3148943  0.7665517  1.1848546
##   [381,]          1.0594802  0.1728452  -1.4471183 -0.9910356  0.3768174
##   [382,]          1.0594802  0.9924396   0.3148943 -0.1122420  0.3768174
##   [383,]          1.0594802  0.9924396   0.3148943 -0.1122420  0.3768174
##   [384,]          0.2122316  0.1728452   1.1959007 -0.9910356  1.1848546
##   [385,]          0.2122316  0.1728452  -1.4471183 -0.9910356 -2.0472944
##   [386,]          1.0594802  0.9924396   0.3148943  1.6453454  1.1848546
##   [387,]         -1.4822657 -1.4663438   0.3148943 -0.1122420 -0.4312199
##   [388,]          1.0594802  0.9924396  -0.5661120 -0.9910356  1.1848546
##   [389,]          1.0594802 -0.6467493   0.3148943 -0.9910356  1.1848546
##   [390,]          0.2122316  0.1728452   0.3148943 -0.1122420 -1.2392572
##   [391,]          1.0594802  0.9924396   1.1959007  1.6453454  0.3768174
##   [392,]          0.2122316 -0.6467493  -0.5661120 -0.1122420  0.3768174
##   [393,]          1.0594802  0.9924396  -0.5661120  0.7665517 -0.4312199
##   [394,]         -1.4822657 -2.2859383  -0.5661120  1.6453454  1.1848546
##   [395,]          0.2122316 -0.6467493  -0.5661120 -0.9910356  0.3768174
##   [396,]         -0.6350171 -1.4663438  -0.5661120  0.7665517  1.1848546
##   [397,]         -0.6350171 -0.6467493  -1.4471183 -0.1122420 -0.4312199
##   [398,]         -0.6350171 -0.6467493  -1.4471183 -0.9910356 -0.4312199
##   [399,]         -0.6350171 -1.4663438   1.1959007  0.7665517  0.3768174
##   [400,]         -1.4822657 -0.6467493  -2.3281247 -0.9910356 -0.4312199
##   [401,]          0.2122316  0.1728452   0.3148943 -0.1122420  0.3768174
##   [402,]         -0.6350171 -0.6467493  -2.3281247 -0.9910356 -2.0472944
##   [403,]          1.0594802  0.9924396   1.1959007 -0.9910356  0.3768174
##   [404,]          1.0594802  0.1728452   1.1959007  0.7665517 -0.4312199
##   [405,]          1.0594802  0.9924396   1.1959007 -0.9910356 -1.2392572
##   [406,]          1.0594802  0.1728452   0.3148943  0.7665517 -0.4312199
##   [407,]          1.0594802  0.9924396  -0.5661120 -0.9910356 -0.4312199
##   [408,]          1.0594802  0.9924396   0.3148943 -0.1122420 -0.4312199
##   [409,]          1.0594802 -0.6467493   1.1959007 -0.9910356 -1.2392572
##   [410,]         -1.4822657 -1.4663438  -2.3281247  2.5241391 -1.2392572
##   [411,]          1.0594802  0.9924396   1.1959007  2.5241391  1.1848546
##   [412,]          1.0594802  0.9924396  -1.4471183 -0.9910356 -0.4312199
##   [413,]         -2.3295144 -0.6467493  -2.3281247 -0.9910356 -0.4312199
##   [414,]         -0.6350171 -0.6467493   0.3148943 -0.1122420  1.1848546
##   [415,]          0.2122316  0.1728452   0.3148943 -0.9910356 -1.2392572
##   [416,]          1.0594802  0.9924396   0.3148943 -0.9910356 -2.0472944
##   [417,]         -0.6350171  0.1728452  -1.4471183 -0.9910356 -2.0472944
##   [418,]         -2.3295144 -2.2859383  -0.5661120 -0.1122420  0.3768174
##   [419,]         -0.6350171 -0.6467493  -0.5661120 -0.9910356 -1.2392572
##   [420,]          0.2122316 -2.2859383   1.1959007 -0.1122420  0.3768174
##   [421,]          1.0594802  0.9924396   1.1959007 -0.9910356  0.3768174
##   [422,]          1.0594802  0.9924396   1.1959007 -0.1122420  1.1848546
##   [423,]          1.0594802  0.9924396   1.1959007  0.7665517  1.1848546
##   [424,]          0.2122316  0.9924396   0.3148943 -0.9910356 -2.0472944
##   [425,]          1.0594802  0.9924396   0.3148943  0.7665517 -1.2392572
##   [426,]          1.0594802  0.9924396   1.1959007 -0.9910356  1.1848546
```

```
## [427,]           0.2122316  0.1728452   0.3148943 -0.9910356 -2.0472944
## [428,]           1.0594802  0.9924396   1.1959007 -0.9910356 -0.4312199
## [429,]           1.0594802  0.9924396  -0.5661120 -0.9910356 -0.4312199
## [430,]           1.0594802  0.1728452   0.3148943 -0.1122420 -1.2392572
## [431,]           0.2122316  0.9924396   1.1959007 -0.1122420 -0.4312199
## [432,]           0.2122316  0.9924396   0.3148943  0.7665517  1.1848546
## [433,]          -1.4822657 -0.6467493   0.3148943  1.6453454 -1.2392572
## [434,]          -1.4822657 -1.4663438   1.1959007 -0.9910356 -1.2392572
## [435,]          -1.4822657 -0.6467493   1.1959007  1.6453454  1.1848546
## [436,]          -0.6350171  0.1728452  -1.4471183 -0.9910356 -1.2392572
## [437,]           0.2122316  0.1728452  -1.4471183 -0.1122420  0.3768174
## [438,]          -2.3295144 -2.2859383  -0.5661120 -0.9910356 -0.4312199
## [439,]           1.0594802  0.9924396   0.3148943 -0.9910356 -1.2392572
## [440,]          -1.4822657 -1.4663438  -0.5661120 -0.1122420  1.1848546
## [441,]          -0.6350171 -1.4663438  -0.5661120 -0.1122420 -1.2392572
## [442,]           1.0594802  0.9924396   0.3148943 -0.9910356 -0.4312199
## [443,]           1.0594802  0.9924396   0.3148943  0.7665517 -0.4312199
## [444,]          -0.6350171 -0.6467493  -1.4471183 -0.9910356  0.3768174
## [445,]          -1.4822657 -0.6467493  -0.5661120 -0.1122420 -1.2392572
## [446,]           1.0594802  0.9924396  -0.5661120 -0.9910356 -0.4312199
## [447,]          -2.3295144 -1.4663438  -0.5661120 -0.9910356  0.3768174
## [448,]          -0.6350171 -0.6467493   1.1959007 -0.9910356 -2.0472944
## [449,]           0.2122316  0.1728452  -0.5661120 -0.1122420 -1.2392572
## [450,]           1.0594802  0.9924396   0.3148943 -0.9910356 -1.2392572
## [451,]           1.0594802  0.9924396   1.1959007 -0.9910356  1.1848546
## [452,]          -0.6350171 -0.6467493   1.1959007  0.7665517  0.3768174
## [453,]           1.0594802 -1.4663438  -0.5661120 -0.9910356 -2.0472944
## [454,]           1.0594802  0.9924396   0.3148943 -0.9910356 -1.2392572
## [455,]           1.0594802  0.9924396   0.3148943 -0.9910356 -0.4312199
## [456,]           1.0594802  0.1728452  -0.5661120 -0.9910356  1.1848546
## [457,]          -2.3295144 -2.2859383   0.3148943 -0.1122420  1.1848546
## [458,]          -1.4822657 -0.6467493   0.3148943 -0.1122420  1.1848546
## [459,]           1.0594802 -2.2859383   1.1959007 -0.9910356 -2.0472944
## [460,]           1.0594802  0.9924396   0.3148943 -0.1122420 -2.0472944
## [461,]          -0.6350171 -0.6467493   1.1959007  0.7665517  1.1848546
## [462,]          -0.6350171 -0.6467493   0.3148943  0.7665517 -0.4312199
## [463,]           1.0594802  0.9924396   1.1959007 -0.9910356 -1.2392572
## [464,]           0.2122316  0.9924396  -1.4471183 -0.9910356 -1.2392572
## [465,]          -0.6350171 -0.6467493  -1.4471183 -0.1122420 -2.0472944
## [466,]          -0.6350171 -0.6467493   0.3148943  1.6453454  0.3768174
## [467,]          -0.6350171 -0.6467493  -0.5661120  0.7665517 -0.4312199
## [468,]          -0.6350171 -0.6467493  -1.4471183 -0.9910356  0.3768174
## [469,]          -0.6350171 -0.6467493  -0.5661120  1.6453454  0.3768174
## [470,]           1.0594802  0.9924396  -0.5661120  0.7665517  1.1848546
## [471,]          -0.6350171 -0.6467493  -1.4471183 -0.9910356 -0.4312199
## [472,]           0.2122316  0.9924396   0.3148943  0.7665517  1.1848546
## [473,]          -2.3295144 -2.2859383   0.3148943 -0.1122420 -2.0472944
## [474,]           0.2122316 -0.6467493   1.1959007 -0.9910356 -1.2392572
## [475,]          -1.4822657 -1.4663438   1.1959007 -0.9910356  0.3768174
## [476,]           1.0594802  0.9924396  -0.5661120 -0.9910356 -1.2392572
```

```
## [477,]        -0.6350171 -0.6467493   0.3148943 -0.9910356 -0.4312199
## [478,]        -0.6350171 -0.6467493  -0.5661120  0.7665517  0.3768174
## [479,]        -2.3295144 -1.4663438  -1.4471183 -0.1122420  1.1848546
## [480,]         0.2122316  0.1728452  -0.5661120 -0.1122420  1.1848546
## [481,]         1.0594802  0.9924396   1.1959007  0.7665517  0.3768174
## [482,]        -0.6350171 -1.4663438   1.1959007  2.5241391 -1.2392572
## [483,]        -1.4822657 -0.6467493  -0.5661120 -0.9910356  0.3768174
## [484,]         1.0594802  0.9924396  -0.5661120 -0.9910356 -1.2392572
## [485,]         0.2122316  0.1728452  -1.4471183 -0.9910356  0.3768174
## [486,]        -2.3295144  0.9924396  -0.5661120 -0.9910356  0.3768174
## [487,]         0.2122316 -1.4663438   0.3148943 -0.1122420 -2.0472944
## [488,]         1.0594802 -1.4663438  -0.5661120 -0.9910356  1.1848546
## [489,]        -0.6350171 -0.6467493   0.3148943  1.6453454  0.3768174
## [490,]         1.0594802  0.9924396   0.3148943 -0.9910356 -2.0472944
## [491,]         1.0594802  0.1728452  -2.3281247 -0.9910356 -2.0472944
## [492,]         0.2122316  0.1728452   0.3148943 -0.9910356  0.3768174
## [493,]         1.0594802  0.9924396   1.1959007 -0.1122420  0.3768174
## [494,]        -1.4822657 -0.6467493  -0.5661120 -0.1122420  1.1848546
## [495,]        -0.6350171  0.1728452  -0.5661120 -0.9910356 -2.0472944
## [496,]        -0.6350171 -0.6467493  -1.4471183 -0.9910356  0.3768174
## [497,]         1.0594802  0.1728452   0.3148943 -0.1122420 -1.2392572
## [498,]        -2.3295144 -2.2859383   1.1959007 -0.1122420 -1.2392572
## [499,]         1.0594802  0.9924396   0.3148943 -0.1122420 -0.4312199
## [500,]         0.2122316  0.1728452   0.3148943  2.5241391 -0.4312199
## [501,]         1.0594802  0.9924396   0.3148943 -0.9910356 -0.4312199
## [502,]        -1.4822657 -1.4663438   0.3148943 -0.9910356 -2.0472944
## [503,]         1.0594802  0.9924396  -0.5661120  2.5241391  1.1848546
## [504,]         1.0594802  0.9924396   1.1959007  1.6453454 -1.2392572
## [505,]         0.2122316 -1.4663438  -0.5661120 -0.9910356 -1.2392572
## [506,]        -0.6350171  0.1728452   0.3148943  2.5241391  1.1848546
## [507,]        -1.4822657 -1.4663438  -0.5661120 -0.1122420  0.3768174
## [508,]         1.0594802 -2.2859383   1.1959007  0.7665517 -1.2392572
## [509,]         0.2122316  0.1728452   0.3148943  1.6453454  1.1848546
## [510,]         1.0594802  0.9924396   0.3148943  0.7665517  1.1848546
## [511,]         0.2122316 -0.6467493   0.3148943  1.6453454  0.3768174
## [512,]         0.2122316  0.1728452  -0.5661120  0.7665517  0.3768174
## [513,]        -0.6350171 -2.2859383  -2.3281247 -0.9910356 -0.4312199
## [514,]         0.2122316  0.1728452  -0.5661120 -0.1122420  0.3768174
## [515,]         1.0594802  0.9924396   1.1959007  1.6453454  0.3768174
## [516,]        -2.3295144  0.1728452  -0.5661120  2.5241391  1.1848546
## [517,]         1.0594802  0.9924396  -0.5661120  0.7665517  1.1848546
## [518,]         0.2122316  0.9924396   0.3148943 -0.1122420 -0.4312199
## [519,]         1.0594802  0.9924396   1.1959007 -0.9910356  0.3768174
## [520,]        -1.4822657 -1.4663438   0.3148943 -0.1122420  0.3768174
## [521,]        -0.6350171 -0.6467493   0.3148943 -0.1122420 -0.4312199
## [522,]         1.0594802  0.9924396   0.3148943 -0.9910356 -2.0472944
## [523,]         0.2122316  0.1728452  -0.5661120 -0.1122420  0.3768174
## [524,]        -2.3295144  0.9924396   0.3148943  0.7665517  0.3768174
## [525,]         0.2122316  0.9924396   0.3148943 -0.9910356 -2.0472944
## [526,]        -1.4822657 -0.6467493  -0.5661120 -0.1122420 -1.2392572
```

```
##   [527,]        1.0594802   0.9924396  -0.5661120 -0.1122420  1.1848546
##   [528,]       -2.3295144  -2.2859383   0.3148943  1.6453454  1.1848546
##   [529,]        0.2122316   0.1728452   1.1959007 -0.9910356  1.1848546
##   [530,]        0.2122316   0.1728452   0.3148943 -0.1122420 -1.2392572
##   [531,]       -0.6350171  -2.2859383   1.1959007 -0.9910356  1.1848546
##   [532,]        1.0594802   0.9924396   1.1959007 -0.1122420 -0.4312199
##   [533,]        1.0594802   0.9924396   1.1959007 -0.9910356 -0.4312199
##   [534,]       -0.6350171  -0.6467493  -0.5661120 -0.9910356 -0.4312199
##   [535,]        1.0594802   0.9924396   1.1959007  2.5241391  1.1848546
##   [536,]        1.0594802   0.9924396  -0.5661120 -0.1122420  1.1848546
##   [537,]       -0.6350171  -0.6467493  -1.4471183 -0.9910356  1.1848546
##   [538,]       -1.4822657   0.1728452   0.3148943 -0.1122420 -0.4312199
##   [539,]        1.0594802   0.9924396  -1.4471183 -0.9910356  0.3768174
##   [540,]       -1.4822657  -2.2859383   1.1959007  1.6453454 -0.4312199
##   [541,]        1.0594802   0.9924396   1.1959007 -0.9910356  1.1848546
##   [542,]        1.0594802   0.9924396  -0.5661120 -0.1122420  0.3768174
##   [543,]        0.2122316   0.1728452   0.3148943  0.7665517  0.3768174
##   [544,]        0.2122316   0.1728452   1.1959007 -0.1122420  0.3768174
##   [545,]        0.2122316   0.1728452   0.3148943 -0.9910356 -0.4312199
##   [546,]        1.0594802   0.9924396   0.3148943  2.5241391  1.1848546
##   [547,]       -0.6350171   0.9924396  -0.5661120 -0.1122420  0.3768174
##   [548,]        0.2122316   0.1728452   1.1959007  0.7665517  0.3768174
##   [549,]       -0.6350171  -0.6467493  -0.5661120 -0.1122420  0.3768174
##   [550,]        1.0594802   0.9924396   0.3148943 -0.9910356  0.3768174
##   [551,]        1.0594802   0.9924396   0.3148943 -0.1122420  0.3768174
##   [552,]        1.0594802   0.9924396   0.3148943 -0.9910356  0.3768174
##   [553,]        0.2122316   0.1728452   0.3148943 -0.9910356 -1.2392572
##   [554,]        0.2122316  -0.6467493  -1.4471183  0.7665517  0.3768174
##   [555,]       -0.6350171  -1.4663438   0.3148943 -0.1122420  0.3768174
##   [556,]        0.2122316  -1.4663438   0.3148943 -0.1122420  1.1848546
##   [557,]       -0.6350171  -2.2859383  -1.4471183 -0.9910356 -1.2392572
##   [558,]       -0.6350171  -0.6467493   0.3148943  0.7665517  1.1848546
##   [559,]        1.0594802   0.9924396  -0.5661120 -0.9910356 -1.2392572
##   [560,]       -0.6350171  -0.6467493  -2.3281247 -0.9910356 -1.2392572
##   [561,]        1.0594802   0.9924396   1.1959007  1.6453454  1.1848546
##   [562,]        0.2122316   0.1728452   0.3148943  0.7665517  0.3768174
##   [563,]       -1.4822657  -1.4663438  -0.5661120  0.7665517  0.3768174
##   [564,]        0.2122316  -0.6467493  -0.5661120  0.7665517  1.1848546
##   [565,]        1.0594802   0.9924396   1.1959007 -0.9910356  1.1848546
##   [566,]        1.0594802   0.9924396  -0.5661120 -0.1122420  1.1848546
##   [567,]       -0.6350171  -0.6467493  -1.4471183  0.7665517  1.1848546
##   [568,]       -0.6350171  -0.6467493  -2.3281247 -0.9910356  0.3768174
##   [569,]       -1.4822657   0.1728452   1.1959007 -0.9910356 -0.4312199
##   [570,]        0.2122316   0.1728452   0.3148943 -0.1122420 -0.4312199
##   [571,]       -0.6350171  -0.6467493  -0.5661120 -0.9910356  1.1848546
##   [572,]       -2.3295144  -2.2859383  -2.3281247 -0.9910356  1.1848546
##   [573,]       -0.6350171  -1.4663438  -0.5661120 -0.9910356 -0.4312199
##   [574,]       -0.6350171  -0.6467493   1.1959007 -0.9910356  0.3768174
##   [575,]        1.0594802   0.9924396  -0.5661120 -0.9910356 -0.4312199
##   [576,]        1.0594802   0.1728452   0.3148943  0.7665517 -1.2392572
```

```
##   [577,]          0.2122316  0.9924396   1.1959007  2.5241391  1.1848546
##   [578,]         -1.4822657 -0.6467493  -1.4471183 -0.9910356 -1.2392572
##   [579,]          1.0594802  0.9924396  -1.4471183 -0.1122420  1.1848546
##   [580,]          0.2122316  0.9924396   0.3148943 -0.9910356  1.1848546
##   [581,]          1.0594802  0.9924396   0.3148943 -0.9910356  0.3768174
##   [582,]          0.2122316  0.1728452  -0.5661120 -0.9910356  0.3768174
##   [583,]         -0.6350171 -1.4663438   0.3148943 -0.1122420  0.3768174
##   [584,]         -1.4822657 -1.4663438  -0.5661120 -0.9910356  1.1848546
##   [585,]          1.0594802  0.9924396   0.3148943 -0.9910356  0.3768174
##   [586,]          0.2122316  0.1728452  -0.5661120 -0.9910356  1.1848546
##   [587,]          1.0594802  0.9924396   1.1959007 -0.1122420  0.3768174
##   [588,]         -1.4822657 -1.4663438  -1.4471183  0.7665517  0.3768174
##   [589,]          1.0594802  0.9924396  -0.5661120 -0.9910356 -0.4312199
##   [590,]          1.0594802  0.1728452   1.1959007 -0.9910356 -0.4312199
##   [591,]          0.2122316 -1.4663438  -0.5661120 -0.1122420  0.3768174
##   [592,]         -0.6350171  0.1728452   1.1959007 -0.1122420  0.3768174
##   [593,]          1.0594802 -2.2859383  -0.5661120 -0.9910356 -2.0472944
##   [594,]          0.2122316 -0.6467493   0.3148943 -0.9910356 -1.2392572
##   [595,]         -0.6350171 -0.6467493   0.3148943 -0.9910356 -1.2392572
##   [596,]         -0.6350171  0.1728452  -1.4471183 -0.9910356 -0.4312199
##   [597,]          0.2122316  0.1728452   0.3148943 -0.1122420  0.3768174
##   [598,]          0.2122316  0.9924396  -1.4471183 -0.1122420  1.1848546
##   [599,]          1.0594802  0.1728452  -1.4471183  0.7665517  0.3768174
##   [600,]          1.0594802  0.9924396   1.1959007  0.7665517  1.1848546
##   [601,]          1.0594802  0.9924396   0.3148943 -0.1122420 -1.2392572
##   [602,]          1.0594802  0.1728452  -0.5661120 -0.9910356 -1.2392572
##   [603,]         -0.6350171  0.1728452  -0.5661120 -0.1122420  0.3768174
##   [604,]          0.2122316  0.1728452   0.3148943 -0.1122420 -0.4312199
##   [605,]          1.0594802  0.9924396   0.3148943 -0.1122420  0.3768174
##   [606,]          1.0594802  0.9924396   1.1959007  2.5241391  1.1848546
##   [607,]          0.2122316  0.1728452   1.1959007 -0.9910356  0.3768174
##   [608,]         -0.6350171  0.1728452   0.3148943 -0.9910356  1.1848546
##   [609,]          1.0594802  0.9924396   1.1959007  2.5241391  1.1848546
##   [610,]          0.2122316  0.1728452   1.1959007  2.5241391  1.1848546
##   [611,]         -0.6350171  0.1728452   0.3148943  0.7665517  0.3768174
##   [612,]          0.2122316  0.1728452  -1.4471183 -0.9910356 -0.4312199
##   [613,]          1.0594802  0.9924396   1.1959007  2.5241391  1.1848546
##   [614,]          0.2122316  0.9924396  -1.4471183 -0.9910356 -0.4312199
##   [615,]          1.0594802  0.9924396   0.3148943 -0.9910356  0.3768174
##   [616,]          0.2122316 -0.6467493   0.3148943 -0.1122420  0.3768174
##   [617,]          0.2122316  0.1728452   1.1959007 -0.1122420  1.1848546
##   [618,]         -1.4822657 -1.4663438   0.3148943 -0.9910356 -2.0472944
##   [619,]         -0.6350171  0.9924396   1.1959007 -0.9910356  1.1848546
##   [620,]         -0.6350171 -0.6467493   1.1959007 -0.1122420  0.3768174
##   [621,]         -2.3295144 -2.2859383   0.3148943 -0.1122420 -0.4312199
##   [622,]         -1.4822657  0.1728452   0.3148943 -0.9910356 -1.2392572
##   [623,]          1.0594802  0.9924396  -0.5661120  0.7665517  1.1848546
##   [624,]          1.0594802  0.9924396   1.1959007 -0.1122420  0.3768174
##   [625,]          0.2122316  0.1728452  -0.5661120 -0.9910356 -0.4312199
##   [626,]          1.0594802  0.9924396  -0.5661120 -0.9910356  0.3768174
```

```
##  [627,]              1.0594802   0.9924396  -0.5661120  -0.9910356  -1.2392572
##  [628,]              0.2122316   0.1728452  -2.3281247   0.7665517  -1.2392572
##  [629,]              0.2122316   0.9924396   1.1959007   2.5241391   1.1848546
##  [630,]              1.0594802   0.9924396  -1.4471183  -0.9910356  -0.4312199
##  [631,]              1.0594802   0.9924396   1.1959007  -0.9910356  -2.0472944
##  [632,]              1.0594802   0.9924396  -0.5661120  -0.1122420   0.3768174
##  [633,]             -0.6350171  -0.6467493   0.3148943  -0.1122420   0.3768174
##  [634,]              0.2122316   0.1728452  -0.5661120   0.7665517   1.1848546
##  [635,]              1.0594802   0.1728452  -0.5661120  -0.9910356  -1.2392572
##  [636,]             -1.4822657  -0.6467493  -0.5661120  -0.9910356  -2.0472944
##  [637,]             -1.4822657  -0.6467493   1.1959007   1.6453454   1.1848546
##  [638,]             -1.4822657  -0.6467493   1.1959007  -0.1122420   0.3768174
##  [639,]              1.0594802   0.9924396   0.3148943   0.7665517  -0.4312199
##  [640,]             -0.6350171   0.1728452   0.3148943   0.7665517   1.1848546
##  [641,]             -2.3295144  -2.2859383   1.1959007  -0.9910356  -2.0472944
##  [642,]             -0.6350171   0.9924396   0.3148943   0.7665517   1.1848546
##  [643,]              0.2122316  -1.4663438   1.1959007  -0.9910356   0.3768174
##  [644,]             -0.6350171   0.9924396   1.1959007  -0.9910356   0.3768174
##  [645,]              1.0594802   0.9924396   1.1959007   0.7665517   1.1848546
##  [646,]             -0.6350171  -0.6467493   1.1959007   1.6453454   1.1848546
##  [647,]              0.2122316   0.9924396   0.3148943  -0.1122420   0.3768174
##  [648,]              1.0594802   0.9924396  -0.5661120  -0.9910356   1.1848546
##  [649,]              0.2122316  -0.6467493  -0.5661120  -0.9910356  -0.4312199
##  [650,]             -0.6350171   0.1728452   0.3148943  -0.1122420  -1.2392572
##  [651,]             -1.4822657   0.9924396  -0.5661120   0.7665517   1.1848546
##  [652,]             -0.6350171  -0.6467493   0.3148943   2.5241391   1.1848546
##  [653,]             -0.6350171  -0.6467493   1.1959007  -0.9910356   1.1848546
##  [654,]              1.0594802   0.9924396   0.3148943   2.5241391   0.3768174
##  [655,]             -1.4822657  -1.4663438   0.3148943  -0.1122420   0.3768174
##  [656,]             -0.6350171   0.1728452  -1.4471183  -0.9910356  -1.2392572
##  [657,]             -0.6350171  -0.6467493   0.3148943   0.7665517  -0.4312199
##  [658,]              1.0594802   0.9924396   0.3148943  -0.9910356  -0.4312199
##  [659,]              1.0594802   0.9924396   1.1959007   0.7665517  -0.4312199
##  [660,]             -1.4822657  -2.2859383   0.3148943   0.7665517  -0.4312199
##  [661,]              1.0594802   0.9924396   0.3148943  -0.1122420  -1.2392572
##  [662,]             -0.6350171   0.1728452  -1.4471183  -0.9910356  -0.4312199
##  [663,]             -0.6350171  -0.6467493  -1.4471183  -0.9910356  -0.4312199
##  [664,]              1.0594802   0.9924396  -0.5661120   0.7665517   0.3768174
##  [665,]              1.0594802   0.1728452   0.3148943   1.6453454   0.3768174
##  [666,]             -1.4822657  -0.6467493   0.3148943   0.7665517  -1.2392572
##  [667,]             -0.6350171   0.1728452   0.3148943  -0.1122420  -1.2392572
##  [668,]             -1.4822657  -1.4663438   1.1959007  -0.1122420  -1.2392572
##  [669,]              0.2122316  -0.6467493   1.1959007  -0.9910356  -1.2392572
##  [670,]              0.2122316   0.1728452  -1.4471183  -0.1122420   0.3768174
##  [671,]             -0.6350171  -0.6467493   0.3148943   0.7665517  -0.4312199
##  [672,]             -0.6350171  -1.4663438   0.3148943  -0.1122420   0.3768174
##  [673,]             -0.6350171  -1.4663438   0.3148943  -0.1122420  -2.0472944
##  [674,]             -0.6350171  -0.6467493  -0.5661120  -0.1122420  -2.0472944
##  [675,]             -1.4822657   0.9924396   1.1959007  -0.9910356  -1.2392572
##  [676,]              1.0594802   0.9924396  -2.3281247  -0.9910356  -0.4312199
```

```
##   [677,]        -0.6350171  0.1728452   1.1959007 -0.9910356 -0.4312199
##   [678,]         1.0594802  0.9924396   1.1959007  0.7665517 -0.4312199
##   [679,]         1.0594802  0.9924396   1.1959007  0.7665517 -0.4312199
##   [680,]         1.0594802  0.9924396   1.1959007 -0.9910356 -2.0472944
##   [681,]         1.0594802  0.9924396   0.3148943  0.7665517 -0.4312199
##   [682,]         0.2122316  0.1728452   0.3148943 -0.1122420  0.3768174
##   [683,]         1.0594802  0.1728452   0.3148943  0.7665517  1.1848546
##   [684,]         1.0594802  0.9924396   1.1959007  2.5241391  1.1848546
##   [685,]         1.0594802 -0.6467493  -2.3281247 -0.9910356 -1.2392572
##   [686,]         1.0594802 -2.2859383   0.3148943  0.7665517  0.3768174
##   [687,]        -0.6350171 -0.6467493  -0.5661120  0.7665517 -0.4312199
##   [688,]         0.2122316  0.9924396  -0.5661120 -0.9910356  0.3768174
##   [689,]         1.0594802  0.9924396  -0.5661120 -0.9910356 -2.0472944
##   [690,]        -0.6350171  0.9924396   1.1959007  0.7665517  1.1848546
##   [691,]        -1.4822657 -0.6467493  -0.5661120  1.6453454  0.3768174
##   [692,]         1.0594802  0.1728452  -1.4471183 -0.1122420 -1.2392572
##   [693,]        -0.6350171  0.1728452   1.1959007  0.7665517  1.1848546
##   [694,]        -0.6350171 -0.6467493  -2.3281247 -0.9910356 -0.4312199
##   [695,]         0.2122316  0.1728452   1.1959007 -0.1122420  0.3768174
##   [696,]         1.0594802  0.9924396  -0.5661120 -0.9910356  1.1848546
##   [697,]         1.0594802 -0.6467493   1.1959007 -0.9910356 -1.2392572
##   [698,]        -0.6350171 -0.6467493  -1.4471183 -0.9910356  1.1848546
##   [699,]         0.2122316 -0.6467493  -1.4471183 -0.9910356  0.3768174
##   [700,]         0.2122316  0.9924396  -1.4471183 -0.9910356 -2.0472944
##   [701,]         1.0594802  0.9924396   0.3148943 -0.9910356  1.1848546
##   [702,]         1.0594802  0.9924396   1.1959007  0.7665517  1.1848546
##   [703,]         1.0594802  0.9924396   1.1959007 -0.1122420  1.1848546
##   [704,]         0.2122316  0.1728452   0.3148943  2.5241391  1.1848546
##   [705,]         1.0594802  0.1728452  -0.5661120 -0.9910356 -0.4312199
##   [706,]         0.2122316  0.9924396   1.1959007 -0.1122420  0.3768174
##   [707,]        -1.4822657 -0.6467493   0.3148943 -0.1122420  0.3768174
##   [708,]        -0.6350171 -1.4663438   1.1959007 -0.1122420 -0.4312199
##   [709,]        -0.6350171 -0.6467493  -0.5661120 -0.9910356  1.1848546
##   [710,]         1.0594802  0.1728452  -1.4471183 -0.1122420 -0.4312199
##   [711,]         1.0594802  0.9924396   1.1959007  0.7665517  1.1848546
##   [712,]         0.2122316  0.1728452   1.1959007  0.7665517 -0.4312199
##   [713,]         0.2122316  0.9924396  -1.4471183 -0.9910356  1.1848546
##   [714,]        -2.3295144 -2.2859383   1.1959007  0.7665517 -1.2392572
##   [715,]         1.0594802  0.9924396   0.3148943 -0.9910356 -1.2392572
##   [716,]         0.2122316  0.9924396   0.3148943 -0.1122420  0.3768174
##   [717,]        -0.6350171 -0.6467493   1.1959007  1.6453454  0.3768174
##   [718,]        -0.6350171 -0.6467493  -0.5661120 -0.9910356 -0.4312199
##   [719,]        -0.6350171 -1.4663438   0.3148943  1.6453454  1.1848546
##   [720,]        -0.6350171 -0.6467493   1.1959007  0.7665517  0.3768174
##   [721,]         1.0594802  0.9924396   0.3148943 -0.9910356  0.3768174
##   [722,]        -0.6350171 -0.6467493   0.3148943 -0.9910356  0.3768174
##   [723,]         1.0594802  0.1728452   1.1959007 -0.1122420 -2.0472944
##   [724,]         1.0594802  0.9924396   0.3148943 -0.1122420 -1.2392572
##   [725,]         0.2122316  0.1728452  -0.5661120 -0.1122420 -0.4312199
##   [726,]        -2.3295144 -2.2859383   0.3148943 -0.9910356 -0.4312199
```

```
##   [727,]        -0.6350171  0.1728452  -2.3281247 -0.1122420  1.1848546
##   [728,]         0.2122316  0.1728452   0.3148943  1.6453454  1.1848546
##   [729,]         0.2122316  0.1728452   1.1959007 -0.9910356  1.1848546
##   [730,]         0.2122316  0.1728452   0.3148943  1.6453454  0.3768174
##   [731,]        -0.6350171 -0.6467493   0.3148943 -0.1122420 -0.4312199
##   [732,]        -0.6350171  0.1728452   0.3148943 -0.9910356 -1.2392572
##   [733,]        -1.4822657 -1.4663438   0.3148943 -0.1122420  1.1848546
##   [734,]         1.0594802  0.1728452   0.3148943  0.7665517 -1.2392572
##   [735,]         1.0594802  0.9924396  -0.5661120 -0.1122420 -0.4312199
##   [736,]        -0.6350171 -2.2859383   0.3148943 -0.1122420 -1.2392572
##   [737,]         1.0594802  0.9924396   0.3148943  0.7665517 -0.4312199
##   [738,]         0.2122316  0.9924396  -1.4471183 -0.9910356 -0.4312199
##   [739,]        -2.3295144 -1.4663438  -1.4471183  1.6453454  1.1848546
##   [740,]         1.0594802  0.9924396   0.3148943  2.5241391  1.1848546
##   [741,]        -0.6350171 -0.6467493   0.3148943  0.7665517  1.1848546
##   [742,]         1.0594802  0.1728452  -0.5661120 -0.9910356 -0.4312199
##   [743,]         1.0594802  0.9924396   0.3148943  2.5241391  1.1848546
##   [744,]         0.2122316  0.1728452   0.3148943 -0.1122420 -1.2392572
##   [745,]        -0.6350171  0.1728452   1.1959007  1.6453454  1.1848546
##   [746,]         0.2122316  0.9924396   1.1959007 -0.1122420  0.3768174
##   [747,]        -0.6350171  0.1728452  -1.4471183 -0.9910356  0.3768174
##   [748,]         1.0594802  0.9924396   1.1959007 -0.9910356  0.3768174
##   [749,]         1.0594802  0.9924396   1.1959007  0.7665517 -0.4312199
##   [750,]        -0.6350171 -0.6467493  -0.5661120  0.7665517  0.3768174
##   [751,]         1.0594802  0.9924396   1.1959007  0.7665517 -0.4312199
##   [752,]         0.2122316 -1.4663438  -0.5661120 -0.9910356  1.1848546
##   [753,]        -0.6350171 -0.6467493  -1.4471183 -0.9910356 -1.2392572
##   [754,]         1.0594802  0.9924396   0.3148943 -0.1122420 -1.2392572
##   [755,]        -1.4822657 -1.4663438   0.3148943 -0.1122420  1.1848546
##   [756,]        -1.4822657 -2.2859383  -2.3281247 -0.1122420 -2.0472944
##   [757,]         0.2122316  0.1728452   0.3148943  1.6453454  1.1848546
##   [758,]        -1.4822657 -0.6467493   1.1959007  0.7665517 -1.2392572
##   [759,]         1.0594802  0.9924396   0.3148943 -0.1122420  1.1848546
##   [760,]         1.0594802  0.9924396   1.1959007  0.7665517  1.1848546
##   [761,]        -1.4822657  0.1728452  -0.5661120 -0.1122420 -0.4312199
##   [762,]        -2.3295144 -2.2859383  -1.4471183 -0.9910356  1.1848546
##   [763,]        -1.4822657 -1.4663438   0.3148943  0.7665517  1.1848546
##   [764,]        -1.4822657  0.9924396   1.1959007 -0.1122420 -0.4312199
##   [765,]         0.2122316  0.1728452   0.3148943 -0.9910356 -0.4312199
##   [766,]         0.2122316  0.1728452  -0.5661120 -0.1122420  1.1848546
##   [767,]        -0.6350171  0.1728452   0.3148943  1.6453454  0.3768174
##   [768,]         0.2122316  0.1728452   0.3148943  1.6453454  0.3768174
##   [769,]        -0.6350171 -0.6467493  -0.5661120 -0.9910356  1.1848546
##   [770,]         1.0594802  0.9924396   1.1959007  2.5241391  1.1848546
##   [771,]        -2.3295144  0.9924396   1.1959007  1.6453454 -0.4312199
##   [772,]        -0.6350171 -0.6467493   0.3148943  0.7665517  1.1848546
##   [773,]         0.2122316 -0.6467493  -1.4471183 -0.9910356 -0.4312199
##   [774,]         1.0594802  0.9924396   1.1959007  2.5241391  1.1848546
##   [775,]         0.2122316 -1.4663438   0.3148943  0.7665517  0.3768174
##   [776,]         0.2122316  0.9924396   1.1959007 -0.1122420 -0.4312199
```

```
## [777,]            1.0594802  0.9924396   1.1959007  2.5241391  1.1848546
## [778,]            0.2122316  0.1728452  -2.3281247 -0.1122420  0.3768174
## [779,]            0.2122316 -0.6467493  -1.4471183 -0.9910356 -1.2392572
## [780,]            1.0594802  0.9924396   1.1959007  0.7665517 -0.4312199
## [781,]           -0.6350171  0.1728452   1.1959007  0.7665517  0.3768174
## [782,]            1.0594802  0.9924396   1.1959007 -0.9910356 -1.2392572
## [783,]           -0.6350171  0.1728452   1.1959007  2.5241391  0.3768174
## [784,]            1.0594802  0.9924396   1.1959007  2.5241391  1.1848546
## [785,]            0.2122316  0.9924396  -0.5661120 -0.9910356  0.3768174
## [786,]           -1.4822657 -0.6467493  -1.4471183 -0.1122420  1.1848546
## [787,]           -0.6350171  0.1728452   0.3148943 -0.9910356  1.1848546
## [788,]            1.0594802  0.9924396  -0.5661120 -0.1122420  0.3768174
## [789,]            0.2122316  0.1728452  -1.4471183 -0.9910356 -2.0472944
## [790,]            1.0594802  0.1728452  -0.5661120 -0.9910356 -0.4312199
## [791,]           -1.4822657  0.9924396   1.1959007 -0.1122420  0.3768174
## [792,]            0.2122316  0.1728452   1.1959007 -0.9910356 -0.4312199
## [793,]           -1.4822657 -2.2859383   0.3148943  0.7665517  1.1848546
## [794,]           -0.6350171 -0.6467493  -0.5661120  0.7665517  0.3768174
## [795,]           -1.4822657 -1.4663438  -1.4471183 -0.9910356  1.1848546
## [796,]           -1.4822657  0.1728452  -1.4471183  1.6453454 -1.2392572
## [797,]           -1.4822657 -0.6467493  -0.5661120  0.7665517 -0.4312199
## [798,]            1.0594802 -0.6467493  -1.4471183 -0.1122420  1.1848546
## [799,]           -0.6350171 -0.6467493  -0.5661120  1.6453454  1.1848546
## [800,]           -0.6350171  0.1728452   1.1959007  0.7665517 -0.4312199
## [801,]           -0.6350171  0.9924396  -2.3281247 -0.1122420  1.1848546
## [802,]           -1.4822657 -0.6467493   0.3148943 -0.1122420  1.1848546
## [803,]            0.2122316  0.9924396   0.3148943 -0.9910356  0.3768174
## [804,]           -0.6350171 -1.4663438  -1.4471183 -0.9910356 -1.2392572
## [805,]            1.0594802  0.9924396  -0.5661120 -0.1122420  1.1848546
## [806,]            0.2122316  0.9924396   0.3148943 -0.9910356 -1.2392572
## [807,]           -1.4822657 -0.6467493   0.3148943  0.7665517  1.1848546
## [808,]            0.2122316  0.1728452   1.1959007  1.6453454  1.1848546
## [809,]            1.0594802  0.9924396   0.3148943 -0.1122420  1.1848546
## [810,]           -1.4822657 -1.4663438   0.3148943 -0.1122420  1.1848546
## [811,]            1.0594802  0.9924396   0.3148943  1.6453454  1.1848546
## [812,]           -0.6350171 -0.6467493   1.1959007 -0.1122420 -1.2392572
## [813,]           -2.3295144 -2.2859383  -1.4471183 -0.9910356  0.3768174
## [814,]           -2.3295144 -1.4663438  -0.5661120 -0.9910356  1.1848546
## [815,]            0.2122316  0.1728452  -0.5661120  0.7665517  0.3768174
## [816,]            0.2122316 -0.6467493   1.1959007  2.5241391  1.1848546
## [817,]            0.2122316  0.9924396   1.1959007 -0.1122420 -2.0472944
## [818,]            0.2122316  0.9924396  -2.3281247  1.6453454 -0.4312199
## [819,]           -0.6350171  0.1728452   1.1959007  1.6453454  1.1848546
## [820,]           -0.6350171 -1.4663438   1.1959007 -0.9910356 -1.2392572
## [821,]           -0.6350171 -1.4663438  -0.5661120  1.6453454 -1.2392572
## [822,]            1.0594802  0.9924396  -0.5661120  0.7665517  1.1848546
## [823,]           -0.6350171  0.1728452  -1.4471183 -0.1122420 -0.4312199
## [824,]           -0.6350171 -1.4663438   1.1959007 -0.9910356  1.1848546
## [825,]            1.0594802  0.9924396   1.1959007  1.6453454 -0.4312199
## [826,]            1.0594802  0.9924396   1.1959007 -0.1122420 -1.2392572
```

```
##   [827,]       0.2122316  0.1728452  -0.5661120 -0.1122420 -1.2392572
##   [828,]       0.2122316 -1.4663438  -1.4471183 -0.1122420 -2.0472944
##   [829,]      -1.4822657 -0.6467493  -0.5661120 -0.1122420  1.1848546
##   [830,]       0.2122316  0.1728452  -1.4471183 -0.1122420  1.1848546
##   [831,]      -1.4822657 -1.4663438   1.1959007 -0.9910356 -1.2392572
##   [832,]       0.2122316  0.1728452  -0.5661120  0.7665517  0.3768174
##   [833,]       1.0594802  0.9924396   1.1959007 -0.1122420 -0.4312199
##   [834,]      -1.4822657 -1.4663438   0.3148943 -0.1122420 -0.4312199
##   [835,]      -0.6350171 -0.6467493   0.3148943  0.7665517  0.3768174
##   [836,]      -0.6350171 -0.6467493   0.3148943  2.5241391  1.1848546
##   [837,]       0.2122316  0.1728452  -0.5661120  0.7665517 -0.4312199
##   [838,]       1.0594802  0.9924396   1.1959007  2.5241391  0.3768174
##   [839,]       0.2122316  0.9924396  -1.4471183 -0.9910356  0.3768174
##   [840,]       1.0594802  0.9924396  -1.4471183 -0.1122420 -1.2392572
##   [841,]       0.2122316 -0.6467493  -1.4471183 -0.9910356 -0.4312199
##   [842,]      -0.6350171  0.9924396  -1.4471183 -0.1122420  0.3768174
##   [843,]      -0.6350171 -0.6467493   1.1959007 -0.9910356  1.1848546
##   [844,]       0.2122316  0.1728452   1.1959007 -0.1122420 -0.4312199
##   [845,]      -0.6350171 -1.4663438   1.1959007  0.7665517  1.1848546
##   [846,]       1.0594802  0.9924396  -0.5661120 -0.9910356 -1.2392572
##   [847,]      -1.4822657  0.1728452   0.3148943 -0.1122420 -0.4312199
##   [848,]       1.0594802  0.9924396   0.3148943 -0.9910356 -1.2392572
##   [849,]      -2.3295144 -1.4663438  -2.3281247 -0.9910356 -0.4312199
##   [850,]       1.0594802  0.9924396  -0.5661120 -0.1122420 -0.4312199
##   [851,]       1.0594802  0.9924396   1.1959007 -0.9910356  0.3768174
##   [852,]      -0.6350171 -0.6467493   1.1959007 -0.1122420  1.1848546
##   [853,]      -0.6350171 -0.6467493   0.3148943 -0.1122420  1.1848546
##   [854,]       1.0594802 -0.6467493   0.3148943  1.6453454 -0.4312199
##   [855,]      -1.4822657 -1.4663438  -0.5661120 -0.9910356  0.3768174
##   [856,]       0.2122316  0.1728452   1.1959007  1.6453454  1.1848546
##   [857,]      -0.6350171 -1.4663438   0.3148943  1.6453454  1.1848546
##   [858,]       1.0594802  0.9924396  -0.5661120  0.7665517  0.3768174
##   [859,]       1.0594802  0.9924396   0.3148943  2.5241391  1.1848546
##   [860,]       0.2122316  0.1728452   0.3148943 -0.1122420  0.3768174
##   [861,]       0.2122316  0.1728452   0.3148943 -0.1122420  0.3768174
##   [862,]       0.2122316  0.1728452  -1.4471183 -0.9910356  1.1848546
##   [863,]       1.0594802  0.1728452   0.3148943  0.7665517  1.1848546
##   [864,]       1.0594802  0.1728452  -1.4471183 -0.9910356  0.3768174
##   [865,]       1.0594802  0.9924396  -0.5661120  0.7665517  0.3768174
##   [866,]      -1.4822657 -0.6467493  -1.4471183  1.6453454 -1.2392572
##   [867,]      -1.4822657 -0.6467493   0.3148943  1.6453454  0.3768174
##   [868,]      -0.6350171  0.1728452   0.3148943 -0.1122420  0.3768174
##   [869,]      -0.6350171  0.1728452  -2.3281247 -0.1122420  0.3768174
##   [870,]       1.0594802  0.9924396   1.1959007 -0.1122420 -1.2392572
##   [871,]      -0.6350171  0.1728452  -1.4471183 -0.1122420 -1.2392572
##   [872,]       0.2122316  0.9924396   0.3148943 -0.1122420  0.3768174
##   [873,]      -1.4822657 -0.6467493  -0.5661120 -0.1122420  0.3768174
##   [874,]      -0.6350171 -0.6467493   1.1959007 -0.1122420  0.3768174
##   [875,]      -1.4822657 -0.6467493  -1.4471183 -0.9910356  0.3768174
##   [876,]       0.2122316  0.1728452  -0.5661120 -0.9910356  1.1848546
```

```
##   [877,]         0.2122316  0.9924396    0.3148943 -0.1122420  0.3768174
##   [878,]        -0.6350171  0.1728452    1.1959007 -0.9910356  1.1848546
##   [879,]         0.2122316  0.1728452   -1.4471183 -0.1122420  0.3768174
##   [880,]        -1.4822657 -1.4663438    0.3148943 -0.1122420  1.1848546
##   [881,]        -1.4822657 -0.6467493   -1.4471183 -0.9910356  1.1848546
##   [882,]         1.0594802  0.9924396    1.1959007 -0.1122420 -1.2392572
##   [883,]         0.2122316  0.1728452   -2.3281247 -0.9910356 -0.4312199
##   [884,]         1.0594802  0.1728452   -1.4471183 -0.9910356  0.3768174
##   [885,]         1.0594802  0.9924396    0.3148943 -0.9910356  1.1848546
##   [886,]         0.2122316  0.1728452   -0.5661120 -0.9910356 -1.2392572
##   [887,]        -2.3295144 -1.4663438   -2.3281247 -0.9910356  1.1848546
##   [888,]         0.2122316 -1.4663438   -0.5661120  0.7665517  0.3768174
##   [889,]         0.2122316 -2.2859383    0.3148943 -0.1122420 -1.2392572
##   [890,]         0.2122316  0.1728452    1.1959007 -0.1122420 -0.4312199
##   [891,]        -1.4822657 -1.4663438   -2.3281247 -0.1122420  1.1848546
##   [892,]         0.2122316  0.9924396    0.3148943  0.7665517  1.1848546
##   [893,]        -0.6350171  0.1728452    0.3148943 -0.9910356 -0.4312199
##   [894,]        -0.6350171 -1.4663438    0.3148943  0.7665517 -1.2392572
##   [895,]         1.0594802  0.9924396    0.3148943 -0.1122420 -1.2392572
##   [896,]        -0.6350171 -0.6467493   -0.5661120 -0.1122420  0.3768174
##   [897,]        -1.4822657 -1.4663438   -0.5661120 -0.1122420 -0.4312199
##   [898,]        -0.6350171 -1.4663438   -0.5661120  0.7665517 -1.2392572
##   [899,]        -0.6350171 -0.6467493    1.1959007  0.7665517 -2.0472944
##   [900,]        -1.4822657 -0.6467493    0.3148943 -0.1122420 -1.2392572
##   [901,]         0.2122316 -0.6467493   -1.4471183 -0.9910356  1.1848546
##   [902,]        -1.4822657 -1.4663438    0.3148943 -0.1122420  0.3768174
##   [903,]        -1.4822657 -0.6467493    1.1959007  1.6453454 -0.4312199
##   [904,]        -0.6350171  0.1728452    0.3148943  0.7665517 -0.4312199
##   [905,]         0.2122316  0.1728452   -0.5661120 -0.9910356 -0.4312199
##   [906,]         0.2122316  0.1728452    1.1959007  0.7665517  1.1848546
##   [907,]         1.0594802  0.9924396    1.1959007 -0.9910356 -1.2392572
##   [908,]         1.0594802  0.9924396   -0.5661120 -0.1122420  0.3768174
##   [909,]        -0.6350171 -1.4663438    0.3148943  0.7665517 -0.4312199
##   [910,]         0.2122316 -0.6467493   -1.4471183 -0.1122420 -0.4312199
##   [911,]         1.0594802  0.9924396    1.1959007 -0.1122420  1.1848546
##   [912,]         0.2122316  0.1728452    1.1959007 -0.9910356  1.1848546
##   [913,]        -1.4822657 -0.6467493    0.3148943 -0.1122420 -0.4312199
##   [914,]        -0.6350171  0.1728452    0.3148943  0.7665517  0.3768174
##   [915,]         0.2122316 -0.6467493   -0.5661120  0.7665517 -1.2392572
##   [916,]         0.2122316  0.9924396   -1.4471183  0.7665517 -1.2392572
##   [917,]        -2.3295144 -2.2859383   -2.3281247 -0.1122420 -0.4312199
##   [918,]        -2.3295144 -1.4663438   -0.5661120  1.6453454  0.3768174
##   [919,]         0.2122316 -0.6467493   -1.4471183 -0.9910356 -0.4312199
##   [920,]         1.0594802  0.1728452    0.3148943 -0.1122420 -0.4312199
##   [921,]        -0.6350171 -0.6467493   -0.5661120 -0.9910356 -0.4312199
##   [922,]        -0.6350171 -0.6467493   -2.3281247 -0.1122420 -0.4312199
##   [923,]        -0.6350171 -0.6467493    1.1959007 -0.9910356  1.1848546
##   [924,]         1.0594802  0.9924396    0.3148943 -0.1122420 -1.2392572
##   [925,]         1.0594802  0.9924396    0.3148943 -0.9910356 -2.0472944
##   [926,]         0.2122316  0.1728452   -1.4471183 -0.9910356 -2.0472944
```

```
## [927,]        -0.6350171 -0.6467493   1.1959007 -0.9910356   1.1848546
## [928,]         1.0594802  0.9924396  -0.5661120 -0.9910356   0.3768174
## [929,]         1.0594802  0.9924396   1.1959007 -0.1122420  -0.4312199
## [930,]         0.2122316  0.1728452  -0.5661120  0.7665517  -0.4312199
## [931,]         1.0594802  0.9924396  -0.5661120 -0.1122420  -0.4312199
## [932,]         1.0594802  0.1728452  -0.5661120  1.6453454   1.1848546
## [933,]         1.0594802  0.1728452  -1.4471183 -0.9910356  -0.4312199
## [934,]         0.2122316  0.1728452   0.3148943 -0.1122420  -1.2392572
## [935,]        -0.6350171 -1.4663438  -1.4471183 -0.1122420   0.3768174
## [936,]         1.0594802 -0.6467493  -1.4471183 -0.9910356  -1.2392572
## [937,]         0.2122316 -0.6467493  -0.5661120  0.7665517   0.3768174
## [938,]         0.2122316  0.9924396  -0.5661120  2.5241391   1.1848546
## [939,]         1.0594802  0.1728452   1.1959007 -0.9910356   1.1848546
## [940,]        -0.6350171  0.9924396   0.3148943 -0.1122420  -2.0472944
## [941,]         0.2122316 -0.6467493   1.1959007  1.6453454   1.1848546
## [942,]        -0.6350171 -0.6467493  -1.4471183 -0.9910356   0.3768174
## [943,]         0.2122316 -1.4663438  -0.5661120  1.6453454   0.3768174
## [944,]        -0.6350171  0.9924396   0.3148943 -0.1122420  -0.4312199
## [945,]         1.0594802  0.9924396  -0.5661120 -0.9910356   1.1848546
## [946,]        -0.6350171  0.9924396  -1.4471183  1.6453454   1.1848546
## [947,]         1.0594802  0.9924396  -0.5661120  0.7665517   1.1848546
## [948,]         0.2122316  0.1728452  -1.4471183 -0.9910356  -0.4312199
## [949,]         1.0594802  0.9924396   0.3148943  0.7665517  -0.4312199
## [950,]         1.0594802  0.9924396   1.1959007 -0.9910356   1.1848546
## [951,]        -0.6350171  0.1728452  -1.4471183  1.6453454   1.1848546
## [952,]        -1.4822657  0.1728452  -1.4471183 -0.1122420   1.1848546
## [953,]         1.0594802  0.9924396   0.3148943  1.6453454   0.3768174
## [954,]         0.2122316  0.9924396   0.3148943 -0.1122420   0.3768174
## [955,]         1.0594802 -0.6467493   0.3148943 -0.1122420   0.3768174
## [956,]        -0.6350171 -0.6467493   1.1959007 -0.9910356   1.1848546
## [957,]        -0.6350171  0.1728452   0.3148943  2.5241391   1.1848546
## [958,]        -0.6350171 -1.4663438  -0.5661120 -0.1122420   1.1848546
## [959,]        -1.4822657 -1.4663438  -0.5661120 -0.1122420  -1.2392572
## [960,]         1.0594802  0.9924396   0.3148943 -0.1122420   0.3768174
## [961,]        -0.6350171 -1.4663438   0.3148943  0.7665517   0.3768174
## [962,]         0.2122316  0.1728452   1.1959007  0.7665517   0.3768174
## [963,]        -0.6350171  0.1728452   1.1959007 -0.1122420  -2.0472944
## [964,]         1.0594802  0.9924396   1.1959007 -0.9910356   0.3768174
## [965,]         0.2122316  0.1728452   0.3148943  0.7665517   0.3768174
## [966,]         1.0594802  0.9924396   1.1959007  0.7665517   1.1848546
## [967,]         1.0594802  0.9924396  -2.3281247 -0.1122420  -2.0472944
## [968,]         0.2122316  0.9924396   1.1959007  2.5241391   1.1848546
## [969,]        -0.6350171  0.1728452   0.3148943 -0.1122420   0.3768174
## [970,]         1.0594802  0.9924396  -1.4471183 -0.1122420   1.1848546
## [971,]         1.0594802  0.9924396  -0.5661120  0.7665517   0.3768174
## [972,]         0.2122316  0.1728452   0.3148943 -0.1122420   0.3768174
## [973,]         0.2122316  0.1728452   0.3148943 -0.9910356   0.3768174
## [974,]         1.0594802  0.9924396   1.1959007  0.7665517  -2.0472944
## [975,]        -0.6350171 -0.6467493   1.1959007 -0.1122420   0.3768174
## [976,]        -0.6350171  0.9924396   1.1959007  0.7665517  -0.4312199
```

```
##   [977,]         0.2122316  0.9924396   0.3148943  0.7665517  0.3768174
##   [978,]        -0.6350171 -1.4663438  -0.5661120  0.7665517 -1.2392572
##   [979,]         1.0594802  0.9924396  -0.5661120 -0.1122420  0.3768174
##   [980,]         1.0594802  0.9924396   0.3148943 -0.1122420  1.1848546
##   [981,]        -1.4822657 -1.4663438  -0.5661120 -0.1122420 -0.4312199
##   [982,]        -0.6350171  0.1728452  -1.4471183 -0.1122420 -0.4312199
##   [983,]        -1.4822657 -0.6467493  -1.4471183 -0.9910356 -0.4312199
##   [984,]         1.0594802  0.9924396  -2.3281247 -0.9910356 -1.2392572
##   [985,]        -0.6350171 -0.6467493  -0.5661120 -0.9910356 -1.2392572
##   [986,]         0.2122316  0.9924396  -2.3281247 -0.9910356 -1.2392572
##   [987,]         0.2122316 -0.6467493   1.1959007 -0.1122420 -2.0472944
##   [988,]        -1.4822657 -0.6467493   0.3148943  0.7665517 -1.2392572
##   [989,]         1.0594802 -1.4663438   1.1959007 -0.1122420 -0.4312199
##   [990,]         1.0594802 -0.6467493  -0.5661120  0.7665517 -0.4312199
##   [991,]        -1.4822657 -1.4663438   1.1959007  1.6453454  0.3768174
##   [992,]        -2.3295144 -2.2859383   0.3148943  0.7665517  1.1848546
##   [993,]         0.2122316  0.1728452   0.3148943  0.7665517  0.3768174
##   [994,]         1.0594802  0.9924396  -1.4471183 -0.9910356 -1.2392572
##   [995,]         1.0594802  0.9924396   1.1959007 -0.9910356 -0.4312199
##   [996,]        -0.6350171 -0.6467493   0.3148943 -0.9910356  0.3768174
##   [997,]        -0.6350171 -1.4663438  -0.5661120 -0.1122420  0.3768174
##   [998,]         1.0594802 -1.4663438  -0.5661120 -0.1122420 -0.4312199
##   [999,]         0.2122316  0.9924396   0.3148943  1.6453454  1.1848546
## [1000,]        -0.6350171  0.1728452   1.1959007 -0.1122420  1.1848546
## [1001,]         1.0594802  0.9924396  -0.5661120 -0.1122420 -1.2392572
## [1002,]        -0.6350171 -0.6467493  -1.4471183 -0.1122420 -0.4312199
## [1003,]        -1.4822657 -1.4663438  -1.4471183 -0.1122420 -0.4312199
## [1004,]        -0.6350171 -0.6467493   0.3148943 -0.1122420  0.3768174
## [1005,]         0.2122316  0.9924396  -0.5661120  0.7665517 -0.4312199
## [1006,]         1.0594802  0.9924396  -1.4471183 -0.9910356  0.3768174
## [1007,]        -2.3295144  0.9924396   1.1959007 -0.1122420  1.1848546
## [1008,]         0.2122316  0.1728452  -0.5661120 -0.9910356 -0.4312199
## [1009,]         1.0594802  0.9924396  -0.5661120 -0.9910356  0.3768174
## [1010,]         0.2122316 -1.4663438   0.3148943 -0.9910356  0.3768174
## attr(,"scaled:center")
##           Horror          Thriller             Comedy
Romantic
##         2.792079          3.382178           4.496040
3.489109
##           Sci.fi               War Fantasy.Fairy.tales
Animated
##         3.108911          3.155446           3.749505
3.789109
##       Documentary           Western             Action
##         3.642574          2.127723           3.533663
## attr(,"scaled:scale")
##           Horror          Thriller             Comedy
Romantic
##         1.4108235         1.1981482          0.7791155
1.2079930
```

```
##          Sci.fi              War Fantasy.Fairy.tales
Animated
##       1.3139564        1.3498871         1.1802911
1.2201156
##       Documentary          Western           Action
##       1.1350656        1.1379235         1.2375667
```

#as.matrix(scale.hobbies)%*%fact.load.hobbies%*%solve(t(fact.load.hobbies)%*%
fact.load.hobbies)

```
fit.pc.movies<- principal(movie_transformed[-1], nfactors=4,
rotate="varimax")
fit.pc.movies
```

```
## Principal Components Analysis
## Call: principal(r = movie_transformed[-1], nfactors = 4, rotate =
"varimax")
## Standardized loadings (pattern matrix) based upon correlation matrix
##                      RC1   RC2   RC3   RC4   h2   u2 com
## Horror              0.05 -0.02  0.86  0.03 0.74 0.26 1.0
## Thriller            0.21 -0.01  0.82 -0.09 0.72 0.28 1.2
## Comedy              0.11  0.12  0.06  0.82 0.70 0.30 1.1
## Romantic           -0.21  0.32 -0.21  0.59 0.54 0.46 2.1
## Sci.fi              0.61  0.00  0.22  0.14 0.44 0.56 1.4
## War                 0.66  0.00  0.11 -0.23 0.50 0.50 1.3
## Fantasy.Fairy.tales -0.05  0.87 -0.06  0.19 0.80 0.20 1.1
## Animated            0.01  0.87  0.07  0.13 0.78 0.22 1.1
## Documentary         0.48  0.39 -0.18 -0.33 0.52 0.48 3.1
## Western             0.73  0.01 -0.05 -0.11 0.55 0.45 1.1
## Action              0.69 -0.11  0.20  0.22 0.57 0.43 1.4
##
##                      RC1  RC2  RC3  RC4
## SS loadings         2.15 1.80 1.60 1.33
## Proportion Var      0.20 0.16 0.15 0.12
## Cumulative Var      0.20 0.36 0.50 0.62
## Proportion Explained 0.31 0.26 0.23 0.19
## Cumulative Proportion 0.31 0.57 0.81 1.00
##
## Mean item complexity =  1.4
## Test of the hypothesis that 4 components are sufficient.
##
## The root mean square of the residuals (RMSR) is  0.09
##  with the empirical chi square  916.68  with prob <  5.8e-184
##
## Fit based upon off diagonal values = 0.81
```

round(fit.pc.movies$values, 3)

```
##  [1] 2.491 2.000 1.386 0.994 0.798 0.749 0.674 0.595 0.585 0.424 0.306
```

fit.pc.movies$loadings

```
## 
## Loadings:
##                        RC1    RC2    RC3    RC4
## Horror                               0.859
## Thriller             0.206          0.816
## Comedy               0.110  0.117          0.821
## Romantic            -0.213  0.321 -0.205  0.593
## Sci.fi               0.609          0.222  0.139
## War                  0.661          0.113 -0.235
## Fantasy.Fairy.tales         0.873          0.190
## Animated                    0.873          0.127
## Documentary          0.476  0.386 -0.182 -0.328
## Western              0.730                -0.106
## Action               0.688 -0.110  0.197  0.216
## 
##                 RC1   RC2   RC3   RC4
## SS loadings    2.145 1.802 1.596 1.327
## Proportion Var 0.195 0.164 0.145 0.121
## Cumulative Var 0.195 0.359 0.504 0.625
```

```r
# Loadings with more digits
for (i in c(1,3,2,4)) { print(fit.pc.movies$loadings[[1,i]])}
```

```
## [1] 0.04840021
## [1] 0.8593561
## [1] -0.01548186
## [1] 0.03258734
```

```r
# Communalities
fit.pc.movies$communality
```

```
##              Horror              Thriller                 Comedy
Romantic
##           0.7421372             0.7168332              0.7039137
0.5417855
##              Sci.fi                   War Fantasy.Fairy.tales
Animated
##           0.4399539             0.5044557              0.8040352
0.7832244
##         Documentary               Western                 Action
##           0.5162718             0.5477333              0.5706387
```

```r
# Rotated factor scores, Notice the columns ordering: RC1, RC3, RC2 and RC4
fit.pc.hobbies$scores
```

```
##                  RC1           RC2           RC3           RC4
##    [1,] -0.013510277  0.4653126347  0.917318248  0.3105168598
##    [2,]  0.133862917 -0.1379748048 -1.738352054 -1.1610100427
##    [3,]  1.956079019 -0.3301226183 -0.431162349  0.3823538415
##    [4,]  1.459731308 -1.7092300568 -1.063138469 -1.8472695001
##    [5,] -0.304038372 -1.2511368710  0.513893953 -0.7516882539
```

```
##    [6,]  -0.310119912   0.5700252284   0.961317222  -1.3779489423
##    [7,]  -0.832481547  -0.6185245510   1.863435585   0.6647612899
##    [8,]  -1.246746643  -0.3306023215  -0.665115403   0.2609972209
##    [9,]  -1.037982087  -2.9315306246  -0.248073698  -0.0649522268
##   [10,]   1.083461655  -0.3913669616  -0.949061694   0.6661685406
##   [11,]  -0.137667093   0.0803661872  -0.778955546   0.3006072080
##   [12,]  -0.152159766  -0.3342430614  -1.473779928  -0.7695700908
##   [13,]  -0.004065369  -0.8442354420   1.588221071   0.0730379195
##   [14,]  -0.491047636  -0.8813027109  -0.593901992   1.9540969471
##   [15,]   0.242585729  -1.8096864741  -0.376793230   1.4363149855
##   [16,]   0.595061201   1.5344083441   0.359551002  -0.6936162427
##   [17,]  -2.027620450  -0.6932184739   0.959235869   1.1573162668
##   [18,]  -1.117371071  -1.4586021965   2.028186441  -0.4500616006
##   [19,]  -0.737913843   0.4149694940   0.389719721  -2.2490305794
##   [20,]  -0.167344464   0.9145522217  -0.938801743  -0.5959489508
##   [21,]  -0.117681446   1.1520542400   1.032346374  -1.1167401401
##   [22,]   0.387131512   1.1363542400  -0.538191127  -0.5517468872
##   [23,]  -0.542754237  -0.2811938604   0.044681169  -0.3714159754
##   [24,]   0.530078433  -0.1596719869   1.809094600   0.6405676267
##   [25,]   1.960569926   1.1387891760   0.061340726   1.4643831482
##   [26,]  -0.348710702  -0.5491029127  -1.492212078   1.7459694354
##   [27,]  -0.915943551   0.2670222327   2.233221446   0.9526354413
##   [28,]  -1.456972909  -0.7702247738   1.525479888   0.2908272231
##   [29,]  -1.718545502   0.9307869783  -0.482099225   1.5013467879
##   [30,]   0.835683390   0.0517686135   0.368146451   1.2492445234
##   [31,]  -0.056472553   0.4889762704  -0.388286248   0.4254218018
##   [32,]   0.561644284  -1.3921198259  -0.437629917  -0.5133050548
##   [33,]  -0.019360140  -0.3398237218  -1.374666850   0.6835689824
##   [34,]   1.352629562   0.9712163093   0.567483236   1.2808919052
##   [35,]   0.973155869   1.3087977151  -0.572920172  -0.5196268745
##   [36,]   0.078984755  -0.2784430030  -0.786929076   1.5617727016
##   [37,]   0.305939085  -0.0748224151   1.451869472  -0.0088067032
##   [38,]   0.171508023   0.9208274071   1.261938596  -0.1586765720
##   [39,]   1.770997927  -0.1452488779   0.291612074   0.7775731921
##   [40,]  -1.845052816   0.1445482196   1.860459728   0.1917804267
##   [41,]  -1.719084954  -0.7586795268  -0.888473457  -0.0247295158
##   [42,]   0.322204052   0.7339524662   0.761546083  -2.4132613515
##   [43,]  -0.200457000   0.6438450173   0.277824858  -0.1594630387
##   [44,]   0.962010680  -0.0497351736  -1.555894728   1.1317135722
##   [45,]   1.417539675   0.6735736714  -0.451873497   0.6107740806
##   [46,]   0.016165179   0.9062337373  -0.158104240  -1.0520495116
##   [47,]   0.517266327   0.6574975012  -0.113902625   1.3771539157
##   [48,]  -0.390855624  -0.8065627046  -0.682165317   0.5000031174
##   [49,]   0.347115870  -0.3512491162  -0.121267189  -0.0422368892
##   [50,]  -1.039321162  -0.8933112877  -1.019117060   0.4200357378
##   [51,]  -0.577777201  -0.6240603475   1.947796869   0.1606211220
##   [52,]   0.002539722   1.4604652159   2.004121501  -1.0849204563
##   [53,]   1.344758009   0.3285074773   0.899800910   0.4840387249
##   [54,]   1.618807554   0.2036952915   0.404404973   0.5396529611
##   [55,]   1.172899765  -0.9619039727   0.681755701  -0.6902013203
```

```
##    [56,]   0.300931659   0.4323476824   0.501068013  -0.0557240105
##    [57,]   1.408545232   0.1669832772  -1.107841690  -0.7733320151
##    [58,]   0.718143532  -0.8495272546  -0.051947797   1.7376712454
##    [59,]  -1.488770048   0.2408301109   1.903084653   0.2527071721
##    [60,]   0.745067893  -1.9772326454  -2.166309680  -2.0323122208
##    [61,]   2.319296097   0.5278623362  -0.395137348  -1.9903938108
##    [62,]  -0.571214912   0.8104719422  -0.776675758  -0.5227069129
##    [63,]  -0.146087250   2.4536993479   0.168153299  -1.4666819032
##    [64,]  -0.542441131   1.3126998241  -1.028020146   0.3071445207
##    [65,]  -1.058989196  -0.7878184471   1.699681876   0.5844762179
##    [66,]  -1.224949989  -0.3168017885  -0.866861698  -0.8282313286
##    [67,]  -1.454206369   0.8764617192  -0.212368326  -1.2486769023
##    [68,]   0.479115416  -0.6440293934  -0.143642067   0.5173940505
##    [69,]   0.032850124   0.4217842755  -0.031628834  -0.9711987833
##    [70,]  -1.352593272  -1.9475084988   1.456903745   1.1815621191
##    [71,]  -1.003036438   0.6033740831  -1.035838246   0.8226333463
##    [72,]  -0.782629271   0.9831352620  -1.527044442   0.7846540451
##    [73,]  -1.328177826  -0.5474833289  -0.435811795   0.6266140328
##    [74,]   0.277423332   1.2506790920  -0.528300502   0.7921901873
##    [75,]   0.690247740   0.6534347050  -1.676636784  -0.2030782324
##    [76,]   1.568446021   1.4934391520  -0.041334524   0.6820146216
##    [77,]  -0.963576399   1.1045865420  -1.091947565   0.1780052540
##    [78,]   0.214882565  -1.2184290274   1.433697783   1.0988134593
##    [79,]   1.385727483   0.0976762576   1.855899312   0.2323769812
##    [80,]   0.216166374   1.4884701786  -0.986071976   1.1177719476
##    [81,]  -0.313341393   1.1544959759  -0.641851736   1.5241052485
##    [82,]  -0.564755137   1.6249769474  -0.808661928   0.5509253881
##    [83,]   0.652025056  -1.5763494697  -0.127838976   0.1808598037
##    [84,]  -0.365449198   0.3173334058   1.167060309   1.0659832568
##    [85,]   0.922530624  -0.0697978769   0.418700378   0.0872346856
##    [86,]   0.185903058   1.1446543322   0.525508372  -1.0073417944
##    [87,]   2.720359582   1.8578304660   0.593030681  -1.0747556339
##    [88,]   0.823518478   0.4946143863  -1.057520893   1.3664074836
##    [89,]   1.368764269  -1.2001991787  -0.744329673   1.1050032420
##    [90,]   0.411796239  -2.0739947289  -1.017407458  -0.0210240783
##    [91,]  -1.205036011  -1.1827295839   0.345822576   0.0409893042
##    [92,]  -1.491411079  -0.2369227469   0.837321703   1.1768604171
##    [93,]   1.441705454  -1.5311155690  -0.171927279  -0.7855007976
##    [94,]  -1.137772619   1.7827648591  -0.076694797  -1.4721207031
##    [95,]  -0.883024319  -0.0965171465  -0.584592081  -0.9635159773
##    [96,]  -0.348988301   1.4558318229  -0.918227952   0.1590841579
##    [97,]  -2.467997720  -2.3063615842   0.937175445  -1.0323596218
##    [98,]  -0.905125480   0.0303587801  -0.601140621  -1.4812687909
##    [99,]  -0.885126236   0.2306250381  -0.118974054  -0.1733022922
##   [100,]  -0.388144190  -0.3537393048   1.074393329  -0.7222170124
##   [101,]  -0.491002813  -0.0454775759   1.808271846  -0.3115690460
##   [102,]  -0.732665390  -0.6974646247  -1.291117344  -0.8696530648
##   [103,]   2.035260890   0.5292270051   0.720379210  -1.3603197429
##   [104,]   1.402617026   1.2547545944  -0.966305959   0.1682670150
##   [105,]   1.070427901   0.2897204723  -1.080489642  -1.0282445778
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##   [106,] -1.061232219 -0.7422575893  0.263852519 -0.4128183630
##   [107,] -0.218748880  0.7559727969 -1.335904178 -0.5552673307
##   [108,]  0.465729108 -0.4461629676  1.826809336 -0.0741434528
##   [109,] -0.542585629 -1.4620706351 -1.015591679 -1.6017016418
##   [110,] -0.742072123  0.4580454976 -0.756716864 -1.7103588782
##   [111,] -0.685063255 -0.1058323084  0.559307935 -0.9746678149
##   [112,]  1.270395689 -1.6758856754  0.143847706 -0.0644003065
##   [113,]  0.523375661 -1.6937377990  1.896215666 -0.1208168460
##   [114,] -2.266732188 -0.1825131103  1.250787133  1.4230237343
##   [115,]  0.555199509 -0.9037580935 -0.439740124  0.6783764339
##   [116,]  0.993458112  0.6565051566  0.739394484  0.6335669695
##   [117,]  0.326342953 -2.7462935566 -0.519107831 -1.1200377308
##   [118,] -1.679701893  0.0383539341 -0.489253516 -1.0539849713
##   [119,] -0.038590241 -0.2592561362 -0.218409331 -1.2538697901
##   [120,] -0.431348936 -1.5442044601  0.538359965 -2.0413366156
##   [121,]  1.190413164  0.7998552143  0.904473214 -1.6395326808
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##   [123,]  0.260182479 -1.5205581617 -0.621259089  0.4546570888
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##   [125,]  1.603232142  1.1798512287 -0.048068886 -1.0578361487
##   [126,]  1.755480981 -0.9611086435  0.501943538  0.4267774480
##   [127,] -0.525795761 -1.2099465493 -1.216147102 -0.0952834237
##   [128,]  0.941125524  0.6412928530 -0.777443623 -1.1717572335
##   [129,]  2.452695764  0.3703747465  1.472249928 -1.1479041630
##   [130,] -0.673724613 -1.5066003179  1.396110741  0.0001112662
##   [131,]  1.778307032  0.6291055219 -1.728075773  0.7029583491
##   [132,] -1.155765686  0.5378325406 -0.868523091  0.5240648399
##   [133,] -0.035232819 -0.5571431732 -0.202696319 -0.9370988994
##   [134,]  1.094886902 -2.3788845393  0.489095262  0.3808736635
##   [135,] -0.057259525 -0.2778718302  0.580166250 -0.2221097197
##   [136,]  0.320440072  0.4394790098 -0.040596862 -0.0262577807
##   [137,]  0.192003099  1.0539711701  1.872647018 -0.4900919493
##   [138,]  0.528068015 -0.2824469185 -0.173331571 -1.6195691303
##   [139,]  0.473513215 -1.8645994670  1.270367688 -0.4251940023
##   [140,]  0.349885085 -0.8245692012  0.343673350  1.3709706640
##   [141,]  1.448111005 -1.1808219809 -0.594218014 -0.3995013304
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##   [144,] -1.511882102 -0.5709072910 -0.905050264  0.8547517581
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##   [146,]  0.104615326 -1.5825268022 -0.499136124 -1.1108745387
##   [147,]  0.902919506  1.1402385821 -1.100332590  0.5236953613
##   [148,]  0.239724208  0.1412996868  0.019570376 -3.1052725543
##   [149,]  0.507267640  0.5956094686  0.300806272 -2.0655678560
##   [150,] -0.875238957  0.0577505126  0.334230095 -2.6791101744
##   [151,]  0.091254051  0.9816095234 -0.719756102 -0.6955280393
##   [152,] -0.020385215 -0.3839475177 -0.380244939 -0.3242604976
##   [153,]  0.605115391  0.2463217248 -0.779772307 -0.3239832486
##   [154,]  0.017637095 -0.3086784104 -0.962933886 -0.1809515676
##   [155,]  0.084949794  1.0749441236 -1.227754409 -1.9489677292
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##  [156,]   1.124190998 -0.5531964049   0.934683915 -0.2986102820
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##  [158,]  -0.218004750 -0.3139158975  -0.374230093 -0.9872457009
##  [159,]   0.216773350 -0.1077628726   0.984391235  1.1136756906
##  [160,]   1.266213403  0.9290952879   0.362040080  0.2304244623
##  [161,]   0.688871679  2.0009826742  -0.796570118 -1.5669267495
##  [162,]  -0.948181264 -1.2953412178   1.735296249  1.2144403293
##  [163,]  -0.338509175 -0.3639344539  -1.649911466 -1.0647207683
##  [164,]  -0.689386659 -1.7373127693  -0.673333842 -2.0153505106
##  [165,]  -0.106734805 -1.8011530712  -0.935619530  0.7072420380
##  [166,]   2.301107611  0.5456664303  -1.620094646  0.4540930331
##  [167,]  -0.111507116 -1.2064105109   0.102802032 -1.0290371313
##  [168,]  -1.669515372 -0.3400730524  -0.253774542 -1.2132111599
##  [169,]   0.373616914  1.0995561089  -2.086947549  0.1321591656
##  [170,]   1.003428014 -2.4434137998  -0.941362723 -0.4137772173
##  [171,]   1.549248381  0.1152974677  -0.265206001 -0.9991881493
##  [172,]   0.398993765  0.8456757281  -2.120392023  0.2430880690
##  [173,]   0.511265411  0.7265009096  -0.701709283 -1.6518143421
##  [174,]  -1.518518688  0.8985142930   0.359855815 -0.3480088817
##  [175,]   1.739601318  0.1271070793  -0.188079998  1.1093540497
##  [176,]  -0.563596715 -1.1037761358   0.582654209  0.2228654718
##  [177,]  -1.101827649  1.2342823346  -0.153226920 -0.9955859140
##  [178,]  -0.346406109 -1.1387273646   0.082859271  0.4723229243
##  [179,]   0.250186998 -1.8738538621   0.599724103 -1.5491720408
##  [180,]   0.701670212 -0.2050842524   0.489761034 -0.5124294265
##  [181,]   0.495761627  0.7695287487  -1.814204461 -0.9440013150
##  [182,]   0.216532289 -0.1769913856  -0.155700744 -1.0164705465
##  [183,]  -0.232082304 -0.2122827681   1.628712952  0.5824764102
##  [184,]   1.011596165 -0.0175592356   0.715039385  0.2669271550
##  [185,]   0.604909208 -2.8827496315  -1.007827770 -1.0616815185
##  [186,]   0.521911448 -0.6526106280   0.982910799 -0.0427199194
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##  [188,]  -1.224574281 -1.9640154117  -1.074310700 -1.4952692533
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##  [190,]  -0.081332782 -0.7414601091  -1.299859784 -1.0661915752
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##  [192,]  -0.059073440 -1.8590266363  -0.374986744 -0.0149178511
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##  [195,]   0.331626176  0.0043729971  -1.529573116 -0.9123057019
##  [196,]  -0.033081897  0.9517957276  -0.413076967  0.4540627947
##  [197,]  -0.049853835  0.4775824625  -0.249341214  0.7940008530
##  [198,]  -1.151062257 -0.6487624968  -0.883731172  1.3266280237
##  [199,]  -1.532826853 -0.4390694744  -0.554477080 -0.4344748675
##  [200,]  -0.909563172  0.2407524050  -0.200103390  0.3412390291
##  [201,]  -0.796302901  0.1583849048  -1.100718115 -1.4948168124
##  [202,]   1.563286510 -0.0130074491  -1.463226850  1.2229513528
##  [203,]  -1.393835043  0.4414221979   0.891626172  0.9505823475
##  [204,]  -0.890800968  0.3949514873   1.722680028  0.7519862855
##  [205,]  -0.646182693 -1.0101474342  -0.554691779 -2.2164678915
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##   [206,]   1.461384587 -1.9903961499   1.714386872 -0.8538820469
##   [207,]   1.837364924  0.5217068267  -0.130426463 -2.0364900283
##   [208,]   0.291212411  0.3637342065  -0.201734438  0.6955594007
##   [209,]  -0.248640557 -0.5663101971   0.313477165  1.5761527894
##   [210,]   0.772127347  1.3289705351  -0.521011206 -1.3333303077
##   [211,]   2.062880502  1.8360738091   1.407969981  0.8468393486
##   [212,]  -0.646249146  0.3081885965  -1.145409698  2.1669143609
##   [213,]   2.098810148  0.9898836819   0.184109869 -1.2524157292
##   [214,]   0.660735520  1.5849700859   1.550082271  0.3821819323
##   [215,]   0.610836675  0.2726747583   1.180328168 -0.3686926279
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##   [218,]   1.236197830 -0.5018419257  -0.528277818  0.2264412553
##   [219,]   0.010281016  1.3952763534   1.674032169  0.0171712762
##   [220,]  -0.979425586  1.8274246368  -1.266837869  0.8201025816
##   [221,]  -0.759908005  0.0012722011   1.888404474  0.4341473076
##   [222,]   0.834737338  1.5606581201   0.168312020 -0.8764347648
##   [223,]  -0.858965725 -1.4707304193  -0.618653106 -0.4806258873
##   [224,]   0.818052471  0.3582326769   1.044662816  0.6024648284
##   [225,]  -1.095974862 -0.4977637366  -1.407499118 -2.0625591777
##   [226,]   0.607742312  1.4773927575  -0.212911946 -1.2614813822
##   [227,]  -1.209597333  0.3184572674  -0.248906690  2.2357639808
##   [228,]   1.242808368 -0.2026828860   0.618139970 -1.6667266671
##   [229,]   0.748917631 -0.4916497019   1.869777376 -0.4140424930
##   [230,]  -0.849278089  0.9579812437   0.289364382 -1.0400252974
##   [231,]   0.759760879  0.2333014914  -0.642957835  1.3051256815
##   [232,]   0.694746987  0.3447447710  -0.208303006  2.2142782303
##   [233,]   0.073442221  0.6447974339  -1.640507680  0.0155870640
##   [234,]  -0.645918118 -0.7993404915   1.297387887  1.1673394392
##   [235,]  -1.915917151  0.6500579168  -0.113154733  0.5476074060
##   [236,]   1.014458771 -1.1186696504  -0.983528452  0.2466589622
##   [237,]   1.357325243  0.2558932618   0.037428299  0.3553797785
##   [238,]  -0.076210150  0.6353010734  -0.911832117  0.9963457238
##   [239,]  -0.848834602 -0.6362570038  -0.990992269  0.5507951436
##   [240,]   0.699778464 -0.7980618748   0.080397416  0.1885923338
##   [241,]  -0.574297742  1.8611462449  -0.889073678 -0.0350210374
##   [242,]   0.116021205  0.9452005194  -0.373952920  0.5520484436
##   [243,]   0.966100543 -1.4255523997  -0.990827249  0.4577660483
##   [244,]   0.450218084 -1.6217122153   0.928245285 -1.7983310169
##   [245,]  -0.821404180 -1.8414655333  -0.181831638  1.3984594181
##   [246,]   1.120661393 -0.9264803469  -0.570376639  0.7267299408
##   [247,]  -1.252578878  1.4161970840  -0.867796255 -0.6595217447
##   [248,]   0.594000789 -0.5872618158   1.510378353  1.3590052379
##   [249,]   1.109701783 -0.5647930127  -0.704295935  0.0343080145
##   [250,]  -0.229691815 -0.1685686736   2.206789672  0.3579290454
##   [251,]  -0.548653946 -0.6247978973  -1.242441514  1.4077341475
##   [252,]  -0.680354734 -0.3868462182   1.733137740  0.3930188129
##   [253,]   0.563344024 -0.3421459516  -0.281307315  1.3586213615
##   [254,]  -1.563620353  0.7508643742   0.924221752 -0.3665639083
##   [255,]  -1.169488630 -0.2425960330  -0.509115813  1.4071903181
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## [256,]   1.672597012 -0.9130410893   1.395388903 -0.8530476026
## [257,] -1.424793214 -0.2059458012 -1.323731432   1.4400518652
## [258,] -0.439569357   1.9616005227 -0.237278276 -0.6748286660
## [259,] -0.088290457 -0.3739930011 -0.520839814 -2.0060919824
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## [263,]   2.099191899 -1.1562277046 -0.125184553 -0.8344004546
## [264,]   0.192687082 -0.3268381933 -0.453057062   0.8470402230
## [265,] -0.600039851   0.6211250575   1.892326155   0.2912840100
## [266,] -1.880719062 -1.1320605694 -0.396604901   0.2723949881
## [267,]   0.184305199   0.5237928298   0.091639199   0.5453493557
## [268,]   1.302276480 -0.4167238300   0.444502811 -0.5803708190
## [269,] -1.704961921   0.2179813845   2.281998224   0.7052062595
## [270,]   0.719058290 -1.1361748201   1.199257812 -1.5716430294
## [271,]   0.193408560 -1.0356922436 -1.071015994   1.0515682971
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## [274,]   0.981953876   0.8796438142 -0.607905074   0.5070859010
## [275,]   1.146055908   0.0803624430 -0.660247535   0.0250941998
## [276,]   1.929900305   0.0769829244 -0.995702486   0.2629131338
## [277,] -0.487568849 -0.5996261594 -1.117220330   0.5558940250
## [278,] -0.469082885   0.8947460005 -1.766784917 -0.7972414731
## [279,] -0.037629074   1.0702223919   1.877000761   0.0907841657
## [280,] -1.139432366 -1.5161056808 -1.083708102   0.4340028497
## [281,]   0.614610324 -0.7187418543   0.266205545   0.9734915026
## [282,] -0.515196870 -0.0330634920   1.897329268 -0.8502126554
## [283,] -1.300893452 -1.0320246488 -1.011948547   0.3809954075
## [284,] -0.726269386   1.7616112249   0.364799575 -0.7856253241
## [285,] -1.712530105   1.1243220759 -0.680187001 -0.2214761652
## [286,]   0.168096215 -1.3927989281   1.242676648   0.2987561537
## [287,] -0.041600663   0.0171287966 -0.214485776   1.5859923185
## [288,]   0.103402150 -0.4116315597 -0.034239706   0.6759067696
## [289,] -0.856640263   0.9705910086   0.139002329 -0.4466137217
## [290,] -0.041579040   1.2598380971 -0.833714828   0.1912209391
## [291,]   1.467284318 -1.4209076839   1.549755270   0.0704854490
## [292,]   0.224494543 -0.1147023747 -1.101395618 -0.2774844702
## [293,]   0.953692119 -0.8726802001 -1.304366155   1.2967233195
## [294,]   0.141065357 -0.4421076647   0.069126810 -1.6621475668
## [295,]   0.889826180 -0.6797719847 -1.124056076   0.3511870161
## [296,] -0.191469021 -0.4573325453   0.038203532   0.9617080701
## [297,] -1.139929726   1.8559038330 -0.815778613 -0.8901599027
## [298,] -0.241382597 -1.0093210102   1.586489633 -1.5533312103
## [299,]   0.550586894 -1.3642202569 -0.308702734   0.6752934608
## [300,] -0.452395677 -0.4169329307 -0.714061275   0.5985804590
## [301,]   1.498861537 -1.1876223599   0.283907519 -1.6813818043
## [302,]   0.036497410 -0.9460802050   0.397303226 -2.0416188030
## [303,]   0.887145540 -0.0874448765 -1.056305487   0.8747506246
## [304,] -0.258079692   0.7248952381   0.087737276   0.8825771006
## [305,]   0.269431402 -1.1699417421 -1.094576828 -0.0076345300
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## [306,]  1.441427766  0.1549281689 -0.739335007  0.1568233480
## [307,] -0.189394669  2.0321186733 -0.084904742  1.1245723953
## [308,]  0.198739873 -0.3329314216  1.619914424 -2.8458192725
## [309,] -0.220413519  1.2515859956  0.618648020  1.0050532750
## [310,] -0.357367373 -0.5809215019  1.123335887  0.4866834661
## [311,] -2.292206086  0.2269267116  2.062109665  0.0904870221
## [312,]  1.036646893  0.7662704719 -0.150306180  0.8129858106
## [313,] -2.484689925 -0.5920910741 -0.314099400 -1.0686435013
## [314,] -0.010259289 -0.3730871185 -0.435334341  0.5249375280
## [315,]  1.452646785  2.1536917609  0.805631363 -0.4523316496
## [316,] -0.754267248 -0.0398649689 -1.362402461  0.7154631638
## [317,] -1.607136568  0.1102442467  1.739005831  1.7807052811
## [318,] -1.786792366  0.7062514278  0.501978083 -0.2650000788
## [319,]  0.280781665 -0.2724310882  2.052359960  1.4789142248
## [320,]  1.724487919 -0.4120296564 -1.225269146  0.5958622962
## [321,] -0.014807550  1.0714581322 -0.041004390  0.3426511428
## [322,]  0.341356452 -0.5815071761  1.242707702  1.1241886702
## [323,]  0.374925312 -0.0470285032 -1.101840898  0.8066341139
## [324,] -1.076161378  0.2091158104  2.305405776 -0.4132197459
## [325,] -0.424059185 -0.5277331169  0.354352562  0.4313965931
## [326,] -0.024787361  1.6098678875  2.150980619  0.6356186815
## [327,] -0.609743877 -0.4679424459 -1.060532948  0.2226261402
## [328,]  0.023721571  0.1308358666 -1.034108540  0.3041205843
## [329,]  0.097095666  1.4835374701 -2.054636960 -0.4630317111
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## [331,] -0.626915157 -0.9113548660 -0.555882869  0.2957346549
## [332,]  0.268107451  0.7181239668  2.019440728 -0.0142863242
## [333,]  0.433461307 -0.6198575046  2.350758399 -0.9977424661
## [334,]  0.710497128  0.2656653320  0.608784936  0.2087514491
## [335,]  0.410990417 -0.2413398549 -1.256387315  0.3057853391
## [336,] -0.005932612  1.0012023808  0.641273580 -0.1386345976
## [337,] -1.570799475 -0.1737427194  1.579909416 -2.0860968217
## [338,] -0.730021578  1.7449103778 -0.183633738 -0.5157447668
## [339,]  0.693596091 -0.2620459511 -0.507300767  1.0035420608
## [340,]  0.317203055 -0.1747276291 -1.081916339  0.5121842697
## [341,]  1.008209656 -1.6601903678 -0.862810029 -1.9302724435
## [342,] -0.995298390  1.0660110094 -0.239704051  1.4722325462
## [343,] -0.569614090  0.0286721776 -0.034156481  0.0936456698
## [344,] -0.175523202 -1.1649022716  1.262835228  0.9676853518
## [345,] -1.216717836 -0.7148309110 -1.352311657  0.8321650545
## [346,] -0.160768731 -0.2572097927 -0.984989336  0.6761628666
## [347,] -1.293421349  0.0158709706 -0.736640281  0.2806835684
## [348,] -1.611436035  0.7661386143 -1.028299979 -0.4724291742
## [349,] -0.252492103 -0.0814653888  2.209302791  0.2779261240
## [350,] -1.069312885  0.5059833270 -0.475451745  1.5919622610
## [351,] -2.493387985  0.3873055318 -0.484389470 -1.2714548436
## [352,]  0.081317283  1.0453793828  2.443642751  0.9416022495
## [353,] -2.190991829  0.1586177893  2.262511490 -0.8865772154
## [354,]  1.819975271 -0.7447176592 -1.001478941  0.0248909985
## [355,]  2.144731173  0.2021388141  0.684654354 -0.0028835538
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##   [356,]  -0.240610909   1.3572148835  -1.523888500  -0.2604960704
##   [357,]  -0.671164100   1.3752376492  -0.489321163  -1.7650357903
##   [358,]  -1.470085353  -0.2287649127   1.072102236  -0.3026980137
##   [359,]  -1.156700426  -0.6781252853  -0.249752152  -0.3033155003
##   [360,]  -0.576783114  -1.5069914360  -0.442713404   1.1831250118
##   [361,]  -0.968584529   0.7143461121  -0.721265379   0.5853490464
##   [362,]   1.411506184  -0.0724136796   0.427628854   0.2025836016
##   [363,]   0.146683684  -0.2268276864  -0.436698583   0.0027667592
##   [364,]   0.420073912  -0.9256463883  -0.567916276  -0.4362571791
##   [365,]  -1.101993970   0.5163603598  -1.397410549   0.2521273246
##   [366,]   1.457541907   0.1709277550  -0.035141694  -0.3339438568
##   [367,]  -1.719827128   0.8411469609  -0.939186350  -1.0986562533
##   [368,]  -0.953703068   0.9935309271  -0.762369089   0.0439217649
##   [369,]  -0.358848426   0.6066760683   0.361153530   1.8256366164
##   [370,]  -0.687576306   1.3894812314   0.620589852  -0.2426008302
##   [371,]  -0.017788216  -0.3977581327   1.671074211   1.1351733359
##   [372,]   1.005605375  -0.4252386890   2.336893715  -0.7392981109
##   [373,]  -0.549685283   0.2196828621  -1.390432284  -1.9943856099
##   [374,]  -1.153727279   0.5522210478  -1.080695643   0.0261812346
##   [375,]  -1.799482568  -0.5062745968   2.424829405   1.4187461110
##   [376,]  -1.554832653  -0.8448381867   1.396091600  -0.5581208897
##   [377,]  -2.141469684  -1.4547614004   1.409641518   1.0201090222
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##   [379,]  -0.390425335  -0.7714165920  -0.023910686   0.8211311018
##   [380,]   1.061018104   1.3856671693  -0.197127768  -0.6145689464
##   [381,]  -0.965318705  -0.1574082243   1.689468014   1.2091739720
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##   [383,]  -1.237454448   0.6357201908   0.793927031   2.3284885685
##   [384,]  -0.872948334   0.5370659727  -0.904361065  -1.6648704612
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##   [386,]  -0.258450269   1.2387334374  -0.018483103  -0.3950653100
##   [387,]   0.406546167   0.2305718195   0.321254988  -1.2349817376
##   [388,]   0.459167800   0.7009995145   0.721801048   1.4750016347
##   [389,]   1.646347989  -0.2229473849  -0.063506272  -0.7778368770
##   [390,]   0.434825478  -0.6997554585   0.695005193   0.8903249210
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##   [392,]  -0.178790949  -1.6782325817  -0.281265016   0.4263618893
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##   [394,]  -1.532243474  -0.2546792313  -0.823716168  -1.0008359780
##   [395,]  -0.782271392   0.4084812121   0.445979834  -0.0972484362
##   [396,]  -1.315830881   1.4060337062  -0.531076787  -0.8488336483
##   [397,]  -0.409957706  -1.2220998735  -0.309912792  -1.4217829005
##   [398,]   0.065586385  -0.3579533043  -0.923804660   0.1949964612
##   [399,]   1.703175031   1.8497462786  -0.585390364   0.5823320349
##   [400,]   1.912622945  -0.2735831171   0.764498031  -0.7483507937
##   [401,]   0.144529126  -0.2433673022   1.199630627  -2.8874736843
##   [402,]  -0.559345826  -2.1227366391  -0.970936246  -0.8002930165
##   [403,]  -1.665921641   0.9492005248  -0.599887699  -0.0242568263
##   [404,]  -1.031351369  -0.9559735683  -0.278143568  -0.6213649904
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##   [406,]   1.838112912 -0.2934489550 -0.801657173 -0.3198479585
##   [407,]   0.117007479 -0.7031760187 -0.836413257 -0.8186350893
##   [408,]   1.679556088  0.0044207687 -0.392205773  0.7620115561
##   [409,]   0.687582991 -1.8902800698 -0.462572376 -0.7036579605
##   [410,]  -0.148530404  0.6375248117 -0.234606152  1.2137773216
##   [411,]  -2.246809839  1.8444862844  0.032449978 -0.3395969444
##   [412,]   1.265400493  0.2237104756 -1.380418830  0.9362227158
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##   [416,]  -0.402074828 -1.0297071303  1.070795103  1.7924205037
##   [417,]  -0.109289899 -0.1343023327  0.154643977 -0.0782233735
##   [418,]  -0.075255983  0.8539864315  0.183690154 -1.5245642129
##   [419,]   0.221728931 -1.5958268705 -0.676967100  0.4791230320
##   [420,]   0.492220595 -1.4878703656  0.786153243 -1.5491096976
##   [421,]   0.777415054 -0.6800595913 -1.575752306 -0.3255516464
##   [422,]   1.465088893  0.8117690103  0.503586132  0.4398154740
##   [423,]  -0.264401683  1.3305037783 -0.003386672  2.6971451410
##   [424,]   0.440323733 -0.2125177136  1.565344352  0.3775222841
##   [425,]  -1.524518748 -0.2622428239 -0.750436310  0.2627197255
##   [426,]   0.783900774  0.1948531926  0.285573466  2.2390740423
##   [427,]  -1.249358435 -2.6065539671 -0.693898880 -0.8245806799
##   [428,]   1.190054668 -2.3218220415 -0.928411155 -1.1655978103
##   [429,]   0.780895679 -0.5537997056 -0.541735538  1.5837798163
##   [430,]   0.410947616 -0.4625967797 -0.674803040  0.8997689995
##   [431,]   0.691447599 -0.6315061049  0.749418008  0.3836139457
##   [432,]  -0.823402384  1.4356400930  0.698194824 -1.3074505199
##   [433,]   0.743277884 -0.0521832632 -0.489397978 -1.5930027932
##   [434,]  -0.257563358  0.1386829964 -1.835241397 -1.4115731523
##   [435,]  -0.501914820  0.8921733398  2.153392741  0.6463960915
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##   [440,]  -0.866070169  0.6749506928 -1.562617318  0.4481050384
##   [441,]  -0.100284657 -0.0009862945 -0.746577459  1.1897533641
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##   [443,]   0.116487377 -0.0955441411  0.496046845 -0.0171086466
##   [444,]   1.303958242 -0.6393689136 -1.397705916 -0.7732773535
##   [445,]   0.550986642  0.0498628864  0.847383415 -0.9566625427
##   [446,]  -0.189863901  0.2549911376 -1.037015935  2.5611559856
##   [447,]  -1.171591041  0.1543992964 -1.513561195 -0.5261126579
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##   [450,]  -0.515199353 -1.2393981139  1.968232514 -0.0315513744
##   [451,]  -1.785567331 -0.0214555754  1.646441937  0.9127330041
##   [452,]  -0.929547116 -0.2668970626  1.312610795 -0.1133194421
##   [453,]   0.914024757  1.0897556804  0.252867164  1.9926031847
##   [454,]  -0.492044666 -1.4567858818  1.697901882  0.0622942371
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##  [456,]   0.060248542 -0.6888888050   0.502207771   1.2610897902
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##  [458,]  -0.689864338  1.5830139427  -0.303600011  -1.7854918211
##  [459,]   2.154152180 -0.0932480275   0.545356300   0.3399770157
##  [460,]   0.555239769 -1.3734833352   0.859820914   0.0299960858
##  [461,]  -0.305555156  1.2843596683  -1.632358087  -0.3824655113
##  [462,]   0.883901154  0.6741980058  -0.299087508   0.1707604009
##  [463,]  -0.380692927 -0.5186424420   0.689677569  -1.4084888108
##  [464,]  -0.138090228 -1.5989628388   0.464056235   0.2831027510
##  [465,]  -0.400702478 -0.3127926919  -1.083905688  -0.1679684498
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##  [469,]  -0.321214693  0.5182791195  -1.035988101  -0.3859481526
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##  [471,]  -0.125994278 -0.2201909424  -0.656186989  -0.0663083446
##  [472,]  -1.453119732  1.3433420927   0.821270623  -1.1180149947
##  [473,]  -1.756167650 -1.0209933568   0.527472026  -2.3861653405
##  [474,]   0.112317362 -1.6771937176   1.399487237  -1.8051704780
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##  [476,]   0.693459244 -0.8407878853  -0.143370698  -0.0966195363
##  [477,]  -0.199411942 -1.7058876937   1.501546559   0.0430247973
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##  [479,]   1.666444896 -0.6908690702  -0.958083149   0.2725033043
##  [480,]  -0.301177968 -0.6710032425   1.410009125  -0.0028827345
##  [481,]   0.371352228  0.4149822239   1.691925825   0.9978143640
##  [482,]   1.630650886 -0.9783618580   0.145266375  -2.2397923861
##  [483,]  -0.858576115 -0.0378536123  -0.442990937  -1.3281544747
##  [484,]  -0.853167554  0.0417194673   1.804411576  -0.3713441247
##  [485,]  -0.334746816  0.0469841827  -1.356637699   0.3424694908
##  [486,]  -1.094076179 -0.7790140276  -0.697319309  -0.5882640290
##  [487,]   1.509429484 -0.4195396663  -0.938849484   0.4583233109
##  [488,]  -0.498172750  1.8653860393   1.373359817   1.0846210344
##  [489,]   1.245653034  1.1584267831  -0.492678348  -1.3716239034
##  [490,]   0.873098138  0.3201097552  -0.773270154   1.0478209492
##  [491,]  -0.813096524 -0.5507032250  -1.168513032   1.3837512847
##  [492,]  -0.371196345 -0.9427554829   0.970669235   0.1187957769
##  [493,]   1.907397882 -1.1673107566   0.997703020   0.1039987419
##  [494,]  -1.928974512  0.9781320184  -0.405417734   0.0162684055
##  [495,]   0.236402137  0.0537031687   0.037590726   0.0739278272
##  [496,]  -0.109866952 -0.3936722964   0.588998546   1.5378468590
##  [497,]  -0.245332389 -0.6788530430   0.210028685  -0.8500015942
##  [498,]   1.091489913 -1.1482926165  -0.932931578  -0.2878724277
##  [499,]   0.718110694 -1.0299001239  -0.252710303   0.3872713641
##  [500,]  -0.954478624  0.1254264422  -0.594418957  -1.6908601868
##  [501,]   0.751804590 -0.2011189401   1.841675785  -0.2872216275
##  [502,]   0.318181422  0.0147206052  -0.627866630   0.0023511272
##  [503,]  -1.170309849  1.1238303966  -1.543586941  -0.7466042042
##  [504,]   0.185465671  0.1900644115   1.354338786  -2.2497671955
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## [506,] -1.431249303  0.5869704233  0.260476081 -0.8142524730
## [507,] -1.804220142  1.1307510450 -0.205675527 -0.4832172797
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## [510,] -0.176218527  0.7573445388 -0.424431516  1.4801987775
## [511,]  0.143359255  1.7188327486  0.474868296  0.1119551046
## [512,] -0.325982095  1.4746326003  0.872433836 -0.8923305008
## [513,]  1.855853482 -0.3699133916 -1.360486023  0.4376786211
## [514,] -1.097687691  1.5560879757 -0.219942230 -0.2587091462
## [515,] -0.541832037 -1.3164217456 -1.021588260 -0.3859886330
## [516,]  0.088189320  0.1085949165 -0.886877317  0.3391057005
## [517,] -0.342246885  1.3589796022  0.302322578  1.7160381134
## [518,]  1.725070514  1.1328924740  1.007043964  0.8678548366
## [519,] -0.389822991 -1.3970024591  1.859232326  0.8342045656
## [520,] -0.738666312  0.2514795558 -0.238744429  0.0187938889
## [521,]  0.216872282  0.4438417797  0.029938543  1.0738787521
## [522,] -0.167262776 -0.9741715546  1.080790053  0.9521940001
## [523,]  0.163961367  0.0497344064 -0.790806787  1.0349620964
## [524,] -1.005580860  1.1321033684 -0.243928157 -0.9040897248
## [525,] -0.534385258 -0.5466616697  1.731639590  0.9624933896
## [526,]  0.673610537  0.4415062642  0.704571404  0.3869210269
## [527,] -0.375653535  1.8801330389  2.165729973 -1.1200564481
## [528,]  1.002778370  1.0976025208  0.061647693 -0.7876757480
## [529,] -1.219814852  1.8299545509 -0.240783599 -1.9402687967
## [530,] -0.731173979 -0.4096026311 -1.468825617 -0.4721803904
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## [532,]  0.774281043  1.6427443686 -0.971014791 -1.3966334948
## [533,]  0.901545619 -0.3062279239 -1.252452543  1.4458415517
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## [535,] -0.572417653 -1.5480302543 -0.429408365 -0.0879293146
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## [539,] -1.160072697 -0.5575700804  1.410997974  0.3915639243
## [540,]  1.233899909  1.1024598704  0.544131136 -1.0959411306
## [541,]  0.475298724  1.1374095331  2.235427146 -0.4224024643
## [542,] -1.545807900 -0.9904426824  1.166320717  0.5197418865
## [543,]  0.910970474  1.3004765214 -0.891633192  0.6512889644
## [544,] -0.593378120  0.3995042044 -0.716823349 -1.0268399317
## [545,] -1.197173978 -1.0483707947  2.194470785  0.2784029092
## [546,] -1.264659912  0.2681162829 -0.401632455  0.6007412161
## [547,]  1.116940690  2.0603972581  0.396325904 -0.5577010352
## [548,]  1.790971572 -0.5399079189 -0.737085779 -0.4498770405
## [549,] -1.218285349 -1.6771704098  0.127884599  0.0466921688
## [550,] -0.688351187 -1.4923386148 -0.736358418 -0.0992654576
## [551,]  1.117634040 -0.6053019599 -0.228681854  0.3644006841
## [552,] -0.378526599 -1.1579428048  0.099389035  0.0293292929
## [553,]  2.518681691  0.1810114034 -0.174230601  1.7140087610
## [554,]  0.241138088  0.3353675927 -0.376506834  0.9650705823
## [555,]  0.453049835  1.4304201656  0.344032544 -0.4131294315
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##   [556,]  -0.674707640 -1.0813795245 -1.022117005  1.6795677800
##   [557,]  -1.425406531 -0.9736347753 -1.065128358  1.1935147415
##   [558,]   0.594555126 -0.2832361274 -0.818710324  0.8150138810
##   [559,]   0.770573158 -1.3285008236 -0.119127675  0.1613331477
##   [560,]  -1.542156870 -0.9163401296 -1.030434071  0.6676849198
##   [561,]   1.482641608  1.1135083213  1.565794693  0.6856793259
##   [562,]   0.912177636  0.2557225781 -0.117034047 -0.6386221389
##   [563,]  -1.108697452  1.5582127963 -0.155343809  0.8840211981
##   [564,]  -1.049737540  1.2118694156  0.239602619  1.4522111716
##   [565,]  -1.228084905  0.9887983583 -1.386477300 -0.4011869165
##   [566,]  -0.134545340  0.8207309128  0.566095785  2.4942868332
##   [567,]   0.731207991 -1.4660028257 -0.560327475 -0.3907162911
##   [568,]  -1.786813526 -0.2897187529  0.640251946 -0.2455085694
##   [569,]  -1.077086455 -0.0084053941 -0.696997898  1.7573325421
##   [570,]   0.642097073  0.7617953528  0.340485321  0.4571533854
##   [571,]  -1.031712715  0.9115503288 -0.625320642  1.0873305468
##   [572,]   0.027908659  1.3740196961  0.465020524 -0.0267851115
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##   [574,]  -1.500443202  0.7131734285  0.006618884  0.7253468195
##   [575,]  -1.406448482  0.5890166114  1.626745145  1.3560130329
##   [576,]   1.074519123  0.0329400289  1.919015304  0.1310715172
##   [577,]  -0.672509022  2.0056436000  0.183588534  0.1946044255
##   [578,]  -0.245655767  0.2007803283 -0.012734003  0.4019444344
##   [579,]  -0.224743798 -0.7656293893  1.652936592  0.8419183061
##   [580,]  -1.211626982  1.1526991628 -0.212635763 -1.0220828888
##   [581,]  -1.034028736 -0.0990006239 -1.110350949 -1.2148555952
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##   [584,]   1.078162984  0.9153152651 -1.482783023 -1.3058220677
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##   [591,]   0.626981745  0.9873966201  0.964300508 -1.1225160470
##   [592,]   1.792656029  0.3463371373 -0.660035358  0.5052875016
##   [593,]   0.727714303  0.7271995882 -0.438754800  1.4800606477
##   [594,]  -0.717069639 -1.4908631909  2.381634015  0.0512202714
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##   [596,]  -0.208875134 -1.7945942612  0.665285345 -0.8841814314
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##   [603,]  -0.664960798  0.5849853451 -0.333679218 -0.0922546040
##   [604,]  -0.530583380  0.6246936691 -0.864162076  1.2951701690
##   [605,]   0.393033722  0.2427576747 -0.143276193  1.5248592332
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##   [606,]  -0.773483140   0.4931802457   0.919365940  -0.3231844134
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##   [608,]  -0.425929638  -1.2560451875   1.410679344  -0.5049604728
##   [609,]   0.537334661   0.5208371991   0.546749614  -0.8423897492
##   [610,]   0.498023174   0.8974957136  -0.755496892  -1.0740851448
##   [611,]  -1.262739352  -0.1678791193   1.028433678  -0.9615857844
##   [612,]  -0.506180423   0.5279296458  -0.363323955   1.2264462356
##   [613,]  -0.466164267   0.0740621626  -0.745482803  -1.4161796042
##   [614,]  -0.062652463  -0.5850359124  -0.716059118   0.7107113083
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##   [616,]   0.630817178  -1.2934951186   0.299851670  -1.5349327764
##   [617,]  -1.776494997   1.4231792525   1.866290876  -1.3771903714
##   [618,]   1.862778139   0.3168825534  -2.044272590   0.2024695139
##   [619,]   0.783085708   1.0408955491  -1.229743284   0.3007597540
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##   [622,]  -1.770814879  -2.8695094636  -0.779740957  -1.2461052930
##   [623,]   0.364824670   0.4074003624  -1.431914603   1.0084302678
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##   [625,]   0.101111725  -0.9211709468   0.046925033   1.7491603015
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##   [628,]  -0.512994850  -0.1855098459   0.358881316   0.1943638402
##   [629,]  -1.424391456   1.0821048810   0.409834172  -1.3214296216
##   [630,]   0.491007264  -0.4739891640  -1.154115956   1.9120547616
##   [631,]  -0.371155336   1.0840335289  -0.611155100   0.8263665790
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##   [633,]  -1.213695030   0.3574885950   0.769194405  -0.7561102837
##   [634,]  -1.499211623   0.3587654980  -0.410043538  -0.1139499815
##   [635,]   0.689637532  -0.8872405733   0.447918736   1.0314217497
##   [636,]   0.262805205  -1.1564586261   0.995993417  -1.1521061040
##   [637,]  -0.289674258   1.1233106910   0.301865815   1.2773637891
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##   [640,]  -0.995840420  -0.4460006835  -0.406714463  -2.0778438461
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##   [642,]  -2.021053663  -0.5732228759  -0.315411927  -0.8175973615
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##   [644,]   1.418839368   0.0501147909  -0.144247484   0.5756967746
##   [645,]   1.044009948  -0.2551107556   0.937569376   0.5375487123
##   [646,]   0.319561639   1.8313513311   0.843646913   0.5357798806
##   [647,]  -1.807590277  -0.4317804771  -1.205050000  -0.4750512852
##   [648,]  -0.984707161  -0.6146120423   0.500836132   1.5100316974
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##   [650,]   0.529472865  -0.1513145616   0.165085750   1.3932981311
##   [651,]  -1.566557203   0.6551432443   0.357127620  -0.2336101931
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##   [653,]  -1.030773141  -0.1103372529  -1.231374046  -2.5081728050
##   [654,]   0.441404547  -0.4836819133  -0.521476107   0.3560941837
##   [655,]  -0.649211957   0.9084150058  -0.032271911  -0.2298143071
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##   [656,]  -0.272258786  -1.4539435715   0.012133243  -0.7092718913
##   [657,]   2.258850160   1.9289263917   1.850805345   0.1417493027
##   [658,]  -0.440504703  -0.7296155870  -0.424685444   0.6080484539
##   [659,]  -0.622883984   2.1704094452  -0.640358441  -0.3780801536
##   [660,]   0.380726980  -0.3655681059  -0.821834838  -0.6399953334
##   [661,]   0.875900381  -1.2255016009  -0.698594729   0.3378113524
##   [662,]  -0.089905076  -0.8814760216  -0.319780756   0.3828870437
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##   [664,]   0.459686749  -0.5798233407   0.529615947  -0.8145547368
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##   [666,]   0.468494911   0.2463725471  -0.519797274   0.4781429245
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##   [668,]   0.219228795   0.4117334252  -0.093052037  -0.5350559079
##   [669,]   1.263879172  -0.8308205224   1.540725572  -2.7286585841
##   [670,]  -0.161051242   0.1689966457   0.256917163   0.1555881014
##   [671,]   0.057525850  -0.2627273308  -0.313218376  -0.0139377019
##   [672,]   0.535173522   0.6784420243   0.618817703   0.8477960052
##   [673,]  -0.287124208  -0.6842557119  -0.201798463   0.9430813318
##   [674,]  -0.165749637  -1.3612831928  -0.289472435   0.5150834339
##   [675,]  -0.552168776   1.4380312042  -0.803629884  -0.7336511996
##   [676,]   0.178216809  -0.9016640983   0.026705815   0.9563217002
##   [677,]  -0.702996329  -0.1464642059  -0.876718202   1.4158739998
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##   [679,]   0.145705799   0.6023071755   0.761752443  -0.1863643555
##   [680,]   1.307750991  -0.6881749367   0.021558735   0.2048681627
##   [681,]  -0.066084549   1.0644073189   1.610123019   0.8379656150
##   [682,]   1.010615473   0.8218903065   1.587661298  -0.1850435147
##   [683,]  -0.379461432   0.2184145116  -0.291520616  -0.8288161309
##   [684,]   0.184341332  -0.2416120417   1.567634379   0.7726530539
##   [685,]  -0.549088743   0.2213092820   0.635700382   1.3239055677
##   [686,]   0.944281227  -0.1096475454   0.418644081   0.7058917446
##   [687,]   0.370166258  -0.2385169078   0.436551516  -0.6750959975
##   [688,]   0.288320351   1.7013426801  -0.730586053   0.4058106734
##   [689,]   0.012925808  -1.3693228272   0.527786763  -0.4271902616
##   [690,]   0.220522698   0.4194959315  -0.476115723   0.5005153777
##   [691,]   0.875634839   0.7909618655  -0.191748374  -0.4243372582
##   [692,]  -0.893065673  -0.3565887516  -0.736217821   0.9234798167
##   [693,]   2.045684529   0.5505866772  -0.321987700  -0.9417914511
##   [694,]  -0.799027362   0.4806843635  -1.032400389   1.2444449224
##   [695,]   1.209150926   1.8847654718  -0.810924825  -1.4063244893
##   [696,]   0.362732368  -0.5420146665  -0.441695252   1.0679205845
##   [697,]   0.512571248  -0.9728359726  -0.565128198  -0.0141131386
##   [698,]   0.388825670  -0.9292309546  -1.676239485  -0.7147517309
##   [699,]   0.032492857  -0.0973442099   0.605252191   1.9222892906
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##   [702,]  -0.104525261   0.0125921652   1.468102107  -0.8848737427
##   [703,]   1.305242385   1.1612452395  -0.235511025  -2.6877525741
##   [704,]  -0.766546020   1.2344426746   0.450183857   0.6807848028
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##  [706,]   1.534872999   1.8191258256   0.989948520   0.6478309461
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##  [711,]  -0.307028916  -0.5002139211   0.330534462  -1.1792479497
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##  [725,]  -1.208862181  -1.9330434047  -0.521081255  -0.3439655837
##  [726,]   0.792630153   1.1071182602  -1.694405977  -0.0378808031
##  [727,]  -1.267095535   0.0063978808  -0.576853740  -0.0785577535
##  [728,]  -1.771929280   0.2663385166  -0.460494301  -1.5111789960
##  [729,]  -0.165741635   1.4183661831  -0.680908652   1.4399407014
##  [730,]  -0.421675829   1.5684056800   1.902705483  -0.5220374438
##  [731,]   1.914112646  -0.9155508013   0.606731452  -0.4792886109
##  [732,]   0.481514300   0.3888195145  -1.421167572   0.0881071805
##  [733,]   0.991153520   0.1498238668  -0.945864942   0.0829704987
##  [734,]   2.259107744   0.9180530703   0.057381493   0.2378150412
##  [735,]   0.275887443  -1.3800917359   0.004960807  -1.3906045756
##  [736,]   0.604162506  -2.7069613166  -0.115238167  -1.6654653698
##  [737,]   1.329237177   0.1013962988   0.057887359   0.0157159603
##  [738,]   0.987530205  -0.9623988815   0.353114309   1.5632423658
##  [739,]  -1.038395020   2.2087311378  -0.399090865  -0.3311430087
##  [740,]   0.873370639   2.9617150566   0.070091189  -1.0029404551
##  [741,]   1.065440503   2.0713453901  -0.479946515   0.8731139339
##  [742,]   1.168158443  -1.1915475874   1.244556753  -1.1356309845
##  [743,]   2.252499723   1.0317129125  -0.200186144  -0.7143766237
##  [744,]  -1.113587233   0.5478166220  -0.390033953  -1.2537626593
##  [745,]   0.002399713  -0.1261690884   2.280591729  -0.7847499134
##  [746,]  -0.452190875   1.2714230337  -0.134465874  -1.6955452688
##  [747,]  -1.061111163  -0.1047009074  -0.435328484   0.4839284332
##  [748,]   1.830110522  -1.2523210696   1.138788478  -0.2867249527
##  [749,]   0.461387556   0.0224913135   0.997167280   0.2954002717
##  [750,]   0.121803339  -0.6789474643  -0.005879442   0.1319161473
##  [751,]   0.783280584   0.7189937822   1.216191945   0.1505514736
##  [752,]   0.810579642  -1.6774333719  -0.827598694   0.9509899893
##  [753,]  -0.011196496  -0.4019646177   0.699444356   1.2654196690
##  [754,]   1.054141754  -1.6980037106  -0.504763342   0.1526091227
##  [755,]   0.584855814   1.0631874545  -0.177386776  -0.6629002762
```

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##  [756,]   0.390945410   0.6574267146   1.326153834   0.0301612621
##  [757,]   0.360920202   0.7237820815   0.293913538   0.0057876178
##  [758,]   0.123589471  -0.1142755719   2.122805170   0.4508376808
##  [759,]  -1.641679122   1.4006945765   0.719998654  -0.6190294121
##  [760,]   1.596198129   0.2815657452   2.755480463   0.6674362818
##  [761,]   1.603167756   0.0665148743  -1.041876730   0.1846369048
##  [762,]  -1.789444130   1.4764884984  -0.665320301  -1.0895653263
##  [763,]   0.606136523   1.9842202305  -0.307880440  -0.1011200565
##  [764,]   0.904412784  -1.1148565053   0.163729780  -0.0277480652
##  [765,]   0.044362207  -1.7401338013   1.766412987   0.0055671450
##  [766,]  -0.761292245   1.6289165582   0.846103995  -1.0210066108
##  [767,]   0.483297932   0.6552052441   1.912981021   0.3628037690
##  [768,]   1.053528536  -0.9384893249   1.481980239   0.4667781750
##  [769,]  -0.910397536   0.1953181630  -1.082250562  -0.7090995883
##  [770,]   1.681100484   1.2961458598   1.118905491   0.0850100275
##  [771,]   0.366008776  -0.8498220257  -0.105432179  -0.5314932079
##  [772,]  -0.530013646   0.6478397590  -1.089480392  -1.6696541307
##  [773,]   0.181323037  -0.3057054265  -0.250064283   1.4965139378
##  [774,]  -0.212333771   0.3262654875   0.434959440   0.2427070172
##  [775,]   0.838694261  -0.2983358895  -0.971269025  -0.0445245697
##  [776,]   1.859462828   1.2901555808   0.262652896   1.6015930760
##  [777,]   1.157673166   1.6130560442  -0.709028061   0.3801309299
##  [778,]  -1.874743698   0.6869293212  -1.173665007   1.4089890754
##  [779,]  -0.938556775  -0.5060913976  -0.503923403   2.2233829696
##  [780,]   1.359097614   0.2267601155   0.471858347   1.4990557143
##  [781,]   0.547148272   0.5409904243  -0.339261424  -0.0401844714
##  [782,]   0.022587064  -1.8561990299   1.547208285   0.9879544412
##  [783,]   0.918259882   0.3545244304   1.571027256  -0.0366646828
##  [784,]  -0.302643007   0.7698556624   0.346019647  -0.0767766511
##  [785,]   0.492565661  -0.1542621875   1.178292490  -0.5561150444
##  [786,]   0.204211147   0.5507048271  -1.146305098   1.0686030503
##  [787,]  -0.257183817   0.2336040971   1.123859409  -0.5185419444
##  [788,]   0.543063337   0.6234021653  -1.131347444   0.6273988858
##  [789,]  -0.217183785  -0.6907220352  -0.685864712   0.4936833794
##  [790,]  -0.002701459   0.3035083319   0.085752568   1.9384771493
##  [791,]  -0.194052728  -0.9493652047   1.917475207  -1.7273993979
##  [792,]   0.845431479  -1.4698352964  -0.146736384  -1.0448488707
##  [793,]  -1.647067621   0.6384751268  -0.310467705   0.3842180222
##  [794,]   0.945669680   0.1794007539   0.292767308   0.0102121840
##  [795,]  -2.485011129  -0.2402476478  -0.301300146   0.8945430066
##  [796,]   1.005279636   1.8584771079   1.034315090   0.8920614265
##  [797,]   1.478264004   1.3121350582   0.227955433  -0.3372256260
##  [798,]  -1.616804251   1.2096288441  -1.151156897   1.1451518459
##  [799,]   1.038140145   0.8466614146  -1.083403826   0.0722179334
##  [800,]   0.746469846   0.2765778985   0.561647160  -0.4298599354
##  [801,]  -0.556307864  -0.0456759166   1.971112008  -1.0436187721
##  [802,]  -2.177327736   0.5194250374  -0.155340996  -0.4342227168
##  [803,]  -0.338747362  -0.4027749670   0.203384823   1.3513171402
##  [804,]  -0.633990675   0.1078086461  -0.498276540   0.9166483833
##  [805,]   1.200037746   0.1636459951  -0.669424590   1.4168204214
```

```
##   [806,]   1.684855316 -0.3779334520   0.327027687   1.5043815752
##   [807,]  -0.431731431   1.7144737015  -0.380880448   1.1181849590
##   [808,]   0.138154788   0.9153414309  -1.682319682   1.1967470173
##   [809,]  -1.650488404   0.5295445091  -0.807593163   0.5020435016
##   [810,]  -0.612761419   0.7413769370  -1.390922114  -0.4254145641
##   [811,]   1.585349922  -0.5093728908   0.106258222   0.6373119861
##   [812,]   1.599509777  -0.1056964660   0.748619497  -0.7681449296
##   [813,]  -1.025869745   1.3477216946  -0.738910301   1.6001633595
##   [814,]  -2.130238584   0.5708427530  -0.151512065   0.8093727096
##   [815,]   1.439833307   0.4824416158   0.291197537   1.1897631178
##   [816,]   0.403861828   1.1581435568   2.077530392  -0.7871043997
##   [817,]   1.375536299   2.0143169288   0.139228824   1.3061702445
##   [818,]  -0.490487983  -0.1572806637   0.452555831  -0.6568358462
##   [819,]  -0.630772432   1.5534041429  -0.445823033   0.5130090966
##   [820,]  -0.486622061   0.6107040206   1.563905684  -0.0540369071
##   [821,]  -0.116223543  -0.8410904398  -1.318381622   0.7860236629
##   [822,]   0.179643846  -0.7060772366   0.776774795  -0.3899379027
##   [823,]  -0.466270355  -1.6517316256  -1.509097450   0.5293243043
##   [824,]   0.048661014   0.0852320983  -1.697885339   0.1517039833
##   [825,]  -0.331229135  -2.2533628060  -0.980277696  -0.5937961761
##   [826,]  -0.536062480  -1.3797397364  -0.039556055  -0.4629360780
##   [827,]   0.864932594  -1.4716167122   0.229926053   0.6636682879
##   [828,]   0.526447405  -1.5936432408  -0.831765831   1.0556445667
##   [829,]  -0.225119186  -0.1348077340  -0.840426006  -1.0300770692
##   [830,]   2.261740089   0.0908662881  -1.280363592  -0.5219573422
##   [831,]   1.250861762   0.9664146665   2.265578942  -0.4105971018
##   [832,]   1.135042700   1.0463462233  -0.163558890   0.6845078066
##   [833,]   1.428237941  -2.1955664332   0.841100464  -0.0370202526
##   [834,]   1.361815180  -0.0028693609  -1.233517926  -0.9313254450
##   [835,]  -0.134462495   0.1288524241   0.124431451  -0.1064451406
##   [836,]  -1.394847925   0.7614551985  -0.481339913  -1.3562871018
##   [837,]  -0.135761498   1.0385154752  -0.095789380   0.5478382004
##   [838,]   1.402946556   0.3139790672   2.272047048  -1.4434687040
##   [839,]  -0.703591420   0.1438853661  -0.512260550   1.5282109110
##   [840,]  -0.146826633  -0.0142418170  -0.974990842   1.5507447323
##   [841,]  -0.427177695   0.1386498294  -0.213897675   0.4353623676
##   [842,]  -0.563154530  -0.2579449738  -0.533447652  -0.1224597560
##   [843,]  -0.701885869  -0.2825760479  -0.389929173  -0.2922138312
##   [844,]   1.614622283   1.9831261709  -0.767993887   2.0132991693
##   [845,]   2.464040070   1.7139917511   0.069050970  -0.4001675243
##   [846,]   0.447763989  -0.8135786116  -0.945008403   0.8164422001
##   [847,]  -0.781278494  -0.2534129562  -0.440159875   0.7613802311
##   [848,]   0.717720934  -2.0325640466  -0.210410308   1.0005715489
##   [849,]  -0.871038738   0.0704113809  -0.900483992   0.0551006157
##   [850,]   0.567265966  -0.0431024958   0.341625590  -0.5105233862
##   [851,]  -0.333888134  -1.2508617279   0.971035630   0.6659787699
##   [852,]   0.834218301   2.0904718195  -0.304768754   0.7019089592
##   [853,]  -0.803222648   1.6751687748  -0.299333222   1.5974825683
##   [854,]   0.783761055   0.3027687616   0.892460263   0.6820396276
##   [855,]  -1.260908613   0.6926879547  -0.390650643   0.2109442321
```

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##    [856,]   0.100801590   1.9159001496   0.451729783  -0.6357786671
##    [857,]  -0.035335786   0.3119488197  -0.252862172   1.4188956958
##    [858,]  -0.453207653  -0.3511824166  -0.898151617   0.7301188658
##    [859,]   0.273967833   0.3883114899  -1.010334821  -0.3153650016
##    [860,]  -0.638568155   1.1851312712  -1.250289104   0.4802688476
##    [861,]   0.691531562   1.0928023739  -1.035883623  -0.8153903121
##    [862,]   0.283676294   0.1398655783  -0.313722607   1.1524431031
##    [863,]  -0.084926775   2.0854983248  -1.035547962   0.9426109107
##    [864,]  -0.371485457  -0.9085072567  -0.793951996   0.5529796323
##    [865,]  -0.495541483   0.3111521586  -0.718087584  -0.2150804199
##    [866,]  -0.184071688  -0.0757098226  -0.433889903  -0.1788309231
##    [867,]   0.373359744  -0.0422627762   0.733547230  -2.0086648602
##    [868,]  -0.583332795   0.5213544401   0.374186777  -1.2272432742
##    [869,]  -0.404497425  -0.0362615821  -0.432455384   0.2320147441
##    [870,]   0.204332879  -0.7634233568   1.027823013   1.1944498471
##    [871,]   0.183354250  -0.9848397531  -0.459450119  -0.2262597495
##    [872,]   1.195674803   2.0990891043   0.769852152  -0.7728400744
##    [873,]  -1.180917025   0.1719926861   2.139507517  -1.0313838266
##    [874,]  -0.617420543   0.3716211877  -0.419913853   0.2099594666
##    [875,]  -1.337583454   0.2291764254  -0.367828358   1.3475606408
##    [876,]  -1.777108072   0.7912216128   0.978781591   0.8108628782
##    [877,]  -1.154575898   1.8695975449   2.081010082  -0.4718248729
##    [878,]   2.475907042   0.6989759354  -0.966261488  -0.6119405442
##    [879,]   1.109179672   1.3954383789   0.904079527  -0.1755366047
##    [880,]  -0.541546902   1.5158889977  -0.235659382  -0.6335700700
##    [881,]  -1.037794378   0.4110290271  -0.543415883   1.3651992269
##    [882,]   0.743548024  -0.7169746923   0.682656724   0.8175844317
##    [883,]  -0.472397095  -1.4676290619   1.655278037   0.8467915566
##    [884,]   0.398107424  -0.8688849388  -1.266390630   0.1363223079
##    [885,]   0.094682429   0.1635760959  -1.096753414   1.6829708079
##    [886,]   0.009957098  -0.3391811792   1.002783846   1.2335289486
##    [887,]  -0.397041685   1.5808360137  -1.073233133  -2.2023030468
##    [888,]   0.019692654  -0.4307508709   0.029088122  -0.2581853371
##    [889,]   0.482151796   0.2572189627   1.425042444   1.9006539877
##    [890,]   1.581577048   0.1923325426   0.175921580   0.8267839106
##    [891,]  -1.564884156   2.4155787524  -0.324542370   0.3548938736
##    [892,]  -0.659521906   0.3285291839  -0.109135339   0.6306697317
##    [893,]  -0.803098306   1.0041930712  -0.609978544  -1.3710723219
##    [894,]  -0.293853271  -0.3769153552  -0.184609822  -0.6436547075
##    [895,]  -0.454319031   0.5146955517   0.139853973   1.7742240054
##    [896,]  -1.530072494  -0.6224529786   0.190202159   0.0235334197
##    [897,]   0.815835454  -0.2258329867  -1.389374701  -0.6104000559
##    [898,]   0.132942265  -0.3538061043  -0.558517963  -0.7754902833
##    [899,]   0.380114131  -0.8438322495  -0.090793113  -0.2699127970
##    [900,]   0.133241248   1.8419662157  -1.209899608  -0.9073918421
##    [901,]   0.403619447  -0.2215443249  -1.463009780  -0.0271026376
##    [902,]  -0.286406821  -1.3696198704  -1.269379043  -0.4979422727
##    [903,]  -0.622658051  -0.0700765740   0.089664330  -0.5630293192
##    [904,]  -0.516552626   1.0040919449   1.133982148  -1.1751519606
##    [905,]   0.589995378   0.7117440990  -0.717025625   0.5966326612
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##    [906,]   0.167450700   1.7114196820  -1.443131359   1.1023567632
##    [907,]  -0.161095299  -0.2208389170  -1.508222437  -0.1488408142
##    [908,]  -0.644909980  -1.1401530711  -1.296987745   0.1042098234
##    [909,]   0.092760449   0.0962521279   0.189267406  -0.3089987599
##    [910,]   1.052574915   0.8183792222  -0.130074561   0.4288700288
##    [911,]   1.433927420   0.5242987262  -0.985556732   0.5848219818
##    [912,]   0.691532982   0.5030656747   0.060572942  -0.7586618572
##    [913,]  -0.441681183  -0.4724297773   0.802746944  -0.5966328754
##    [914,]   1.690524140  -1.2728329059   0.092908537  -0.5949376820
##    [915,]   2.300967555  -0.4093466337   0.284789934   0.4450485382
##    [916,]  -0.365651477  -0.6920320816  -1.038074643   0.8764721496
##    [917,]  -0.647500086  -0.2269598519  -1.589492065  -1.3019898007
##    [918,]  -1.016566113   0.5477780420  -0.923422704  -0.3691931728
##    [919,]   0.427447998  -0.7848418581  -0.009694263  -0.2547588134
##    [920,]   1.796599541  -1.2017041793  -0.080489201   1.0609938299
##    [921,]  -0.557008716  -2.5826127657  -0.810046819  -0.3153350307
##    [922,]  -0.846893868   0.5703764615   0.086671208  -0.2909397810
##    [923,]   0.249217976   2.4191030357  -0.124779350   0.2111577789
##    [924,]   0.198537713  -1.1924232778   0.472232259   0.5320684617
##    [925,]  -0.363290997  -0.8850436525   0.268542098   1.1818209320
##    [926,]  -0.183677834  -1.2746186813   0.192979098   2.2122698049
##    [927,]  -0.925495473   0.7566877907  -1.074314742  -1.2563424898
##    [928,]  -0.350491230  -0.3686576988   0.806268894   1.2010727344
##    [929,]  -0.529556994  -1.5652781532   1.289824082   0.8938072449
##    [930,]   1.151013751  -0.2270570415   0.306312061  -0.4066853827
##    [931,]  -0.542980053   0.1778224891  -0.585574309   0.1924454787
##    [932,]  -0.962611929   0.1631349678  -0.642645597  -0.3345159992
##    [933,]  -1.446229166   0.5624158141   1.382528356   1.0288773369
##    [934,]   0.557177104  -0.2199140508  -0.348205017   0.9151907537
##    [935,]  -0.282668700  -0.9647331122  -0.842461996  -0.9364424225
##    [936,]  -1.445701137  -1.4374077367  -0.660958895   1.2693778509
##    [937,]  -0.844271185  -1.0753847602  -0.042079889   0.2586786829
##    [938,]   0.641821817   0.3940854936   0.662704458  -0.8613301167
##    [939,]   1.058704109  -0.7249560765   0.444179910  -0.6511968493
##    [940,]   0.107500672   0.3039086287   0.418694714  -0.3010921345
##    [941,]  -0.650177823  -0.2443167966  -0.177959577  -0.9517802351
##    [942,]   1.437485375  -0.6356715130  -0.922227440   0.3499455061
##    [943,]  -0.129356773  -0.1901560182  -0.946816496   1.3680554185
##    [944,]  -0.176705029   0.5647921860  -0.271275626   0.7875259636
##    [945,]  -0.152618885   0.2528170139   0.522956663   1.0600288375
##    [946,]  -0.891774938   1.9881555353  -0.327685211  -1.2261685220
##    [947,]  -0.747120473   0.5589840198  -0.568832095  -0.4069912019
##    [948,]  -0.819215992  -1.4779022732  -0.145141108   0.7478662708
##    [949,]  -0.259130230   0.0650778501   2.576654961   0.3033871154
##    [950,]  -1.489255769  -0.8584417212  -0.210503611  -0.2355125171
##    [951,]  -0.977755688   0.6953591970  -0.468967284  -0.7668966814
##    [952,]  -1.808154093   1.9267999101  -0.422271192  -1.2789505186
##    [953,]  -0.128097985   0.3104801506  -0.155124594  -1.6698712140
##    [954,]   0.101474849  -0.3307048221   1.646127126   0.6285821308
##    [955,]   0.817445489  -0.4183655842   0.119193135   1.1785911226
```

```
##  [956,] -0.161891762  0.3787032370  1.514757728 -0.4081523257
##  [957,] -1.262432212 -1.3799795294 -0.633515777 -1.3055173379
##  [958,] -1.756883433 -0.6963061297 -1.018721698 -1.4641026006
##  [959,] -0.004466022 -1.1648495652  1.730298475  2.0268527381
##  [960,] -0.902432884 -0.6728746275 -0.415076608 -0.5033132979
##  [961,]  0.826858029 -0.1398680838 -0.594624524 -0.6464417353
##  [962,]  0.328952006  2.3173175115  1.681731742  0.2242278839
##  [963,]  0.684281851 -1.6671768849 -0.337908208 -1.2402988444
##  [964,] -0.468265316  1.5742963678 -0.501768368 -1.0107949347
##  [965,]  0.479367625  0.4137536945  0.472135006 -0.4534190385
##  [966,]  0.781810001 -0.3594440655 -0.445402489  1.1803276604
##  [967,]  2.461577886 -1.0595087155 -0.152468903  2.0165763119
##  [968,]  0.528624365  0.8057373615  1.270545273 -1.2902179523
##  [969,] -1.931175531  1.3812334509  0.360949087 -0.5805593263
##  [970,] -0.647123796 -0.2693596870 -1.242696476 -0.1502711774
##  [971,]  0.269675520  0.5088579955 -1.174013986 -0.9506883907
##  [972,] -0.241709768  0.6584978845 -0.349341216 -0.9089445326
##  [973,]  0.749243332 -0.2103832590  1.855949512  0.1049770055
##  [974,] -0.177496995 -1.0234897874  0.022798094 -0.4716419345
##  [975,]  0.114533950  0.1948597662  0.444770923 -0.7592264683
##  [976,]  1.979763461 -0.3504580226  0.410083613  0.4903816772
##  [977,]  0.788689738  0.6492665463  0.060987033  0.1747288569
##  [978,] -0.881456634 -0.2596090322 -1.173033264  0.3201045990
##  [979,]  0.494150974 -0.3112696869 -0.859413376  0.1017367634
##  [980,]  0.944494859  0.8206103014 -1.138990309 -0.0779093340
##  [981,]  1.142460000 -1.5099510803 -1.312208382 -1.2231446795
##  [982,]  1.008466095 -1.8641617131 -0.725975213 -0.8626947646
##  [983,] -0.865889229  0.6597010328 -0.341752438 -0.0669748953
##  [984,] -0.481995935 -0.5427662828 -0.783753552  1.6809898641
##  [985,] -0.153880782 -1.0015160528 -1.316075804 -0.4710829660
##  [986,]  0.465129845 -1.4895264671 -0.947912202 -0.3174259258
##  [987,]  1.694297281 -0.5390831497 -0.507549319 -2.0575169254
##  [988,]  0.632630707 -0.4901047360 -0.661159251 -1.4558335760
##  [989,]  2.427050888  1.8079321446  1.702176925 -0.4424693992
##  [990,]  2.609594485  0.4161349725 -0.190739115 -0.1247252630
##  [991,] -0.613185384  0.8429028101 -1.502931933 -1.1671968540
##  [992,] -1.611391634 -0.8826797822 -1.106739457 -1.1372814990
##  [993,] -0.820109859 -0.2514967980  0.457353787 -2.8985041326
##  [994,]  0.628294886 -0.6234968105 -1.976959104  0.7358637828
##  [995,]  0.358716948 -1.2236223580  0.089701922  0.0078966457
##  [996,] -0.048766237  1.0929392074 -1.334796717 -0.4139528307
##  [997,] -1.168297597 -1.1441959683 -0.685151131 -1.0306590105
##  [998,]  0.471818559  0.3456823559 -0.073062235  1.1562020103
##  [999,]  0.751649988  0.5335170061  0.481971887 -1.6854355599
## [1000,]  1.744102191  1.5612373637  0.718071975 -1.2431756705
## [1001,] -1.116141486 -0.4023475284  1.796745606  1.9574460151
## [1002,] -0.830047788 -0.3012755628 -1.084560660  1.1503056306
## [1003,] -1.111560895 -0.4724648749 -0.996801880 -1.7517230388
## [1004,]  0.001262349 -1.2436659511 -0.206117339  0.2604245601
## [1005,] -0.487159304  0.2940337244  0.175441993 -0.0970928106
```

```
## [1006,]  0.940923679 -0.7004614808 -0.332859940  1.1593730846
## [1007,] -1.049311064  1.1890934459  0.956772684 -0.9997233640
## [1008,] -0.750923700 -1.6190153305 -1.053104632 -1.5164567797
## [1009,]  1.134152886 -0.0963284274  0.069800430  0.9284038148
## [1010,] -1.456714583  0.0384581747  1.956798118  0.9061885496
```

```
# Play with FA utilities
```

```
fa.parallel(movie_transformed[-1]) # See factor recommendation
```
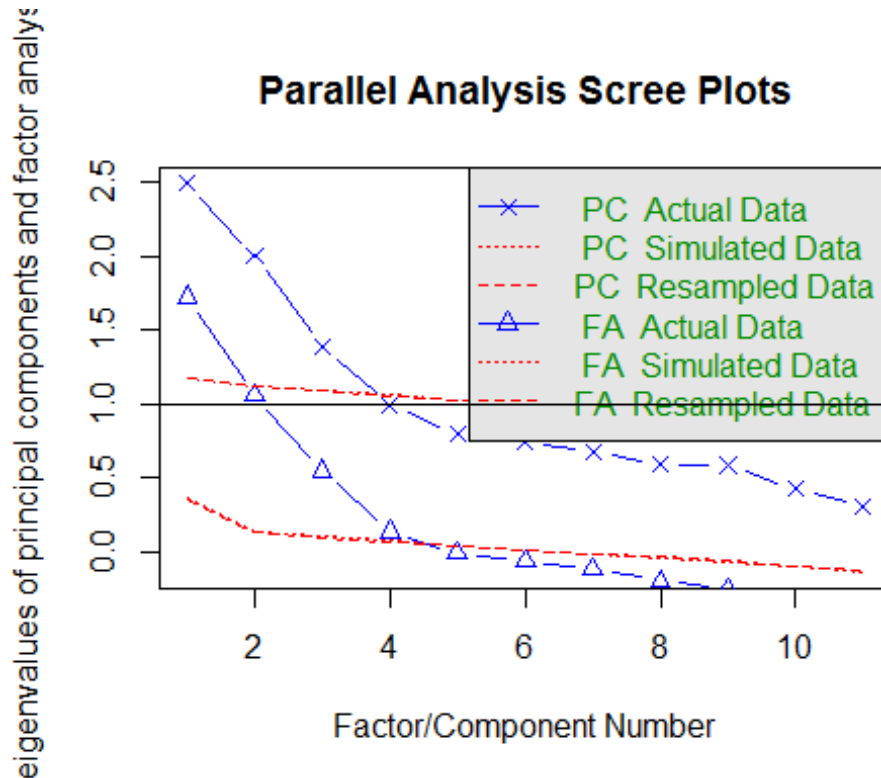


```
## Parallel analysis suggests that the number of factors =  4  and the number
## of components =  3
```

```
fa.plot(fit.pc.movies) # See Correlations within Factors
```

Principal Component Analysis
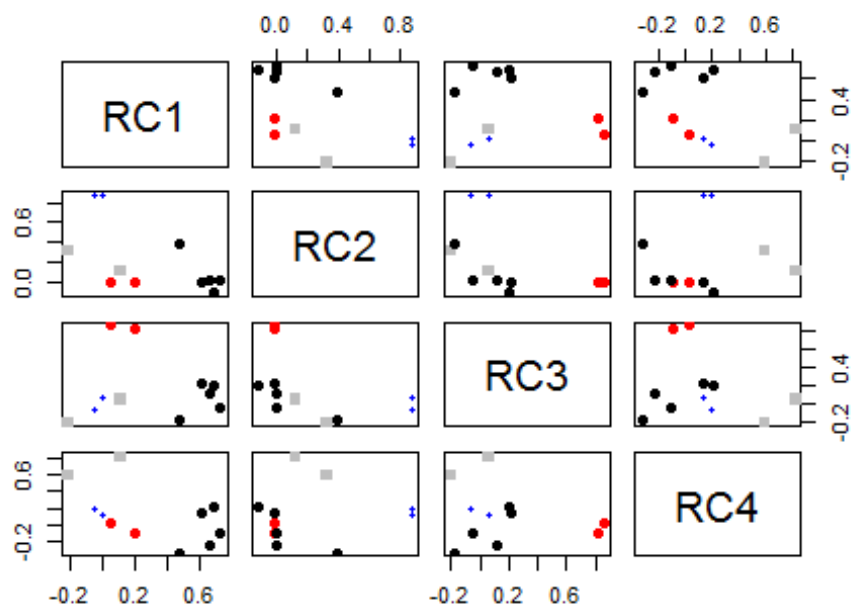

```
fa.diagram(fit.pc.movies) # Visualize the relationship
```

Components Analysis
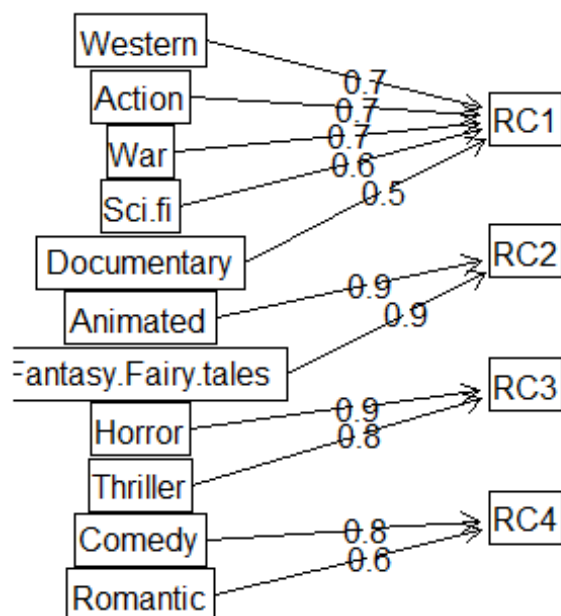
```r
vss(movie_transformed[-1]) # See Factor recommendations for a simple
structure
```

Very Simple Structure
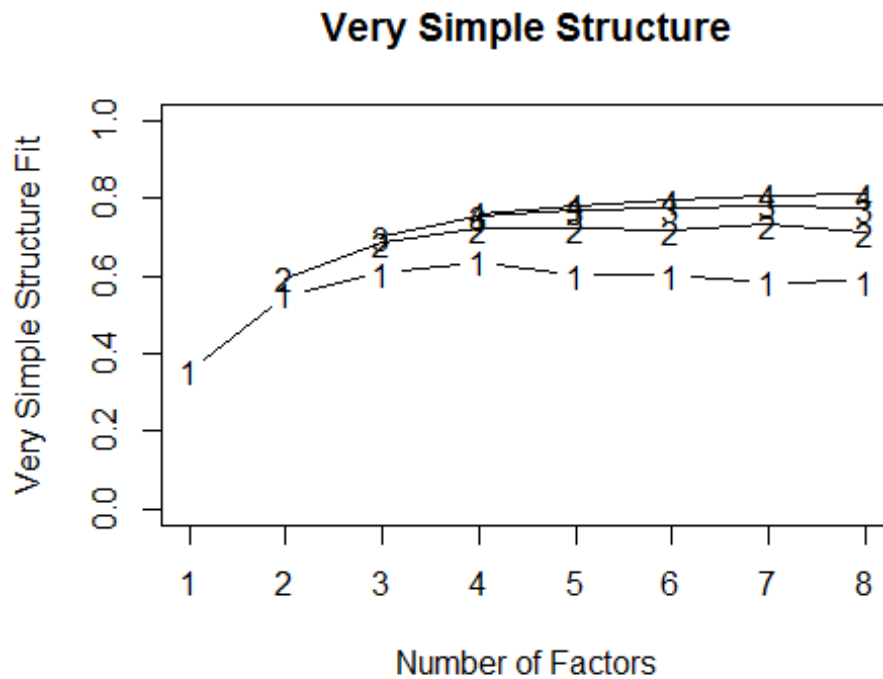

```
##
## Very Simple Structure
## Call: vss(x = movie_transformed[-1])
## VSS complexity 1 achieves a maximimum of 0.64  with  4  factors
## VSS complexity 2 achieves a maximimum of 0.73  with  7  factors
##
## The Velicer MAP achieves a minimum of 0.04  with  2  factors
## BIC achieves a minimum of  NA  with  5  factors
## Sample Size adjusted BIC achieves a minimum of  NA  with  5  factors
##
## Statistics by number of factors
##    vss1 vss2   map dof   chisq       prob sqresid  fit RMSEA    BIC   SABIC
complex
## 1 0.36 0.00 0.039  44 1.3e+03 2.3e-243    10.1 0.36 0.168  994.3 1134.0
1.0
## 2 0.55 0.59 0.037  34 4.7e+02   2.3e-77     6.4 0.59 0.112  230.9  338.9
1.1
## 3 0.61 0.69 0.048  25 1.8e+02   7.5e-25     4.7 0.70 0.078    4.1   83.5
1.3
## 4 0.64 0.72 0.064  17 7.4e+01   4.9e-09     3.7 0.76 0.057  -43.9   10.1
1.4
## 5 0.60 0.72 0.090  10 2.1e+01   2.4e-02     3.3 0.79 0.032  -48.6  -16.8
1.4
## 6 0.60 0.72 0.134   4 6.0e+00   2.0e-01     3.1 0.81 0.022  -21.6   -8.9
```

```
1.7
## 7 0.58 0.73 0.227  -1 1.9e-01        NA    2.7 0.83    NA    NA    NA
1.5
## 8 0.59 0.71 0.366  -5 5.3e-06        NA    2.6 0.84    NA    NA    NA
1.6
##     eChisq    SRMR eCRMS    eBIC
## 1 2.2e+03 1.4e-01 0.157 1886.8
## 2 6.1e+02 7.4e-02 0.094  375.3
## 3 1.7e+02 3.9e-02 0.058   -2.4
## 4 5.4e+01 2.2e-02 0.040  -63.3
## 5 1.2e+01 1.1e-02 0.025  -56.9
## 6 3.2e+00 5.4e-03 0.020  -24.5
## 7 1.3e-01 1.1e-03    NA     NA
## 8 2.3e-06 4.5e-06    NA     NA
```

@Conclusion : The proportion of the total variance for RC2 is about 85% which restores maximum of the total variance. Also the components for RC2 contribute to Animated and Fantasy Fairy tales movies.

```r
#music_pca
eigvec.music<- music_pca$rotation

pcafactors.music<- eigvec.music[,1:4]
pcafactors.music
```

```
##                                PC1         PC2         PC3         PC4
## Music                  -0.07348587 -0.06637258  0.20393520 -0.27285334
## Slow.songs.or.fast.songs  0.07909389 -0.03715789  0.33673187 -0.38692865
## Dance                   0.10593604 -0.40686613  0.25266992 -0.18809943
## Folk                   -0.23536427 -0.20395715 -0.17735902 -0.15261096
## Country                -0.22165587 -0.16378995 -0.08826069 -0.07278389
## Classical.music        -0.33427216 -0.11363745 -0.22530674 -0.19648989
## Musical                -0.21306339 -0.27761360 -0.19176926 -0.04813964
## Pop                     0.07948200 -0.36864939  0.10610310 -0.08628967
## Rock                   -0.31408320  0.16381242  0.24497619 -0.13760973
## Metal.or.Hardrock      -0.26788754  0.27493723  0.20888397 -0.20728971
## Punk                   -0.25877936  0.22880832  0.32746991 -0.01776324
## Hiphop..Rap             0.14668504 -0.28399372  0.32226482  0.21487767
## Reggae..Ska            -0.17063495 -0.13437788  0.33404941  0.51149310
## Swing..Jazz            -0.32246691 -0.16834386  0.02878952  0.30067030
## Rock.n.roll            -0.35567777 -0.02784195  0.15705958  0.11136720
## Alternative            -0.29273952  0.12627082  0.16107910  0.04377580
## Latino                 -0.11432176 -0.39837369 -0.03575959  0.17249177
## Techno..Trance          0.09648161 -0.23597716  0.27927306 -0.33307335
## Opera                  -0.28734109 -0.14638664 -0.29342147 -0.21923779
```

```r
unrot.fact.music<- sweep(pcafactors.music,MARGIN=2,music_pca$sdev[1:4],`*`)
unrot.fact.music
```

```
##                                PC1         PC2         PC3         PC4
## Music                  -0.1433502 -0.10832106  0.28518790 -0.29013933
```

```
## Slow.songs.or.fast.songs    0.1542899 -0.06064224    0.47089398 -0.41144162
## Dance                        0.2066513 -0.66401175    0.35333971 -0.20001603
## Folk                        -0.4591293 -0.33286119   -0.24802313 -0.16227928
## Country                     -0.4323881 -0.26730770   -0.12342589 -0.07739495
## Classical.music             -0.6520707 -0.18545805   -0.31507439 -0.20893805
## Musical                     -0.4156266 -0.45306965   -0.26817476 -0.05118942
## Pop                          0.1550470 -0.60164144    0.14837714 -0.09175636
## Rock                        -0.6126878  0.26734437    0.34258062 -0.14632767
## Metal.or.Hardrock           -0.5225731  0.44870175    0.29210838 -0.22042207
## Punk                        -0.5048056  0.37341868    0.45794183 -0.01888858
## Hiphop..Rap                  0.2861411 -0.46348209    0.45066292  0.22849075
## Reggae..Ska                 -0.3328607 -0.21930675    0.46714277  0.54389757
## Swing..Jazz                 -0.6290420 -0.27473976    0.04025996  0.31971858
## Rock.n.roll                 -0.6938270 -0.04543849    0.21963591  0.11842262
## Alternative                 -0.5710523  0.20607591    0.22525691  0.04654911
## Latino                      -0.2230095 -0.65015195   -0.05000708  0.18341958
## Techno..Trance               0.1882084 -0.38511833    0.39054219 -0.35417445
## Opera                       -0.5605214 -0.23890524   -0.41032767 -0.23312709

communalities.music<- rowSums(unrot.fact.music^2)
communalities.music # 1 - this would be your unique variance

##                 Music Slow.songs.or.fast.songs                     Dance
##             0.1977957                0.4185082                 0.6484717
##                  Folk                  Country           Classical.music
##             0.4094463                0.2796368                 0.6025179
##               Musical                      Pop                      Rock
##             0.4525556                0.4164470                 0.5856326
##     Metal.or.Hardrock                     Punk               Hiphop..Rap
##             0.6083291                0.6043377                 0.5519975
##           Reggae..Ska              Swing..Jazz               Rock.n.roll
##             0.6729386                0.5750166                 0.5457245
##           Alternative                   Latino            Techno..Trance
##             0.4214755                0.5085743                 0.4617013
##                 Opera
##             0.5939770

rot.fact.music<- varimax(unrot.fact.music)
View(unrot.fact.music)
rot.fact.music

## $loadings
##
## Loadings:
##                           PC1    PC2    PC3    PC4
## Music                    -0.234                -0.367
## Slow.songs.or.fast.songs -0.167  0.139  0.201 -0.575
## Dance                     0.259 -0.239        -0.719
## Folk                                    -0.637
## Country                  -0.113        -0.506
## Classical.music          -0.225        -0.734
```

```
## Musical                       -0.141 -0.653
## Pop                      0.314 -0.225 -0.157 -0.492
## Rock                    -0.750        -0.148
## Metal.or.Hardrock       -0.763  0.154
## Punk                    -0.769
## Hiphop..Rap              0.228 -0.505  0.221 -0.443
## Reggae..Ska             -0.279 -0.771
## Swing..Jazz             -0.269 -0.513 -0.474  0.124
## Rock.n.roll             -0.548 -0.337 -0.361
## Alternative             -0.602 -0.146 -0.162  0.106
## Latino                   0.222 -0.459 -0.467 -0.175
## Techno..Trance                               -0.675
## Opera                          0.124 -0.750
##
##                   PC1   PC2   PC3   PC4
## SS loadings     2.981 1.671 2.944 1.959
## Proportion Var  0.157 0.088 0.155 0.103
## Cumulative Var  0.157 0.245 0.400 0.503
##
## $rotmat
##            [,1]       [,2]      [,3]       [,4]
## [1,]  0.6858691  0.1990255 0.6756205 -0.1830555
## [2,] -0.4947428  0.4482655 0.5156896  0.5369840
## [3,] -0.5126594 -0.3915478 0.4732294 -0.5999372
## [4,]  0.1483017 -0.7785482 0.2316358  0.5641048

fact.load.music<- rot.fact.music$loadings[1:9,1:4]
fact.load.music

##                               PC1         PC2         PC3         PC4
## Music                  -0.23396084  0.03713580 -0.08495777 -0.36668944
## Slow.songs.or.fast.songs -0.16660075  0.13947341  0.20050508 -0.57541052
## Dance                   0.25944517 -0.23915194 -0.08192621 -0.71920400
## Folk                   -0.04713682 -0.01713348 -0.63681176 -0.03743921
## Country                -0.11251543 -0.09729824 -0.50631426 -0.03400002
## Classical.music        -0.22494114  0.07312188 -0.73369114  0.09093902
## Musical                 0.06897835 -0.14095911 -0.65321463 -0.03519661
## Pop                     0.31432516 -0.22549679 -0.15654495 -0.49223121
## Rock                   -0.74981815 -0.02231278 -0.14785324 -0.03235545

scale.music<- scale(music_transformed[-1])
scale.music

##        Slow.songs.or.fast.songs      Dance      Folk    Country
## [1,]                 -0.3944068 -0.9535242 -1.1320495 -0.1199369
## [2,]                  0.8054452 -0.9535242 -1.1320495 -1.0446413
## [3,]                  2.0052972 -0.9535242 -0.2552320  0.8047675
## [4,]                 -0.3944068 -0.9535242 -1.1320495 -1.0446413
## [5,]                 -0.3944068  0.7540280  0.6215855 -0.1199369
## [6,]                 -0.3944068 -0.9535242  0.6215855 -0.1199369
## [7,]                  2.0052972  1.6078041  0.6215855 -1.0446413
```

```
##    [8,]              -0.3944068 -0.0997481 -0.2552320 -1.0446413
##    [9,]              -0.3944068 -0.0997481 -1.1320495 -1.0446413
##   [10,]              -0.3944068 -0.9535242  2.3752204 -0.1199369
##   [11,]              -0.3944068 -0.0997481 -0.2552320 -1.0446413
##   [12,]              -0.3944068 -1.8073003 -1.1320495 -1.0446413
##   [13,]              -0.3944068 -1.8073003 -0.2552320 -1.0446413
##   [14,]              -0.3944068  1.6078041  0.6215855 -0.1199369
##   [15,]              -0.3944068 -0.9535242 -1.1320495 -1.0446413
##   [16,]              -0.3944068 -0.9535242 -0.2552320  0.8047675
##   [17,]              -0.3944068 -0.0997481 -1.1320495 -1.0446413
##   [18,]              -0.3944068 -0.0997481  0.6215855  0.8047675
##   [19,]              -0.3944068  1.6078041  1.4984029  0.8047675
##   [20,]               0.8054452 -0.0997481  0.6215855 -0.1199369
##   [21,]              -0.3944068 -0.0997481 -0.2552320  0.8047675
##   [22,]               2.0052972 -1.8073003 -1.1320495  0.8047675
##   [23,]              -0.3944068 -0.0997481 -0.2552320  0.8047675
##   [24,]              -0.3944068  0.7540280 -0.2552320 -0.1199369
##   [25,]              -1.5942588 -0.0997481 -1.1320495 -1.0446413
##   [26,]              -0.3944068  0.7540280 -0.2552320 -1.0446413
##   [27,]               2.0052972  1.6078041  2.3752204  1.7294720
##   [28,]               2.0052972 -0.0997481  1.4984029 -1.0446413
##   [29,]              -0.3944068  1.6078041 -1.1320495 -1.0446413
##   [30,]               0.8054452 -0.0997481  1.4984029 -0.1199369
##   [31,]              -0.3944068  0.7540280  0.6215855  0.8047675
##   [32,]              -0.3944068  0.7540280 -1.1320495  0.8047675
##   [33,]               2.0052972 -0.0997481 -1.1320495  0.8047675
##   [34,]               0.8054452 -0.9535242 -0.2552320  0.8047675
##   [35,]               0.8054452 -0.0997481 -0.2552320 -1.0446413
##   [36,]              -0.3944068 -0.0997481  0.6215855 -1.0446413
##   [37,]              -0.3944068 -1.8073003  0.6215855 -0.1199369
##   [38,]               2.0052972 -1.8073003 -1.1320495 -1.0446413
##   [39,]               2.0052972  1.6078041  0.6215855 -1.0446413
##   [40,]              -0.3944068 -0.0997481  0.6215855 -0.1199369
##   [41,]              -0.3944068  0.7540280 -1.1320495 -1.0446413
##   [42,]               0.8054452  1.6078041  2.3752204  2.6541764
##   [43,]               2.0052972 -0.9535242 -0.2552320 -0.1199369
##   [44,]               0.8054452 -0.0997481 -1.1320495 -1.0446413
##   [45,]               0.8054452  0.7540280 -0.2552320 -1.0446413
##   [46,]               0.8054452  1.6078041 -0.2552320 -0.1199369
##   [47,]              -0.3944068  0.7540280  0.6215855  1.7294720
##   [48,]              -0.3944068 -0.0997481 -1.1320495 -1.0446413
##   [49,]               0.8054452 -0.0997481 -1.1320495 -1.0446413
##   [50,]               0.8054452 -0.9535242 -1.1320495 -0.1199369
##   [51,]              -0.3944068 -0.9535242  1.4984029 -0.1199369
##   [52,]              -0.3944068 -0.0997481  0.6215855 -1.0446413
##   [53,]              -0.3944068  1.6078041  2.3752204  2.6541764
##   [54,]              -0.3944068  0.7540280  1.4984029  0.8047675
##   [55,]              -0.3944068  1.6078041  2.3752204  0.8047675
##   [56,]              -0.3944068  0.7540280 -0.2552320 -0.1199369
##   [57,]              -0.3944068 -1.8073003 -0.2552320  0.8047675
```

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##    [58,]               -0.3944068 -0.0997481  0.6215855 -0.1199369
##    [59,]                2.0052972  1.6078041  0.6215855 -0.1199369
##    [60,]                0.8054452 -0.9535242 -1.1320495 -0.1199369
##    [61,]               -1.5942588 -0.9535242 -0.2552320 -0.1199369
##    [62,]               -0.3944068  1.6078041 -1.1320495 -0.1199369
##    [63,]               -0.3944068  1.6078041  1.4984029  2.6541764
##    [64,]                0.8054452  1.6078041 -1.1320495  0.8047675
##    [65,]               -0.3944068 -0.0997481 -1.1320495 -1.0446413
##    [66,]               -0.3944068 -0.0997481 -1.1320495 -0.1199369
##    [67,]               -0.3944068  0.7540280 -0.2552320 -0.1199369
##    [68,]                0.8054452  0.7540280  0.6215855 -0.1199369
##    [69,]                2.0052972 -0.0997481 -0.2552320 -1.0446413
##    [70,]                0.8054452 -1.8073003 -1.1320495 -1.0446413
##    [71,]               -0.3944068  1.6078041 -0.2552320 -0.1199369
##    [72,]               -0.3944068 -0.9535242  0.6215855 -1.0446413
##    [73,]               -0.3944068 -0.9535242 -0.2552320 -0.1199369
##    [74,]               -0.3944068 -0.0997481 -0.2552320 -0.1199369
##    [75,]               -0.3944068 -0.9535242 -1.1320495  1.7294720
##    [76,]               -0.3944068 -0.0997481  1.4984029  1.7294720
##    [77,]                0.8054452  0.7540280 -1.1320495 -1.0446413
##    [78,]               -0.3944068  1.6078041 -1.1320495 -0.1199369
##    [79,]                0.8054452  0.7540280 -0.2552320  1.7294720
##    [80,]               -0.3944068  0.7540280  1.4984029  1.7294720
##    [81,]               -0.3944068  0.7540280 -0.2552320 -0.1199369
##    [82,]                0.8054452  0.7540280 -1.1320495 -0.1199369
##    [83,]                2.0052972 -1.8073003  0.6215855 -1.0446413
##    [84,]               -0.3944068  1.6078041 -1.1320495 -0.1199369
##    [85,]               -0.3944068 -1.8073003 -1.1320495  1.7294720
##    [86,]               -1.5942588 -0.0997481  0.6215855  2.6541764
##    [87,]               -0.3944068  0.7540280  0.6215855  0.8047675
##    [88,]                0.8054452  0.7540280 -1.1320495 -0.1199369
##    [89,]                2.0052972  1.6078041 -1.1320495 -1.0446413
##    [90,]               -0.3944068 -0.0997481 -0.2552320 -1.0446413
##    [91,]               -1.5942588 -0.0997481 -0.2552320 -1.0446413
##    [92,]                2.0052972 -1.8073003  2.3752204 -1.0446413
##    [93,]               -1.5942588 -1.8073003  0.6215855  1.7294720
##    [94,]                0.8054452 -1.8073003  2.3752204  2.6541764
##    [95,]                2.0052972  1.6078041 -1.1320495 -1.0446413
##    [96,]               -0.3944068 -0.0997481 -0.2552320 -0.1199369
##    [97,]               -0.3944068 -1.8073003 -1.1320495 -1.0446413
##    [98,]               -0.3944068 -0.9535242 -1.1320495 -1.0446413
##    [99,]                2.0052972  1.6078041 -1.1320495 -1.0446413
##   [100,]               -0.3944068  0.7540280 -1.1320495 -1.0446413
##   [101,]                0.8054452  0.7540280  0.6215855 -0.1199369
##   [102,]               -0.3944068 -1.8073003  0.6215855 -0.1199369
##   [103,]               -0.3944068 -1.8073003 -0.2552320  0.8047675
##   [104,]                2.0052972  1.6078041 -0.2552320 -0.1199369
##   [105,]                0.8054452 -0.0997481  0.6215855 -0.1199369
##   [106,]                2.0052972 -1.8073003  0.6215855 -1.0446413
##   [107,]               -0.3944068  0.7540280  1.4984029  2.6541764
```

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##  [108,]              -0.3944068 -1.8073003 -1.1320495 -1.0446413
##  [109,]              -0.3944068 -0.9535242 -0.2552320 -1.0446413
##  [110,]              -1.5942588 -0.9535242 -0.2552320  1.7294720
##  [111,]               0.8054452  0.7540280  2.3752204 -0.1199369
##  [112,]              -0.3944068  0.7540280  0.6215855 -0.1199369
##  [113,]              -0.3944068  0.7540280 -0.2552320 -0.1199369
##  [114,]               0.8054452  0.7540280 -0.2552320  0.8047675
##  [115,]              -0.3944068 -0.9535242 -1.1320495 -1.0446413
##  [116,]               0.8054452  1.6078041 -0.2552320 -0.1199369
##  [117,]              -0.3944068 -0.9535242 -0.2552320 -0.1199369
##  [118,]              -0.3944068 -0.9535242 -0.2552320 -1.0446413
##  [119,]              -0.3944068 -1.8073003 -0.2552320 -0.1199369
##  [120,]              -1.5942588  0.7540280 -0.2552320 -1.0446413
##  [121,]               2.0052972  0.7540280 -1.1320495 -0.1199369
##  [122,]              -0.3944068 -0.9535242  0.6215855  1.7294720
##  [123,]              -0.3944068 -0.0997481 -0.2552320 -0.1199369
##  [124,]              -0.3944068 -0.0997481  0.6215855  0.8047675
##  [125,]               0.8054452 -1.8073003  1.4984029  2.6541764
##  [126,]              -0.3944068 -0.0997481  0.6215855 -0.1199369
##  [127,]               2.0052972  0.7540280 -1.1320495 -1.0446413
##  [128,]              -0.3944068 -0.0997481  0.6215855  1.7294720
##  [129,]               2.0052972  1.6078041 -1.1320495  2.6541764
##  [130,]               0.8054452  1.6078041  0.6215855 -1.0446413
##  [131,]              -1.5942588 -0.9535242 -1.1320495 -1.0446413
##  [132,]               0.8054452 -0.0997481 -1.1320495 -1.0446413
##  [133,]               0.8054452 -0.0997481 -1.1320495 -1.0446413
##  [134,]              -0.3944068 -0.9535242  1.4984029 -1.0446413
##  [135,]              -0.3944068  0.7540280  0.6215855  0.8047675
##  [136,]              -0.3944068 -0.9535242 -1.1320495  0.8047675
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##  [140,]               0.8054452  1.6078041  0.6215855 -0.1199369
##  [141,]               0.8054452 -0.0997481 -0.2552320 -1.0446413
##  [142,]               0.8054452 -1.8073003  0.6215855 -1.0446413
##  [143,]               0.8054452  0.7540280 -1.1320495  0.8047675
##  [144,]               0.8054452  0.7540280 -0.2552320 -1.0446413
##  [145,]              -1.5942588 -0.0997481 -1.1320495 -0.1199369
##  [146,]               0.8054452  0.7540280 -1.1320495 -1.0446413
##  [147,]              -0.3944068  1.6078041 -0.2552320 -1.0446413
##  [148,]               0.8054452 -0.0997481 -0.2552320  0.8047675
##  [149,]              -0.3944068  0.7540280  1.4984029  1.7294720
##  [150,]              -0.3944068 -1.8073003  0.6215855 -1.0446413
##  [151,]              -1.5942588 -0.9535242 -0.2552320  0.8047675
##  [152,]               0.8054452 -0.0997481 -1.1320495 -1.0446413
##  [153,]              -0.3944068  1.6078041 -0.2552320 -0.1199369
##  [154,]               2.0052972  1.6078041 -0.2552320 -0.1199369
##  [155,]              -0.3944068 -1.8073003 -0.2552320  1.7294720
##  [156,]               0.8054452  0.7540280  0.6215855  0.8047675
##  [157,]               0.8054452 -0.9535242  1.4984029  0.8047675
```

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##   [158,]                2.0052972  0.7540280  1.4984029  1.7294720
##   [159,]               -0.3944068  0.7540280 -0.2552320 -1.0446413
##   [160,]               -0.3944068  0.7540280  1.4984029  0.8047675
##   [161,]               -0.3944068 -0.0997481 -0.2552320 -1.0446413
##   [162,]               -0.3944068 -0.9535242 -0.2552320 -0.1199369
##   [163,]               -1.5942588 -0.0997481  2.3752204  1.7294720
##   [164,]                2.0052972 -0.0997481 -1.1320495 -1.0446413
##   [165,]                0.8054452  0.7540280 -0.2552320 -1.0446413
##   [166,]                0.8054452  1.6078041 -0.2552320  1.7294720
##   [167,]                2.0052972 -1.8073003 -0.2552320 -1.0446413
##   [168,]               -0.3944068 -0.0997481 -0.2552320 -0.1199369
##   [169,]                0.8054452  0.7540280 -1.1320495 -0.1199369
##   [170,]               -0.3944068 -0.9535242 -1.1320495 -0.1199369
##   [171,]               -0.3944068 -0.9535242  0.6215855 -0.1199369
##   [172,]                0.8054452 -0.0997481 -1.1320495 -0.1199369
##   [173,]               -0.3944068 -0.9535242  0.6215855  0.8047675
##   [174,]               -0.3944068 -0.9535242 -1.1320495 -0.1199369
##   [175,]               -1.5942588 -1.8073003  2.3752204  0.8047675
##   [176,]               -0.3944068 -1.8073003 -1.1320495 -1.0446413
##   [177,]               -0.3944068 -0.0997481  2.3752204 -1.0446413
##   [178,]               -0.3944068 -1.8073003  1.4984029 -0.1199369
##   [179,]               -0.3944068 -1.8073003  0.6215855  0.8047675
##   [180,]               -0.3944068 -1.8073003 -0.2552320 -0.1199369
##   [181,]                0.8054452 -0.9535242 -1.1320495 -1.0446413
##   [182,]               -0.3944068  0.7540280  0.6215855  0.8047675
##   [183,]               -0.3944068  0.7540280  0.6215855 -0.1199369
##   [184,]               -0.3944068 -0.0997481 -0.2552320 -1.0446413
##   [185,]                0.8054452 -0.9535242 -0.2552320 -0.1199369
##   [186,]               -0.3944068 -0.0997481 -1.1320495 -1.0446413
##   [187,]               -1.5942588 -0.9535242  1.4984029 -0.1199369
##   [188,]               -0.3944068 -1.8073003 -0.2552320 -0.1199369
##   [189,]               -0.3944068 -0.0997481  0.6215855 -0.1199369
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##   [191,]                0.8054452 -0.9535242 -0.2552320 -0.1199369
##   [192,]               -0.3944068 -0.9535242  2.3752204 -0.1199369
##   [193,]               -2.7941108  0.7540280 -1.1320495 -0.1199369
##   [194,]               -0.3944068 -1.8073003  1.4984029  0.8047675
##   [195,]                0.8054452 -1.8073003 -0.2552320 -1.0446413
##   [196,]               -0.3944068 -0.9535242 -0.2552320 -0.1199369
##   [197,]               -0.3944068 -0.9535242 -0.2552320 -0.1199369
##   [198,]               -0.3944068 -0.0997481 -0.2552320  0.8047675
##   [199,]               -0.3944068 -0.0997481  1.4984029 -0.1199369
##   [200,]                0.8054452  0.7540280 -1.1320495 -1.0446413
##   [201,]               -0.3944068 -0.0997481 -1.1320495 -0.1199369
##   [202,]               -0.3944068 -0.9535242  1.4984029  0.8047675
##   [203,]               -0.3944068  1.6078041 -1.1320495 -1.0446413
##   [204,]               -0.3944068  0.7540280 -0.2552320 -0.1199369
##   [205,]               -0.3944068 -0.0997481  0.6215855 -0.1199369
##   [206,]               -2.7941108 -0.9535242  1.4984029  0.8047675
##   [207,]               -0.3944068  1.6078041 -0.2552320 -0.1199369
```

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## [208,]              -0.3944068 -0.9535242  0.6215855  0.8047675
## [209,]              -0.3944068 -0.0997481 -0.2552320 -1.0446413
## [210,]              -1.5942588  0.7540280  0.6215855  0.8047675
## [211,]               0.8054452  1.6078041  2.3752204  2.6541764
## [212,]               0.8054452  1.6078041 -1.1320495 -0.1199369
## [213,]              -0.3944068 -1.8073003  0.6215855  0.8047675
## [214,]               0.8054452  0.7540280 -0.2552320  0.8047675
## [215,]              -0.3944068 -0.9535242 -0.2552320 -0.1199369
## [216,]              -0.3944068 -0.9535242 -0.2552320 -1.0446413
## [217,]               0.8054452 -1.8073003 -1.1320495 -1.0446413
## [218,]              -0.3944068  0.7540280 -1.1320495  0.8047675
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## [220,]               2.0052972  1.6078041 -1.1320495 -1.0446413
## [221,]              -0.3944068  0.7540280  0.6215855  0.8047675
## [222,]              -0.3944068  0.7540280  2.3752204 -1.0446413
## [223,]              -0.3944068 -0.0997481 -0.2552320  1.7294720
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## [226,]               0.8054452 -0.9535242  0.6215855 -0.1199369
## [227,]               2.0052972  1.6078041  2.3752204  1.7294720
## [228,]              -1.5942588 -0.9535242  1.4984029  0.8047675
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## [231,]              -1.5942588 -0.9535242  2.3752204  1.7294720
## [232,]              -2.7941108 -0.0997481 -0.2552320  0.8047675
## [233,]              -0.3944068 -1.8073003 -0.2552320  1.7294720
## [234,]               0.8054452  0.7540280 -0.2552320 -0.1199369
## [235,]               0.8054452  0.7540280  1.4984029  0.8047675
## [236,]              -0.3944068 -1.8073003 -1.1320495 -1.0446413
## [237,]              -0.3944068 -0.0997481  0.6215855 -0.1199369
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## [242,]               0.8054452 -0.9535242 -1.1320495 -1.0446413
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## [244,]              -0.3944068 -0.9535242 -1.1320495 -0.1199369
## [245,]              -0.3944068  1.6078041 -0.2552320  1.7294720
## [246,]              -0.3944068 -0.9535242  0.6215855  0.8047675
## [247,]              -0.3944068 -0.0997481 -0.2552320  0.8047675
## [248,]              -0.3944068 -0.0997481 -0.2552320 -1.0446413
## [249,]              -0.3944068  0.7540280 -1.1320495 -1.0446413
## [250,]              -0.3944068 -0.0997481  1.4984029  1.7294720
## [251,]              -0.3944068 -0.0997481 -0.2552320 -1.0446413
## [252,]               2.0052972  1.6078041 -0.2552320 -0.1199369
## [253,]              -1.5942588 -0.9535242 -0.2552320  0.8047675
## [254,]              -0.3944068 -0.0997481 -1.1320495 -0.1199369
## [255,]              -0.3944068  1.6078041  0.6215855 -0.1199369
## [256,]              -0.3944068 -0.9535242  2.3752204  1.7294720
## [257,]              -0.3944068 -0.0997481  1.4984029 -0.1199369
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## [258,]                -0.3944068  1.6078041  0.6215855 -0.1199369
## [259,]                 0.8054452 -1.8073003 -0.2552320 -1.0446413
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## [271,]                -0.3944068 -0.0997481 -0.2552320 -1.0446413
## [272,]                -0.3944068  0.7540280  0.6215855 -1.0446413
## [273,]                -0.3944068 -0.9535242  1.4984029  0.8047675
## [274,]                -0.3944068  0.7540280 -0.2552320 -0.1199369
## [275,]                 0.8054452  1.6078041  0.6215855  0.8047675
## [276,]                -0.3944068 -0.0997481  0.6215855  1.7294720
## [277,]                 0.8054452  1.6078041  0.6215855  2.6541764
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## [285,]                -1.5942588 -1.8073003 -1.1320495 -1.0446413
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## [287,]                -0.3944068 -0.0997481 -0.2552320 -0.1199369
## [288,]                -0.3944068 -0.0997481 -1.1320495 -1.0446413
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## [290,]                -0.3944068  0.7540280 -0.2552320 -0.1199369
## [291,]                -0.3944068  0.7540280 -1.1320495 -1.0446413
## [292,]                -0.3944068 -0.0997481  0.6215855  0.8047675
## [293,]                 0.8054452  1.6078041 -0.2552320  0.8047675
## [294,]                -2.7941108 -0.9535242 -0.2552320 -0.1199369
## [295,]                -0.3944068 -0.9535242 -0.2552320 -1.0446413
## [296,]                -0.3944068 -0.0997481 -0.2552320  2.6541764
## [297,]                 0.8054452  1.6078041 -1.1320495 -1.0446413
## [298,]                -0.3944068 -0.9535242 -1.1320495 -0.1199369
## [299,]                -0.3944068  1.6078041 -0.2552320  0.8047675
## [300,]                -0.3944068  0.7540280 -1.1320495 -1.0446413
## [301,]                -1.5942588 -1.8073003  2.3752204 -0.1199369
## [302,]                -1.5942588 -1.8073003 -0.2552320 -1.0446413
## [303,]                 0.8054452  1.6078041  1.4984029 -1.0446413
## [304,]                 2.0052972 -0.9535242 -0.2552320  1.7294720
## [305,]                -0.3944068 -0.9535242 -0.2552320 -1.0446413
## [306,]                -0.3944068 -0.0997481 -0.2552320 -1.0446413
## [307,]                 2.0052972  1.6078041  0.6215855  0.8047675
```

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##  [308,]                 -0.3944068 -1.8073003  1.4984029  0.8047675
##  [309,]                  2.0052972  1.6078041 -0.2552320  0.8047675
##  [310,]                 -0.3944068  0.7540280 -0.2552320 -1.0446413
##  [311,]                  2.0052972  0.7540280 -1.1320495 -1.0446413
##  [312,]                  0.8054452  1.6078041  2.3752204 -0.1199369
##  [313,]                  0.8054452 -0.9535242 -1.1320495 -1.0446413
##  [314,]                  0.8054452 -0.0997481 -0.2552320 -0.1199369
##  [315,]                  0.8054452  1.6078041  1.4984029  2.6541764
##  [316,]                 -0.3944068 -1.8073003 -1.1320495 -1.0446413
##  [317,]                 -0.3944068  0.7540280 -1.1320495 -1.0446413
##  [318,]                 -0.3944068  1.6078041 -0.2552320 -0.1199369
##  [319,]                 -0.3944068 -0.9535242  0.6215855  1.7294720
##  [320,]                 -0.3944068  0.7540280  0.6215855 -0.1199369
##  [321,]                  0.8054452 -0.0997481 -0.2552320 -0.1199369
##  [322,]                 -0.3944068 -0.0997481 -0.2552320  1.7294720
##  [323,]                 -0.3944068 -0.9535242 -0.2552320 -1.0446413
##  [324,]                 -1.5942588 -0.9535242 -1.1320495  1.7294720
##  [325,]                 -0.3944068  0.7540280 -0.2552320 -0.1199369
##  [326,]                 -0.3944068  0.7540280  1.4984029  0.8047675
##  [327,]                  0.8054452 -0.0997481 -0.2552320 -0.1199369
##  [328,]                 -0.3944068 -0.0997481 -0.2552320 -1.0446413
##  [329,]                  2.0052972 -0.0997481  0.6215855  1.7294720
##  [330,]                 -0.3944068  0.7540280 -0.2552320  0.8047675
##  [331,]                 -0.3944068  0.7540280 -0.2552320 -1.0446413
##  [332,]                  2.0052972 -0.0997481 -0.2552320  0.8047675
##  [333,]                 -0.3944068 -0.0997481 -0.2552320  0.8047675
##  [334,]                 -1.5942588 -0.0997481 -0.2552320  0.8047675
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##  [336,]                  2.0052972  0.7540280  0.6215855 -0.1199369
##  [337,]                  0.8054452 -0.0997481 -1.1320495 -0.1199369
##  [338,]                 -0.3944068  1.6078041 -1.1320495 -0.1199369
##  [339,]                 -0.3944068 -0.0997481  0.6215855 -0.1199369
##  [340,]                 -0.3944068 -0.9535242 -0.2552320 -1.0446413
##  [341,]                 -2.7941108 -1.8073003  0.6215855 -0.1199369
##  [342,]                  0.8054452 -1.8073003 -1.1320495 -1.0446413
##  [343,]                 -0.3944068 -0.0997481 -0.2552320 -0.1199369
##  [344,]                  0.8054452 -0.0997481  2.3752204 -0.1199369
##  [345,]                 -0.3944068 -0.9535242  1.4984029  1.7294720
##  [346,]                 -0.3944068  0.7540280 -0.2552320 -1.0446413
##  [347,]                  0.8054452 -1.8073003 -1.1320495 -1.0446413
##  [348,]                  0.8054452 -0.0997481 -0.2552320 -0.1199369
##  [349,]                  0.8054452 -0.0997481  2.3752204 -0.1199369
##  [350,]                  0.8054452  1.6078041 -0.2552320 -1.0446413
##  [351,]                 -0.3944068  0.7540280 -0.2552320 -0.1199369
##  [352,]                 -0.3944068 -0.0997481 -0.2552320  1.7294720
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##  [354,]                 -0.3944068 -0.0997481 -1.1320495 -0.1199369
##  [355,]                 -0.3944068 -0.0997481  0.6215855 -0.1199369
##  [356,]                  0.8054452 -0.9535242 -1.1320495  0.8047675
##  [357,]                  0.8054452 -0.0997481  0.6215855  1.7294720
```

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##   [358,]          0.8054452 -0.0997481 -1.1320495 -1.0446413
##   [359,]         -0.3944068  1.6078041  0.6215855  0.8047675
##   [360,]         -0.3944068  0.7540280 -0.2552320  1.7294720
##   [361,]         -0.3944068  0.7540280 -1.1320495 -0.1199369
##   [362,]         -2.7941108 -0.0997481  2.3752204  2.6541764
##   [363,]         -0.3944068 -0.9535242  0.6215855 -0.1199369
##   [364,]         -0.3944068 -1.8073003  0.6215855 -0.1199369
##   [365,]          0.8054452  0.7540280 -0.2552320  0.8047675
##   [366,]         -0.3944068 -0.9535242 -0.2552320  0.8047675
##   [367,]         -1.5942588 -0.9535242 -1.1320495 -0.1199369
##   [368,]         -0.3944068 -0.0997481 -1.1320495  0.8047675
##   [369,]          0.8054452  1.6078041 -0.2552320 -0.1199369
##   [370,]         -0.3944068  1.6078041  0.6215855 -0.1199369
##   [371,]          0.8054452 -0.0997481  0.6215855 -0.1199369
##   [372,]         -0.3944068  1.6078041  2.3752204  2.6541764
##   [373,]          0.8054452 -0.9535242 -0.2552320 -0.1199369
##   [374,]          0.8054452 -0.9535242 -1.1320495 -1.0446413
##   [375,]         -0.3944068  1.6078041 -0.2552320 -0.1199369
##   [376,]         -0.3944068  0.7540280 -0.2552320 -1.0446413
##   [377,]          2.0052972 -0.0997481 -1.1320495 -1.0446413
##   [378,]         -0.3944068 -0.9535242  0.6215855  0.8047675
##   [379,]          2.0052972  1.6078041 -0.2552320 -0.1199369
##   [380,]         -0.3944068  1.6078041  1.4984029  0.8047675
##   [381,]          0.8054452  0.7540280  0.6215855 -0.1199369
##   [382,]          0.8054452 -0.9535242 -0.2552320  0.8047675
##   [383,]         -0.3944068  0.7540280  0.6215855  1.7294720
##   [384,]         -0.3944068 -0.9535242 -0.2552320 -0.1199369
##   [385,]          0.8054452 -0.0997481 -1.1320495 -1.0446413
##   [386,]         -0.3944068  1.6078041  1.4984029  1.7294720
##   [387,]         -0.3944068 -0.0997481 -0.2552320 -1.0446413
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##   [392,]          0.8054452 -0.0997481  0.6215855  0.8047675
##   [393,]          0.8054452  0.7540280  0.6215855 -1.0446413
##   [394,]          0.8054452 -1.8073003 -1.1320495  0.8047675
##   [395,]         -0.3944068 -0.0997481 -1.1320495 -1.0446413
##   [396,]          0.8054452 -0.0997481 -1.1320495  0.8047675
##   [397,]         -0.3944068 -0.0997481  1.4984029 -0.1199369
##   [398,]         -0.3944068 -0.0997481  2.3752204 -0.1199369
##   [399,]          0.8054452 -0.0997481  0.6215855 -0.1199369
##   [400,]          0.8054452 -0.9535242  1.4984029 -1.0446413
##   [401,]         -0.3944068  0.7540280 -1.1320495 -0.1199369
##   [402,]         -0.3944068 -0.9535242 -1.1320495  0.8047675
##   [403,]         -0.3944068  1.6078041  2.3752204 -1.0446413
##   [404,]         -0.3944068 -0.9535242  0.6215855  0.8047675
##   [405,]         -0.3944068  0.7540280  2.3752204  2.6541764
##   [406,]         -0.3944068 -0.0997481  0.6215855  0.8047675
##   [407,]         -0.3944068  0.7540280  2.3752204 -1.0446413
```

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## [408,]           -0.3944068  0.7540280 -0.2552320  0.8047675
## [409,]            2.0052972 -0.0997481  1.4984029  0.8047675
## [410,]            0.8054452  1.6078041 -1.1320495  2.6541764
## [411,]            2.0052972  0.7540280 -0.2552320 -1.0446413
## [412,]           -0.3944068 -0.0997481 -0.2552320 -0.1199369
## [413,]            2.0052972 -0.0997481 -1.1320495 -1.0446413
## [414,]           -0.3944068  0.7540280  0.6215855 -1.0446413
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## [416,]           -0.3944068 -0.0997481 -1.1320495 -1.0446413
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## [419,]           -2.7941108  0.7540280  1.4984029 -0.1199369
## [420,]           -0.3944068  1.6078041 -0.2552320  2.6541764
## [421,]            0.8054452 -1.8073003 -1.1320495 -1.0446413
## [422,]           -1.5942588 -0.9535242  0.6215855 -0.1199369
## [423,]            2.0052972  0.7540280 -1.1320495 -1.0446413
## [424,]           -1.5942588 -0.0997481 -0.2552320 -1.0446413
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## [426,]           -0.3944068 -0.0997481 -1.1320495 -1.0446413
## [427,]           -1.5942588 -1.8073003 -1.1320495 -1.0446413
## [428,]           -0.3944068 -0.0997481  0.6215855 -1.0446413
## [429,]           -0.3944068  1.6078041  0.6215855 -0.1199369
## [430,]            0.8054452 -0.9535242 -1.1320495 -0.1199369
## [431,]            2.0052972 -0.0997481  0.6215855  0.8047675
## [432,]           -0.3944068  0.7540280 -1.1320495  0.8047675
## [433,]           -0.3944068 -0.9535242 -0.2552320 -0.1199369
## [434,]           -0.3944068  0.7540280  1.4984029  1.7294720
## [435,]            0.8054452  0.7540280 -1.1320495 -0.1199369
## [436,]           -0.3944068 -1.8073003 -1.1320495 -1.0446413
## [437,]           -0.3944068 -0.9535242 -0.2552320 -0.1199369
## [438,]           -0.3944068 -0.9535242 -1.1320495 -1.0446413
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## [441,]           -0.3944068  0.7540280 -1.1320495 -0.1199369
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## [444,]           -0.3944068 -0.9535242 -0.2552320 -0.1199369
## [445,]            0.8054452 -0.0997481 -0.2552320  1.7294720
## [446,]           -0.3944068  0.7540280 -0.2552320 -0.1199369
## [447,]           -0.3944068  0.7540280 -1.1320495 -0.1199369
## [448,]           -1.5942588 -1.8073003  0.6215855  0.8047675
## [449,]           -0.3944068  0.7540280 -0.2552320 -0.1199369
## [450,]           -0.3944068 -0.0997481  0.6215855 -1.0446413
## [451,]            0.8054452  0.7540280  0.6215855 -1.0446413
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## [453,]           -0.3944068  0.7540280 -1.1320495 -1.0446413
## [454,]            0.8054452 -0.9535242 -0.2552320 -1.0446413
## [455,]            0.8054452 -0.9535242 -1.1320495 -1.0446413
## [456,]           -0.3944068  0.7540280 -0.2552320 -1.0446413
## [457,]            2.0052972 -0.0997481 -1.1320495 -1.0446413
```

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##   [458,]                0.8054452  0.7540280 -0.2552320 -1.0446413
##   [459,]                0.8054452  1.6078041  2.3752204  2.6541764
##   [460,]               -1.5942588 -0.9535242 -0.2552320  0.8047675
##   [461,]                0.8054452 -0.0997481 -1.1320495 -1.0446413
##   [462,]               -0.3944068 -0.9535242  1.4984029  0.8047675
##   [463,]               -0.3944068 -0.0997481 -1.1320495 -0.1199369
##   [464,]               -0.3944068 -0.0997481 -1.1320495 -1.0446413
##   [465,]                0.8054452  0.7540280  0.6215855  0.8047675
##   [466,]               -0.3944068 -0.0997481 -0.2552320 -0.1199369
##   [467,]               -0.3944068 -0.0997481 -1.1320495  0.8047675
##   [468,]               -1.5942588  0.7540280  0.6215855 -0.1199369
##   [469,]               -0.3944068 -0.0997481 -0.2552320  1.7294720
##   [470,]                2.0052972  1.6078041 -1.1320495 -1.0446413
##   [471,]               -0.3944068  0.7540280  0.6215855 -1.0446413
##   [472,]               -0.3944068  0.7540280 -0.2552320 -0.1199369
##   [473,]               -0.3944068 -0.9535242 -0.2552320  1.7294720
##   [474,]               -1.5942588 -1.8073003 -1.1320495 -1.0446413
##   [475,]               -0.3944068  1.6078041 -1.1320495 -1.0446413
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##   [477,]               -0.3944068 -0.9535242 -1.1320495 -1.0446413
##   [478,]               -0.3944068 -0.9535242 -1.1320495 -1.0446413
##   [479,]                0.8054452  1.6078041 -0.2552320  0.8047675
##   [480,]               -0.3944068 -0.0997481 -0.2552320 -0.1199369
##   [481,]                0.8054452  1.6078041  0.6215855  2.6541764
##   [482,]                0.8054452  0.7540280  1.4984029 -1.0446413
##   [483,]                0.8054452 -0.9535242 -1.1320495  0.8047675
##   [484,]                0.8054452 -0.0997481 -0.2552320 -1.0446413
##   [485,]               -0.3944068 -0.0997481 -1.1320495 -0.1199369
##   [486,]               -0.3944068  0.7540280 -0.2552320 -1.0446413
##   [487,]               -0.3944068  0.7540280 -0.2552320 -0.1199369
##   [488,]                2.0052972  1.6078041 -0.2552320 -1.0446413
##   [489,]               -0.3944068 -0.9535242  1.4984029  0.8047675
##   [490,]                2.0052972 -0.9535242 -0.2552320 -0.1199369
##   [491,]               -0.3944068 -0.0997481 -0.2552320 -0.1199369
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##   [495,]               -0.3944068 -0.9535242 -0.2552320 -1.0446413
##   [496,]               -0.3944068 -0.9535242 -1.1320495 -0.1199369
##   [497,]               -1.5942588 -0.0997481 -0.2552320  1.7294720
##   [498,]                0.8054452 -0.0997481  0.6215855  0.8047675
##   [499,]               -0.3944068 -0.0997481 -0.2552320 -1.0446413
##   [500,]                0.8054452 -0.9535242  1.4984029 -0.1199369
##   [501,]               -0.3944068 -0.0997481  2.3752204 -0.1199369
##   [502,]               -0.3944068  0.7540280  2.3752204  0.8047675
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##   [504,]               -0.3944068 -0.9535242 -0.2552320 -1.0446413
##   [505,]               -0.3944068  1.6078041 -1.1320495 -1.0446413
##   [506,]                0.8054452 -0.0997481  1.4984029 -0.1199369
##   [507,]                0.8054452 -0.9535242 -1.1320495 -1.0446413
```

```
##   [508,]                0.8054452 -0.0997481  1.4984029  0.8047675
##   [509,]               -0.3944068 -1.8073003  0.6215855  2.6541764
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##   [511,]               -0.3944068  1.6078041  0.6215855  0.8047675
##   [512,]               -0.3944068 -0.0997481 -1.1320495 -0.1199369
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##   [515,]               -0.3944068 -1.8073003  2.3752204  2.6541764
##   [516,]                0.8054452  0.7540280  0.6215855  0.8047675
##   [517,]                2.0052972  1.6078041  0.6215855 -1.0446413
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##   [519,]                0.8054452  0.7540280 -0.2552320 -0.1199369
##   [520,]                0.8054452  0.7540280  0.6215855 -1.0446413
##   [521,]               -0.3944068 -0.0997481 -1.1320495 -0.1199369
##   [522,]               -0.3944068  1.6078041  2.3752204 -1.0446413
##   [523,]               -0.3944068  0.7540280 -0.2552320 -0.1199369
##   [524,]               -0.3944068  1.6078041 -0.2552320 -1.0446413
##   [525,]               -0.3944068 -0.9535242 -1.1320495 -0.1199369
##   [526,]                0.8054452 -0.0997481  0.6215855  0.8047675
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##   [533,]               -0.3944068  0.7540280 -0.2552320 -1.0446413
##   [534,]               -0.3944068 -0.0997481 -1.1320495 -0.1199369
##   [535,]               -0.3944068 -0.0997481  0.6215855 -1.0446413
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##   [540,]               -0.3944068 -0.0997481 -0.2552320 -0.1199369
##   [541,]               -0.3944068 -0.0997481  2.3752204 -1.0446413
##   [542,]                0.8054452 -0.0997481 -0.2552320 -0.1199369
##   [543,]               -0.3944068  1.6078041 -0.2552320 -1.0446413
##   [544,]                0.8054452  0.7540280 -1.1320495 -1.0446413
##   [545,]                0.8054452 -0.9535242  0.6215855 -1.0446413
##   [546,]               -0.3944068 -0.0997481  0.6215855  0.8047675
##   [547,]               -0.3944068 -0.0997481 -0.2552320 -0.1199369
##   [548,]                0.8054452 -1.8073003  1.4984029 -0.1199369
##   [549,]               -0.3944068 -1.8073003  0.6215855  0.8047675
##   [550,]                0.8054452  1.6078041 -1.1320495 -0.1199369
##   [551,]               -0.3944068 -0.9535242  2.3752204  1.7294720
##   [552,]                0.8054452 -0.0997481  0.6215855  0.8047675
##   [553,]               -0.3944068 -0.9535242  0.6215855 -1.0446413
##   [554,]               -0.3944068  0.7540280  1.4984029 -0.1199369
##   [555,]               -0.3944068 -0.0997481  1.4984029 -0.1199369
##   [556,]                2.0052972  1.6078041  0.6215855 -1.0446413
##   [557,]               -0.3944068 -0.0997481 -1.1320495 -1.0446413
```

```
##   [558,]                  -0.3944068 -0.9535242  0.6215855  0.8047675
##   [559,]                  -1.5942588 -0.0997481 -1.1320495 -0.1199369
##   [560,]                  -0.3944068  1.6078041 -0.2552320 -0.1199369
##   [561,]                   2.0052972  0.7540280  0.6215855  0.8047675
##   [562,]                  -0.3944068  0.7540280  0.6215855  0.8047675
##   [563,]                   2.0052972  1.6078041  0.6215855 -0.1199369
##   [564,]                   0.8054452  0.7540280 -1.1320495  0.8047675
##   [565,]                   2.0052972  1.6078041 -1.1320495 -1.0446413
##   [566,]                  -0.3944068  1.6078041 -0.2552320 -0.1199369
##   [567,]                  -0.3944068 -0.0997481 -0.2552320 -0.1199369
##   [568,]                   0.8054452  0.7540280 -0.2552320 -0.1199369
##   [569,]                   0.8054452  1.6078041 -0.2552320 -1.0446413
##   [570,]                  -0.3944068  0.7540280  1.4984029 -0.1199369
##   [571,]                  -0.3944068 -0.0997481 -1.1320495 -1.0446413
##   [572,]                   2.0052972  0.7540280 -0.2552320 -1.0446413
##   [573,]                  -0.3944068 -0.0997481 -1.1320495 -1.0446413
##   [574,]                  -0.3944068 -0.0997481 -1.1320495 -1.0446413
##   [575,]                   2.0052972  1.6078041  0.6215855 -1.0446413
##   [576,]                   0.8054452 -0.0997481  1.4984029  0.8047675
##   [577,]                  -0.3944068 -0.0997481 -0.2552320  1.7294720
##   [578,]                   0.8054452  0.7540280 -0.2552320 -1.0446413
##   [579,]                  -0.3944068 -0.0997481 -0.2552320  0.8047675
##   [580,]                  -0.3944068  0.7540280  0.6215855 -0.1199369
##   [581,]                  -0.3944068 -1.8073003 -1.1320495 -1.0446413
##   [582,]                   0.8054452 -0.9535242 -0.2552320 -1.0446413
##   [583,]                  -0.3944068  0.7540280  0.6215855 -1.0446413
##   [584,]                   0.8054452 -0.9535242 -1.1320495 -1.0446413
##   [585,]                  -0.3944068  0.7540280  0.6215855  0.8047675
##   [586,]                  -0.3944068 -0.0997481  0.6215855  0.8047675
##   [587,]                   2.0052972  1.6078041  0.6215855  1.7294720
##   [588,]                  -0.3944068 -0.9535242 -1.1320495 -1.0446413
##   [589,]                  -0.3944068  0.7540280 -1.1320495 -1.0446413
##   [590,]                   0.8054452 -1.8073003 -1.1320495 -1.0446413
##   [591,]                  -0.3944068 -0.0997481 -0.2552320  0.8047675
##   [592,]                  -0.3944068 -0.0997481  0.6215855 -0.1199369
##   [593,]                  -0.3944068 -0.0997481  0.6215855 -1.0446413
##   [594,]                  -0.3944068 -0.9535242  0.6215855 -1.0446413
##   [595,]                  -0.3944068 -0.9535242  0.6215855 -1.0446413
##   [596,]                   2.0052972 -1.8073003 -1.1320495 -1.0446413
##   [597,]                  -0.3944068  0.7540280 -1.1320495 -1.0446413
##   [598,]                   0.8054452  0.7540280 -0.2552320 -0.1199369
##   [599,]                  -0.3944068  0.7540280 -0.2552320  0.8047675
##   [600,]                   0.8054452  1.6078041  0.6215855  1.7294720
##   [601,]                  -0.3944068 -0.9535242 -1.1320495 -1.0446413
##   [602,]                  -0.3944068 -1.8073003  1.4984029  0.8047675
##   [603,]                   0.8054452  0.7540280 -0.2552320  0.8047675
##   [604,]                   0.8054452 -0.0997481 -0.2552320 -0.1199369
##   [605,]                  -0.3944068 -0.0997481 -0.2552320 -0.1199369
##   [606,]                  -0.3944068 -1.8073003  2.3752204  2.6541764
##   [607,]                  -0.3944068 -0.0997481 -0.2552320 -1.0446413
```

```
##   [608,]              -0.3944068 -0.0997481 -1.1320495  0.8047675
##   [609,]               0.8054452 -0.9535242  1.4984029 -0.1199369
##   [610,]              -0.3944068 -0.0997481 -0.2552320 -0.1199369
##   [611,]               0.8054452 -0.0997481 -0.2552320 -0.1199369
##   [612,]              -0.3944068 -0.0997481 -0.2552320 -1.0446413
##   [613,]              -0.3944068  1.6078041 -1.1320495 -1.0446413
##   [614,]              -1.5942588 -0.0997481 -0.2552320 -0.1199369
##   [615,]              -0.3944068  0.7540280 -1.1320495 -1.0446413
##   [616,]              -0.3944068 -0.0997481  0.6215855 -1.0446413
##   [617,]              -0.3944068  0.7540280 -1.1320495  2.6541764
##   [618,]              -0.3944068 -0.0997481 -0.2552320  1.7294720
##   [619,]               2.0052972  1.6078041  1.4984029 -0.1199369
##   [620,]              -2.7941108 -0.0997481  0.6215855 -1.0446413
##   [621,]              -0.3944068 -0.9535242 -1.1320495 -1.0446413
##   [622,]              -2.7941108  0.7540280 -1.1320495 -0.1199369
##   [623,]              -0.3944068  1.6078041  1.4984029  1.7294720
##   [624,]               0.8054452 -0.9535242  0.6215855  0.8047675
##   [625,]              -1.5942588 -0.0997481 -1.1320495 -0.1199369
##   [626,]               0.8054452  1.6078041  0.6215855 -0.1199369
##   [627,]              -0.3944068  0.7540280 -0.2552320 -0.1199369
##   [628,]               2.0052972  0.7540280  1.4984029  0.8047675
##   [629,]               0.8054452 -0.0997481 -1.1320495 -1.0446413
##   [630,]              -0.3944068  1.6078041  0.6215855 -0.1199369
##   [631,]               2.0052972  0.7540280 -1.1320495  0.8047675
##   [632,]              -0.3944068  1.6078041 -0.2552320 -1.0446413
##   [633,]               0.8054452  0.7540280  0.6215855 -0.1199369
##   [634,]               0.8054452 -0.0997481  2.3752204  0.8047675
##   [635,]              -0.3944068 -0.0997481  1.4984029 -0.1199369
##   [636,]              -1.5942588  0.7540280  1.4984029 -0.1199369
##   [637,]              -0.3944068 -0.0997481  2.3752204  1.7294720
##   [638,]              -1.5942588 -0.9535242  0.6215855 -0.1199369
##   [639,]              -0.3944068 -0.0997481  0.6215855 -0.1199369
##   [640,]              -0.3944068 -0.9535242 -1.1320495 -0.1199369
##   [641,]               0.8054452  1.6078041 -0.2552320 -0.1199369
##   [642,]              -0.3944068 -0.0997481  0.6215855  0.8047675
##   [643,]              -0.3944068  0.7540280  1.4984029 -0.1199369
##   [644,]              -0.3944068  0.7540280 -0.2552320 -1.0446413
##   [645,]               2.0052972 -0.0997481  0.6215855 -0.1199369
##   [646,]               0.8054452  0.7540280 -0.2552320 -1.0446413
##   [647,]              -0.3944068 -0.0997481 -1.1320495 -0.1199369
##   [648,]              -0.3944068 -0.0997481 -1.1320495  0.8047675
##   [649,]               0.8054452  1.6078041  2.3752204 -0.1199369
##   [650,]              -0.3944068  1.6078041 -0.2552320 -0.1199369
##   [651,]              -0.3944068  0.7540280 -1.1320495 -1.0446413
##   [652,]               0.8054452  0.7540280 -0.2552320 -0.1199369
##   [653,]              -0.3944068 -0.0997481 -0.2552320 -1.0446413
##   [654,]              -0.3944068 -0.0997481 -0.2552320 -0.1199369
##   [655,]              -0.3944068  0.7540280  0.6215855 -0.1199369
##   [656,]              -0.3944068 -0.0997481 -0.2552320 -0.1199369
##   [657,]              -0.3944068 -0.9535242 -0.2552320 -0.1199369
```

```
## [658,]               -0.3944068  0.7540280 -1.1320495 -1.0446413
## [659,]               -0.3944068  1.6078041 -0.2552320 -0.1199369
## [660,]               -1.5942588 -0.9535242 -1.1320495 -1.0446413
## [661,]               -0.3944068 -0.9535242 -0.2552320 -1.0446413
## [662,]                0.8054452 -0.0997481 -1.1320495 -1.0446413
## [663,]                0.8054452 -0.0997481 -0.2552320 -0.1199369
## [664,]               -0.3944068 -0.0997481  0.6215855 -0.1199369
## [665,]               -1.5942588 -0.0997481  1.4984029  1.7294720
## [666,]               -0.3944068 -1.8073003 -0.2552320 -1.0446413
## [667,]               -0.3944068 -0.9535242 -1.1320495 -0.1199369
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## [669,]               -0.3944068 -1.8073003 -0.2552320  0.8047675
## [670,]               -0.3944068  0.7540280 -0.2552320  0.8047675
## [671,]               -0.3944068 -0.0997481 -0.2552320 -0.1199369
## [672,]               -0.3944068 -0.0997481  0.6215855  0.8047675
## [673,]               -2.7941108 -0.9535242  1.4984029 -0.1199369
## [674,]               -0.3944068 -0.9535242 -0.2552320 -1.0446413
## [675,]                0.8054452 -0.0997481  0.6215855 -1.0446413
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## [677,]                0.8054452 -0.9535242 -0.2552320 -1.0446413
## [678,]               -0.3944068 -0.0997481 -0.2552320 -1.0446413
## [679,]               -0.3944068 -0.9535242  0.6215855  0.8047675
## [680,]               -0.3944068 -0.9535242 -0.2552320 -1.0446413
## [681,]                0.8054452  0.7540280  0.6215855  1.7294720
## [682,]                2.0052972  0.7540280  0.6215855 -0.1199369
## [683,]                0.8054452  0.7540280 -0.2552320  0.8047675
## [684,]               -0.3944068 -0.9535242  2.3752204  2.6541764
## [685,]                2.0052972  1.6078041 -1.1320495 -1.0446413
## [686,]               -0.3944068 -0.0997481 -0.2552320  0.8047675
## [687,]                0.8054452  0.7540280  1.4984029  1.7294720
## [688,]               -0.3944068 -0.0997481 -1.1320495 -0.1199369
## [689,]                0.8054452  0.7540280  0.6215855 -1.0446413
## [690,]               -0.3944068 -0.0997481 -1.1320495 -0.1199369
## [691,]                0.8054452  0.7540280 -1.1320495 -0.1199369
## [692,]               -0.3944068  0.7540280 -0.2552320 -0.1199369
## [693,]               -0.3944068 -0.9535242  0.6215855  0.8047675
## [694,]               -0.3944068 -0.0997481 -0.2552320 -0.1199369
## [695,]               -0.3944068 -0.0997481  0.6215855  1.7294720
## [696,]                0.8054452  0.7540280 -0.2552320 -0.1199369
## [697,]               -0.3944068 -0.0997481  2.3752204  0.8047675
## [698,]               -0.3944068 -0.0997481 -1.1320495 -1.0446413
## [699,]                2.0052972  1.6078041  1.4984029 -1.0446413
## [700,]               -0.3944068  0.7540280  0.6215855 -1.0446413
## [701,]               -0.3944068 -0.0997481  0.6215855 -0.1199369
## [702,]                2.0052972  1.6078041  1.4984029  0.8047675
## [703,]               -1.5942588 -1.8073003  0.6215855  0.8047675
## [704,]               -0.3944068 -0.0997481  0.6215855  0.8047675
## [705,]               -0.3944068  0.7540280 -0.2552320 -1.0446413
## [706,]                0.8054452  1.6078041 -1.1320495 -0.1199369
## [707,]               -0.3944068  0.7540280 -0.2552320  0.8047675
```

```
## [708,]                -0.3944068 -0.9535242 -0.2552320 -1.0446413
## [709,]                 0.8054452 -0.9535242 -1.1320495 -1.0446413
## [710,]                -0.3944068 -0.0997481 -0.2552320 -0.1199369
## [711,]                 0.8054452  0.7540280  0.6215855  0.8047675
## [712,]                -0.3944068 -0.0997481  0.6215855  1.7294720
## [713,]                -0.3944068 -0.9535242 -0.2552320 -0.1199369
## [714,]                -0.3944068 -0.0997481  1.4984029  1.7294720
## [715,]                -0.3944068  1.6078041  0.6215855  0.8047675
## [716,]                -0.3944068 -0.9535242  0.6215855  0.8047675
## [717,]                -0.3944068 -0.9535242  1.4984029  2.6541764
## [718,]                -0.3944068 -1.8073003 -1.1320495 -1.0446413
## [719,]                 0.8054452 -0.0997481 -0.2552320 -0.1199369
## [720,]                -0.3944068 -0.0997481 -1.1320495  0.8047675
## [721,]                -0.3944068  0.7540280 -0.2552320 -1.0446413
## [722,]                -0.3944068 -0.0997481  2.3752204 -1.0446413
## [723,]                -0.3944068 -0.0997481  0.6215855 -0.1199369
## [724,]                -0.3944068  0.7540280 -0.2552320  0.8047675
## [725,]                -0.3944068  1.6078041  0.6215855  0.8047675
## [726,]                 0.8054452  0.7540280 -0.2552320 -0.1199369
## [727,]                -0.3944068 -0.9535242  1.4984029 -0.1199369
## [728,]                -1.5942588 -0.9535242 -1.1320495  0.8047675
## [729,]                 0.8054452  1.6078041 -1.1320495  0.8047675
## [730,]                -0.3944068 -0.9535242 -0.2552320 -0.1199369
## [731,]                 0.8054452 -1.8073003 -0.2552320 -1.0446413
## [732,]                -0.3944068 -0.0997481 -0.2552320 -0.1199369
## [733,]                 0.8054452 -0.9535242 -1.1320495 -1.0446413
## [734,]                -0.3944068 -0.0997481  2.3752204  2.6541764
## [735,]                -0.3944068 -0.0997481  1.4984029  2.6541764
## [736,]                -2.7941108 -1.8073003  0.6215855 -0.1199369
## [737,]                -0.3944068  1.6078041 -0.2552320  1.7294720
## [738,]                -2.7941108 -0.0997481 -0.2552320 -1.0446413
## [739,]                 2.0052972  0.7540280 -1.1320495 -1.0446413
## [740,]                 2.0052972 -0.0997481  0.6215855  1.7294720
## [741,]                -0.3944068  1.6078041 -0.2552320 -0.1199369
## [742,]                -0.3944068 -0.0997481  2.3752204 -1.0446413
## [743,]                -0.3944068 -1.8073003  0.6215855  1.7294720
## [744,]                -0.3944068 -0.9535242 -0.2552320 -0.1199369
## [745,]                 0.8054452 -0.9535242  0.6215855 -0.1199369
## [746,]                -0.3944068 -0.0997481  1.4984029  0.8047675
## [747,]                -0.3944068 -0.0997481 -1.1320495 -0.1199369
## [748,]                -0.3944068  0.7540280  0.6215855 -1.0446413
## [749,]                -0.3944068 -0.0997481  0.6215855  0.8047675
## [750,]                -0.3944068 -0.9535242  1.4984029  1.7294720
## [751,]                -0.3944068  1.6078041  2.3752204 -0.1199369
## [752,]                -0.3944068 -0.9535242  1.4984029 -1.0446413
## [753,]                 0.8054452  1.6078041 -0.2552320 -1.0446413
## [754,]                -0.3944068 -0.0997481 -0.2552320 -0.1199369
## [755,]                 0.8054452 -0.9535242 -1.1320495  0.8047675
## [756,]                -0.3944068 -0.9535242 -0.2552320  0.8047675
## [757,]                 0.8054452 -0.0997481  0.6215855  1.7294720
```

```
## [758,]                -0.3944068  1.6078041  0.6215855  0.8047675
## [759,]                 2.0052972  0.7540280 -1.1320495 -1.0446413
## [760,]                -0.3944068  1.6078041  1.4984029  0.8047675
## [761,]                -0.3944068  1.6078041 -0.2552320 -0.1199369
## [762,]                 0.8054452 -0.0997481 -1.1320495 -1.0446413
## [763,]                -0.3944068  0.7540280 -1.1320495 -1.0446413
## [764,]                -0.3944068 -0.0997481 -0.2552320 -1.0446413
## [765,]                -1.5942588 -0.0997481 -1.1320495 -0.1199369
## [766,]                -0.3944068 -0.9535242 -1.1320495 -0.1199369
## [767,]                 2.0052972  1.6078041  2.3752204  2.6541764
## [768,]                -2.7941108 -0.9535242  0.6215855  1.7294720
## [769,]                -0.3944068 -0.0997481 -1.1320495 -0.1199369
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## [771,]                -2.7941108 -1.8073003 -1.1320495 -1.0446413
## [772,]                -1.5942588 -0.9535242  1.4984029  1.7294720
## [773,]                 0.8054452 -0.0997481 -1.1320495 -0.1199369
## [774,]                 0.8054452  0.7540280 -0.2552320 -0.1199369
## [775,]                -0.3944068 -0.9535242 -1.1320495 -1.0446413
## [776,]                -0.3944068 -0.9535242 -1.1320495 -1.0446413
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## [778,]                 2.0052972 -0.0997481 -1.1320495 -0.1199369
## [779,]                -0.3944068 -0.9535242 -1.1320495 -1.0446413
## [780,]                -0.3944068 -0.0997481  0.6215855  1.7294720
## [781,]                -0.3944068 -0.0997481 -1.1320495 -0.1199369
## [782,]                -1.5942588  0.7540280 -1.1320495 -0.1199369
## [783,]                -0.3944068 -0.9535242  0.6215855  1.7294720
## [784,]                -0.3944068 -0.9535242  2.3752204 -0.1199369
## [785,]                -0.3944068  0.7540280  0.6215855 -1.0446413
## [786,]                 0.8054452 -0.0997481  0.6215855  0.8047675
## [787,]                -0.3944068 -0.0997481 -0.2552320 -0.1199369
## [788,]                -0.3944068 -0.9535242 -0.2552320 -1.0446413
## [789,]                -0.3944068 -0.9535242 -1.1320495 -0.1199369
## [790,]                 2.0052972  0.7540280  0.6215855  0.8047675
## [791,]                 2.0052972 -0.0997481 -0.2552320 -0.1199369
## [792,]                -0.3944068 -0.0997481 -1.1320495 -1.0446413
## [793,]                 0.8054452 -0.0997481 -0.2552320 -0.1199369
## [794,]                -0.3944068 -0.0997481 -1.1320495 -0.1199369
## [795,]                 2.0052972 -0.0997481 -1.1320495 -1.0446413
## [796,]                -2.7941108  1.6078041 -1.1320495  2.6541764
## [797,]                 2.0052972 -0.0997481 -0.2552320 -0.1199369
## [798,]                -2.7941108  1.6078041 -1.1320495 -0.1199369
## [799,]                -0.3944068 -0.0997481 -0.2552320 -1.0446413
## [800,]                -0.3944068 -1.8073003 -0.2552320  0.8047675
## [801,]                -0.3944068  0.7540280 -1.1320495 -1.0446413
## [802,]                 2.0052972  1.6078041 -1.1320495 -1.0446413
## [803,]                 2.0052972  1.6078041  0.6215855 -0.1199369
## [804,]                 2.0052972 -0.9535242 -1.1320495 -1.0446413
## [805,]                -2.7941108  0.7540280 -1.1320495 -1.0446413
## [806,]                 0.8054452  0.7540280  0.6215855 -1.0446413
## [807,]                -2.7941108 -1.8073003 -1.1320495 -1.0446413
```

```
##   [808,]               -0.3944068 -1.8073003  0.6215855  0.8047675
##   [809,]                0.8054452 -0.0997481 -1.1320495 -0.1199369
##   [810,]               -0.3944068  0.7540280 -1.1320495 -1.0446413
##   [811,]               -0.3944068 -0.9535242  0.6215855  1.7294720
##   [812,]               -0.3944068 -0.9535242  0.6215855  0.8047675
##   [813,]                0.8054452 -1.8073003 -1.1320495 -1.0446413
##   [814,]                0.8054452 -0.9535242 -1.1320495 -1.0446413
##   [815,]                0.8054452  0.7540280  0.6215855 -1.0446413
##   [816,]                2.0052972 -0.9535242  0.6215855  1.7294720
##   [817,]                0.8054452 -0.0997481  0.6215855 -1.0446413
##   [818,]                0.8054452 -1.8073003 -1.1320495 -1.0446413
##   [819,]                0.8054452 -0.0997481  0.6215855 -1.0446413
##   [820,]                2.0052972 -0.0997481 -1.1320495 -0.1199369
##   [821,]               -0.3944068 -0.9535242 -0.2552320 -0.1199369
##   [822,]               -0.3944068 -0.9535242 -0.2552320 -0.1199369
##   [823,]                0.8054452 -0.0997481 -1.1320495 -1.0446413
##   [824,]               -1.5942588 -0.0997481 -0.2552320 -0.1199369
##   [825,]               -0.3944068 -1.8073003 -1.1320495 -0.1199369
##   [826,]               -0.3944068 -1.8073003  0.6215855 -1.0446413
##   [827,]               -0.3944068 -0.0997481  0.6215855 -1.0446413
##   [828,]               -0.3944068 -0.0997481  1.4984029  0.8047675
##   [829,]               -0.3944068  0.7540280 -1.1320495 -0.1199369
##   [830,]               -0.3944068 -1.8073003 -0.2552320 -0.1199369
##   [831,]               -0.3944068  0.7540280 -0.2552320 -1.0446413
##   [832,]               -0.3944068  0.7540280 -0.2552320  1.7294720
##   [833,]               -0.3944068 -0.0997481  1.4984029  2.6541764
##   [834,]               -0.3944068 -0.9535242 -1.1320495 -1.0446413
##   [835,]               -0.3944068  0.7540280  0.6215855 -0.1199369
##   [836,]               -0.3944068 -0.0997481 -0.2552320 -0.1199369
##   [837,]               -0.3944068 -0.9535242 -1.1320495 -1.0446413
##   [838,]               -0.3944068  0.7540280  0.6215855 -0.1199369
##   [839,]                2.0052972  0.7540280 -1.1320495 -1.0446413
##   [840,]               -0.3944068  0.7540280 -0.2552320 -1.0446413
##   [841,]                0.8054452 -0.9535242  0.6215855  0.8047675
##   [842,]                2.0052972  0.7540280  0.6215855  0.8047675
##   [843,]                2.0052972  0.7540280 -0.2552320 -1.0446413
##   [844,]                0.8054452  0.7540280 -0.2552320  0.8047675
##   [845,]                0.8054452 -0.9535242  2.3752204  1.7294720
##   [846,]                0.8054452 -0.0997481 -1.1320495 -1.0446413
##   [847,]               -0.3944068  1.6078041 -0.2552320 -0.1199369
##   [848,]               -1.5942588 -0.0997481  1.4984029 -0.1199369
##   [849,]               -1.5942588 -0.9535242 -1.1320495 -1.0446413
##   [850,]               -1.5942588 -1.8073003  1.4984029  1.7294720
##   [851,]               -0.3944068  0.7540280 -1.1320495 -0.1199369
##   [852,]                2.0052972 -0.0997481 -1.1320495 -1.0446413
##   [853,]                0.8054452 -0.9535242 -1.1320495 -0.1199369
##   [854,]               -0.3944068  0.7540280  1.4984029 -0.1199369
##   [855,]               -1.5942588  0.7540280 -0.2552320 -1.0446413
##   [856,]                0.8054452  1.6078041  0.6215855  0.8047675
##   [857,]               -0.3944068 -0.0997481 -0.2552320 -1.0446413
```

```
## [858,]                   0.8054452  0.7540280 -0.2552320  0.8047675
## [859,]                  -2.7941108 -0.0997481  0.6215855 -0.1199369
## [860,]                  -0.3944068  0.7540280  1.4984029 -0.1199369
## [861,]                  -0.3944068  0.7540280  0.6215855  0.8047675
## [862,]                  -0.3944068 -0.0997481 -0.2552320 -1.0446413
## [863,]                   0.8054452  0.7540280 -0.2552320 -0.1199369
## [864,]                   2.0052972 -0.0997481 -0.2552320 -0.1199369
## [865,]                  -0.3944068 -0.0997481 -0.2552320  0.8047675
## [866,]                  -1.5942588  0.7540280  0.6215855 -0.1199369
## [867,]                  -0.3944068 -0.9535242  0.6215855  0.8047675
## [868,]                  -0.3944068  0.7540280 -0.2552320  1.7294720
## [869,]                   0.8054452 -0.0997481  1.4984029  0.8047675
## [870,]                  -0.3944068 -0.9535242 -1.1320495 -0.1199369
## [871,]                   0.8054452  0.7540280 -0.2552320 -1.0446413
## [872,]                  -0.3944068 -0.0997481 -0.2552320 -1.0446413
## [873,]                  -0.3944068 -0.9535242  0.6215855 -1.0446413
## [874,]                   0.8054452  0.7540280 -0.2552320 -0.1199369
## [875,]                  -0.3944068  1.6078041 -1.1320495 -1.0446413
## [876,]                  -0.3944068 -0.0997481 -1.1320495 -1.0446413
## [877,]                  -0.3944068 -0.0997481 -1.1320495 -0.1199369
## [878,]                  -0.3944068 -1.8073003  0.6215855  2.6541764
## [879,]                  -1.5942588 -0.9535242 -0.2552320 -0.1199369
## [880,]                   2.0052972  1.6078041 -1.1320495  1.7294720
## [881,]                  -0.3944068  1.6078041 -1.1320495 -0.1199369
## [882,]                  -0.3944068 -1.8073003 -1.1320495  0.8047675
## [883,]                   0.8054452  0.7540280 -1.1320495 -1.0446413
## [884,]                  -0.3944068 -0.0997481 -1.1320495 -1.0446413
## [885,]                  -0.3944068  0.7540280 -0.2552320 -1.0446413
## [886,]                   0.8054452 -0.0997481 -0.2552320 -0.1199369
## [887,]                   2.0052972 -0.0997481 -0.2552320 -1.0446413
## [888,]                  -0.3944068 -0.0997481 -0.2552320  1.7294720
## [889,]                  -0.3944068 -0.0997481 -0.2552320 -1.0446413
## [890,]                  -0.3944068 -0.0997481  0.6215855  1.7294720
## [891,]                  -0.3944068  1.6078041 -1.1320495 -0.1199369
## [892,]                  -0.3944068  0.7540280  0.6215855 -0.1199369
## [893,]                  -0.3944068 -0.0997481  0.6215855 -0.1199369
## [894,]                  -0.3944068 -0.9535242  0.6215855  1.7294720
## [895,]                   0.8054452 -0.0997481 -1.1320495 -1.0446413
## [896,]                   0.8054452  0.7540280 -0.2552320  0.8047675
## [897,]                  -0.3944068 -0.9535242  0.6215855  1.7294720
## [898,]                  -0.3944068 -0.9535242 -0.2552320  0.8047675
## [899,]                  -0.3944068 -0.9535242 -0.2552320 -1.0446413
## [900,]                  -0.3944068 -0.9535242 -1.1320495 -0.1199369
## [901,]                  -1.5942588 -0.9535242 -1.1320495 -0.1199369
## [902,]                  -0.3944068 -1.8073003 -0.2552320 -0.1199369
## [903,]                  -0.3944068 -1.8073003 -0.2552320 -0.1199369
## [904,]                   2.0052972 -0.9535242  1.4984029  0.8047675
## [905,]                  -0.3944068 -0.9535242 -1.1320495 -0.1199369
## [906,]                  -0.3944068  0.7540280  0.6215855  0.8047675
## [907,]                  -0.3944068  1.6078041  0.6215855 -1.0446413
```

```
##   [908,]                  0.8054452  0.7540280  0.6215855 -0.1199369
##   [909,]                 -1.5942588 -0.0997481 -0.2552320  0.8047675
##   [910,]                 -0.3944068  0.7540280  0.6215855 -0.1199369
##   [911,]                  0.8054452 -0.9535242 -1.1320495 -1.0446413
##   [912,]                 -0.3944068 -0.9535242 -0.2552320 -1.0446413
##   [913,]                  0.8054452  0.7540280 -0.2552320 -1.0446413
##   [914,]                 -0.3944068  0.7540280  1.4984029 -0.1199369
##   [915,]                  0.8054452 -0.9535242  0.6215855 -1.0446413
##   [916,]                  0.8054452  1.6078041 -0.2552320  0.8047675
##   [917,]                 -0.3944068 -0.9535242 -0.2552320 -1.0446413
##   [918,]                  0.8054452 -0.9535242 -0.2552320 -0.1199369
##   [919,]                 -0.3944068 -0.9535242 -0.2552320 -1.0446413
##   [920,]                 -2.7941108 -0.0997481 -0.2552320 -1.0446413
##   [921,]                  0.8054452 -0.0997481  0.6215855  0.8047675
##   [922,]                 -0.3944068  0.7540280 -0.2552320 -0.1199369
##   [923,]                 -0.3944068  1.6078041 -1.1320495 -1.0446413
##   [924,]                  0.8054452 -0.9535242 -0.2552320 -1.0446413
##   [925,]                 -0.3944068 -0.0997481 -1.1320495 -1.0446413
##   [926,]                 -0.3944068  0.7540280  0.6215855  0.8047675
##   [927,]                 -0.3944068 -0.0997481 -0.2552320 -0.1199369
##   [928,]                 -0.3944068  1.6078041 -1.1320495 -1.0446413
##   [929,]                 -0.3944068  0.7540280 -0.2552320 -0.1199369
##   [930,]                 -1.5942588 -0.0997481  2.3752204 -1.0446413
##   [931,]                 -0.3944068 -0.0997481 -0.2552320 -1.0446413
##   [932,]                 -0.3944068  0.7540280 -0.2552320 -0.1199369
##   [933,]                 -0.3944068  0.7540280 -0.2552320 -0.1199369
##   [934,]                 -0.3944068 -0.9535242 -0.2552320  0.8047675
##   [935,]                 -0.3944068 -0.0997481 -0.2552320 -0.1199369
##   [936,]                 -0.3944068 -0.0997481 -1.1320495 -1.0446413
##   [937,]                 -0.3944068 -0.9535242  0.6215855 -0.1199369
##   [938,]                 -0.3944068  0.7540280 -1.1320495 -1.0446413
##   [939,]                 -0.3944068 -0.9535242  2.3752204 -1.0446413
##   [940,]                 -0.3944068  0.7540280 -1.1320495  1.7294720
##   [941,]                 -0.3944068 -0.9535242 -1.1320495 -1.0446413
##   [942,]                 -0.3944068 -0.0997481 -0.2552320 -1.0446413
##   [943,]                 -1.5942588  1.6078041  0.6215855 -0.1199369
##   [944,]                 -0.3944068 -0.0997481 -0.2552320 -1.0446413
##   [945,]                  0.8054452 -0.0997481  0.6215855 -0.1199369
##   [946,]                 -1.5942588  1.6078041 -0.2552320  0.8047675
##   [947,]                  2.0052972 -0.9535242 -1.1320495 -0.1199369
##   [948,]                 -0.3944068 -0.0997481 -1.1320495 -1.0446413
##   [949,]                 -0.3944068  0.7540280  0.6215855 -0.1199369
##   [950,]                 -0.3944068 -0.0997481 -0.2552320  0.8047675
##   [951,]                 -0.3944068 -0.9535242  0.6215855  0.8047675
##   [952,]                 -0.3944068  0.7540280 -1.1320495 -1.0446413
##   [953,]                 -1.5942588 -0.0997481  0.6215855  0.8047675
##   [954,]                 -0.3944068 -0.0997481 -1.1320495  0.8047675
##   [955,]                 -0.3944068  1.6078041  0.6215855 -0.1199369
##   [956,]                 -0.3944068 -0.9535242 -1.1320495 -0.1199369
##   [957,]                  0.8054452 -0.0997481 -1.1320495  1.7294720
```

```
##  [958,]                 0.8054452 -0.9535242 -1.1320495 -1.0446413
##  [959,]                 2.0052972  1.6078041  0.6215855 -1.0446413
##  [960,]                -0.3944068 -0.0997481 -0.2552320  0.8047675
##  [961,]                -0.3944068  0.7540280  1.4984029 -1.0446413
##  [962,]                -0.3944068  0.7540280  1.4984029 -1.0446413
##  [963,]                -1.5942588 -0.0997481  1.4984029  1.7294720
##  [964,]                 0.8054452  0.7540280  0.6215855  0.8047675
##  [965,]                 0.8054452 -0.0997481 -0.2552320  0.8047675
##  [966,]                 2.0052972  1.6078041  0.6215855  0.8047675
##  [967,]                 2.0052972 -1.8073003 -1.1320495 -1.0446413
##  [968,]                -0.3944068 -0.9535242 -0.2552320 -0.1199369
##  [969,]                 0.8054452 -0.0997481 -0.2552320 -0.1199369
##  [970,]                -0.3944068 -0.9535242 -1.1320495 -0.1199369
##  [971,]                -0.3944068  1.6078041 -1.1320495  1.7294720
##  [972,]                 0.8054452 -0.9535242  1.4984029  0.8047675
##  [973,]                -0.3944068 -0.0997481  0.6215855  0.8047675
##  [974,]                -0.3944068 -0.9535242  2.3752204  2.6541764
##  [975,]                -0.3944068 -1.8073003 -0.2552320 -0.1199369
##  [976,]                -0.3944068  1.6078041  2.3752204  2.6541764
##  [977,]                -0.3944068  0.7540280 -0.2552320  0.8047675
##  [978,]                 0.8054452  0.7540280 -0.2552320 -0.1199369
##  [979,]                -1.5942588 -0.9535242 -1.1320495 -0.1199369
##  [980,]                -0.3944068  0.7540280 -0.2552320 -0.1199369
##  [981,]                -0.3944068 -0.9535242 -0.2552320 -0.1199369
##  [982,]                 0.8054452 -1.8073003 -0.2552320  1.7294720
##  [983,]                 0.8054452 -0.9535242 -1.1320495 -1.0446413
##  [984,]                 0.8054452 -0.0997481 -1.1320495 -1.0446413
##  [985,]                -1.5942588 -1.8073003  0.6215855 -0.1199369
##  [986,]                -1.5942588 -1.8073003  0.6215855 -0.1199369
##  [987,]                -0.3944068 -0.9535242  2.3752204  0.8047675
##  [988,]                -0.3944068 -0.9535242 -0.2552320  0.8047675
##  [989,]                -1.5942588 -0.0997481 -0.2552320 -0.1199369
##  [990,]                 2.0052972 -0.0997481 -0.2552320 -0.1199369
##  [991,]                 0.8054452 -0.9535242 -1.1320495 -1.0446413
##  [992,]                 2.0052972 -0.9535242 -1.1320495 -1.0446413
##  [993,]                 0.8054452  0.7540280 -1.1320495  1.7294720
##  [994,]                -0.3944068 -0.0997481 -1.1320495 -0.1199369
##  [995,]                 0.8054452 -0.0997481 -0.2552320 -0.1199369
##  [996,]                 0.8054452 -0.9535242 -1.1320495 -1.0446413
##  [997,]                -0.3944068 -1.8073003 -1.1320495 -1.0446413
##  [998,]                 0.8054452 -0.0997481  0.6215855  0.8047675
##  [999,]                 0.8054452  0.7540280  0.6215855 -1.0446413
## [1000,]                 2.0052972  1.6078041  0.6215855  1.7294720
## [1001,]                -0.3944068 -0.0997481  0.6215855 -0.1199369
## [1002,]                 2.0052972  1.6078041 -1.1320495 -0.1199369
## [1003,]                 2.0052972 -0.0997481 -1.1320495  0.8047675
## [1004,]                -0.3944068  0.7540280  0.6215855 -0.1199369
## [1005,]                -0.3944068  0.7540280 -1.1320495 -0.1199369
## [1006,]                -1.5942588  1.6078041 -0.2552320 -0.1199369
## [1007,]                 0.8054452  1.6078041 -1.1320495  0.8047675
```

```
## [1008,]                 -0.3944068 -1.8073003 -1.1320495 -0.1199369
## [1009,]                 -0.3944068 -0.0997481  0.6215855 -1.0446413
## [1010,]                  2.0052972  0.7540280  0.6215855 -0.1199369
##         Classical.music    Musical        Pop        Rock Metal.or.Hardrock
##    [1,]     -0.76420873 -1.3991123  1.3169072  1.0478732        -0.9910267
##    [2,]     -1.56488384 -0.6052340 -0.4059895  1.0478732         1.1960170
##    [3,]      0.83714151  1.7764010 -0.4059895  1.0478732         0.4670024
##    [4,]     -1.56488384 -1.3991123 -1.2674379 -1.4881139        -0.9910267
##    [5,]      0.83714151  0.1886444  1.3169072 -0.6427849        -0.9910267
##    [6,]      0.03646639  0.1886444 -1.2674379  1.0478732         1.9250315
##    [7,]     -0.76420873 -0.6052340  1.3169072 -0.6427849        -0.9910267
##    [8,]     -0.76420873 -0.6052340  0.4554588  1.0478732        -0.9910267
##    [9,]     -0.76420873  0.9825227 -0.4059895  1.0478732         1.9250315
##   [10,]     -0.76420873  1.7764010 -0.4059895  1.0478732        -0.2620122
##   [11,]     -0.76420873  0.1886444  0.4554588 -0.6427849        -0.2620122
##   [12,]      0.83714151 -1.3991123 -1.2674379  1.0478732        -0.9910267
##   [13,]      0.83714151  0.1886444 -0.4059895  1.0478732         1.1960170
##   [14,]     -1.56488384  1.7764010  1.3169072 -1.4881139        -0.9910267
##   [15,]     -0.76420873  0.1886444  0.4554588  1.0478732        -0.2620122
##   [16,]      0.83714151  0.1886444 -0.4059895  1.0478732         1.9250315
##   [17,]     -1.56488384 -0.6052340  0.4554588  0.2025442        -0.9910267
##   [18,]     -0.76420873 -0.6052340  0.4554588  0.2025442        -0.2620122
##   [19,]      0.83714151  1.7764010  1.3169072  0.2025442         1.1960170
##   [20,]      0.83714151 -0.6052340 -1.2674379  0.2025442         1.9250315
##   [21,]      0.83714151  0.1886444 -1.2674379  1.0478732         1.9250315
##   [22,]     -0.76420873 -0.6052340 -1.2674379  1.0478732         1.9250315
##   [23,]      0.03646639  0.1886444  0.4554588 -0.6427849        -0.9910267
##   [24,]     -0.76420873  0.9825227  0.4554588  1.0478732        -0.2620122
##   [25,]      0.83714151  0.1886444 -0.4059895  1.0478732         1.9250315
##   [26,]     -0.76420873  0.1886444  1.3169072 -2.3334430        -0.9910267
##   [27,]      1.63781663  0.1886444  0.4554588  0.2025442         0.4670024
##   [28,]      0.03646639 -0.6052340 -1.2674379  0.2025442        -0.2620122
##   [29,]     -1.56488384 -1.3991123 -0.4059895  0.2025442        -0.9910267
##   [30,]      0.03646639  0.1886444 -0.4059895  0.2025442        -0.9910267
##   [31,]      0.03646639  0.1886444  0.4554588  0.2025442        -0.2620122
##   [32,]     -0.76420873  0.1886444  1.3169072 -0.6427849        -0.9910267
##   [33,]     -0.76420873  0.1886444 -0.4059895  0.2025442         0.4670024
##   [34,]      0.83714151  1.7764010  0.4554588 -0.6427849        -0.9910267
##   [35,]      0.03646639  0.9825227  0.4554588  1.0478732         0.4670024
##   [36,]      0.83714151  1.7764010  1.3169072 -0.6427849        -0.9910267
##   [37,]      0.03646639  0.9825227  0.4554588  0.2025442        -0.9910267
##   [38,]      1.63781663 -1.3991123 -1.2674379 -0.6427849         1.9250315
##   [39,]      1.63781663 -0.6052340  1.3169072  0.2025442        -0.9910267
##   [40,]     -0.76420873  0.1886444  1.3169072  1.0478732         1.1960170
##   [41,]     -1.56488384 -1.3991123  1.3169072 -2.3334430        -0.9910267
##   [42,]      1.63781663 -1.3991123 -2.1288863  0.2025442         1.9250315
##   [43,]      0.03646639  0.9825227  1.3169072  1.0478732         1.1960170
##   [44,]     -0.76420873 -0.6052340  1.3169072  0.2025442        -0.9910267
##   [45,]      0.03646639  0.1886444  0.4554588  0.2025442        -0.9910267
##   [46,]      0.83714151  0.1886444  1.3169072  0.2025442        -0.9910267
```

```
##   [47,]     -1.56488384  1.7764010  1.3169072  1.0478732    0.4670024
##   [48,]     -0.76420873  0.1886444  0.4554588  0.2025442   -0.2620122
##   [49,]     -1.56488384  0.9825227 -0.4059895 -1.4881139   -0.9910267
##   [50,]     -0.76420873 -0.6052340 -0.4059895  1.0478732    0.4670024
##   [51,]      1.63781663  1.7764010  1.3169072  1.0478732   -0.2620122
##   [52,]      0.83714151  0.1886444  1.3169072  0.2025442    0.4670024
##   [53,]      1.63781663  1.7764010  1.3169072  1.0478732    1.1960170
##   [54,]      0.83714151  1.7764010  0.4554588 -0.6427849   -0.2620122
##   [55,]      1.63781663  1.7764010  1.3169072  1.0478732    1.1960170
##   [56,]      0.83714151  0.1886444  0.4554588 -0.6427849    0.4670024
##   [57,]      0.83714151  0.1886444  0.4554588  1.0478732   -0.9910267
##   [58,]      0.03646639 -0.6052340 -1.2674379  1.0478732   -0.2620122
##   [59,]      0.03646639 -0.6052340  1.3169072 -2.3334430   -0.9910267
##   [60,]      0.03646639 -1.3991123 -0.4059895  0.2025442    0.4670024
##   [61,]      0.83714151  0.9825227  0.4554588  0.2025442   -0.9910267
##   [62,]      0.83714151  0.1886444  0.4554588  0.2025442   -0.9910267
##   [63,]      0.83714151  0.9825227  1.3169072  0.2025442    1.9250315
##   [64,]     -0.76420873 -1.3991123 -1.2674379 -0.6427849   -0.9910267
##   [65,]     -1.56488384  0.9825227  0.4554588  1.0478732   -0.9910267
##   [66,]     -0.76420873 -1.3991123 -0.4059895 -0.6427849    0.4670024
##   [67,]     -0.76420873  0.9825227  1.3169072 -0.6427849    1.1960170
##   [68,]     -0.76420873  0.9825227  1.3169072 -2.3334430   -0.9910267
##   [69,]     -0.76420873  0.9825227 -0.4059895  1.0478732    1.9250315
##   [70,]     -1.56488384  0.9825227  1.3169072  0.2025442   -0.9910267
##   [71,]     -0.76420873  0.1886444  1.3169072 -0.6427849   -0.9910267
##   [72,]      0.83714151 -1.3991123  0.4554588 -2.3334430   -0.9910267
##   [73,]     -0.76420873  1.7764010  1.3169072  1.0478732   -0.2620122
##   [74,]     -0.76420873 -1.3991123  1.3169072 -1.4881139   -0.9910267
##   [75,]      1.63781663  0.1886444 -1.2674379 -2.3334430   -0.9910267
##   [76,]      0.03646639 -1.3991123 -2.1288863  1.0478732    1.1960170
##   [77,]     -0.76420873 -0.6052340 -1.2674379 -1.4881139   -0.9910267
##   [78,]     -0.76420873 -0.6052340  1.3169072  0.2025442   -0.2620122
##   [79,]     -1.56488384  1.7764010  1.3169072 -0.6427849   -0.9910267
##   [80,]      0.03646639  0.9825227  1.3169072  1.0478732   -0.2620122
##   [81,]     -0.76420873  0.1886444  0.4554588  1.0478732   -0.2620122
##   [82,]      0.03646639  0.1886444  1.3169072  0.2025442   -0.2620122
##   [83,]      0.03646639 -0.6052340 -2.1288863  1.0478732    1.9250315
##   [84,]      0.83714151  0.9825227  1.3169072  1.0478732    0.4670024
##   [85,]      1.63781663  1.7764010 -2.1288863  1.0478732    1.9250315
##   [86,]      1.63781663  0.1886444 -0.4059895  0.2025442    1.1960170
##   [87,]      0.03646639 -0.6052340  0.4554588  1.0478732    0.4670024
##   [88,]     -0.76420873  0.9825227  0.4554588  1.0478732   -0.2620122
##   [89,]      1.63781663 -0.6052340  1.3169072  1.0478732   -0.9910267
##   [90,]      0.83714151  0.1886444 -0.4059895  1.0478732    0.4670024
##   [91,]      0.03646639  0.9825227 -0.4059895  0.2025442   -0.9910267
##   [92,]     -0.76420873  1.7764010 -0.4059895  1.0478732    1.9250315
##   [93,]      0.83714151  0.9825227 -1.2674379 -0.6427849   -0.9910267
##   [94,]      0.83714151  0.9825227  0.4554588 -0.6427849    0.4670024
##   [95,]     -1.56488384 -0.6052340  0.4554588 -0.6427849   -0.9910267
##   [96,]      0.83714151  0.1886444 -0.4059895 -0.6427849   -0.9910267
```

```
##  [97,]      -1.56488384 -1.3991123 -1.2674379  0.2025442       1.9250315
##  [98,]      -1.56488384 -1.3991123 -1.2674379 -2.3334430      -0.9910267
##  [99,]      -1.56488384 -1.3991123 -0.4059895  1.0478732      -0.2620122
## [100,]      -0.76420873 -0.6052340  0.4554588 -1.4881139      -0.9910267
## [101,]       0.83714151  1.7764010  0.4554588  1.0478732       0.4670024
## [102,]       0.03646639 -1.3991123 -1.2674379  0.2025442       1.9250315
## [103,]       1.63781663  0.9825227 -2.1288863  1.0478732      -0.2620122
## [104,]      -0.76420873  0.9825227  1.3169072 -2.3334430      -0.9910267
## [105,]       0.83714151 -0.6052340 -1.2674379  0.2025442       1.1960170
## [106,]       0.03646639 -0.6052340 -1.2674379  0.2025442       1.9250315
## [107,]       1.63781663  0.1886444  0.4554588  1.0478732      -0.9910267
## [108,]      -0.76420873 -0.6052340 -1.2674379  0.2025442       1.1960170
## [109,]       0.83714151 -1.3991123 -1.2674379  0.2025442       1.1960170
## [110,]       0.83714151 -0.6052340 -0.4059895  1.0478732       1.9250315
## [111,]       0.03646639 -1.3991123  0.4554588  0.2025442      -0.9910267
## [112,]       1.63781663  0.1886444 -0.4059895  0.2025442      -0.2620122
## [113,]       0.83714151  0.1886444 -0.4059895 -0.6427849      -0.2620122
## [114,]      -1.56488384 -0.6052340  0.4554588  0.2025442      -0.2620122
## [115,]       0.03646639  0.9825227  0.4554588  0.2025442      -0.9910267
## [116,]       1.63781663  0.9825227  1.3169072  1.0478732      -0.2620122
## [117,]      -0.76420873 -1.3991123 -0.4059895  1.0478732      -0.9910267
## [118,]      -1.56488384  0.1886444  1.3169072 -0.6427849      -0.2620122
## [119,]       0.83714151 -1.3991123 -0.4059895  0.2025442      -0.2620122
## [120,]       0.03646639 -0.6052340  0.4554588 -1.4881139      -0.2620122
## [121,]       0.83714151  0.9825227 -1.2674379  1.0478732       1.9250315
## [122,]      -0.76420873 -1.3991123  0.4554588  0.2025442      -0.2620122
## [123,]       1.63781663  0.1886444 -2.1288863  1.0478732      -0.2620122
## [124,]       0.03646639  0.9825227 -0.4059895  1.0478732       0.4670024
## [125,]       1.63781663  1.7764010 -0.4059895  1.0478732       0.4670024
## [126,]       0.03646639 -0.6052340 -1.2674379  0.2025442       0.4670024
## [127,]       0.03646639 -1.3991123  0.4554588  0.2025442      -0.9910267
## [128,]       0.83714151  0.1886444  0.4554588  0.2025442       0.4670024
## [129,]       1.63781663  1.7764010  1.3169072  1.0478732       1.9250315
## [130,]      -0.76420873 -0.6052340  0.4554588  1.0478732      -0.2620122
## [131,]       0.83714151 -0.6052340 -1.2674379  1.0478732       0.4670024
## [132,]      -0.76420873 -0.6052340  0.4554588 -1.4881139      -0.9910267
## [133,]      -1.56488384 -1.3991123  0.4554588  0.2025442      -0.9910267
## [134,]       0.83714151 -0.6052340 -2.1288863 -0.6427849      -0.9910267
## [135,]       0.03646639  0.1886444 -0.4059895 -0.6427849      -0.9910267
## [136,]       1.63781663 -1.3991123 -0.4059895  1.0478732       1.1960170
## [137,]       0.03646639 -0.6052340  0.4554588 -0.6427849      -0.9910267
## [138,]       1.63781663  1.7764010  1.3169072  0.2025442      -0.2620122
## [139,]       0.83714151  1.7764010 -1.2674379 -2.3334430      -0.9910267
## [140,]       0.03646639  0.1886444  1.3169072  0.2025442      -0.9910267
## [141,]      -0.76420873  0.1886444  0.4554588  0.2025442      -0.2620122
## [142,]       0.03646639 -1.3991123 -0.4059895  1.0478732       1.9250315
## [143,]      -0.76420873 -0.6052340  0.4554588  0.2025442      -0.9910267
## [144,]      -1.56488384 -0.6052340  0.4554588  0.2025442      -0.2620122
## [145,]       0.03646639 -0.6052340  0.4554588  1.0478732      -0.9910267
## [146,]      -0.76420873 -0.6052340 -1.2674379  0.2025442      -0.9910267
```

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##  [147,]      0.83714151 -1.3991123  1.3169072  0.2025442      0.4670024
##  [148,]     -0.76420873 -0.6052340 -0.4059895  1.0478732      1.1960170
##  [149,]      0.03646639  0.1886444  1.3169072 -0.6427849     -0.2620122
##  [150,]      0.03646639  0.9825227 -2.1288863 -1.4881139     -0.2620122
##  [151,]      0.83714151  0.9825227 -0.4059895  1.0478732      1.9250315
##  [152,]      0.03646639 -0.6052340 -1.2674379  0.2025442      1.1960170
##  [153,]      0.03646639  0.1886444  0.4554588  0.2025442     -0.2620122
##  [154,]      0.03646639 -0.6052340  0.4554588 -1.4881139     -0.9910267
##  [155,]      1.63781663 -1.3991123 -2.1288863  1.0478732      1.1960170
##  [156,]      1.63781663 -0.6052340 -0.4059895 -0.6427849     -0.2620122
##  [157,]      0.83714151 -0.6052340 -0.4059895  1.0478732     -0.2620122
##  [158,]     -0.76420873 -0.6052340  0.4554588  0.2025442      1.1960170
##  [159,]      0.03646639 -0.6052340  1.3169072  0.2025442     -0.9910267
##  [160,]      1.63781663  0.9825227  0.4554588  1.0478732      0.4670024
##  [161,]     -0.76420873 -1.3991123 -2.1288863  1.0478732      1.1960170
##  [162,]     -0.76420873 -0.6052340  0.4554588  1.0478732      0.4670024
##  [163,]      1.63781663 -0.6052340  0.4554588 -0.6427849     -0.9910267
##  [164,]     -0.76420873 -1.3991123  0.4554588 -0.6427849     -0.2620122
##  [165,]      0.03646639 -0.6052340  0.4554588  0.2025442     -0.9910267
##  [166,]      0.03646639 -1.3991123  0.4554588 -2.3334430     -0.9910267
##  [167,]      0.03646639 -1.3991123 -2.1288863 -0.6427849      1.9250315
##  [168,]      0.03646639 -0.6052340 -0.4059895  0.2025442      0.4670024
##  [169,]      0.83714151  0.1886444  0.4554588  0.2025442     -0.9910267
##  [170,]      0.83714151  0.9825227 -0.4059895  1.0478732      1.1960170
##  [171,]     -0.76420873 -1.3991123 -0.4059895  0.2025442     -0.2620122
##  [172,]      0.83714151  0.1886444  0.4554588  0.2025442     -0.9910267
##  [173,]      0.83714151  0.9825227 -1.2674379  1.0478732      1.9250315
##  [174,]      0.83714151  0.9825227 -0.4059895 -1.4881139     -0.9910267
##  [175,]      0.03646639  0.1886444 -2.1288863 -2.3334430     -0.9910267
##  [176,]      1.63781663  0.1886444 -0.4059895  1.0478732      1.9250315
##  [177,]     -1.56488384 -1.3991123 -0.4059895  1.0478732      1.9250315
##  [178,]      0.83714151  0.1886444 -2.1288863  1.0478732      1.9250315
##  [179,]      1.63781663 -0.6052340 -1.2674379  0.2025442      1.1960170
##  [180,]      1.63781663 -0.6052340 -2.1288863 -2.3334430     -0.2620122
##  [181,]      0.03646639  0.1886444 -1.2674379  1.0478732      1.1960170
##  [182,]      0.83714151  0.1886444 -0.4059895  0.2025442      0.4670024
##  [183,]      0.83714151  0.9825227  0.4554588  1.0478732      1.1960170
##  [184,]     -0.76420873  1.7764010  0.4554588 -0.6427849     -0.9910267
##  [185,]      0.03646639  0.9825227 -1.2674379  1.0478732     -0.9910267
##  [186,]     -0.76420873  1.7764010 -0.4059895 -1.4881139     -0.9910267
##  [187,]      0.03646639  0.1886444  0.4554588 -1.4881139     -0.9910267
##  [188,]     -0.76420873 -1.3991123  0.4554588 -0.6427849     -0.2620122
##  [189,]      1.63781663  0.9825227 -0.4059895 -0.6427849     -0.9910267
##  [190,]      1.63781663  0.1886444 -2.1288863  0.2025442      1.9250315
##  [191,]      0.83714151 -0.6052340 -1.2674379  0.2025442      1.9250315
##  [192,]      0.83714151  1.7764010  1.3169072 -1.4881139     -0.9910267
##  [193,]      0.03646639  0.1886444  1.3169072  0.2025442     -0.9910267
##  [194,]      1.63781663  0.1886444 -2.1288863  1.0478732      1.9250315
##  [195,]      0.03646639 -0.6052340 -1.2674379  0.2025442     -0.2620122
##  [196,]      0.03646639 -0.6052340 -1.2674379 -0.6427849     -0.9910267
```

```
## [197,]     -0.76420873  0.1886444  0.4554588  0.2025442     0.4670024
## [198,]     -1.56488384  0.9825227 -1.2674379 -1.4881139    -0.9910267
## [199,]     -0.76420873 -0.6052340 -0.4059895  1.0478732     0.4670024
## [200,]     -1.56488384 -1.3991123 -1.2674379 -0.6427849    -0.9910267
## [201,]      0.83714151  0.1886444  0.4554588  0.2025442     1.1960170
## [202,]      0.03646639  0.1886444  1.3169072  1.0478732    -0.2620122
## [203,]     -1.56488384 -1.3991123 -0.4059895 -1.4881139    -0.9910267
## [204,]      0.03646639 -1.3991123  0.4554588  1.0478732     0.4670024
## [205,]      0.03646639  0.1886444 -1.2674379  1.0478732     1.1960170
## [206,]      1.63781663  1.7764010  0.4554588  0.2025442     0.4670024
## [207,]      1.63781663  1.7764010 -0.4059895  0.2025442     1.1960170
## [208,]      0.83714151  1.7764010 -0.4059895 -0.6427849    -0.9910267
## [209,]      0.03646639 -0.6052340  0.4554588  0.2025442    -0.9910267
## [210,]      0.83714151  0.1886444 -1.2674379  1.0478732     1.1960170
## [211,]      1.63781663 -1.3991123  0.4554588  1.0478732     1.1960170
## [212,]     -0.76420873  1.7764010  1.3169072  1.0478732    -0.9910267
## [213,]      1.63781663 -1.3991123 -1.2674379  0.2025442    -0.2620122
## [214,]      0.03646639  0.9825227  1.3169072  1.0478732    -0.2620122
## [215,]      0.03646639  0.1886444 -0.4059895  1.0478732     1.1960170
## [216,]     -1.56488384 -1.3991123 -0.4059895 -2.3334430    -0.9910267
## [217,]     -1.56488384 -1.3991123 -2.1288863  0.2025442     1.9250315
## [218,]     -0.76420873  1.7764010  0.4554588 -0.6427849    -0.9910267
## [219,]     -0.76420873  0.1886444  0.4554588 -0.6427849    -0.9910267
## [220,]     -1.56488384 -0.6052340 -0.4059895 -2.3334430    -0.9910267
## [221,]      0.83714151 -0.6052340 -2.1288863 -0.6427849    -0.9910267
## [222,]      0.83714151  0.1886444 -0.4059895  1.0478732     1.9250315
## [223,]      0.83714151  0.1886444  1.3169072  1.0478732     0.4670024
## [224,]      0.03646639 -1.3991123  0.4554588 -1.4881139    -0.2620122
## [225,]      1.63781663  0.9825227  0.4554588  1.0478732     0.4670024
## [226,]      0.83714151  0.9825227 -1.2674379  1.0478732    -0.2620122
## [227,]      0.03646639  0.1886444  0.4554588  1.0478732     0.4670024
## [228,]      1.63781663  0.1886444 -1.2674379  0.2025442     0.4670024
## [229,]      0.83714151 -0.6052340 -0.4059895 -0.6427849    -0.9910267
## [230,]     -1.56488384 -1.3991123  0.4554588 -0.6427849    -0.9910267
## [231,]      1.63781663  1.7764010  1.3169072 -0.6427849    -0.9910267
## [232,]     -0.76420873 -0.6052340  0.4554588  1.0478732     0.4670024
## [233,]      0.83714151 -1.3991123 -1.2674379 -0.6427849    -0.2620122
## [234,]      0.83714151  0.1886444  0.4554588  0.2025442     1.1960170
## [235,]     -0.76420873 -1.3991123  0.4554588  1.0478732     1.1960170
## [236,]      0.03646639  0.1886444 -0.4059895  1.0478732     1.1960170
## [237,]      0.03646639  1.7764010  0.4554588  0.2025442     0.4670024
## [238,]      0.03646639  0.1886444  0.4554588 -0.6427849    -0.9910267
## [239,]     -0.76420873  0.1886444  0.4554588 -1.4881139    -0.9910267
## [240,]      1.63781663 -0.6052340 -1.2674379  0.2025442    -0.9910267
## [241,]     -1.56488384 -1.3991123 -1.2674379 -0.6427849    -0.2620122
## [242,]      0.03646639  1.7764010 -0.4059895 -0.6427849    -0.9910267
## [243,]     -0.76420873  1.7764010  1.3169072  0.2025442    -0.9910267
## [244,]      0.83714151  1.7764010  1.3169072  1.0478732    -0.9910267
## [245,]      0.03646639  1.7764010  1.3169072  1.0478732    -0.2620122
## [246,]     -0.76420873 -0.6052340 -0.4059895  0.2025442     0.4670024
```

```
## [247,]      0.83714151 -1.3991123  0.4554588  1.0478732     -0.2620122
## [248,]      0.83714151  1.7764010 -0.4059895  1.0478732     -0.2620122
## [249,]      0.83714151  0.1886444  0.4554588  1.0478732      1.1960170
## [250,]      0.83714151  0.9825227  1.3169072  1.0478732      1.1960170
## [251,]     -0.76420873 -0.6052340  0.4554588 -0.6427849     -0.2620122
## [252,]      0.03646639  1.7764010  1.3169072  1.0478732     -0.2620122
## [253,]      0.03646639  0.1886444  0.4554588  1.0478732     -0.9910267
## [254,]     -1.56488384 -1.3991123 -0.4059895 -2.3334430     -0.9910267
## [255,]     -0.76420873  1.7764010  1.3169072 -0.6427849     -0.9910267
## [256,]      1.63781663  1.7764010 -0.4059895  1.0478732      1.1960170
## [257,]     -1.56488384 -0.6052340  1.3169072 -1.4881139     -0.9910267
## [258,]      0.03646639  0.1886444  0.4554588  0.2025442      0.4670024
## [259,]      1.63781663 -1.3991123 -2.1288863  1.0478732      1.9250315
## [260,]     -0.76420873 -0.6052340 -0.4059895  0.2025442     -0.2620122
## [261,]      0.03646639  0.1886444 -0.4059895 -0.6427849      0.4670024
## [262,]     -0.76420873 -0.6052340  1.3169072 -1.4881139     -0.9910267
## [263,]      1.63781663  0.9825227 -1.2674379  1.0478732     -0.2620122
## [264,]     -0.76420873  0.9825227  1.3169072  0.2025442     -0.2620122
## [265,]      0.03646639  0.1886444  1.3169072  0.2025442      0.4670024
## [266,]     -0.76420873  0.1886444  1.3169072 -1.4881139     -0.9910267
## [267,]      0.03646639  0.1886444  0.4554588  0.2025442     -0.9910267
## [268,]      0.83714151  0.1886444 -1.2674379  0.2025442      1.1960170
## [269,]     -0.76420873 -0.6052340  1.3169072 -1.4881139     -0.9910267
## [270,]      0.83714151  0.9825227 -0.4059895  1.0478732      0.4670024
## [271,]     -1.56488384  0.1886444  0.4554588  1.0478732      1.1960170
## [272,]     -1.56488384 -1.3991123  0.4554588  1.0478732      1.9250315
## [273,]      1.63781663  0.1886444 -1.2674379  1.0478732      1.9250315
## [274,]      0.83714151  0.9825227  0.4554588  0.2025442     -0.2620122
## [275,]     -0.76420873 -0.6052340  0.4554588 -0.6427849     -0.9910267
## [276,]      0.83714151  1.7764010 -0.4059895  0.2025442      1.1960170
## [277,]     -0.76420873 -0.6052340  1.3169072  1.0478732      1.1960170
## [278,]      0.03646639 -1.3991123  0.4554588  1.0478732      0.4670024
## [279,]      0.83714151  0.1886444 -0.4059895  0.2025442     -0.2620122
## [280,]     -0.76420873 -1.3991123  0.4554588 -0.6427849     -0.9910267
## [281,]      0.03646639  0.9825227 -1.2674379  1.0478732      1.9250315
## [282,]      0.83714151 -1.3991123 -1.2674379  0.2025442      1.1960170
## [283,]     -1.56488384 -0.6052340 -0.4059895 -1.4881139     -0.9910267
## [284,]      0.03646639 -0.6052340  0.4554588  0.2025442     -0.2620122
## [285,]     -1.56488384 -1.3991123 -2.1288863 -2.3334430     -0.9910267
## [286,]      0.03646639  0.1886444  1.3169072  1.0478732     -0.9910267
## [287,]      0.83714151  0.1886444  0.4554588  0.2025442     -0.9910267
## [288,]      0.03646639 -0.6052340  0.4554588  0.2025442     -0.2620122
## [289,]      0.03646639 -1.3991123 -1.2674379 -0.6427849     -0.2620122
## [290,]      0.03646639  0.9825227  0.4554588  0.2025442     -0.2620122
## [291,]     -0.76420873  0.9825227  0.4554588  0.2025442     -0.9910267
## [292,]      0.03646639  0.1886444 -0.4059895  1.0478732      1.1960170
## [293,]     -0.76420873  1.7764010  1.3169072  0.2025442     -0.9910267
## [294,]      0.83714151  0.9825227 -2.1288863  1.0478732      1.1960170
## [295,]      0.83714151 -0.6052340 -0.4059895  0.2025442     -0.9910267
## [296,]      0.03646639  0.1886444  0.4554588  1.0478732      0.4670024
```

```
##  [297,]      -1.56488384 -1.3991123  1.3169072 -0.6427849     -0.2620122
##  [298,]       0.03646639 -0.6052340 -1.2674379 -0.6427849     -0.2620122
##  [299,]      -0.76420873 -0.6052340  0.4554588 -0.6427849     -0.9910267
##  [300,]       0.03646639  0.9825227 -1.2674379  0.2025442     -0.9910267
##  [301,]       1.63781663 -0.6052340 -1.2674379  0.2025442      1.9250315
##  [302,]       1.63781663 -0.6052340 -2.1288863  1.0478732      1.9250315
##  [303,]      -0.76420873  1.7764010  1.3169072  1.0478732     -0.2620122
##  [304,]      -0.76420873  1.7764010  0.4554588  1.0478732      1.1960170
##  [305,]       0.83714151  0.9825227  0.4554588  0.2025442     -0.2620122
##  [306,]      -0.76420873 -0.6052340 -1.2674379  1.0478732     -0.2620122
##  [307,]       0.03646639  0.1886444 -0.4059895  0.2025442     -0.2620122
##  [308,]      -0.76420873  1.7764010 -1.2674379  1.0478732      1.1960170
##  [309,]       0.03646639 -0.6052340  0.4554588 -0.6427849     -0.9910267
##  [310,]       0.03646639  0.1886444 -0.4059895  0.2025442     -0.9910267
##  [311,]       0.03646639 -0.6052340  0.4554588  0.2025442     -0.2620122
##  [312,]       1.63781663  1.7764010  1.3169072  1.0478732     -0.2620122
##  [313,]      -0.76420873 -0.6052340 -0.4059895  0.2025442      0.4670024
##  [314,]       0.83714151  0.1886444  0.4554588 -1.4881139     -0.9910267
##  [315,]       0.83714151  1.7764010  1.3169072  1.0478732      1.9250315
##  [316,]       0.03646639  0.1886444  1.3169072 -1.4881139     -0.9910267
##  [317,]      -1.56488384  0.1886444 -0.4059895 -0.6427849     -0.9910267
##  [318,]      -0.76420873 -1.3991123 -0.4059895  1.0478732     -0.9910267
##  [319,]       0.03646639  0.1886444 -0.4059895 -2.3334430     -0.9910267
##  [320,]       0.83714151  1.7764010  1.3169072  0.2025442     -0.9910267
##  [321,]      -0.76420873 -0.6052340 -0.4059895  1.0478732      1.1960170
##  [322,]       0.03646639  0.9825227  0.4554588  1.0478732     -0.2620122
##  [323,]       0.83714151  0.1886444 -1.2674379  1.0478732      1.9250315
##  [324,]       1.63781663  0.9825227  1.3169072  0.2025442     -0.9910267
##  [325,]      -0.76420873 -0.6052340  1.3169072 -0.6427849     -0.2620122
##  [326,]       0.03646639  0.1886444  0.4554588  0.2025442      1.1960170
##  [327,]       0.03646639 -0.6052340  1.3169072  0.2025442     -0.2620122
##  [328,]       0.83714151  0.9825227  1.3169072 -0.6427849     -0.9910267
##  [329,]      -0.76420873 -1.3991123 -1.2674379  1.0478732      1.1960170
##  [330,]       0.03646639 -0.6052340  0.4554588  0.2025442     -0.9910267
##  [331,]       0.83714151  0.1886444 -0.4059895  1.0478732      0.4670024
##  [332,]       0.03646639  0.1886444 -1.2674379  1.0478732     -0.2620122
##  [333,]       0.03646639  1.7764010 -0.4059895 -1.4881139     -0.9910267
##  [334,]       0.03646639  0.9825227  1.3169072  0.2025442     -0.2620122
##  [335,]      -0.76420873  0.1886444 -1.2674379 -0.6427849     -0.2620122
##  [336,]       0.03646639  0.1886444  0.4554588  0.2025442     -0.2620122
##  [337,]       0.03646639 -0.6052340  1.3169072 -0.6427849     -0.9910267
##  [338,]       0.03646639 -0.6052340 -0.4059895 -0.6427849     -0.9910267
##  [339,]       0.83714151  0.1886444 -0.4059895  1.0478732     -0.2620122
##  [340,]       1.63781663  0.1886444 -1.2674379  1.0478732      1.9250315
##  [341,]       1.63781663  0.1886444 -1.2674379 -0.6427849     -0.9910267
##  [342,]      -1.56488384 -1.3991123 -1.2674379 -1.4881139     -0.2620122
##  [343,]      -0.76420873  0.9825227 -0.4059895 -0.6427849     -0.9910267
##  [344,]      -0.76420873  1.7764010  1.3169072  0.2025442     -0.2620122
##  [345,]      -1.56488384 -0.6052340  1.3169072 -0.6427849     -0.9910267
##  [346,]      -1.56488384 -0.6052340  0.4554588  0.2025442      0.4670024
```

```
## [347,]      -1.56488384 -1.3991123 -0.4059895 -0.6427849     -0.9910267
## [348,]      -0.76420873 -0.6052340  0.4554588  0.2025442      1.1960170
## [349,]       1.63781663  1.7764010  0.4554588 -1.4881139     -0.9910267
## [350,]      -0.76420873  0.1886444  1.3169072 -1.4881139     -0.9910267
## [351,]      -1.56488384 -1.3991123  0.4554588  0.2025442      0.4670024
## [352,]       1.63781663  0.1886444  1.3169072  1.0478732     -0.2620122
## [353,]      -0.76420873 -1.3991123 -1.2674379  1.0478732      1.9250315
## [354,]       0.03646639 -0.6052340  0.4554588 -1.4881139     -0.9910267
## [355,]       0.83714151  0.9825227  0.4554588  0.2025442     -0.2620122
## [356,]      -1.56488384 -0.6052340  0.4554588 -0.6427849     -0.9910267
## [357,]       0.83714151  0.9825227  1.3169072  1.0478732      0.4670024
## [358,]      -0.76420873 -0.6052340 -1.2674379  0.2025442      1.1960170
## [359,]      -0.76420873 -1.3991123 -0.4059895  1.0478732     -0.2620122
## [360,]       0.03646639 -0.6052340  1.3169072 -1.4881139     -0.9910267
## [361,]      -1.56488384  0.1886444  1.3169072  1.0478732     -0.9910267
## [362,]       1.63781663 -0.6052340 -1.2674379  1.0478732      1.1960170
## [363,]       0.83714151  1.7764010 -0.4059895  1.0478732      1.1960170
## [364,]       0.83714151  1.7764010 -0.4059895  1.0478732      0.4670024
## [365,]       0.03646639 -0.6052340  0.4554588  1.0478732      1.1960170
## [366,]       0.83714151 -0.6052340 -2.1288863  1.0478732      1.1960170
## [367,]      -0.76420873 -0.6052340  0.4554588  0.2025442     -0.2620122
## [368,]       0.83714151 -1.3991123  1.3169072  1.0478732      1.1960170
## [369,]       0.03646639  0.1886444  1.3169072 -0.6427849     -0.9910267
## [370,]      -1.56488384 -1.3991123 -1.2674379 -1.4881139      1.1960170
## [371,]       0.83714151  0.1886444  1.3169072  1.0478732      0.4670024
## [372,]       1.63781663  1.7764010  1.3169072  1.0478732      0.4670024
## [373,]      -0.76420873 -0.6052340 -1.2674379  0.2025442     -0.2620122
## [374,]      -1.56488384 -1.3991123  1.3169072 -0.6427849     -0.9910267
## [375,]      -1.56488384 -0.6052340  1.3169072 -0.6427849     -0.9910267
## [376,]      -1.56488384  0.1886444  1.3169072  0.2025442     -0.2620122
## [377,]      -1.56488384 -1.3991123  0.4554588 -2.3334430     -0.9910267
## [378,]       0.83714151 -0.6052340 -0.4059895  1.0478732      1.1960170
## [379,]      -0.76420873  0.9825227  1.3169072  0.2025442     -0.9910267
## [380,]       0.83714151  1.7764010  0.4554588  0.2025442     -0.2620122
## [381,]      -0.76420873  0.1886444  0.4554588  0.2025442     -0.9910267
## [382,]       0.83714151  0.1886444 -1.2674379  1.0478732      0.4670024
## [383,]      -0.76420873 -0.6052340  1.3169072 -2.3334430     -0.9910267
## [384,]       0.03646639  0.9825227 -0.4059895  1.0478732      0.4670024
## [385,]      -0.76420873  0.1886444 -0.4059895  1.0478732      1.9250315
## [386,]       1.63781663  0.9825227  0.4554588  1.0478732      0.4670024
## [387,]      -0.76420873  0.1886444  0.4554588  1.0478732      0.4670024
## [388,]      -0.76420873  0.9825227  1.3169072 -1.4881139     -0.9910267
## [389,]       0.83714151  0.9825227  1.3169072  0.2025442     -0.9910267
## [390,]       0.03646639  0.1886444 -0.4059895 -1.4881139     -0.9910267
## [391,]       0.03646639 -0.6052340 -1.2674379 -1.4881139     -0.9910267
## [392,]       0.03646639  0.1886444 -0.4059895 -0.6427849     -0.2620122
## [393,]       0.03646639 -0.6052340  0.4554588 -0.6427849     -0.9910267
## [394,]      -1.56488384 -1.3991123 -2.1288863 -0.6427849      1.9250315
## [395,]      -0.76420873 -1.3991123 -0.4059895  0.2025442     -0.2620122
## [396,]      -1.56488384 -0.6052340 -0.4059895  0.2025442      1.9250315
```

```
##  [397,]      1.63781663   0.9825227  -0.4059895  -0.6427849        -0.9910267
##  [398,]     -0.76420873   0.1886444   0.4554588  -2.3334430        -0.9910267
##  [399,]     -0.76420873  -0.6052340  -1.2674379  -0.6427849         0.4670024
##  [400,]      1.63781663   1.7764010   0.4554588   0.2025442         0.4670024
##  [401,]      0.03646639  -1.3991123   0.4554588  -1.4881139        -0.9910267
##  [402,]     -1.56488384   0.1886444  -1.2674379   1.0478732         1.1960170
##  [403,]      1.63781663  -0.6052340   0.4554588   1.0478732         1.1960170
##  [404,]      0.03646639   0.9825227  -0.4059895   0.2025442        -0.2620122
##  [405,]      1.63781663  -0.6052340   0.4554588   1.0478732        -0.9910267
##  [406,]      0.03646639   0.1886444  -0.4059895  -1.4881139        -0.9910267
##  [407,]      0.83714151   1.7764010   1.3169072   0.2025442        -0.9910267
##  [408,]      0.03646639   0.1886444  -0.4059895  -0.6427849        -0.9910267
##  [409,]      1.63781663   1.7764010  -0.4059895  -2.3334430        -0.9910267
##  [410,]     -1.56488384   1.7764010   0.4554588   0.2025442        -0.9910267
##  [411,]      0.03646639  -1.3991123   0.4554588   1.0478732        -0.9910267
##  [412,]      0.03646639   0.9825227   1.3169072   1.0478732        -0.9910267
##  [413,]     -1.56488384  -1.3991123  -0.4059895   1.0478732         1.9250315
##  [414,]     -0.76420873  -0.6052340   0.4554588   0.2025442         1.1960170
##  [415,]      1.63781663   0.1886444   1.3169072  -0.6427849        -0.2620122
##  [416,]     -1.56488384  -1.3991123   1.3169072   1.0478732        -0.9910267
##  [417,]      0.83714151  -0.6052340   0.4554588  -0.6427849        -0.2620122
##  [418,]     -0.76420873  -0.6052340  -2.1288863  -1.4881139         1.1960170
##  [419,]     -0.76420873   0.1886444   1.3169072  -2.3334430        -0.9910267
##  [420,]      1.63781663   1.7764010   1.3169072   1.0478732        -0.9910267
##  [421,]      0.03646639  -1.3991123  -1.2674379   1.0478732         0.4670024
##  [422,]      1.63781663   1.7764010   1.3169072   0.2025442        -0.9910267
##  [423,]     -1.56488384   0.9825227   1.3169072  -2.3334430        -0.9910267
##  [424,]      0.03646639   0.1886444   1.3169072   0.2025442         0.4670024
##  [425,]     -0.76420873  -0.6052340  -0.4059895  -1.4881139        -0.9910267
##  [426,]     -0.76420873   0.1886444   0.4554588   1.0478732         0.4670024
##  [427,]     -1.56488384  -1.3991123  -1.2674379   1.0478732         1.1960170
##  [428,]      1.63781663  -1.3991123  -1.2674379  -0.6427849        -0.9910267
##  [429,]      0.83714151   1.7764010   1.3169072  -0.6427849        -0.2620122
##  [430,]      0.03646639  -0.6052340  -1.2674379   1.0478732         1.1960170
##  [431,]      0.83714151  -0.6052340   0.4554588   0.2025442        -0.2620122
##  [432,]     -0.76420873   0.1886444  -1.2674379  -1.4881139        -0.9910267
##  [433,]      0.03646639  -1.3991123  -2.1288863   1.0478732         1.1960170
##  [434,]     -0.76420873   0.9825227   1.3169072   0.2025442         0.4670024
##  [435,]     -0.76420873   0.1886444   1.3169072  -0.6427849        -0.9910267
##  [436,]     -1.56488384  -0.6052340  -0.4059895   1.0478732         1.9250315
##  [437,]     -0.76420873  -1.3991123   0.4554588   0.2025442        -0.2620122
##  [438,]     -1.56488384  -0.6052340  -0.4059895  -0.6427849        -0.9910267
##  [439,]     -0.76420873   0.1886444   0.4554588   1.0478732         1.1960170
##  [440,]     -1.56488384  -1.3991123   0.4554588  -1.4881139        -0.9910267
##  [441,]      0.83714151   0.1886444   0.4554588   0.2025442        -0.9910267
##  [442,]     -0.76420873  -0.6052340   1.3169072   0.2025442        -0.9910267
##  [443,]      0.03646639   0.1886444   1.3169072   0.2025442        -0.9910267
##  [444,]      0.83714151   0.1886444  -0.4059895  -0.6427849        -0.9910267
##  [445,]     -0.76420873  -0.6052340  -1.2674379  -0.6427849         1.1960170
##  [446,]     -0.76420873   0.1886444   1.3169072  -0.6427849        -0.9910267
```

```
##   [447,]     -0.76420873 -1.3991123 -0.4059895 -0.6427849     -0.9910267
##   [448,]      0.03646639  0.9825227 -2.1288863 -2.3334430     -0.9910267
##   [449,]     -0.76420873 -0.6052340  0.4554588  0.2025442     -0.9910267
##   [450,]     -0.76420873  1.7764010 -0.4059895  0.2025442     -0.2620122
##   [451,]      1.63781663  0.1886444  1.3169072 -0.6427849     -0.9910267
##   [452,]      0.03646639 -1.3991123  0.4554588  0.2025442     -0.9910267
##   [453,]     -1.56488384 -1.3991123  1.3169072 -0.6427849      0.4670024
##   [454,]     -1.56488384  1.7764010 -0.4059895  0.2025442     -0.2620122
##   [455,]     -0.76420873  0.1886444  0.4554588  1.0478732      0.4670024
##   [456,]     -0.76420873  0.1886444  1.3169072  1.0478732     -0.2620122
##   [457,]     -1.56488384 -1.3991123 -0.4059895 -1.4881139     -0.9910267
##   [458,]     -0.76420873 -1.3991123  0.4554588  1.0478732     -0.2620122
##   [459,]      1.63781663  1.7764010  1.3169072 -2.3334430     -0.9910267
##   [460,]      0.03646639  0.1886444 -1.2674379 -0.6427849     -0.2620122
##   [461,]     -1.56488384 -1.3991123 -1.2674379  0.2025442     -0.2620122
##   [462,]      0.03646639  0.1886444 -0.4059895 -0.6427849     -0.9910267
##   [463,]      0.03646639 -1.3991123 -0.4059895  1.0478732     -0.9910267
##   [464,]      0.03646639  0.1886444  1.3169072 -0.6427849     -0.9910267
##   [465,]      0.03646639 -0.6052340 -0.4059895  0.2025442     -0.9910267
##   [466,]      0.03646639  0.9825227 -0.4059895 -2.3334430     -0.9910267
##   [467,]      0.03646639  0.1886444  0.4554588 -0.6427849     -0.9910267
##   [468,]      0.03646639 -0.6052340 -0.4059895 -1.4881139     -0.2620122
##   [469,]      0.83714151 -0.6052340  0.4554588  1.0478732     -0.2620122
##   [470,]     -1.56488384 -1.3991123  0.4554588 -0.6427849     -0.9910267
##   [471,]     -0.76420873  0.1886444  1.3169072 -1.4881139     -0.9910267
##   [472,]     -0.76420873 -0.6052340 -0.4059895  1.0478732      1.1960170
##   [473,]      0.03646639 -0.6052340  0.4554588 -0.6427849     -0.9910267
##   [474,]     -1.56488384 -1.3991123 -1.2674379  0.2025442      1.1960170
##   [475,]      0.03646639 -1.3991123  1.3169072 -0.6427849     -0.9910267
##   [476,]      0.83714151  1.7764010 -0.4059895  1.0478732      1.1960170
##   [477,]      0.83714151  0.1886444  0.4554588  1.0478732      1.1960170
##   [478,]     -0.76420873  0.9825227 -1.2674379  1.0478732      0.4670024
##   [479,]     -0.76420873  0.1886444  0.4554588  0.2025442     -0.2620122
##   [480,]      0.03646639  0.1886444 -0.4059895  0.2025442      0.4670024
##   [481,]      0.03646639  0.9825227  1.3169072  0.2025442     -0.2620122
##   [482,]      1.63781663 -1.3991123 -2.1288863 -1.4881139      1.1960170
##   [483,]     -1.56488384 -1.3991123 -0.4059895  0.2025442     -0.2620122
##   [484,]      1.63781663  0.1886444  0.4554588  1.0478732      0.4670024
##   [485,]     -0.76420873 -0.6052340  0.4554588  0.2025442      0.4670024
##   [486,]     -0.76420873 -1.3991123  0.4554588  1.0478732     -0.9910267
##   [487,]     -0.76420873 -1.3991123  0.4554588 -1.4881139     -0.9910267
##   [488,]     -1.56488384 -1.3991123 -2.1288863 -2.3334430     -0.2620122
##   [489,]      1.63781663  0.9825227 -0.4059895  1.0478732      0.4670024
##   [490,]     -1.56488384 -1.3991123 -1.2674379  1.0478732     -0.9910267
##   [491,]     -0.76420873  0.1886444 -0.4059895 -1.4881139     -0.9910267
##   [492,]     -0.76420873 -0.6052340  0.4554588  0.2025442     -0.2620122
##   [493,]      0.83714151  0.9825227 -1.2674379  1.0478732     -0.2620122
##   [494,]     -0.76420873 -1.3991123  1.3169072 -0.6427849     -0.9910267
##   [495,]     -0.76420873  0.9825227 -1.2674379  1.0478732     -0.2620122
##   [496,]     -0.76420873 -0.6052340 -0.4059895  1.0478732     -0.2620122
```

```
## [497,]     1.63781663  0.9825227 -0.4059895 -0.6427849      -0.9910267
## [498,]     0.83714151  0.9825227  1.3169072  1.0478732      -0.2620122
## [499,]     0.03646639 -0.6052340 -1.2674379  0.2025442      -0.9910267
## [500,]     0.03646639 -0.6052340  0.4554588  0.2025442      -0.2620122
## [501,]     0.83714151 -0.6052340 -1.2674379  0.2025442      -0.2620122
## [502,]     0.83714151 -0.6052340  0.4554588  0.2025442      -0.2620122
## [503,]     0.83714151 -0.6052340 -1.2674379  1.0478732       0.4670024
## [504,]     1.63781663  1.7764010  0.4554588  0.2025442      -0.9910267
## [505,]    -0.76420873 -0.6052340  1.3169072 -2.3334430      -0.9910267
## [506,]    -0.76420873 -0.6052340 -0.4059895  1.0478732       0.4670024
## [507,]    -1.56488384 -1.3991123 -1.2674379 -1.4881139       0.4670024
## [508,]     0.03646639  0.9825227 -1.2674379 -1.4881139      -0.9910267
## [509,]     0.83714151 -1.3991123 -0.4059895  1.0478732      -0.2620122
## [510,]     0.03646639  0.9825227  0.4554588 -2.3334430      -0.9910267
## [511,]     0.83714151  0.9825227  0.4554588  0.2025442       0.4670024
## [512,]     0.03646639 -0.6052340 -0.4059895 -0.6427849      -0.9910267
## [513,]    -0.76420873 -1.3991123 -2.1288863 -2.3334430      -0.9910267
## [514,]    -0.76420873  0.1886444 -0.4059895  0.2025442       1.9250315
## [515,]    -0.76420873 -0.6052340 -0.4059895  1.0478732      -0.9910267
## [516,]     0.03646639  0.9825227  0.4554588  1.0478732       1.9250315
## [517,]    -0.76420873  0.1886444  1.3169072  0.2025442       1.1960170
## [518,]     0.83714151  0.9825227  0.4554588  0.2025442       0.4670024
## [519,]     0.03646639 -0.6052340  1.3169072  0.2025442      -0.9910267
## [520,]    -0.76420873 -1.3991123 -2.1288863 -1.4881139      -0.2620122
## [521,]    -0.76420873 -0.6052340  0.4554588 -1.4881139      -0.9910267
## [522,]     1.63781663  0.9825227  1.3169072 -0.6427849      -0.2620122
## [523,]     0.03646639  0.1886444  0.4554588 -0.6427849      -0.9910267
## [524,]    -0.76420873 -1.3991123 -2.1288863 -0.6427849      -0.9910267
## [525,]     0.83714151 -0.6052340 -1.2674379  1.0478732       1.9250315
## [526,]     0.03646639  0.1886444 -0.4059895  1.0478732      -0.9910267
## [527,]    -0.76420873 -0.6052340  0.4554588  0.2025442       1.1960170
## [528,]    -0.76420873  0.1886444  0.4554588  0.2025442      -0.9910267
## [529,]     1.63781663  0.1886444  1.3169072  1.0478732      -0.9910267
## [530,]    -0.76420873 -1.3991123 -0.4059895  1.0478732       0.4670024
## [531,]     0.03646639  0.1886444  1.3169072 -1.4881139      -0.9910267
## [532,]     1.63781663 -0.6052340 -1.2674379  1.0478732       1.1960170
## [533,]     0.03646639  0.1886444  0.4554588  0.2025442      -0.2620122
## [534,]    -0.76420873 -0.6052340 -0.4059895  1.0478732      -0.2620122
## [535,]     0.03646639  0.1886444  0.4554588 -0.6427849      -0.9910267
## [536,]     0.83714151  0.9825227  1.3169072  1.0478732       0.4670024
## [537,]    -1.56488384 -0.6052340  0.4554588 -1.4881139      -0.2620122
## [538,]     0.83714151  0.1886444 -0.4059895  0.2025442      -0.9910267
## [539,]     0.03646639  0.1886444  0.4554588  0.2025442       1.1960170
## [540,]     1.63781663 -1.3991123  0.4554588  1.0478732       1.1960170
## [541,]     1.63781663  1.7764010  1.3169072  1.0478732      -0.9910267
## [542,]    -0.76420873  0.1886444 -0.4059895 -1.4881139      -0.2620122
## [543,]    -0.76420873 -0.6052340  0.4554588  0.2025442       0.4670024
## [544,]     0.83714151 -0.6052340  0.4554588  0.2025442       1.1960170
## [545,]     0.83714151  1.7764010 -1.2674379  1.0478732       1.1960170
## [546,]     0.03646639 -1.3991123 -0.4059895 -0.6427849       0.4670024
```

```
## [547,]      1.63781663  1.7764010  0.4554588  1.0478732     0.4670024
## [548,]      1.63781663  0.1886444 -2.1288863  0.2025442     1.9250315
## [549,]      0.03646639 -1.3991123 -1.2674379  1.0478732    -0.9910267
## [550,]     -0.76420873  0.1886444  1.3169072 -0.6427849    -0.9910267
## [551,]      0.03646639  0.1886444 -0.4059895  1.0478732    -0.2620122
## [552,]     -0.76420873 -0.6052340  0.4554588 -1.4881139    -0.9910267
## [553,]      0.03646639  0.1886444 -1.2674379  0.2025442    -0.2620122
## [554,]     -0.76420873 -0.6052340 -0.4059895 -1.4881139    -0.9910267
## [555,]      0.03646639  0.9825227 -0.4059895 -0.6427849    -0.2620122
## [556,]     -1.56488384 -0.6052340  1.3169072 -2.3334430    -0.9910267
## [557,]      0.03646639  0.1886444  0.4554588 -2.3334430    -0.9910267
## [558,]     -0.76420873  0.1886444  0.4554588  0.2025442    -0.2620122
## [559,]     -0.76420873  0.9825227  0.4554588 -1.4881139    -0.9910267
## [560,]     -1.56488384 -0.6052340 -1.2674379  0.2025442    -0.2620122
## [561,]      0.83714151  0.1886444  0.4554588 -0.6427849     1.1960170
## [562,]      0.83714151 -0.6052340  0.4554588  0.2025442    -0.9910267
## [563,]     -0.76420873 -0.6052340  0.4554588 -0.6427849     0.4670024
## [564,]      0.03646639 -1.3991123  0.4554588  1.0478732    -0.2620122
## [565,]     -1.56488384 -1.3991123 -2.1288863  1.0478732    -0.9910267
## [566,]     -0.76420873  0.1886444  0.4554588 -1.4881139    -0.9910267
## [567,]     -0.76420873  0.1886444 -1.2674379 -1.4881139    -0.9910267
## [568,]     -1.56488384 -1.3991123 -0.4059895 -0.6427849    -0.2620122
## [569,]     -0.76420873 -1.3991123  1.3169072 -0.6427849    -0.9910267
## [570,]      0.03646639 -0.6052340 -0.4059895 -0.6427849    -0.2620122
## [571,]     -0.76420873 -1.3991123 -0.4059895 -0.6427849    -0.9910267
## [572,]     -0.76420873  0.1886444  0.4554588 -2.3334430     0.4670024
## [573,]      0.83714151  0.1886444 -0.4059895 -0.6427849     0.4670024
## [574,]     -1.56488384 -1.3991123 -1.2674379  0.2025442     0.4670024
## [575,]     -1.56488384  0.1886444 -0.4059895 -0.6427849    -0.9910267
## [576,]      0.83714151  0.9825227 -1.2674379  0.2025442    -0.2620122
## [577,]      0.03646639  1.7764010 -0.4059895 -0.6427849    -0.9910267
## [578,]     -0.76420873  1.7764010 -0.4059895 -0.6427849    -0.9910267
## [579,]     -0.76420873  0.9825227  1.3169072 -1.4881139    -0.9910267
## [580,]      1.63781663 -0.6052340  1.3169072  1.0478732     1.1960170
## [581,]     -1.56488384 -1.3991123 -2.1288863 -2.3334430    -0.9910267
## [582,]     -1.56488384  0.9825227 -0.4059895  0.2025442     0.4670024
## [583,]      0.03646639  0.1886444 -1.2674379 -0.6427849    -0.2620122
## [584,]      0.03646639  0.9825227  1.3169072  0.2025442    -0.9910267
## [585,]     -0.76420873 -0.6052340  1.3169072 -0.6427849    -0.9910267
## [586,]      0.03646639 -0.6052340 -0.4059895  0.2025442     0.4670024
## [587,]      0.83714151  0.1886444 -1.2674379 -0.6427849     1.1960170
## [588,]     -1.56488384 -1.3991123 -1.2674379  0.2025442     1.1960170
## [589,]     -0.76420873  1.7764010 -1.2674379 -2.3334430    -0.9910267
## [590,]      0.03646639  0.9825227 -2.1288863  1.0478732     1.9250315
## [591,]      0.03646639  0.9825227 -0.4059895  1.0478732     1.1960170
## [592,]     -1.56488384  1.7764010  0.4554588 -2.3334430    -0.9910267
## [593,]      0.03646639  0.1886444  0.4554588 -2.3334430    -0.9910267
## [594,]      0.83714151  0.1886444 -1.2674379  1.0478732     0.4670024
## [595,]      1.63781663 -1.3991123 -0.4059895  0.2025442    -0.9910267
## [596,]     -1.56488384  0.1886444 -2.1288863  0.2025442     1.1960170
```

```
## [597,]      -0.76420873 -1.3991123  0.4554588 -0.6427849      -0.9910267
## [598,]      -0.76420873 -0.6052340  1.3169072  1.0478732      -0.2620122
## [599,]      -0.76420873 -1.3991123 -0.4059895  0.2025442      -0.2620122
## [600,]      -0.76420873 -0.6052340  1.3169072  0.2025442       0.4670024
## [601,]       1.63781663  0.1886444  0.4554588  0.2025442       1.1960170
## [602,]       0.83714151  0.1886444 -1.2674379  0.2025442      -0.9910267
## [603,]      -0.76420873 -0.6052340  1.3169072  0.2025442       1.1960170
## [604,]       0.03646639  0.9825227  0.4554588  0.2025442      -0.2620122
## [605,]      -1.56488384  0.1886444  0.4554588  0.2025442      -0.9910267
## [606,]      -0.76420873  0.1886444 -0.4059895  1.0478732       0.4670024
## [607,]      -0.76420873 -0.6052340  1.3169072  0.2025442      -0.9910267
## [608,]       0.03646639  0.1886444  0.4554588 -0.6427849       0.4670024
## [609,]       0.83714151 -0.6052340  1.3169072 -2.3334430      -0.9910267
## [610,]       1.63781663 -0.6052340 -0.4059895 -0.6427849      -0.2620122
## [611,]       0.03646639 -0.6052340  0.4554588  1.0478732       1.1960170
## [612,]      -1.56488384 -1.3991123  1.3169072 -0.6427849      -0.9910267
## [613,]       0.03646639 -0.6052340 -0.4059895  0.2025442       0.4670024
## [614,]      -0.76420873 -1.3991123 -0.4059895  0.2025442       0.4670024
## [615,]       0.03646639 -0.6052340  0.4554588  0.2025442      -0.9910267
## [616,]       1.63781663  0.9825227  0.4554588  1.0478732      -0.2620122
## [617,]       0.83714151 -1.3991123 -0.4059895  1.0478732       0.4670024
## [618,]       1.63781663  1.7764010 -0.4059895  0.2025442      -0.9910267
## [619,]       1.63781663  1.7764010  1.3169072  1.0478732      -0.9910267
## [620,]       1.63781663  0.9825227 -0.4059895 -0.6427849      -0.2620122
## [621,]       1.63781663 -0.6052340  0.4554588  0.2025442      -0.9910267
## [622,]      -0.76420873 -0.6052340 -2.1288863 -0.6427849       1.1960170
## [623,]       1.63781663  1.7764010  1.3169072  0.2025442      -0.2620122
## [624,]      -1.56488384 -1.3991123 -2.1288863 -1.4881139      -0.2620122
## [625,]      -1.56488384 -0.6052340  1.3169072  1.0478732      -0.2620122
## [626,]       0.03646639  0.1886444  1.3169072 -1.4881139      -0.9910267
## [627,]      -1.56488384 -1.3991123 -0.4059895 -0.6427849      -0.2620122
## [628,]      -1.56488384  0.9825227 -1.2674379 -2.3334430      -0.9910267
## [629,]      -0.76420873 -0.6052340 -0.4059895  1.0478732       1.9250315
## [630,]      -0.76420873 -0.6052340  0.4554588  0.2025442      -0.9910267
## [631,]      -0.76420873  0.1886444  1.3169072  0.2025442       0.4670024
## [632,]       0.83714151  1.7764010  0.4554588  1.0478732       0.4670024
## [633,]      -0.76420873 -0.6052340  0.4554588 -0.6427849       0.4670024
## [634,]      -1.56488384 -1.3991123  0.4554588 -0.6427849      -0.9910267
## [635,]       0.83714151  0.9825227  0.4554588 -0.6427849      -0.2620122
## [636,]       0.03646639  0.9825227  0.4554588  0.2025442      -0.9910267
## [637,]       0.03646639  0.1886444  0.4554588  0.2025442      -0.9910267
## [638,]       0.83714151  0.1886444  1.3169072  1.0478732      -0.2620122
## [639,]      -0.76420873  1.7764010  1.3169072  1.0478732       0.4670024
## [640,]      -1.56488384 -1.3991123 -2.1288863  1.0478732       1.9250315
## [641,]       0.83714151  0.1886444  1.3169072  1.0478732       1.1960170
## [642,]       0.03646639  0.1886444  0.4554588 -0.6427849      -0.2620122
## [643,]       1.63781663  1.7764010 -0.4059895 -0.6427849      -0.2620122
## [644,]       0.03646639  0.1886444  0.4554588  1.0478732      -0.9910267
## [645,]      -0.76420873 -0.6052340  1.3169072  0.2025442      -0.2620122
## [646,]       0.83714151  0.9825227 -0.4059895 -1.4881139      -0.9910267
```

```
## [647,]     0.03646639  0.9825227  0.4554588  0.2025442     -0.9910267
## [648,]     1.63781663  0.9825227  1.3169072 -0.6427849     -0.9910267
## [649,]    -0.76420873  1.7764010  0.4554588 -0.6427849     -0.9910267
## [650,]    -0.76420873 -0.6052340 -0.4059895 -0.6427849      0.4670024
## [651,]    -1.56488384 -0.6052340  0.4554588 -1.4881139     -0.9910267
## [652,]     0.03646639 -0.6052340 -0.4059895 -0.6427849     -0.2620122
## [653,]     0.03646639 -1.3991123  1.3169072  0.2025442     -0.9910267
## [654,]     0.03646639 -0.6052340 -0.4059895  1.0478732      1.9250315
## [655,]     0.03646639 -0.6052340  1.3169072 -0.6427849     -0.2620122
## [656,]    -0.76420873 -0.6052340 -0.4059895  1.0478732      0.4670024
## [657,]     0.83714151 -0.6052340 -1.2674379  1.0478732      0.4670024
## [658,]    -1.56488384  0.1886444  1.3169072 -0.6427849     -0.9910267
## [659,]     0.03646639 -0.6052340 -1.2674379 -1.4881139     -0.2620122
## [660,]     0.03646639  0.1886444  0.4554588  1.0478732      1.1960170
## [661,]     0.03646639 -1.3991123  0.4554588  1.0478732      0.4670024
## [662,]    -0.76420873  0.1886444 -0.4059895 -2.3334430     -0.9910267
## [663,]    -1.56488384  0.1886444  0.4554588  0.2025442     -0.9910267
## [664,]     0.83714151  0.1886444  0.4554588 -0.6427849      1.1960170
## [665,]     0.03646639  0.9825227 -2.1288863 -1.4881139     -0.9910267
## [666,]     0.03646639 -1.3991123 -1.2674379  1.0478732      1.9250315
## [667,]    -0.76420873 -0.6052340 -1.2674379  1.0478732      0.4670024
## [668,]     1.63781663  0.1886444 -2.1288863 -1.4881139     -0.9910267
## [669,]     0.83714151 -0.6052340 -1.2674379  1.0478732      1.9250315
## [670,]     0.03646639  0.9825227 -0.4059895 -0.6427849      0.4670024
## [671,]    -0.76420873  0.1886444 -0.4059895 -0.6427849      0.4670024
## [672,]    -0.76420873  0.1886444 -0.4059895 -0.6427849     -0.9910267
## [673,]     1.63781663  1.7764010  0.4554588  0.2025442     -0.2620122
## [674,]     0.03646639  0.9825227  1.3169072  0.2025442     -0.2620122
## [675,]     0.03646639 -1.3991123 -0.4059895  1.0478732      0.4670024
## [676,]     0.03646639  1.7764010  1.3169072  0.2025442     -0.2620122
## [677,]    -0.76420873 -0.6052340 -2.1288863 -1.4881139     -0.2620122
## [678,]     0.03646639  0.1886444  0.4554588 -0.6427849     -0.2620122
## [679,]     0.03646639  0.1886444 -1.2674379  1.0478732      1.9250315
## [680,]    -0.76420873 -0.6052340 -2.1288863  1.0478732     -0.2620122
## [681,]    -0.76420873  0.9825227  1.3169072  1.0478732     -0.2620122
## [682,]     0.83714151  0.9825227 -0.4059895  1.0478732      1.9250315
## [683,]     0.03646639  0.1886444  0.4554588  0.2025442      0.4670024
## [684,]     0.03646639  0.1886444  1.3169072  1.0478732      1.1960170
## [685,]    -0.76420873  0.1886444  1.3169072  0.2025442     -0.9910267
## [686,]     0.03646639  0.9825227  0.4554588 -0.6427849     -0.2620122
## [687,]     0.83714151  0.1886444  0.4554588  0.2025442      0.4670024
## [688,]     0.03646639  0.1886444 -0.4059895  1.0478732      1.1960170
## [689,]     0.03646639  0.9825227  0.4554588  1.0478732     -0.9910267
## [690,]    -0.76420873 -1.3991123  0.4554588  0.2025442     -0.9910267
## [691,]     0.03646639 -0.6052340 -1.2674379  0.2025442     -0.9910267
## [692,]    -0.76420873  0.1886444 -0.4059895  0.2025442      1.1960170
## [693,]     0.03646639  0.1886444  0.4554588  1.0478732      1.9250315
## [694,]     0.03646639 -0.6052340  0.4554588 -0.6427849     -0.2620122
## [695,]     1.63781663 -0.6052340 -0.4059895  1.0478732      1.1960170
## [696,]     0.03646639  1.7764010  1.3169072  0.2025442     -0.2620122
```

```
## [697,]      -1.56488384  1.7764010  1.3169072 -0.6427849      -0.9910267
## [698,]       0.03646639  0.1886444  0.4554588  1.0478732       0.4670024
## [699,]       0.03646639  0.1886444  1.3169072 -0.6427849      -0.9910267
## [700,]      -0.76420873  0.1886444  1.3169072 -0.6427849      -0.9910267
## [701,]      -1.56488384 -1.3991123 -2.1288863  0.2025442      -0.2620122
## [702,]       0.83714151 -0.6052340 -1.2674379 -1.4881139      -0.9910267
## [703,]       1.63781663 -0.6052340  0.4554588  1.0478732       1.9250315
## [704,]       0.03646639 -0.6052340 -0.4059895  0.2025442       1.1960170
## [705,]      -0.76420873  0.9825227  1.3169072  1.0478732      -0.9910267
## [706,]       0.83714151  0.1886444 -0.4059895  1.0478732       0.4670024
## [707,]       0.03646639  0.9825227  1.3169072  0.2025442      -0.2620122
## [708,]       0.03646639  0.9825227 -0.4059895  0.2025442       1.9250315
## [709,]      -0.76420873  0.1886444  1.3169072 -0.6427849      -0.9910267
## [710,]      -0.76420873 -0.6052340 -0.4059895  1.0478732       1.9250315
## [711,]      -0.76420873 -0.6052340  1.3169072  0.2025442      -0.9910267
## [712,]      -0.76420873 -0.6052340  0.4554588  0.2025442      -0.2620122
## [713,]      -0.76420873  0.9825227  0.4554588 -0.6427849      -0.9910267
## [714,]       0.03646639  0.1886444 -0.4059895  0.2025442      -0.9910267
## [715,]      -1.56488384  0.1886444 -0.4059895  1.0478732      -0.9910267
## [716,]       0.03646639  0.9825227 -1.2674379  1.0478732       1.9250315
## [717,]       1.63781663  0.1886444 -1.2674379 -0.6427849      -0.2620122
## [718,]       0.83714151  0.1886444  0.4554588  0.2025442      -0.2620122
## [719,]       0.83714151  0.1886444  1.3169072  1.0478732       1.1960170
## [720,]       0.03646639 -1.3991123  1.3169072 -0.6427849       0.4670024
## [721,]       1.63781663  0.1886444 -0.4059895 -1.4881139       1.1960170
## [722,]       1.63781663  0.1886444  0.4554588  0.2025442      -0.9910267
## [723,]       1.63781663  0.1886444  1.3169072  1.0478732      -0.2620122
## [724,]       0.03646639  0.9825227  1.3169072  0.2025442      -0.9910267
## [725,]      -0.76420873  1.7764010  1.3169072 -0.6427849      -0.2620122
## [726,]       0.83714151 -1.3991123  0.4554588 -1.4881139      -0.9910267
## [727,]      -1.56488384 -1.3991123  1.3169072 -1.4881139      -0.9910267
## [728,]      -1.56488384 -1.3991123  1.3169072  1.0478732       0.4670024
## [729,]      -0.76420873  1.7764010  1.3169072 -1.4881139      -0.9910267
## [730,]       1.63781663  0.9825227  0.4554588  1.0478732       1.1960170
## [731,]       0.03646639  0.1886444 -2.1288863  1.0478732       1.9250315
## [732,]       0.03646639 -0.6052340  0.4554588  0.2025442      -0.9910267
## [733,]       0.83714151 -0.6052340 -0.4059895 -0.6427849      -0.2620122
## [734,]       1.63781663  0.9825227 -0.4059895  0.2025442      -0.2620122
## [735,]       1.63781663  1.7764010 -0.4059895 -1.4881139      -0.2620122
## [736,]       0.83714151 -0.6052340 -2.1288863 -2.3334430      -0.9910267
## [737,]       1.63781663  1.7764010  0.4554588  1.0478732       1.1960170
## [738,]       0.03646639  0.9825227 -0.4059895  0.2025442      -0.2620122
## [739,]      -1.56488384 -1.3991123 -0.4059895  1.0478732       1.1960170
## [740,]       0.83714151  0.9825227  0.4554588  1.0478732       1.9250315
## [741,]      -0.76420873 -0.6052340  0.4554588  0.2025442      -0.2620122
## [742,]       1.63781663  0.1886444 -0.4059895 -0.6427849      -0.9910267
## [743,]       1.63781663  0.1886444 -1.2674379  0.2025442      -0.2620122
## [744,]      -0.76420873 -0.6052340 -1.2674379  0.2025442       1.1960170
## [745,]       1.63781663  0.9825227 -1.2674379  1.0478732       1.1960170
## [746,]      -0.76420873 -0.6052340 -0.4059895  0.2025442      -0.2620122
```

```
##  [747,]      0.03646639  0.1886444  0.4554588  1.0478732      -0.2620122
##  [748,]      1.63781663  0.9825227  0.4554588 -1.4881139       1.1960170
##  [749,]      1.63781663  0.9825227 -0.4059895  0.2025442       1.1960170
##  [750,]     -1.56488384 -1.3991123 -2.1288863  1.0478732       0.4670024
##  [751,]      1.63781663  0.1886444 -0.4059895 -0.6427849      -0.9910267
##  [752,]      1.63781663  1.7764010  1.3169072  1.0478732       0.4670024
##  [753,]      0.03646639  0.9825227  1.3169072 -0.6427849      -0.9910267
##  [754,]      0.83714151  0.1886444 -0.4059895  0.2025442      -0.2620122
##  [755,]     -0.76420873 -1.3991123  0.4554588 -0.6427849      -0.2620122
##  [756,]      0.03646639  0.1886444 -0.4059895  1.0478732       1.9250315
##  [757,]      0.03646639  0.1886444  0.4554588  1.0478732       1.9250315
##  [758,]      1.63781663  1.7764010 -1.2674379 -0.6427849      -0.9910267
##  [759,]     -0.76420873 -1.3991123 -0.4059895 -2.3334430      -0.9910267
##  [760,]      1.63781663  1.7764010  1.3169072  0.2025442       0.4670024
##  [761,]     -0.76420873 -0.6052340  1.3169072  1.0478732       1.1960170
##  [762,]     -1.56488384 -1.3991123  0.4554588 -2.3334430      -0.9910267
##  [763,]     -1.56488384 -1.3991123 -0.4059895 -0.6427849      -0.9910267
##  [764,]      0.03646639  0.1886444 -0.4059895  1.0478732       0.4670024
##  [765,]      0.03646639  0.9825227  1.3169072 -0.6427849      -0.9910267
##  [766,]      0.83714151  0.1886444  0.4554588  1.0478732       1.9250315
##  [767,]      0.83714151  0.9825227  0.4554588  0.2025442       1.9250315
##  [768,]      0.03646639  0.1886444 -1.2674379 -1.4881139       1.9250315
##  [769,]      0.03646639 -1.3991123  0.4554588 -0.6427849      -0.2620122
##  [770,]      0.03646639  0.1886444 -0.4059895 -0.6427849       0.4670024
##  [771,]     -1.56488384 -1.3991123 -2.1288863 -2.3334430      -0.9910267
##  [772,]      0.83714151 -0.6052340 -0.4059895  1.0478732       1.9250315
##  [773,]      0.83714151  0.1886444  0.4554588 -1.4881139      -0.9910267
##  [774,]     -0.76420873 -0.6052340 -0.4059895  1.0478732       1.9250315
##  [775,]      0.83714151  0.1886444 -1.2674379 -1.4881139      -0.9910267
##  [776,]      0.83714151  0.1886444 -0.4059895  0.2025442      -0.9910267
##  [777,]      0.03646639  0.1886444  0.4554588  1.0478732      -0.9910267
##  [778,]      0.03646639 -0.6052340  1.3169072 -0.6427849      -0.9910267
##  [779,]     -1.56488384  0.1886444  1.3169072 -1.4881139      -0.9910267
##  [780,]      0.83714151  0.9825227 -0.4059895 -0.6427849      -0.2620122
##  [781,]     -0.76420873  0.1886444  0.4554588  0.2025442      -0.9910267
##  [782,]      0.03646639 -0.6052340 -0.4059895 -0.6427849      -0.9910267
##  [783,]      0.83714151  0.9825227 -0.4059895  1.0478732       1.9250315
##  [784,]      0.83714151  1.7764010  0.4554588  1.0478732       1.1960170
##  [785,]      0.83714151  0.9825227  0.4554588 -0.6427849      -0.9910267
##  [786,]      0.03646639  0.9825227  1.3169072 -1.4881139       0.4670024
##  [787,]      0.83714151  0.1886444  0.4554588  1.0478732       1.1960170
##  [788,]     -0.76420873  0.9825227  1.3169072 -1.4881139      -0.2620122
##  [789,]      0.03646639  0.1886444  0.4554588 -0.6427849      -0.2620122
##  [790,]      1.63781663  0.1886444  1.3169072  0.2025442      -0.9910267
##  [791,]      0.83714151 -1.3991123 -1.2674379  1.0478732       1.9250315
##  [792,]      0.03646639 -1.3991123 -0.4059895 -1.4881139      -0.9910267
##  [793,]      0.03646639 -1.3991123 -0.4059895  0.2025442       0.4670024
##  [794,]      0.03646639  0.1886444 -0.4059895 -1.4881139       1.1960170
##  [795,]     -1.56488384 -1.3991123  1.3169072 -1.4881139      -0.9910267
##  [796,]     -1.56488384  1.7764010 -2.1288863  1.0478732      -0.9910267
```

```
## [797,]     0.83714151   0.1886444   1.3169072  -2.3334430      1.1960170
## [798,]     0.03646639   0.9825227  -1.2674379  -1.4881139     -0.9910267
## [799,]     0.83714151   0.1886444   0.4554588   1.0478732      0.4670024
## [800,]     0.83714151   1.7764010  -1.2674379   0.2025442      1.9250315
## [801,]    -0.76420873   0.9825227   0.4554588  -0.6427849     -0.9910267
## [802,]    -1.56488384  -1.3991123   0.4554588   1.0478732      0.4670024
## [803,]    -0.76420873  -0.6052340   1.3169072   0.2025442      1.1960170
## [804,]    -0.76420873   0.9825227  -0.4059895   1.0478732      1.1960170
## [805,]     0.83714151   0.9825227   1.3169072   1.0478732      0.4670024
## [806,]     0.03646639   1.7764010   1.3169072   1.0478732      1.9250315
## [807,]    -1.56488384  -1.3991123  -2.1288863  -2.3334430     -0.9910267
## [808,]     1.63781663   1.7764010  -0.4059895  -1.4881139     -0.2620122
## [809,]     0.03646639  -0.6052340   1.3169072   1.0478732      0.4670024
## [810,]    -0.76420873  -1.3991123  -1.2674379  -1.4881139     -0.2620122
## [811,]     1.63781663   1.7764010  -2.1288863   1.0478732      1.9250315
## [812,]     0.83714151  -0.6052340  -0.4059895   1.0478732      1.1960170
## [813,]    -1.56488384  -1.3991123  -2.1288863  -2.3334430     -0.9910267
## [814,]    -1.56488384  -1.3991123  -1.2674379  -1.4881139      0.4670024
## [815,]     1.63781663   0.9825227   0.4554588  -0.6427849     -0.2620122
## [816,]     0.03646639  -1.3991123  -1.2674379   1.0478732      1.9250315
## [817,]     0.83714151   0.1886444   0.4554588   1.0478732      1.9250315
## [818,]    -1.56488384  -0.6052340   1.3169072   1.0478732     -0.2620122
## [819,]     0.83714151  -1.3991123   0.4554588   0.2025442      1.1960170
## [820,]    -0.76420873  -1.3991123   0.4554588  -1.4881139     -0.9910267
## [821,]     0.83714151   1.7764010  -0.4059895   1.0478732     -0.2620122
## [822,]     1.63781663   0.9825227   0.4554588   1.0478732      1.9250315
## [823,]    -0.76420873   0.1886444   1.3169072   0.2025442     -0.9910267
## [824,]     0.03646639  -1.3991123  -0.4059895  -1.4881139     -0.9910267
## [825,]     1.63781663  -1.3991123  -0.4059895   1.0478732      0.4670024
## [826,]     0.83714151  -0.6052340  -1.2674379   1.0478732      1.1960170
## [827,]     0.83714151   0.9825227   0.4554588   1.0478732      0.4670024
## [828,]     0.83714151   1.7764010   0.4554588   1.0478732      0.4670024
## [829,]    -1.56488384  -0.6052340   0.4554588   1.0478732      0.4670024
## [830,]     1.63781663   0.9825227  -0.4059895   1.0478732      1.9250315
## [831,]     0.03646639  -0.6052340   0.4554588  -0.6427849     -0.9910267
## [832,]     0.83714151   0.9825227   1.3169072   0.2025442      0.4670024
## [833,]     1.63781663   1.7764010  -1.2674379   1.0478732      0.4670024
## [834,]     0.83714151   0.1886444  -0.4059895   0.2025442     -0.9910267
## [835,]     0.83714151   0.9825227  -0.4059895   1.0478732      1.1960170
## [836,]    -0.76420873   0.1886444   1.3169072   0.2025442     -0.9910267
## [837,]    -0.76420873   0.1886444   0.4554588   1.0478732      1.9250315
## [838,]     1.63781663   0.1886444  -1.2674379   1.0478732      1.9250315
## [839,]    -1.56488384  -0.6052340   1.3169072   0.2025442     -0.9910267
## [840,]    -0.76420873   0.9825227   0.4554588  -0.6427849     -0.9910267
## [841,]    -1.56488384   0.9825227   1.3169072   1.0478732     -0.9910267
## [842,]    -0.76420873  -1.3991123   0.4554588   0.2025442      0.4670024
## [843,]     0.03646639   0.1886444   0.4554588   1.0478732     -0.9910267
## [844,]     0.03646639   0.1886444   0.4554588   0.2025442     -0.2620122
## [845,]     1.63781663   1.7764010  -1.2674379  -0.6427849     -0.2620122
## [846,]    -1.56488384   0.1886444   1.3169072  -2.3334430     -0.9910267
```

```
##  [847,]     0.03646639  0.1886444  0.4554588 -1.4881139     -0.9910267
##  [848,]     1.63781663  1.7764010  1.3169072  1.0478732     -0.2620122
##  [849,]     0.03646639 -1.3991123 -0.4059895  1.0478732      0.4670024
##  [850,]     1.63781663  0.1886444 -1.2674379 -1.4881139     -0.9910267
##  [851,]     0.03646639  0.9825227  0.4554588 -1.4881139     -0.9910267
##  [852,]    -0.76420873 -0.6052340 -1.2674379 -1.4881139     -0.9910267
##  [853,]    -0.76420873 -1.3991123 -1.2674379 -1.4881139     -0.9910267
##  [854,]     0.03646639  0.9825227 -0.4059895 -0.6427849     -0.9910267
##  [855,]    -1.56488384 -0.6052340 -0.4059895 -0.6427849     -0.9910267
##  [856,]     0.03646639 -0.6052340  1.3169072  0.2025442      0.4670024
##  [857,]     0.03646639  0.9825227  0.4554588  1.0478732      0.4670024
##  [858,]     0.03646639  1.7764010  0.4554588 -0.6427849     -0.9910267
##  [859,]     1.63781663  0.1886444 -1.2674379 -0.6427849      0.4670024
##  [860,]     0.03646639  0.1886444  0.4554588 -0.6427849     -0.2620122
##  [861,]     0.03646639  0.1886444 -0.4059895  0.2025442      1.1960170
##  [862,]     0.03646639 -1.3991123 -0.4059895  1.0478732     -0.9910267
##  [863,]     0.03646639 -0.6052340  1.3169072  0.2025442      0.4670024
##  [864,]     0.83714151  0.9825227 -0.4059895 -1.4881139     -0.9910267
##  [865,]     0.03646639  0.9825227 -0.4059895  1.0478732      1.1960170
##  [866,]     0.03646639  0.9825227 -0.4059895  0.2025442     -0.2620122
##  [867,]     0.83714151  0.9825227 -1.2674379  1.0478732      1.1960170
##  [868,]    -0.76420873  0.1886444  0.4554588 -0.6427849     -0.9910267
##  [869,]    -0.76420873  0.9825227  0.4554588  0.2025442      0.4670024
##  [870,]     1.63781663  0.9825227  0.4554588  1.0478732      0.4670024
##  [871,]    -0.76420873 -1.3991123  1.3169072 -0.6427849      0.4670024
##  [872,]     0.83714151  0.1886444 -0.4059895  1.0478732      1.1960170
##  [873,]     0.03646639  0.1886444 -0.4059895  1.0478732      0.4670024
##  [874,]     0.03646639  0.1886444 -0.4059895  0.2025442     -0.2620122
##  [875,]    -1.56488384 -0.6052340 -0.4059895 -1.4881139     -0.9910267
##  [876,]    -1.56488384  0.1886444 -0.4059895 -1.4881139     -0.9910267
##  [877,]     0.03646639 -1.3991123  0.4554588 -2.3334430     -0.9910267
##  [878,]     0.03646639 -1.3991123 -2.1288863  1.0478732      0.4670024
##  [879,]     0.83714151  1.7764010  0.4554588  0.2025442     -0.2620122
##  [880,]    -0.76420873 -1.3991123 -1.2674379  0.2025442      1.9250315
##  [881,]    -1.56488384 -0.6052340 -0.4059895 -1.4881139     -0.9910267
##  [882,]     1.63781663  1.7764010  0.4554588  1.0478732     -0.2620122
##  [883,]    -0.76420873 -1.3991123 -1.2674379  0.2025442      0.4670024
##  [884,]    -0.76420873  0.1886444  0.4554588 -0.6427849     -0.9910267
##  [885,]     0.83714151 -1.3991123  0.4554588  1.0478732      0.4670024
##  [886,]    -0.76420873  0.1886444  0.4554588  0.2025442      1.1960170
##  [887,]     0.03646639 -1.3991123 -0.4059895  0.2025442      1.9250315
##  [888,]     0.03646639  0.1886444 -1.2674379  1.0478732      0.4670024
##  [889,]    -0.76420873 -0.6052340  0.4554588  0.2025442      0.4670024
##  [890,]     1.63781663  0.1886444 -0.4059895  0.2025442      0.4670024
##  [891,]     0.03646639 -0.6052340  0.4554588 -0.6427849     -0.9910267
##  [892,]    -1.56488384  0.1886444  0.4554588  0.2025442     -0.2620122
##  [893,]    -0.76420873  0.1886444 -0.4059895  1.0478732      0.4670024
##  [894,]     0.03646639 -0.6052340 -1.2674379  0.2025442      0.4670024
##  [895,]    -0.76420873  0.1886444 -0.4059895  1.0478732      0.4670024
##  [896,]    -0.76420873 -0.6052340 -0.4059895 -0.6427849     -0.9910267
```

```
## [897,]    0.03646639  0.9825227 -1.2674379  1.0478732     0.4670024
## [898,]   -1.56488384 -0.6052340  0.4554588 -0.6427849    -0.9910267
## [899,]    0.03646639 -0.6052340 -1.2674379  1.0478732    -0.2620122
## [900,]   -0.76420873 -1.3991123 -0.4059895 -0.6427849    -0.2620122
## [901,]    0.03646639  0.9825227 -0.4059895 -0.6427849    -0.9910267
## [902,]   -0.76420873 -0.6052340 -0.4059895 -0.6427849    -0.9910267
## [903,]    0.03646639 -1.3991123 -1.2674379 -0.6427849    -0.2620122
## [904,]   -0.76420873 -1.3991123 -2.1288863  1.0478732     1.9250315
## [905,]   -0.76420873  1.7764010  1.3169072 -0.6427849    -0.9910267
## [906,]   -0.76420873 -0.6052340  0.4554588  0.2025442    -0.9910267
## [907,]    1.63781663  1.7764010 -1.2674379 -2.3334430    -0.9910267
## [908,]   -0.76420873  0.1886444  1.3169072 -0.6427849    -0.2620122
## [909,]   -0.76420873 -1.3991123  0.4554588  0.2025442     0.4670024
## [910,]    0.03646639  0.9825227  0.4554588 -0.6427849    -0.2620122
## [911,]    0.03646639  0.9825227  0.4554588  1.0478732    -0.9910267
## [912,]    0.83714151  1.7764010 -0.4059895  1.0478732     1.9250315
## [913,]   -1.56488384 -1.3991123  0.4554588 -0.6427849    -0.2620122
## [914,]    0.83714151  0.1886444 -0.4059895  0.2025442    -0.9910267
## [915,]    1.63781663  0.1886444 -0.4059895  1.0478732     1.1960170
## [916,]   -1.56488384  0.1886444  0.4554588  0.2025442     0.4670024
## [917,]    0.03646639 -1.3991123 -0.4059895  1.0478732     1.1960170
## [918,]    0.03646639 -0.6052340 -1.2674379  1.0478732     1.1960170
## [919,]   -0.76420873  0.9825227  0.4554588  1.0478732     1.9250315
## [920,]    0.03646639 -1.3991123 -0.4059895  0.2025442     1.1960170
## [921,]    0.03646639  1.7764010 -0.4059895  0.2025442     0.4670024
## [922,]   -1.56488384 -1.3991123  0.4554588 -0.6427849    -0.2620122
## [923,]    0.03646639 -0.6052340  1.3169072 -0.6427849    -0.9910267
## [924,]    1.63781663 -0.6052340  0.4554588  0.2025442    -0.2620122
## [925,]   -1.56488384 -1.3991123 -0.4059895 -1.4881139    -0.9910267
## [926,]   -0.76420873  0.9825227 -0.4059895 -1.4881139    -0.9910267
## [927,]   -0.76420873 -0.6052340 -1.2674379  0.2025442     0.4670024
## [928,]   -1.56488384 -1.3991123  1.3169072 -0.6427849    -0.9910267
## [929,]    1.63781663  0.1886444  0.4554588 -0.6427849    -0.2620122
## [930,]    0.83714151 -0.6052340  0.4554588 -1.4881139     0.4670024
## [931,]   -0.76420873  0.1886444 -0.4059895 -1.4881139    -0.2620122
## [932,]   -1.56488384  0.1886444  0.4554588 -0.6427849     1.1960170
## [933,]   -1.56488384  0.1886444  1.3169072 -0.6427849    -0.2620122
## [934,]    1.63781663  0.9825227 -0.4059895  0.2025442    -0.2620122
## [935,]   -0.76420873  0.1886444 -0.4059895  0.2025442     1.9250315
## [936,]   -1.56488384 -0.6052340  1.3169072 -1.4881139    -0.9910267
## [937,]    0.03646639 -1.3991123  0.4554588 -0.6427849     1.1960170
## [938,]    1.63781663  0.9825227  1.3169072  1.0478732     1.1960170
## [939,]    1.63781663 -1.3991123  0.4554588  1.0478732    -0.2620122
## [940,]    1.63781663  0.1886444  0.4554588  0.2025442    -0.9910267
## [941,]    0.03646639  0.1886444 -0.4059895 -0.6427849    -0.9910267
## [942,]   -0.76420873 -0.6052340  0.4554588  0.2025442     0.4670024
## [943,]    0.83714151 -1.3991123  0.4554588 -1.4881139    -0.9910267
## [944,]    1.63781663 -0.6052340 -0.4059895  0.2025442    -0.9910267
## [945,]    0.83714151  0.1886444  1.3169072  0.2025442    -0.9910267
## [946,]    0.03646639  0.1886444  0.4554588  0.2025442     1.1960170
```

```
##  [947,]      0.83714151  0.1886444 -0.4059895  1.0478732     1.9250315
##  [948,]     -0.76420873 -1.3991123 -0.4059895 -0.6427849     0.4670024
##  [949,]      0.03646639  0.9825227  0.4554588 -0.6427849    -0.9910267
##  [950,]     -1.56488384 -0.6052340 -0.4059895  0.2025442     0.4670024
##  [951,]      0.83714151 -0.6052340  0.4554588  1.0478732     1.9250315
##  [952,]     -1.56488384 -1.3991123  0.4554588 -0.6427849    -0.2620122
##  [953,]      0.83714151  0.1886444  0.4554588  1.0478732     0.4670024
##  [954,]      0.03646639  0.1886444  1.3169072  0.2025442    -0.9910267
##  [955,]     -0.76420873  0.1886444 -0.4059895 -0.6427849    -0.9910267
##  [956,]     -1.56488384 -1.3991123 -1.2674379  1.0478732     1.9250315
##  [957,]      0.03646639  0.9825227  0.4554588  0.2025442     0.4670024
##  [958,]     -1.56488384 -0.6052340 -1.2674379 -1.4881139    -0.9910267
##  [959,]      0.03646639  0.1886444  0.4554588 -2.3334430    -0.9910267
##  [960,]      0.83714151  0.9825227  0.4554588 -0.6427849    -0.2620122
##  [961,]      1.63781663 -1.3991123 -0.4059895  1.0478732     1.9250315
##  [962,]      0.03646639  0.9825227  1.3169072 -0.6427849    -0.9910267
##  [963,]      1.63781663  0.1886444 -1.2674379 -2.3334430    -0.9910267
##  [964,]      1.63781663 -1.3991123  1.3169072  0.2025442    -0.9910267
##  [965,]      0.03646639  0.1886444 -0.4059895  1.0478732     1.9250315
##  [966,]      0.03646639  1.7764010  1.3169072  1.0478732    -0.2620122
##  [967,]      1.63781663  1.7764010 -2.1288863 -2.3334430    -0.9910267
##  [968,]      0.03646639 -0.6052340 -1.2674379  1.0478732     1.9250315
##  [969,]      0.03646639  0.1886444  0.4554588 -0.6427849    -0.2620122
##  [970,]      0.03646639 -0.6052340  0.4554588  1.0478732     1.1960170
##  [971,]      1.63781663  1.7764010 -0.4059895  0.2025442    -0.2620122
##  [972,]      0.83714151 -0.6052340 -1.2674379  1.0478732     1.1960170
##  [973,]      0.03646639  0.9825227 -0.4059895  1.0478732    -0.2620122
##  [974,]      0.83714151  1.7764010 -1.2674379  1.0478732     1.9250315
##  [975,]     -0.76420873 -0.6052340 -1.2674379  1.0478732     1.9250315
##  [976,]      1.63781663  1.7764010  1.3169072  1.0478732     1.9250315
##  [977,]      0.03646639  1.7764010  1.3169072  1.0478732    -0.2620122
##  [978,]     -1.56488384 -1.3991123  0.4554588  0.2025442     0.4670024
##  [979,]     -0.76420873 -1.3991123  0.4554588  1.0478732     1.9250315
##  [980,]      0.83714151  0.9825227  1.3169072  1.0478732    -0.9910267
##  [981,]      1.63781663 -1.3991123  0.4554588  0.2025442     1.1960170
##  [982,]      1.63781663  1.7764010 -0.4059895  0.2025442    -0.9910267
##  [983,]      0.03646639 -0.6052340 -1.2674379  0.2025442     0.4670024
##  [984,]      0.03646639  0.1886444  1.3169072 -0.6427849    -0.9910267
##  [985,]      0.03646639  0.1886444 -0.4059895  0.2025442     1.1960170
##  [986,]      0.83714151 -0.6052340  0.4554588  1.0478732     0.4670024
##  [987,]      1.63781663 -0.6052340 -1.2674379  0.2025442    -0.2620122
##  [988,]     -0.76420873 -1.3991123 -2.1288863  1.0478732     0.4670024
##  [989,]      1.63781663 -0.6052340 -1.2674379  1.0478732    -0.2620122
##  [990,]      0.83714151  1.7764010  1.3169072  1.0478732     1.9250315
##  [991,]     -0.76420873 -0.6052340 -0.4059895  0.2025442     1.1960170
##  [992,]     -1.56488384 -1.3991123 -2.1288863  1.0478732     1.9250315
##  [993,]      0.83714151 -1.3991123 -0.4059895  0.2025442     1.1960170
##  [994,]      0.03646639 -1.3991123  0.4554588  0.2025442    -0.9910267
##  [995,]      0.03646639  0.9825227 -0.4059895  1.0478732     0.4670024
##  [996,]     -1.56488384 -0.6052340 -2.1288863  0.2025442     1.1960170
```

```
##  [997,]     0.03646639 -0.6052340 -2.1288863  0.2025442        0.4670024
##  [998,]    -1.56488384  0.1886444 -0.4059895  0.2025442       -0.2620122
##  [999,]     0.03646639 -0.6052340 -0.4059895  1.0478732        1.9250315
## [1000,]     1.63781663  0.9825227  0.4554588  0.2025442        0.4670024
## [1001,]     0.03646639  0.1886444  0.4554588 -0.6427849       -0.9910267
## [1002,]    -1.56488384  0.9825227  0.4554588 -0.6427849       -0.2620122
## [1003,]    -1.56488384 -1.3991123 -1.2674379  1.0478732        1.9250315
## [1004,]    -0.76420873  0.1886444  0.4554588  1.0478732       -0.2620122
## [1005,]     0.03646639 -0.6052340 -0.4059895 -0.6427849        1.1960170
## [1006,]     1.63781663  0.9825227  0.4554588  0.2025442        0.4670024
## [1007,]     0.83714151 -1.3991123  0.4554588 -2.3334430       -0.9910267
## [1008,]    -0.76420873 -0.6052340 -0.4059895  0.2025442       -0.9910267
## [1009,]     0.03646639 -1.3991123 -0.4059895  0.2025442       -0.9910267
## [1010,]     0.03646639  0.1886444  0.4554588 -2.3334430       -0.9910267
##                Punk Hiphop..Rap Reggae..Ska Swing..Jazz Rock.n.roll
Alternative
##    [1,] -1.1171896 -1.38888755  -1.4610893 -1.3974051 -0.1137275  -
1.3542194
##    [2,]  1.1855890 -1.38888755   0.1831449 -1.3974051  0.6951791
0.8721967
##    [3,]  1.1855890 -1.38888755   1.0052620  0.1937777  1.5040857
1.6143354
##    [4,]  1.1855890 -0.66206039  -0.6389722 -1.3974051 -0.9226341
1.6143354
##    [5,] -0.3495967  1.51842111   0.1831449 -0.6018137 -1.7315407  -
0.6120807
##    [6,]  0.4179961  0.79159394   0.1831449  0.9893691  0.6951791
1.6143354
##    [7,] -1.1171896  0.06476678  -1.4610893 -1.3974051 -0.9226341
0.1300580
##    [8,] -0.3495967  0.06476678  -0.6389722 -0.6018137 -0.1137275  -
1.3542194
##    [9,] -1.1171896 -1.38888755  -0.6389722 -0.6018137 -0.9226341  -
1.3542194
##   [10,]  0.4179961 -0.66206039   1.0052620  0.9893691  0.6951791
0.8721967
##   [11,] -1.1171896  0.06476678  -0.6389722 -0.6018137 -0.1137275
0.1300580
##   [12,] -1.1171896 -1.38888755  -1.4610893 -0.6018137 -0.9226341
1.6143354
##   [13,] -0.3495967  0.06476678  -1.4610893 -1.3974051  0.6951791
0.1300580
##   [14,] -1.1171896 -0.66206039  -1.4610893  0.1937777 -0.9226341  -
1.3542194
##   [15,]  1.9531818  0.06476678   1.0052620  0.9893691  0.6951791
0.8721967
##   [16,]  1.9531818 -0.66206039   1.0052620 -0.6018137 -0.1137275
0.1300580
##   [17,]  0.4179961 -0.66206039   0.1831449 -0.6018137 -0.1137275  -
1.3542194
```

```
##   [18,]   0.4179961   0.06476678    1.0052620    0.1937777   -0.1137275   -
1.3542194
##   [19,]   0.4179961   0.79159394    1.0052620    0.9893691    0.6951791
0.8721967
##   [20,]  -0.3495967  -1.38888755    1.0052620    1.7849606    0.6951791
0.1300580
##   [21,]   1.1855890   0.79159394    0.1831449    1.7849606    0.6951791
1.6143354
##   [22,]   1.1855890  -1.38888755   -0.6389722   -1.3974051    0.6951791
0.1300580
##   [23,]  -0.3495967  -0.66206039   -1.4610893   -1.3974051   -0.1137275   -
0.6120807
##   [24,]   0.4179961   0.06476678    0.1831449    0.1937777   -0.1137275   -
1.3542194
##   [25,]   1.9531818  -1.38888755   -1.4610893   -1.3974051   -0.9226341
0.1300580
##   [26,]  -1.1171896   0.06476678   -1.4610893   -0.6018137   -1.7315407   -
1.3542194
##   [27,]  -0.3495967  -0.66206039   -1.4610893    0.1937777    1.5040857
0.1300580
##   [28,]   1.1855890  -0.66206039    1.0052620   -0.6018137   -0.1137275
0.8721967
##   [29,]   0.4179961   1.51842111   -0.6389722   -1.3974051    0.6951791
0.1300580
##   [30,]   0.4179961   0.06476678    1.0052620    0.1937777    0.6951791
0.1300580
##   [31,]  -0.3495967   0.79159394    0.1831449    0.9893691   -0.1137275
0.1300580
##   [32,]  -1.1171896   0.06476678    0.1831449   -0.6018137   -1.7315407   -
1.3542194
##   [33,]   1.1855890   0.79159394   -0.6389722   -0.6018137    0.6951791
0.8721967
##   [34,]  -1.1171896  -1.38888755    0.1831449    0.9893691    0.6951791
0.1300580
##   [35,]   1.1855890  -0.66206039    0.1831449    0.1937777    0.6951791
0.8721967
##   [36,]  -1.1171896   0.79159394    0.1831449   -1.3974051   -0.1137275
0.1300580
##   [37,]  -1.1171896  -1.38888755   -1.4610893   -1.3974051   -1.7315407   -
1.3542194
##   [38,]  -0.3495967  -1.38888755   -0.6389722   -0.6018137   -0.9226341   -
1.3542194
##   [39,]  -0.3495967   0.79159394    1.8273791   -0.6018137   -0.9226341   -
1.3542194
##   [40,]   1.1855890  -1.38888755   -0.6389722   -1.3974051    1.5040857   -
0.6120807
##   [41,]  -1.1171896   0.06476678   -0.6389722   -1.3974051   -1.7315407   -
1.3542194
##   [42,]  -1.1171896   1.51842111    1.8273791    1.7849606    1.5040857
1.6143354
```

```
##    [43,]  1.1855890  0.06476678   0.1831449   0.1937777  -0.1137275
0.8721967
##    [44,] -0.3495967  0.06476678  -0.6389722  -0.6018137  -0.9226341
0.8721967
##    [45,] -1.1171896  0.06476678  -1.4610893   0.1937777  -0.1137275
0.8721967
##    [46,] -0.3495967  0.06476678   0.1831449   0.1937777   1.5040857  -
1.3542194
##    [47,] -0.3495967  1.51842111  -0.6389722   0.1937777   1.5040857
0.8721967
##    [48,] -0.3495967 -1.38888755   0.1831449   0.1937777  -0.1137275
0.8721967
##    [49,] -0.3495967  1.51842111   1.8273791  -0.6018137  -0.9226341  -
0.6120807
##    [50,]  1.9531818  0.06476678  -0.6389722  -0.6018137   0.6951791  -
0.6120807
##    [51,]  1.1855890  0.79159394   1.0052620   0.1937777   0.6951791
0.8721967
##    [52,] -0.3495967 -0.66206039   1.0052620   0.9893691   0.6951791
0.1300580
##    [53,] -0.3495967  1.51842111   1.8273791   1.7849606   1.5040857  -
0.6120807
##    [54,] -0.3495967  0.06476678   0.1831449   0.1937777  -0.1137275
0.1300580
##    [55,]  0.4179961  0.06476678   0.1831449   0.9893691   0.6951791
0.1300580
##    [56,] -0.3495967  0.79159394   0.1831449   0.1937777   0.6951791
0.8721967
##    [57,]  1.1855890 -0.66206039   0.1831449   0.9893691   1.5040857
1.6143354
##    [58,] -0.3495967 -0.66206039  -0.6389722   0.9893691   1.5040857
1.6143354
##    [59,] -1.1171896 -0.66206039  -0.6389722  -1.3974051  -0.9226341  -
0.6120807
##    [60,]  1.9531818  0.06476678   0.1831449   0.9893691   1.5040857
1.6143354
##    [61,]  0.4179961 -0.66206039   0.1831449   0.1937777   0.6951791
0.8721967
##    [62,] -0.3495967  0.06476678  -0.6389722   0.1937777  -0.1137275
0.1300580
##    [63,]  1.1855890  1.51842111   1.0052620   1.7849606   1.5040857
1.6143354
##    [64,] -1.1171896  1.51842111   1.0052620   0.1937777  -0.1137275  -
1.3542194
##    [65,]  0.4179961 -0.66206039  -1.4610893  -0.6018137  -0.9226341  -
1.3542194
##    [66,] -0.3495967  0.79159394  -0.6389722  -0.6018137  -0.9226341  -
1.3542194
##    [67,]  0.4179961  0.06476678   0.1831449   0.1937777  -0.9226341  -
0.6120807
```

```
##  [68,] -1.1171896  0.79159394  0.1831449  0.9893691  0.6951791  -
1.3542194
##  [69,]  1.9531818 -1.38888755  1.8273791  0.9893691  0.6951791
0.1300580
##  [70,] -1.1171896 -1.38888755 -1.4610893 -1.3974051 -0.9226341  -
1.3542194
##  [71,] -1.1171896  1.51842111 -0.6389722  0.1937777 -1.7315407  -
1.3542194
##  [72,] -1.1171896  0.79159394  1.0052620 -1.3974051 -0.9226341
0.1300580
##  [73,]  1.1855890  0.79159394 -0.6389722 -0.6018137 -0.1137275
0.1300580
##  [74,] -0.3495967  1.51842111 -0.6389722 -0.6018137 -0.9226341  -
0.6120807
##  [75,] -1.1171896  1.51842111  1.0052620 -1.3974051 -1.7315407  -
1.3542194
##  [76,]  1.1855890  0.06476678  1.8273791  0.9893691  1.5040857
0.8721967
##  [77,]  0.4179961  0.79159394 -1.4610893 -1.3974051 -0.9226341  -
1.3542194
##  [78,] -1.1171896  0.79159394 -0.6389722 -0.6018137 -0.9226341  -
0.6120807
##  [79,] -1.1171896  0.79159394  1.8273791  1.7849606  1.5040857
0.1300580
##  [80,] -0.3495967  1.51842111  0.1831449  0.1937777 -0.1137275
0.1300580
##  [81,]  0.4179961  0.79159394  1.0052620  0.1937777  0.6951791  -
0.6120807
##  [82,]  0.4179961  0.79159394  1.0052620  0.1937777  0.6951791
0.1300580
##  [83,]  1.1855890 -1.38888755 -1.4610893 -0.6018137 -0.9226341
1.6143354
##  [84,] -1.1171896  0.06476678 -0.6389722  0.9893691 -0.1137275  -
1.3542194
##  [85,]  1.9531818  0.79159394  1.0052620  1.7849606  1.5040857
0.8721967
##  [86,] -1.1171896 -1.38888755 -1.4610893 -0.6018137 -0.1137275
0.1300580
##  [87,]  0.4179961  0.79159394  0.1831449  0.1937777 -0.1137275
0.1300580
##  [88,]  1.1855890  0.06476678  1.8273791  0.1937777  0.6951791
0.8721967
##  [89,] -1.1171896 -1.38888755 -1.4610893  1.7849606  1.5040857
0.8721967
##  [90,]  0.4179961 -1.38888755 -0.6389722  0.9893691  0.6951791
0.8721967
##  [91,]  0.4179961 -1.38888755  0.1831449 -1.3974051 -0.9226341
0.1300580
##  [92,]  1.9531818 -1.38888755  1.8273791 -1.3974051 -0.1137275  -
1.3542194
```

```
##    [93,]  -0.3495967 -1.38888755   0.1831449   1.7849606   0.6951791
0.1300580
##    [94,]   0.4179961 -1.38888755  -1.4610893   1.7849606   0.6951791   -
1.3542194
##    [95,]   0.4179961  1.51842111  -0.6389722  -1.3974051  -0.1137275
0.1300580
##    [96,]  -0.3495967  1.51842111   1.8273791   0.9893691   0.6951791   -
0.6120807
##    [97,]   1.1855890  0.06476678  -1.4610893  -1.3974051  -1.7315407
0.8721967
##    [98,]  -1.1171896  1.51842111  -0.6389722  -0.6018137  -1.7315407   -
1.3542194
##    [99,]  -1.1171896 -1.38888755   0.1831449  -0.6018137  -0.9226341
1.6143354
##   [100,]   0.4179961 -0.66206039   1.0052620  -1.3974051  -0.9226341   -
1.3542194
##   [101,]  -0.3495967  0.79159394   1.0052620   0.1937777  -0.1137275   -
0.6120807
##   [102,]   1.1855890 -1.38888755   1.0052620   0.1937777  -0.1137275
0.1300580
##   [103,]   1.9531818 -1.38888755   1.0052620   1.7849606   1.5040857
1.6143354
##   [104,]  -1.1171896  1.51842111   1.8273791   0.9893691  -0.1137275   -
0.6120807
##   [105,]   0.4179961  0.06476678   0.1831449   0.9893691   0.6951791
0.8721967
##   [106,]  -1.1171896 -1.38888755  -0.6389722   0.1937777  -1.7315407   -
1.3542194
##   [107,]  -0.3495967  0.79159394   1.0052620   0.9893691   1.5040857
0.1300580
##   [108,]  -1.1171896 -1.38888755   0.1831449   0.9893691  -0.9226341
0.8721967
##   [109,]   0.4179961 -0.66206039  -1.4610893  -1.3974051  -0.9226341
0.1300580
##   [110,]   0.4179961 -0.66206039  -0.6389722  -0.6018137  -0.1137275   -
1.3542194
##   [111,]  -1.1171896 -1.38888755   1.0052620   1.7849606   0.6951791
0.8721967
##   [112,]  -0.3495967  0.06476678   0.1831449   0.9893691   0.6951791
1.6143354
##   [113,]  -0.3495967 -1.38888755   0.1831449   0.9893691  -0.9226341
0.1300580
##   [114,]  -1.1171896  0.06476678  -1.4610893  -1.3974051  -0.9226341   -
0.6120807
##   [115,]   0.4179961 -0.66206039  -0.6389722  -0.6018137  -0.1137275
0.1300580
##   [116,]  -0.3495967  0.06476678   0.1831449   0.1937777  -0.9226341
0.1300580
##   [117,]  -0.3495967 -1.38888755  -1.4610893  -0.6018137   0.6951791
1.6143354
```

```
##  [118,] -1.1171896 -1.38888755  -1.4610893  -1.3974051  -0.9226341  -
1.3542194
##  [119,]  1.1855890 -0.66206039   1.0052620   0.9893691   0.6951791
0.8721967
##  [120,] -1.1171896 -0.66206039  -0.6389722  -0.6018137  -0.9226341  -
1.3542194
##  [121,] -0.3495967 -1.38888755   0.1831449   1.7849606   1.5040857
0.1300580
##  [122,] -0.3495967  0.79159394  -0.6389722  -0.6018137   0.6951791  -
1.3542194
##  [123,]  1.1855890 -1.38888755   0.1831449   0.9893691   0.6951791
1.6143354
##  [124,] -1.1171896  0.06476678  -1.4610893   1.7849606   1.5040857
0.1300580
##  [125,]  0.4179961 -1.38888755  -0.6389722   0.9893691   1.5040857  -
0.6120807
##  [126,]  0.4179961 -0.66206039   1.0052620   1.7849606  -0.1137275
0.8721967
##  [127,]  1.1855890  0.79159394  -1.4610893  -1.3974051  -1.7315407  -
0.6120807
##  [128,]  0.4179961  0.06476678   1.0052620   0.1937777   0.6951791
0.8721967
##  [129,] -1.1171896 -0.66206039   0.1831449  -1.3974051   1.5040857
1.6143354
##  [130,] -0.3495967 -0.66206039   0.1831449   0.9893691  -0.1137275
0.8721967
##  [131,]  0.4179961 -1.38888755  -0.6389722  -0.6018137  -0.1137275  -
1.3542194
##  [132,] -0.3495967  1.51842111  -0.6389722  -1.3974051  -1.7315407  -
1.3542194
##  [133,]  1.9531818 -0.66206039   1.0052620   0.1937777  -0.9226341  -
0.6120807
##  [134,] -1.1171896 -1.38888755  -0.6389722   1.7849606  -1.7315407  -
1.3542194
##  [135,] -1.1171896  0.79159394   1.0052620   0.9893691   0.6951791
0.8721967
##  [136,]  1.1855890  0.06476678   1.8273791   0.9893691   0.6951791
1.6143354
##  [137,] -1.1171896  1.51842111  -1.4610893  -1.3974051  -1.7315407  -
1.3542194
##  [138,] -0.3495967  0.79159394   0.1831449   1.7849606   0.6951791
0.1300580
##  [139,] -1.1171896  0.06476678   0.1831449   0.9893691   0.6951791  -
0.6120807
##  [140,] -0.3495967  1.51842111   0.1831449   0.9893691   0.6951791  -
1.3542194
##  [141,] -0.3495967 -0.66206039  -0.6389722   1.7849606  -0.1137275  -
0.6120807
##  [142,]  1.1855890  0.79159394   0.1831449  -1.3974051  -1.7315407
1.6143354
```

```
## [143,]  -1.1171896   0.06476678  -0.6389722  -1.3974051  -1.7315407  -
0.6120807
## [144,]   0.4179961   1.51842111   1.0052620  -1.3974051  -1.7315407
0.1300580
## [145,]   0.4179961  -0.66206039  -0.6389722  -0.6018137   0.6951791
0.1300580
## [146,]  -1.1171896  -1.38888755  -0.6389722  -1.3974051  -1.7315407
0.1300580
## [147,]   1.1855890   1.51842111  -1.4610893  -1.3974051  -1.7315407  -
1.3542194
## [148,]   0.4179961   1.51842111  -0.6389722  -0.6018137  -0.9226341
0.8721967
## [149,]   0.4179961   0.79159394   0.1831449  -0.6018137   0.6951791
0.1300580
## [150,]  -0.3495967   0.06476678  -0.6389722  -1.3974051  -1.7315407  -
1.3542194
## [151,]   0.4179961  -1.38888755  -0.6389722   0.9893691   0.6951791
0.1300580
## [152,]   1.1855890  -0.66206039   1.8273791   0.9893691   0.6951791
0.8721967
## [153,]  -1.1171896   0.79159394   0.1831449   0.1937777   0.6951791
0.1300580
## [154,]  -0.3495967   0.79159394  -1.4610893   0.9893691  -0.9226341  -
1.3542194
## [155,]   1.1855890  -0.66206039  -0.6389722   0.1937777  -0.1137275
0.1300580
## [156,]   0.4179961   0.06476678  -0.6389722   0.9893691  -0.1137275
0.8721967
## [157,]   1.9531818   0.06476678   1.8273791  -0.6018137  -0.1137275
0.1300580
## [158,]   1.1855890  -0.66206039  -0.6389722  -0.6018137  -1.7315407  -
0.6120807
## [159,]   0.4179961   0.79159394   1.8273791   0.9893691  -0.1137275
0.1300580
## [160,]   0.4179961   0.06476678   1.0052620   0.1937777  -0.1137275
0.8721967
## [161,]   1.9531818   0.06476678   1.8273791   0.9893691   0.6951791
1.6143354
## [162,]   0.4179961   0.79159394   0.1831449  -0.6018137  -0.1137275  -
0.6120807
## [163,]  -1.1171896   1.51842111   1.0052620   0.1937777  -0.9226341  -
1.3542194
## [164,]  -1.1171896  -1.38888755  -1.4610893  -1.3974051  -1.7315407
0.1300580
## [165,]   0.4179961  -0.66206039  -0.6389722   0.9893691   0.6951791
1.6143354
## [166,]  -1.1171896   1.51842111   0.1831449   0.1937777  -0.9226341  -
1.3542194
## [167,]  -0.3495967  -1.38888755  -1.4610893  -1.3974051  -1.7315407  -
0.6120807
```

```
## [168,]  1.1855890  0.79159394   1.0052620   0.1937777  -0.1137275
0.1300580
## [169,]  0.4179961  0.06476678   0.1831449   0.1937777   0.6951791   -
0.6120807
## [170,]  0.4179961 -1.38888755  -1.4610893   0.1937777  -0.1137275
0.8721967
## [171,] -0.3495967 -0.66206039   0.1831449   1.7849606   0.6951791
1.6143354
## [172,] -1.1171896  0.79159394   0.1831449   0.1937777  -0.1137275   -
0.6120807
## [173,]  1.9531818 -0.66206039   1.0052620   0.9893691   0.6951791
0.8721967
## [174,] -1.1171896 -0.66206039  -1.4610893  -0.6018137  -0.1137275   -
0.6120807
## [175,] -1.1171896 -1.38888755  -1.4610893  -1.3974051  -1.7315407   -
1.3542194
## [176,] -0.3495967  0.06476678   1.0052620   0.9893691   0.6951791   -
0.6120807
## [177,]  0.4179961 -0.66206039   1.0052620   0.1937777   1.5040857
0.8721967
## [178,]  0.4179961 -1.38888755   0.1831449   0.1937777  -0.1137275
1.6143354
## [179,]  0.4179961 -1.38888755  -0.6389722  -0.6018137   0.6951791
0.1300580
## [180,] -1.1171896 -1.38888755  -1.4610893   0.9893691  -1.7315407   -
1.3542194
## [181,]  1.9531818 -0.66206039  -0.6389722  -1.3974051   0.6951791
0.8721967
## [182,]  0.4179961  0.79159394   1.0052620   1.7849606  -0.1137275
0.1300580
## [183,]  0.4179961 -0.66206039   1.0052620   0.1937777  -0.9226341
0.1300580
## [184,] -1.1171896  1.51842111   1.0052620   0.9893691  -0.1137275
0.8721967
## [185,] -0.3495967 -1.38888755  -1.4610893   0.9893691   1.5040857
1.6143354
## [186,] -1.1171896  0.79159394   0.1831449   0.1937777   0.6951791   -
1.3542194
## [187,] -1.1171896 -1.38888755  -1.4610893   0.1937777  -0.9226341   -
0.6120807
## [188,] -0.3495967 -1.38888755  -1.4610893  -0.6018137  -1.7315407
1.6143354
## [189,] -1.1171896  0.06476678  -0.6389722  -0.6018137  -0.9226341   -
0.6120807
## [190,]  1.1855890 -1.38888755  -1.4610893  -1.3974051  -0.1137275   -
0.6120807
## [191,]  0.4179961 -0.66206039   0.1831449  -0.6018137  -0.1137275
0.1300580
## [192,] -1.1171896 -1.38888755   0.1831449   0.9893691  -0.1137275
0.8721967
```

```
## [193,]   0.4179961   1.51842111  -0.6389722  -1.3974051  -0.1137275  -
0.6120807
## [194,]   1.1855890  -1.38888755   0.1831449   0.1937777   1.5040857
1.6143354
## [195,]   1.1855890  -0.66206039   0.1831449  -1.3974051   1.5040857
1.6143354
## [196,]  -1.1171896   1.51842111   0.1831449   0.1937777  -0.1137275
0.1300580
## [197,]   0.4179961   0.79159394   1.0052620   0.1937777  -0.1137275
0.1300580
## [198,]  -1.1171896   0.06476678  -0.6389722  -0.6018137  -1.7315407  -
1.3542194
## [199,]   1.9531818   1.51842111   1.0052620  -0.6018137   1.5040857  -
0.6120807
## [200,]  -1.1171896   0.79159394  -0.6389722  -1.3974051  -1.7315407  -
1.3542194
## [201,]   0.4179961   1.51842111   1.0052620   0.1937777   0.6951791  -
0.6120807
## [202,]   0.4179961   1.51842111   1.8273791  -1.3974051   1.5040857
1.6143354
## [203,]  -1.1171896   1.51842111   0.1831449  -1.3974051  -1.7315407  -
1.3542194
## [204,]   0.4179961   0.06476678   0.1831449  -0.6018137  -0.9226341  -
0.6120807
## [205,]   1.1855890  -0.66206039   1.8273791   0.9893691   1.5040857
0.8721967
## [206,]  -1.1171896  -1.38888755  -1.4610893   0.9893691   1.5040857
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## [207,]   0.4179961  -1.38888755  -0.6389722   0.9893691   0.6951791
0.1300580
## [208,]   1.1855890  -0.66206039  -0.6389722   0.1937777   0.6951791  -
0.6120807
## [209,]   1.9531818   0.79159394   1.8273791   1.7849606   1.5040857
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## [210,]   0.4179961   1.51842111   1.0052620   1.7849606   0.6951791  -
0.6120807
## [211,]   0.4179961   0.79159394   1.0052620   0.9893691   1.5040857
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0.6120807
## [213,]   0.4179961   0.06476678  -0.6389722   0.9893691   1.5040857
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## [214,]   1.9531818   0.79159394  -0.6389722  -0.6018137  -0.9226341
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## [215,]   0.4179961  -0.66206039  -0.6389722   1.7849606   1.5040857
0.8721967
## [216,]  -1.1171896   1.51842111  -1.4610893  -1.3974051  -1.7315407  -
1.3542194
## [217,]   0.4179961  -0.66206039  -1.4610893  -1.3974051  -0.1137275  -
1.3542194
```

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##  [219,] -1.1171896  0.79159394   0.1831449  -1.3974051  -0.9226341    -
0.6120807
##  [220,] -1.1171896  1.51842111  -0.6389722  -1.3974051  -1.7315407    -
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0.8721967
##  [223,]  0.4179961 -0.66206039  -1.4610893   0.9893691  -0.1137275
0.1300580
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0.6120807
##  [225,]  1.1855890  0.06476678   0.1831449  -0.6018137  -0.1137275
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##  [226,]  1.1855890  0.06476678   1.0052620   0.9893691   1.5040857
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##  [229,] -0.3495967 -1.38888755  -0.6389722   1.7849606   0.6951791
0.8721967
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##  [233,] -0.3495967  0.06476678   1.0052620   1.7849606  -0.1137275    -
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##  [234,]  1.1855890  0.79159394   1.0052620  -0.6018137   0.6951791
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##  [235,]  1.1855890 -0.66206039   1.0052620  -1.3974051  -0.1137275
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##  [236,] -0.3495967 -1.38888755  -1.4610893   0.1937777   0.6951791    -
0.6120807
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##  [238,] -1.1171896  1.51842111   1.0052620   0.1937777  -0.9226341    -
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0.8721967
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##  [242,] -0.3495967  1.51842111   0.1831449   0.1937777  -0.1137275
0.1300580
```

```
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1.6143354
## [249,]  0.4179961  0.79159394 -0.6389722 -0.6018137 -0.9226341  -
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## [254,] -1.1171896 -1.38888755 -1.4610893 -1.3974051 -1.7315407  -
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## [257,] -1.1171896  0.06476678 -0.6389722 -1.3974051 -0.9226341  -
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## [258,] -1.1171896  0.79159394 -0.6389722  0.1937777 -0.1137275
0.1300580
## [259,] -0.3495967 -1.38888755 -1.4610893  0.9893691 -0.1137275
1.6143354
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0.1300580
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1.3542194
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1.6143354
## [264,] -0.3495967  0.79159394  0.1831449 -0.6018137  0.6951791
0.1300580
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0.1300580
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1.3542194
```

```
## [268,]  1.1855890  0.06476678  -0.6389722  -0.6018137  -0.1137275  -
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0.6120807
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0.6120807
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1.6143354
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0.1300580
```

```
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1.6143354
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1.6143354
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1.3542194
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1.6143354
## [308,]  0.4179961 -1.38888755 -1.4610893  1.7849606  1.5040857
0.1300580
## [309,] -1.1171896  0.06476678 -1.4610893 -1.3974051 -1.7315407  -
0.6120807
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0.6120807
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## [314,] -1.1171896  0.79159394 -1.4610893  0.1937777  0.6951791  -
0.6120807
## [315,]  1.9531818 -0.66206039  1.8273791  1.7849606  1.5040857
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## [316,] -1.1171896 -0.66206039 -1.4610893 -1.3974051 -1.7315407  -
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## [317,] -0.3495967  0.06476678 -0.6389722 -1.3974051 -1.7315407  -
0.6120807
```

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##  [319,]  0.4179961  0.06476678  -0.6389722   0.9893691   0.6951791
0.1300580
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##  [321,]  0.4179961 -0.66206039   0.1831449  -0.6018137  -0.9226341
1.6143354
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0.1300580
##  [323,]  1.9531818 -1.38888755   0.1831449   0.1937777   1.5040857
1.6143354
##  [324,]  0.4179961 -1.38888755  -1.4610893  -1.3974051  -0.1137275  -
1.3542194
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0.1300580
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0.1300580
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0.1300580
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0.6120807
##  [329,]  1.9531818 -0.66206039   1.0052620   0.1937777  -0.9226341
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##  [333,] -1.1171896 -0.66206039   0.1831449  -1.3974051  -1.7315407  -
1.3542194
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0.6120807
##  [335,] -0.3495967 -0.66206039  -0.6389722   0.9893691  -1.7315407
0.8721967
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##  [340,]  1.9531818 -1.38888755   0.1831449   0.1937777   1.5040857
1.6143354
##  [341,] -0.3495967  0.06476678   0.1831449  -0.6018137  -0.9226341
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##  [342,] -0.3495967  1.51842111  -1.4610893  -1.3974051  -1.7315407  -
1.3542194
```

```
## [343,] -0.3495967  0.79159394   1.0052620   0.1937777  -0.1137275
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0.6120807
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0.6120807
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1.3542194
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## [363,]  1.9531818 -0.66206039   1.0052620  -0.6018137   0.6951791
0.1300580
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1.3542194
```

```
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0.6120807
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##  [377,]  -1.1171896  1.51842111  -1.4610893  -1.3974051  -1.7315407    -
1.3542194
##  [378,]   0.4179961 -1.38888755   0.1831449   0.9893691   0.6951791
1.6143354
##  [379,]  -1.1171896  0.79159394   1.8273791  -1.3974051  -0.9226341    -
0.6120807
##  [380,]  -0.3495967  0.06476678   0.1831449   0.9893691  -0.1137275    -
0.6120807
##  [381,]  -1.1171896  0.79159394  -0.6389722  -0.6018137   0.6951791    -
0.6120807
##  [382,]   0.4179961 -1.38888755  -1.4610893   0.1937777  -0.1137275
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##  [383,]  -1.1171896  0.79159394  -0.6389722  -1.3974051  -0.9226341    -
0.6120807
##  [384,]   1.1855890  0.06476678   0.1831449   0.1937777  -0.1137275
1.6143354
##  [385,]   0.4179961  0.79159394   1.0052620   0.9893691   0.6951791
1.6143354
##  [386,]   0.4179961  0.79159394   1.8273791   1.7849606   1.5040857
0.8721967
##  [387,]   0.4179961  1.51842111   1.0052620  -0.6018137  -0.1137275
0.1300580
##  [388,]  -1.1171896  1.51842111   1.8273791   0.1937777  -0.1137275    -
0.6120807
##  [389,]   0.4179961  0.79159394   1.8273791   1.7849606   0.6951791
0.1300580
##  [390,]  -1.1171896 -0.66206039  -0.6389722   0.9893691  -0.1137275    -
0.6120807
##  [391,]  -0.3495967 -0.66206039  -0.6389722   0.1937777  -0.1137275
0.8721967
##  [392,]  -1.1171896  0.06476678   0.1831449   0.1937777  -0.1137275    -
0.6120807
```

```
##  [393,] -1.1171896  1.51842111   0.1831449  -1.3974051  -0.9226341  -
0.6120807
##  [394,]  0.4179961 -0.66206039  -1.4610893  -1.3974051  -0.9226341  -
0.6120807
##  [395,] -1.1171896 -1.38888755  -0.6389722  -0.6018137  -0.1137275  -
0.6120807
##  [396,]  0.4179961  0.06476678  -0.6389722  -0.6018137   0.6951791
1.6143354
##  [397,] -1.1171896 -0.66206039   0.1831449   0.9893691  -0.1137275  -
1.3542194
##  [398,] -1.1171896  0.79159394  -0.6389722  -1.3974051  -0.9226341  -
1.3542194
##  [399,]  0.4179961  1.51842111   1.8273791   0.1937777   0.6951791
0.1300580
##  [400,]  1.1855890 -0.66206039   1.0052620   0.1937777  -0.1137275
0.8721967
##  [401,] -1.1171896  0.06476678   0.1831449  -0.6018137  -0.9226341  -
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##  [402,] -1.1171896 -1.38888755  -1.4610893  -1.3974051  -0.9226341  -
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##  [403,] -1.1171896 -1.38888755  -1.4610893  -1.3974051  -1.7315407  -
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##  [404,] -0.3495967 -0.66206039   1.0052620  -0.6018137   0.6951791
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##  [406,] -0.3495967  0.79159394  -0.6389722   0.9893691  -0.1137275
0.1300580
##  [407,] -1.1171896  0.06476678   0.1831449   0.9893691   0.6951791  -
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##  [408,]  0.4179961  0.06476678   0.1831449   1.7849606  -0.1137275  -
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##  [409,] -1.1171896 -1.38888755  -1.4610893   0.9893691   1.5040857
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##  [410,]  0.4179961  0.79159394  -0.6389722   0.1937777   0.6951791
0.1300580
##  [411,]  1.9531818  0.79159394  -1.4610893  -1.3974051   1.5040857
0.1300580
##  [412,] -1.1171896  0.79159394  -0.6389722   0.9893691  -0.1137275  -
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##  [413,] -1.1171896 -1.38888755  -1.4610893  -1.3974051  -1.7315407  -
1.3542194
##  [414,]  1.1855890 -0.66206039  -0.6389722  -0.6018137   0.6951791  -
0.6120807
##  [415,] -1.1171896  0.06476678  -0.6389722   0.1937777   0.6951791
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##  [416,] -0.3495967  0.79159394  -0.6389722  -1.3974051   1.5040857
0.1300580
##  [417,] -0.3495967  0.06476678  -0.6389722  -0.6018137  -0.9226341  -
1.3542194
```

```
## [418,]  1.9531818 -1.38888755  1.8273791 -1.3974051  0.6951791
0.8721967
## [419,] -1.1171896 -1.38888755 -0.6389722 -1.3974051 -0.9226341  -
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1.3542194
## [422,] -1.1171896 -0.66206039 -0.6389722  1.7849606 -0.1137275  -
0.6120807
## [423,] -1.1171896  0.79159394 -0.6389722 -1.3974051 -1.7315407  -
1.3542194
## [424,]  0.4179961 -1.38888755  0.1831449  0.1937777 -0.1137275
0.1300580
## [425,] -1.1171896  1.51842111  1.0052620  0.9893691 -1.7315407  -
1.3542194
## [426,]  1.9531818  0.06476678  1.0052620  0.1937777  0.6951791
1.6143354
## [427,] -1.1171896 -1.38888755  0.1831449  0.9893691  0.6951791
0.8721967
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1.6143354
## [429,]  1.1855890  0.06476678 -0.6389722 -0.6018137 -0.9226341  -
1.3542194
## [430,]  1.1855890 -0.66206039 -1.4610893 -0.6018137 -0.1137275
1.6143354
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0.1300580
## [432,] -1.1171896  0.06476678  0.1831449  0.1937777 -0.9226341  -
0.6120807
## [433,]  0.4179961  0.06476678  0.1831449  0.1937777  0.6951791
1.6143354
## [434,]  1.1855890 -0.66206039 -0.6389722 -0.6018137 -0.1137275
1.6143354
## [435,] -1.1171896  0.79159394  0.1831449  0.1937777 -0.9226341  -
1.3542194
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0.6120807
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1.3542194
## [439,]  1.1855890  0.79159394  0.1831449 -1.3974051 -0.9226341  -
1.3542194
## [440,] -1.1171896  0.79159394 -0.6389722 -0.6018137 -0.1137275
0.1300580
## [441,] -1.1171896  0.06476678  0.1831449  0.1937777  0.6951791
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1.3542194
```

```
## [443,]  1.1855890  0.06476678   1.0052620   0.9893691   0.6951791  -
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0.6120807
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0.6120807
## [447,] -1.1171896  0.79159394  -0.6389722  -1.3974051  -0.9226341  -
1.3542194
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1.3542194
## [449,] -1.1171896  0.79159394  -1.4610893  -0.6018137   0.6951791
0.1300580
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0.6120807
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0.1300580
## [454,] -0.3495967 -0.66206039   0.1831449   0.1937777   1.5040857  -
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0.8721967
## [456,]  1.9531818  0.06476678   0.1831449  -0.6018137  -0.1137275  -
0.6120807
## [457,]  1.1855890  1.51842111   1.8273791  -1.3974051  -0.9226341
0.1300580
## [458,]  0.4179961 -0.66206039  -0.6389722  -0.6018137  -0.1137275
0.1300580
## [459,] -1.1171896  1.51842111  -1.4610893  -1.3974051   1.5040857
1.6143354
## [460,]  0.4179961 -1.38888755   1.0052620   0.1937777  -0.1137275
1.6143354
## [461,]  1.1855890  1.51842111   1.8273791  -1.3974051  -1.7315407
0.1300580
## [462,] -1.1171896 -1.38888755   0.1831449   0.1937777  -0.1137275
0.1300580
## [463,]  1.1855890  0.06476678   0.1831449   0.1937777  -0.1137275
0.8721967
## [464,] -1.1171896  0.06476678   0.1831449  -1.3974051  -1.7315407
1.6143354
## [465,]  1.1855890 -0.66206039   0.1831449  -0.6018137   0.6951791  -
0.6120807
## [466,] -0.3495967 -0.66206039   1.0052620   0.9893691  -0.9226341
0.1300580
## [467,] -1.1171896  0.79159394  -1.4610893   0.1937777  -0.1137275  -
1.3542194
```

```
## [468,] -1.1171896  0.79159394 -0.6389722 -1.3974051 -0.9226341  -
## 0.6120807
## [469,] -0.3495967  1.51842111  1.0052620  0.9893691  1.5040857  -
## 0.6120807
## [470,]  0.4179961  0.79159394  1.0052620 -0.6018137  1.5040857
## 0.8721967
## [471,] -1.1171896  0.06476678  0.1831449 -0.6018137 -0.1137275  -
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## 1.6143354
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## 1.3542194
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## 0.1300580
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## [478,]  0.4179961 -1.38888755 -0.6389722  0.1937777  1.5040857
## 1.6143354
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## 0.8721967
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## 1.3542194
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## 0.8721967
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## 0.8721967
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## 1.3542194
## [484,]  1.9531818  0.06476678 -0.6389722  0.9893691 -0.1137275  -
## 1.3542194
## [485,]  0.4179961  0.06476678  0.1831449  0.9893691 -0.9226341  -
## 0.6120807
## [486,] -1.1171896 -1.38888755  0.1831449  1.7849606  0.6951791
## 0.8721967
## [487,] -1.1171896  0.06476678 -0.6389722  0.1937777 -0.1137275
## 0.1300580
## [488,]  1.1855890  1.51842111  1.0052620 -0.6018137 -0.9226341
## 0.1300580
## [489,] -0.3495967  0.06476678  0.1831449  1.7849606  1.5040857
## 0.8721967
## [490,]  1.9531818  0.06476678  1.8273791 -0.6018137  1.5040857
## 1.6143354
## [491,] -1.1171896  1.51842111 -1.4610893 -1.3974051 -0.9226341  -
## 1.3542194
## [492,]  0.4179961  0.06476678 -0.6389722 -0.6018137 -0.1137275  -
## 1.3542194
```

```
## [493,] -0.3495967 -1.38888755  -0.6389722   0.1937777   0.6951791
1.6143354
## [494,] -1.1171896  1.51842111  -0.6389722  -0.6018137  -0.1137275
0.1300580
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1.6143354
## [496,]  1.1855890 -0.66206039  -0.6389722  -1.3974051   1.5040857
1.6143354
## [497,] -1.1171896 -0.66206039  -0.6389722  -0.6018137   0.6951791
0.1300580
## [498,]  0.4179961 -1.38888755   0.1831449   1.7849606   1.5040857  -
1.3542194
## [499,] -1.1171896 -1.38888755   0.1831449  -0.6018137  -0.1137275
1.6143354
## [500,]  1.1855890 -1.38888755   0.1831449  -1.3974051  -0.1137275
0.1300580
## [501,] -1.1171896 -1.38888755  -0.6389722  -0.6018137   0.6951791
1.6143354
## [502,] -0.3495967 -0.66206039  -0.6389722   0.9893691   0.6951791  -
0.6120807
## [503,]  1.1855890  0.06476678   0.1831449   0.9893691   1.5040857
0.1300580
## [504,] -1.1171896 -1.38888755  -1.4610893  -1.3974051  -0.9226341  -
1.3542194
## [505,] -1.1171896  1.51842111  -0.6389722  -1.3974051  -0.9226341  -
0.6120807
## [506,]  1.1855890  0.06476678   0.1831449  -0.6018137   0.6951791
0.8721967
## [507,]  0.4179961  1.51842111  -1.4610893  -1.3974051  -1.7315407  -
0.6120807
## [508,] -1.1171896 -0.66206039   1.8273791   0.9893691   0.6951791
0.8721967
## [509,]  0.4179961 -1.38888755   0.1831449   0.1937777   1.5040857
1.6143354
## [510,] -1.1171896  0.79159394   0.1831449   0.1937777  -1.7315407  -
0.6120807
## [511,] -0.3495967  0.79159394   1.0052620   0.9893691  -0.1137275
0.1300580
## [512,] -1.1171896  0.79159394   1.0052620   0.9893691  -0.1137275
0.1300580
## [513,] -1.1171896 -1.38888755  -1.4610893  -0.6018137  -1.7315407
0.1300580
## [514,]  1.9531818  0.06476678  -0.6389722  -1.3974051  -0.1137275
0.1300580
## [515,] -1.1171896 -1.38888755  -0.6389722  -1.3974051   1.5040857
0.1300580
## [516,]  0.4179961 -1.38888755  -0.6389722   0.1937777  -0.1137275
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## [517,]  0.4179961  1.51842111   0.1831449  -0.6018137  -0.1137275
0.1300580
```

```
## [518,]  0.4179961  0.79159394  0.1831449 -1.3974051 -1.7315407
0.1300580
## [519,] -0.3495967  0.79159394  0.1831449  0.1937777 -0.9226341  -
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0.6120807
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0.1300580
## [524,] -1.1171896 -0.66206039  0.1831449  0.1937777  0.6951791  -
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## [525,]  1.9531818 -0.66206039  1.8273791 -0.6018137 -0.1137275
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0.1300580
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## [541,] -0.3495967  0.79159394  1.0052620 -0.6018137  1.5040857
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0.6120807
```

```
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0.1300580
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0.1300580
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0.8721967
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0.6120807
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0.8721967
## [552,]  -1.1171896  -1.38888755  -1.4610893  -1.3974051  -1.7315407  -
1.3542194
## [553,]  -1.1171896  -1.38888755   1.0052620   1.7849606  -0.1137275
1.6143354
## [554,]  -1.1171896   0.06476678  -1.4610893  -1.3974051  -1.7315407
0.1300580
## [555,]  -0.3495967   0.06476678  -1.4610893  -0.6018137  -0.1137275  -
0.6120807
## [556,]  -0.3495967   0.79159394   1.8273791   0.1937777  -1.7315407  -
0.6120807
## [557,]  -1.1171896   0.79159394  -1.4610893  -1.3974051  -0.9226341  -
1.3542194
## [558,]  -0.3495967  -0.66206039   1.0052620   0.9893691   0.6951791
0.1300580
## [559,]  -1.1171896  -1.38888755  -0.6389722  -0.6018137  -0.1137275  -
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0.6120807
## [563,]   0.4179961   1.51842111  -1.4610893  -0.6018137  -0.9226341  -
0.6120807
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0.1300580
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## [566,]  -0.3495967  -0.66206039  -0.6389722  -0.6018137  -0.9226341  -
0.6120807
## [567,]  -1.1171896   0.79159394   0.1831449  -1.3974051  -0.9226341  -
1.3542194
```

```
## [568,] -0.3495967  0.06476678   1.0052620  -0.6018137  -0.1137275  -
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## [569,] -1.1171896  0.06476678  -1.4610893  -1.3974051  -1.7315407
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## [570,] -0.3495967 -0.66206039   0.1831449  -1.3974051  -0.9226341
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## [571,] -0.3495967 -0.66206039  -1.4610893  -1.3974051  -0.1137275  -
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## [573,] -1.1171896 -0.66206039  -0.6389722  -1.3974051  -0.9226341  -
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## [574,]  0.4179961  0.06476678  -1.4610893  -1.3974051  -0.1137275
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## [575,] -1.1171896  0.06476678  -0.6389722  -1.3974051  -1.7315407  -
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## [576,]  0.4179961 -0.66206039  -0.6389722   0.1937777  -0.1137275
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## [577,] -0.3495967  1.51842111   1.8273791  -0.6018137  -0.9226341  -
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## [578,] -1.1171896 -1.38888755  -1.4610893  -1.3974051  -1.7315407  -
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## [579,] -1.1171896  0.79159394   0.1831449  -0.6018137   0.6951791
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## [581,] -1.1171896  1.51842111   0.1831449  -0.6018137  -0.9226341  -
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## [583,] -1.1171896  0.79159394   1.0052620   0.9893691  -0.1137275
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## [585,] -1.1171896 -0.66206039   0.1831449   0.1937777  -0.1137275  -
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## [586,] -1.1171896  0.06476678  -0.6389722   0.9893691   0.6951791
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## [587,] -0.3495967 -1.38888755   0.1831449  -0.6018137  -1.7315407
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## [588,]  1.9531818  0.06476678   1.0052620  -1.3974051  -0.1137275  -
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## [589,] -1.1171896  0.79159394  -1.4610893  -1.3974051  -0.9226341  -
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## [591,]  0.4179961 -1.38888755   1.0052620   0.9893691   1.5040857
0.1300580
## [592,] -1.1171896  0.79159394  -0.6389722   0.9893691  -0.9226341  -
0.6120807
```

```
## [593,] -1.1171896  0.79159394  -0.6389722  -0.6018137  -0.9226341  -
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## [594,] -0.3495967 -0.66206039   1.0052620   0.1937777  -0.1137275
0.8721967
## [595,]  1.1855890 -0.66206039  -0.6389722   0.9893691  -1.7315407
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## [596,]  1.9531818 -1.38888755   1.0052620  -1.3974051  -0.9226341  -
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## [597,] -1.1171896  0.79159394   1.0052620  -0.6018137  -0.9226341  -
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## [598,]  0.4179961  0.79159394  -0.6389722  -0.6018137   0.6951791
0.1300580
## [599,]  1.1855890  0.79159394   0.1831449   0.1937777  -0.1137275  -
0.6120807
## [600,]  0.4179961  0.79159394   1.0052620  -0.6018137   0.6951791
0.8721967
## [601,]  0.4179961  1.51842111   1.8273791  -0.6018137  -0.9226341
0.8721967
## [602,] -0.3495967 -1.38888755  -1.4610893   0.9893691   1.5040857
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## [603,] -0.3495967  0.06476678  -1.4610893   0.9893691   0.6951791
0.1300580
## [604,] -0.3495967  1.51842111   0.1831449   0.9893691  -0.9226341
0.8721967
## [605,]  1.9531818  0.79159394   1.0052620  -0.6018137  -0.9226341
1.6143354
## [606,]  1.1855890 -1.38888755   0.1831449   0.1937777   0.6951791  -
1.3542194
## [607,] -0.3495967 -0.66206039  -1.4610893  -0.6018137  -0.1137275  -
0.6120807
## [608,]  0.4179961 -1.38888755   0.1831449   0.1937777   0.6951791  -
1.3542194
## [609,]  1.1855890  0.79159394   1.0052620   0.9893691   0.6951791
0.8721967
## [610,] -0.3495967  1.51842111  -0.6389722   0.1937777  -0.9226341
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## [613,]  0.4179961  0.79159394   1.0052620   0.1937777  -0.9226341
0.1300580
## [614,] -1.1171896  1.51842111  -0.6389722   0.9893691  -0.1137275
0.8721967
## [615,] -1.1171896 -1.38888755   1.0052620   1.7849606  -0.1137275  -
1.3542194
## [616,]  0.4179961 -0.66206039  -0.6389722   1.7849606  -0.1137275
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1.3542194
```

```
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0.1300580
## [622,] -1.1171896 -1.38888755  -1.4610893  -1.3974051  -0.9226341
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## [625,] -1.1171896  0.79159394  -0.6389722  -0.6018137   0.6951791   -
1.3542194
## [626,]  0.4179961  0.79159394  -1.4610893  -0.6018137   0.6951791
0.1300580
## [627,] -1.1171896  0.79159394   1.0052620   0.9893691  -0.9226341   -
0.6120807
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0.8721967
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0.6120807
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0.6120807
## [632,] -0.3495967 -0.66206039  -0.6389722   0.1937777  -0.9226341
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0.1300580
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1.3542194
## [635,] -0.3495967  0.79159394   0.1831449   0.9893691  -0.1137275
0.8721967
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1.3542194
## [637,]  1.1855890  1.51842111   1.8273791   0.1937777   1.5040857
1.6143354
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1.3542194
## [639,]  1.9531818  0.79159394   1.0052620   0.1937777   0.6951791
0.1300580
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1.6143354
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1.3542194
## [642,] -0.3495967  1.51842111   1.0052620   0.1937777  -0.1137275
0.1300580
```

```
##  [643,] -0.3495967 -0.66206039  -0.6389722  -1.3974051  -1.7315407
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##  [644,] -1.1171896  0.79159394  -1.4610893   0.1937777   0.6951791   -
1.3542194
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0.6120807
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0.1300580
##  [657,]  0.4179961 -0.66206039  -1.4610893   0.9893691   0.6951791
0.1300580
##  [658,] -0.3495967  0.79159394  -0.6389722  -1.3974051  -0.9226341   -
0.6120807
##  [659,] -1.1171896  1.51842111  -0.6389722   0.1937777  -0.9226341
0.1300580
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1.6143354
##  [661,]  1.1855890  0.06476678   1.8273791   0.9893691  -0.1137275
0.1300580
##  [662,] -1.1171896 -0.66206039  -1.4610893  -1.3974051  -1.7315407   -
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##  [665,] -1.1171896 -1.38888755  -0.6389722   0.1937777   0.6951791
0.1300580
##  [666,]  1.9531818  1.51842111   1.8273791   0.1937777   1.5040857
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1.6143354
```

```
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0.1300580
## [689,]  1.9531818  0.06476678  -1.4610893  -1.3974051  -0.9226341  -
1.3542194
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0.6120807
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## [692,] -0.3495967  0.79159394  -0.6389722   0.9893691   1.5040857
1.6143354
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```
## [693,]  1.1855890  0.79159394   0.1831449   0.9893691   0.6951791
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## [697,] -1.1171896  0.06476678  -1.4610893   0.1937777  -0.1137275  -
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## [698,]  1.9531818  0.06476678  -1.4610893  -1.3974051  -0.9226341  -
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1.6143354
## [711,] -0.3495967  0.79159394   1.8273791   0.1937777  -0.9226341  -
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1.3542194
## [713,] -1.1171896 -1.38888755  -1.4610893   0.1937777  -0.9226341  -
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0.6120807
```

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## [718,] -1.1171896 -1.38888755 -1.4610893  0.1937777 -0.1137275
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1.6143354
## [724,] -1.1171896 -0.66206039 -1.4610893  0.9893691 -0.1137275  -
0.6120807
## [725,] -0.3495967  0.06476678  0.1831449  0.1937777  0.6951791  -
0.6120807
## [726,] -1.1171896  0.79159394 -1.4610893  0.9893691 -0.9226341
0.8721967
## [727,] -1.1171896  1.51842111  1.8273791  0.1937777 -0.9226341  -
1.3542194
## [728,]  0.4179961 -0.66206039 -0.6389722  0.1937777 -0.1137275  -
1.3542194
## [729,] -1.1171896  1.51842111 -0.6389722 -0.6018137 -0.1137275
0.1300580
## [730,]  0.4179961  0.79159394  1.0052620  0.1937777  1.5040857
0.8721967
## [731,]  1.9531818  0.06476678  0.1831449  0.9893691 -0.9226341
0.8721967
## [732,] -0.3495967  0.79159394  0.1831449  0.9893691  0.6951791
1.6143354
## [733,] -0.3495967  0.79159394  0.1831449  0.9893691 -0.1137275  -
0.6120807
## [734,] -1.1171896 -1.38888755  1.0052620  0.9893691  0.6951791
0.1300580
## [735,] -1.1171896 -1.38888755 -0.6389722  0.1937777 -0.1137275  -
0.6120807
## [736,] -1.1171896 -1.38888755 -1.4610893 -1.3974051 -0.9226341  -
1.3542194
## [737,]  0.4179961 -0.66206039 -0.6389722  0.9893691  1.5040857  -
0.6120807
## [738,] -1.1171896 -1.38888755 -1.4610893  0.9893691  1.5040857
0.8721967
## [739,] -0.3495967  1.51842111 -1.4610893 -1.3974051  0.6951791  -
1.3542194
## [740,]  0.4179961 -1.38888755 -0.6389722 -0.6018137  1.5040857  -
0.6120807
## [741,] -1.1171896  1.51842111 -0.6389722  0.1937777 -0.1137275
0.1300580
## [742,] -1.1171896 -1.38888755 -0.6389722  1.7849606  0.6951791
0.8721967
```

```
## [743,] -1.1171896  0.06476678   1.0052620  -0.6018137  -0.1137275
0.8721967
## [744,]  1.1855890  0.06476678   0.1831449   0.1937777  -0.1137275
0.8721967
## [745,]  1.9531818 -1.38888755   0.1831449   0.1937777   1.5040857
1.6143354
## [746,] -0.3495967 -1.38888755   0.1831449  -0.6018137  -0.1137275  -
0.6120807
## [747,]  0.4179961 -1.38888755  -0.6389722   0.1937777   0.6951791
0.8721967
## [748,]  0.4179961  1.51842111   1.0052620   1.7849606  -0.9226341
1.6143354
## [749,]  1.9531818  0.06476678   0.1831449   0.1937777  -0.1137275
0.1300580
## [750,]  0.4179961 -1.38888755  -1.4610893   0.1937777   1.5040857
1.6143354
## [751,] -1.1171896  1.51842111  -1.4610893   1.7849606   0.6951791
1.6143354
## [752,]  1.1855890 -1.38888755  -0.6389722   0.1937777  -0.1137275
0.1300580
## [753,]  0.4179961  0.79159394  -0.6389722   0.9893691  -0.9226341  -
0.6120807
## [754,] -0.3495967 -1.38888755   0.1831449  -0.6018137   1.5040857
1.6143354
## [755,]  0.4179961  0.79159394   0.1831449   0.1937777  -0.1137275  -
0.6120807
## [756,]  1.1855890 -1.38888755   1.0052620   0.9893691   1.5040857  -
0.6120807
## [757,]  1.9531818 -0.66206039   1.8273791   0.1937777   0.6951791
0.8721967
## [758,] -0.3495967  1.51842111   1.8273791   1.7849606  -0.1137275  -
0.6120807
## [759,] -1.1171896  0.06476678  -1.4610893  -1.3974051  -0.9226341  -
0.6120807
## [760,]  0.4179961  0.06476678   0.1831449   0.9893691   1.5040857
0.8721967
## [761,]  1.1855890 -0.66206039   0.1831449  -0.6018137   0.6951791
0.8721967
## [762,] -0.3495967  1.51842111   1.8273791  -1.3974051  -1.7315407
0.1300580
## [763,]  0.4179961  0.79159394   1.8273791  -1.3974051  -0.1137275
1.6143354
## [764,]  1.9531818 -1.38888755  -1.4610893   0.1937777  -0.1137275
0.8721967
## [765,] -0.3495967 -0.66206039  -0.6389722   0.1937777  -0.1137275  -
0.6120807
## [766,]  1.9531818 -0.66206039  -0.6389722   0.1937777   1.5040857
0.8721967
## [767,]  1.1855890  0.79159394   1.0052620   0.9893691   1.5040857
0.1300580
```

```
## [768,]  -0.3495967  -0.66206039   -0.6389722    0.1937777    0.6951791
0.8721967
## [769,]  -0.3495967   1.51842111    0.1831449    0.1937777   -0.1137275
0.1300580
## [770,]   0.4179961   0.06476678    0.1831449    0.1937777   -0.1137275
0.1300580
## [771,]  -1.1171896  -1.38888755   -1.4610893   -1.3974051   -1.7315407   -
1.3542194
## [772,]   1.1855890  -0.66206039    0.1831449   -0.6018137   -0.1137275   -
0.6120807
## [773,]  -1.1171896   0.79159394   -1.4610893   -1.3974051    0.6951791   -
0.6120807
## [774,]   0.4179961   0.79159394    0.1831449    1.7849606    0.6951791
0.8721967
## [775,]  -1.1171896  -0.66206039   -0.6389722    0.1937777   -0.1137275   -
0.6120807
## [776,]  -0.3495967   0.79159394   -0.6389722   -0.6018137   -0.1137275
0.8721967
## [777,]  -1.1171896   0.06476678   -1.4610893    0.1937777    1.5040857   -
0.6120807
## [778,]  -1.1171896   1.51842111    0.1831449    0.1937777   -0.1137275
0.1300580
## [779,]  -1.1171896   0.06476678   -0.6389722   -1.3974051   -0.9226341   -
1.3542194
## [780,]  -0.3495967   0.79159394   -0.6389722    1.7849606   -0.1137275
0.8721967
## [781,]  -0.3495967   0.06476678    0.1831449    0.1937777   -0.1137275   -
0.6120807
## [782,]  -1.1171896  -1.38888755   -1.4610893    0.9893691    0.6951791   -
1.3542194
## [783,]   1.9531818  -0.66206039    1.8273791    1.7849606    1.5040857
1.6143354
## [784,]  -1.1171896  -0.66206039    0.1831449    0.1937777   -0.1137275   -
0.6120807
## [785,]  -1.1171896   0.06476678    0.1831449    1.7849606   -0.9226341   -
0.6120807
## [786,]   0.4179961   0.79159394    0.1831449    0.1937777   -0.9226341
0.1300580
## [787,]  -1.1171896  -0.66206039   -0.6389722    1.7849606    1.5040857
0.8721967
## [788,]  -1.1171896   1.51842111    0.1831449   -0.6018137   -0.1137275
0.1300580
## [789,]   0.4179961   0.79159394    1.0052620   -0.6018137   -0.9226341
0.8721967
## [790,]  -0.3495967   0.79159394   -1.4610893   -1.3974051   -1.7315407
0.1300580
## [791,]   1.1855890  -0.66206039   -1.4610893   -1.3974051    1.5040857
1.6143354
## [792,]  -1.1171896   0.79159394    0.1831449    1.7849606   -0.1137275
0.8721967
```

```
## [793,] -0.3495967  0.79159394   0.1831449   0.1937777  -1.7315407   -
1.3542194
## [794,] -0.3495967  1.51842111   0.1831449   0.9893691  -0.1137275
0.1300580
## [795,] -1.1171896  1.51842111  -1.4610893  -1.3974051  -1.7315407   -
1.3542194
## [796,]  1.9531818 -1.38888755   1.8273791  -1.3974051   1.5040857   -
1.3542194
## [797,]  0.4179961  0.79159394   1.0052620  -0.6018137   0.6951791
0.1300580
## [798,] -1.1171896  1.51842111  -0.6389722  -0.6018137  -0.9226341   -
0.6120807
## [799,]  0.4179961  0.06476678   0.1831449  -0.6018137  -0.9226341
0.1300580
## [800,]  1.1855890 -1.38888755  -1.4610893  -0.6018137   0.6951791
0.8721967
## [801,]  1.1855890  0.79159394  -1.4610893  -1.3974051  -0.1137275   -
1.3542194
## [802,] -0.3495967 -1.38888755  -1.4610893  -1.3974051   1.5040857
0.1300580
## [803,]  0.4179961  1.51842111   0.1831449  -1.3974051  -0.1137275
0.1300580
## [804,]  1.9531818 -1.38888755  -1.4610893  -0.6018137  -0.1137275   -
0.6120807
## [805,]  1.1855890  0.79159394   1.0052620   0.9893691   0.6951791   -
0.6120807
## [806,]  1.9531818  0.06476678   1.0052620  -0.6018137   1.5040857
0.8721967
## [807,] -1.1171896 -1.38888755  -1.4610893  -1.3974051  -1.7315407   -
1.3542194
## [808,] -0.3495967 -1.38888755  -1.4610893  -1.3974051  -0.1137275   -
1.3542194
## [809,]  1.1855890  0.06476678  -0.6389722  -1.3974051  -0.9226341   -
0.6120807
## [810,] -1.1171896  0.79159394  -1.4610893  -1.3974051  -0.1137275   -
1.3542194
## [811,]  0.4179961 -1.38888755   0.1831449   0.9893691   1.5040857
0.8721967
## [812,]  1.1855890  0.06476678  -0.6389722   0.1937777   0.6951791
0.8721967
## [813,] -1.1171896 -0.66206039  -1.4610893  -1.3974051  -0.9226341   -
1.3542194
## [814,] -1.1171896 -0.66206039  -1.4610893  -1.3974051  -0.1137275   -
1.3542194
## [815,]  0.4179961  1.51842111   1.0052620   0.1937777  -0.9226341   -
1.3542194
## [816,]  0.4179961  1.51842111   1.0052620   0.9893691   1.5040857   -
0.6120807
## [817,]  1.9531818  0.79159394   1.0052620   1.7849606   1.5040857
1.6143354
```

```
## [818,] -0.3495967  1.51842111   1.0052620   0.9893691   1.5040857  -
1.3542194
## [819,]  0.4179961 -0.66206039  -1.4610893  -1.3974051  -0.1137275
0.1300580
## [820,] -0.3495967  0.06476678  -0.6389722  -1.3974051  -1.7315407  -
0.6120807
## [821,] -0.3495967  0.79159394   1.0052620   0.9893691   0.6951791
1.6143354
## [822,]  1.9531818 -1.38888755   0.1831449   0.9893691   1.5040857
1.6143354
## [823,]  0.4179961  1.51842111   1.0052620   0.1937777  -0.1137275
0.1300580
## [824,] -1.1171896  1.51842111  -0.6389722  -0.6018137  -1.7315407
0.1300580
## [825,] -0.3495967 -1.38888755   0.1831449  -0.6018137   1.5040857
0.1300580
## [826,] -0.3495967 -1.38888755  -0.6389722  -0.6018137  -0.9226341
0.8721967
## [827,]  0.4179961  0.06476678   0.1831449   1.7849606   1.5040857
0.1300580
## [828,]  0.4179961 -0.66206039   1.0052620   0.1937777   1.5040857
1.6143354
## [829,]  1.1855890  1.51842111  -0.6389722  -1.3974051  -0.1137275
0.1300580
## [830,]  1.1855890  0.06476678  -0.6389722   0.9893691   0.6951791
0.8721967
## [831,] -1.1171896  1.51842111   1.0052620   0.9893691  -0.1137275
0.1300580
## [832,]  1.1855890  1.51842111   1.0052620   0.9893691   1.5040857
0.1300580
## [833,]  1.1855890 -1.38888755   1.0052620   0.9893691   1.5040857
0.1300580
## [834,] -1.1171896 -1.38888755  -1.4610893   1.7849606  -0.1137275
1.6143354
## [835,] -0.3495967 -0.66206039  -0.6389722  -0.6018137  -0.1137275  -
0.6120807
## [836,] -1.1171896 -1.38888755   1.0052620   0.1937777  -0.1137275
0.1300580
## [837,]  1.9531818  0.79159394   0.1831449   1.7849606   0.6951791
0.1300580
## [838,]  1.1855890 -0.66206039   1.0052620   1.7849606   1.5040857
0.8721967
## [839,] -1.1171896  0.79159394   1.8273791   0.1937777   0.6951791
0.8721967
## [840,] -0.3495967  0.06476678   0.1831449   0.1937777   0.6951791
0.8721967
## [841,] -1.1171896  0.79159394   0.1831449   0.1937777  -0.9226341  -
0.6120807
## [842,]  1.1855890  1.51842111  -0.6389722  -0.6018137  -0.9226341
0.1300580
```

```
## [843,]  1.1855890 -1.38888755   0.1831449  -0.6018137  -0.9226341
1.6143354
## [844,] -0.3495967  1.51842111   0.1831449  -0.6018137  -0.9226341   -
1.3542194
## [845,]  0.4179961 -0.66206039   0.1831449   1.7849606   0.6951791
0.8721967
## [846,] -1.1171896  0.79159394  -0.6389722  -0.6018137  -1.7315407   -
1.3542194
## [847,] -1.1171896  0.79159394  -0.6389722   0.9893691  -0.9226341   -
0.6120807
## [848,] -0.3495967 -1.38888755   1.0052620   0.9893691   1.5040857
1.6143354
## [849,]  1.1855890 -1.38888755   1.0052620  -0.6018137  -0.1137275
1.6143354
## [850,] -1.1171896 -1.38888755  -0.6389722   0.9893691  -0.9226341   -
1.3542194
## [851,] -1.1171896  0.79159394   1.0052620   0.1937777  -0.1137275   -
1.3542194
## [852,] -0.3495967  1.51842111   0.1831449  -0.6018137  -0.9226341   -
0.6120807
## [853,] -1.1171896  1.51842111   0.1831449  -0.6018137  -0.9226341   -
0.6120807
## [854,] -1.1171896 -0.66206039   0.1831449  -0.6018137  -0.9226341   -
0.6120807
## [855,] -1.1171896  1.51842111   0.1831449   0.1937777  -0.9226341   -
0.6120807
## [856,]  1.1855890  1.51842111   1.0052620  -0.6018137  -0.1137275   -
0.6120807
## [857,]  0.4179961  0.06476678   0.1831449   1.7849606  -0.1137275   -
0.6120807
## [858,] -0.3495967 -0.66206039   0.1831449   0.1937777  -0.1137275
0.8721967
## [859,] -1.1171896 -1.38888755   1.8273791   1.7849606   1.5040857
0.1300580
## [860,] -0.3495967  1.51842111   0.1831449   0.1937777  -0.1137275   -
0.6120807
## [861,]  0.4179961  0.79159394   0.1831449   0.1937777  -1.7315407
0.1300580
## [862,] -0.3495967 -1.38888755   0.1831449   0.1937777  -0.1137275
0.8721967
## [863,] -1.1171896  0.79159394   0.1831449   0.9893691  -0.9226341
0.1300580
## [864,] -1.1171896 -0.66206039  -0.6389722   0.1937777  -0.1137275
0.8721967
## [865,]  1.1855890  0.79159394   0.1831449   0.1937777   0.6951791
0.8721967
## [866,]  0.4179961  0.79159394  -0.6389722  -1.3974051  -0.9226341
0.8721967
## [867,]  1.1855890  0.06476678   1.0052620  -0.6018137   0.6951791
0.8721967
```

```
##  [868,] -1.1171896 -1.38888755   0.1831449  -1.3974051  -0.1137275
0.1300580
##  [869,] -0.3495967  1.51842111  -0.6389722  -0.6018137  -0.1137275   -
1.3542194
##  [870,]  0.4179961 -0.66206039  -1.4610893   0.1937777   1.5040857
1.6143354
##  [871,] -0.3495967  0.06476678  -1.4610893  -1.3974051  -1.7315407   -
0.6120807
##  [872,] -0.3495967 -0.66206039   0.1831449   0.9893691   1.5040857
0.8721967
##  [873,] -0.3495967 -0.66206039  -0.6389722   0.1937777  -0.9226341
1.6143354
##  [874,] -1.1171896  0.06476678   0.1831449   0.1937777  -0.1137275
0.1300580
##  [875,] -0.3495967  0.06476678  -0.6389722  -0.6018137  -0.9226341   -
0.6120807
##  [876,] -1.1171896  0.79159394  -1.4610893  -1.3974051  -1.7315407
0.1300580
##  [877,] -1.1171896  1.51842111   1.8273791   0.9893691   0.6951791   -
1.3542194
##  [878,]  1.1855890  0.06476678   0.1831449   0.9893691   1.5040857
1.6143354
##  [879,] -0.3495967  1.51842111   1.0052620   0.9893691   0.6951791
0.1300580
##  [880,]  0.4179961 -0.66206039  -1.4610893  -0.6018137   0.6951791
0.8721967
##  [881,]  0.4179961  0.79159394  -0.6389722  -0.6018137  -0.9226341   -
1.3542194
##  [882,] -0.3495967 -1.38888755  -1.4610893   0.9893691   1.5040857
1.6143354
##  [883,]  1.9531818  0.06476678  -0.6389722  -0.6018137  -0.1137275   -
0.6120807
##  [884,] -1.1171896 -0.66206039   0.1831449   0.9893691  -0.1137275
0.1300580
##  [885,]  1.1855890  0.06476678   1.0052620   0.9893691   0.6951791
1.6143354
##  [886,] -1.1171896  1.51842111   1.0052620  -0.6018137  -0.1137275   -
1.3542194
##  [887,]  1.1855890 -1.38888755  -1.4610893  -1.3974051  -0.1137275
0.8721967
##  [888,] -0.3495967  0.79159394   0.1831449  -0.6018137  -0.1137275   -
0.6120807
##  [889,] -0.3495967 -0.66206039  -1.4610893  -0.6018137   0.6951791   -
0.6120807
##  [890,] -0.3495967 -0.66206039   0.1831449   0.1937777   1.5040857
0.8721967
##  [891,] -1.1171896  0.79159394  -0.6389722  -0.6018137  -0.1137275   -
1.3542194
##  [892,] -0.3495967 -0.66206039   1.0052620  -1.3974051  -0.1137275   -
0.6120807
```

```
##  [893,] -0.3495967  0.06476678 -0.6389722 -0.6018137 -0.1137275  -
1.3542194
##  [894,] -0.3495967  0.79159394  0.1831449 -0.6018137 -0.1137275  -
0.6120807
##  [895,] -0.3495967 -0.66206039  1.0052620  0.1937777  0.6951791  -
0.6120807
##  [896,] -1.1171896  0.79159394  0.1831449  0.1937777 -0.9226341  -
1.3542194
##  [897,]  0.4179961 -1.38888755 -0.6389722  0.9893691  0.6951791
0.8721967
##  [898,] -0.3495967  0.06476678 -0.6389722  0.1937777 -0.9226341
0.8721967
##  [899,]  0.4179961 -1.38888755  0.1831449  1.7849606  1.5040857
1.6143354
##  [900,] -0.3495967  1.51842111  0.1831449  0.1937777 -1.7315407
0.1300580
##  [901,] -1.1171896 -0.66206039  1.0052620  0.9893691 -0.9226341  -
1.3542194
##  [902,] -0.3495967 -1.38888755 -0.6389722  0.1937777 -0.1137275  -
0.6120807
##  [903,]  0.4179961  1.51842111  1.0052620  0.1937777 -0.1137275  -
0.6120807
##  [904,]  1.1855890 -0.66206039  0.1831449  1.7849606  0.6951791
0.8721967
##  [905,] -1.1171896 -0.66206039 -0.6389722 -0.6018137 -0.1137275  -
1.3542194
##  [906,]  0.4179961  1.51842111  0.1831449  0.1937777 -0.1137275  -
0.6120807
##  [907,] -1.1171896 -0.66206039  0.1831449  0.9893691 -0.1137275
1.6143354
##  [908,]  0.4179961  0.06476678  0.1831449 -0.6018137 -0.9226341  -
1.3542194
##  [909,]  0.4179961 -0.66206039 -0.6389722  0.1937777 -0.9226341  -
0.6120807
##  [910,]  0.4179961  0.79159394  1.0052620 -0.6018137  1.5040857
0.1300580
##  [911,] -1.1171896  0.79159394  1.0052620  1.7849606  1.5040857
1.6143354
##  [912,]  1.1855890 -1.38888755 -1.4610893  0.1937777  0.6951791
1.6143354
##  [913,]  1.1855890  0.06476678  0.1831449 -0.6018137  0.6951791  -
0.6120807
##  [914,]  0.4179961 -1.38888755 -0.6389722  0.9893691  0.6951791
0.8721967
##  [915,]  1.1855890 -0.66206039  0.1831449  0.9893691  1.5040857
1.6143354
##  [916,] -1.1171896  0.79159394 -0.6389722 -0.6018137 -0.1137275
0.1300580
##  [917,]  1.1855890 -1.38888755  0.1831449  0.1937777  1.5040857
0.8721967
```

```
## [918,]   1.1855890 -0.66206039  -0.6389722  -0.6018137   0.6951791
0.8721967
## [919,]   1.9531818  0.06476678   1.0052620  -0.6018137   0.6951791   -
0.6120807
## [920,]   0.4179961  0.06476678   0.1831449   0.1937777  -0.1137275
1.6143354
## [921,]   0.4179961 -0.66206039   0.1831449   0.1937777   1.5040857   -
1.3542194
## [922,]   0.4179961  0.79159394  -0.6389722   0.1937777  -0.9226341
0.1300580
## [923,]  -1.1171896  0.79159394   0.1831449  -0.6018137  -1.7315407   -
1.3542194
## [924,]   1.9531818  0.06476678  -1.4610893   0.9893691   1.5040857
1.6143354
## [925,]  -1.1171896 -0.66206039  -0.6389722  -1.3974051  -1.7315407   -
1.3542194
## [926,]  -1.1171896  0.06476678   1.8273791   0.9893691  -0.1137275   -
0.6120807
## [927,]   0.4179961 -1.38888755  -0.6389722  -0.6018137  -0.9226341
1.6143354
## [928,]  -0.3495967  0.79159394   1.0052620  -1.3974051  -0.9226341
0.1300580
## [929,]  -0.3495967  0.79159394   1.0052620  -0.6018137   0.6951791
0.1300580
## [930,]   1.1855890 -0.66206039   1.8273791  -0.6018137  -0.1137275
1.6143354
## [931,]   0.4179961  1.51842111   0.1831449  -1.3974051  -1.7315407   -
1.3542194
## [932,]   0.4179961 -0.66206039   0.1831449  -0.6018137  -0.1137275   -
1.3542194
## [933,]  -1.1171896  0.79159394   0.1831449  -0.6018137  -0.9226341   -
1.3542194
## [934,]   0.4179961 -1.38888755   1.0052620   1.7849606   1.5040857
0.8721967
## [935,]   1.1855890 -0.66206039  -0.6389722  -0.6018137  -0.9226341
0.1300580
## [936,]  -1.1171896 -0.66206039  -1.4610893  -1.3974051  -1.7315407   -
1.3542194
## [937,]   1.1855890 -0.66206039   0.1831449   0.9893691  -0.1137275   -
0.6120807
## [938,]   1.9531818  0.79159394   1.8273791   1.7849606   1.5040857
1.6143354
## [939,]   1.1855890  0.79159394  -1.4610893   0.1937777   1.5040857
1.6143354
## [940,]  -0.3495967 -1.38888755  -0.6389722   0.1937777   0.6951791
0.1300580
## [941,]  -1.1171896  0.79159394   1.0052620   1.7849606  -0.9226341   -
0.6120807
## [942,]   0.4179961  0.79159394   1.8273791   0.9893691   0.6951791
0.8721967
```

```
##  [943,] -0.3495967 -1.38888755   0.1831449   1.7849606 -0.1137275
0.1300580
##  [944,]  1.1855890  0.79159394   1.0052620   0.9893691 -0.1137275
0.1300580
##  [945,] -1.1171896 -0.66206039  -1.4610893   0.1937777 -0.1137275    -
0.6120807
##  [946,]  1.1855890  1.51842111   1.0052620  -0.6018137  0.6951791
0.1300580
##  [947,]  1.9531818 -0.66206039  -1.4610893   0.9893691  1.5040857
0.8721967
##  [948,] -0.3495967  0.79159394   0.1831449  -0.6018137 -1.7315407    -
0.6120807
##  [949,] -1.1171896 -0.66206039   0.1831449  -0.6018137 -0.1137275    -
0.6120807
##  [950,]  0.4179961 -0.66206039   0.1831449   0.1937777 -0.1137275    -
0.6120807
##  [951,]  1.9531818  0.79159394   1.0052620   0.1937777  0.6951791    -
0.6120807
##  [952,] -0.3495967  0.79159394   1.8273791   0.1937777  1.5040857
0.8721967
##  [953,]  0.4179961 -1.38888755   0.1831449   0.1937777 -0.1137275
0.8721967
##  [954,]  1.1855890  0.79159394   1.0052620   0.9893691  0.6951791
0.1300580
##  [955,] -0.3495967  0.79159394   1.0052620   0.1937777 -0.1137275    -
0.6120807
##  [956,]  1.9531818 -1.38888755   0.1831449  -1.3974051 -0.1137275    -
1.3542194
##  [957,]  0.4179961  0.06476678   0.1831449   0.9893691  0.6951791    -
1.3542194
##  [958,] -1.1171896  1.51842111  -1.4610893  -0.6018137 -1.7315407    -
1.3542194
##  [959,] -1.1171896  0.06476678  -0.6389722  -0.6018137 -0.9226341
0.1300580
##  [960,]  1.1855890 -0.66206039   1.8273791   0.9893691  1.5040857
0.8721967
##  [961,]  1.9531818  0.06476678   0.1831449   1.7849606 -0.9226341
1.6143354
##  [962,] -1.1171896  1.51842111   1.0052620   0.1937777 -0.9226341
0.1300580
##  [963,] -1.1171896 -1.38888755  -1.4610893   0.9893691 -1.7315407    -
1.3542194
##  [964,] -1.1171896  0.06476678  -1.4610893   0.9893691 -1.7315407    -
1.3542194
##  [965,]  1.9531818  0.06476678   1.0052620   0.1937777  0.6951791
1.6143354
##  [966,]  1.1855890 -1.38888755   0.1831449  -0.6018137  1.5040857    -
0.6120807
##  [967,] -1.1171896 -1.38888755   0.1831449   0.9893691 -1.7315407
1.6143354
```

```
##  [968,]   1.9531818 -1.38888755   1.0052620   0.9893691   0.6951791  -
0.6120807
##  [969,]  -1.1171896  1.51842111   0.1831449   0.1937777  -0.1137275  -
0.6120807
##  [970,]   0.4179961 -0.66206039  -0.6389722   0.1937777   0.6951791
0.1300580
##  [971,]  -1.1171896  0.79159394  -0.6389722   1.7849606   0.6951791
0.8721967
##  [972,]   1.1855890 -1.38888755   1.0052620   0.1937777   0.6951791
0.1300580
##  [973,]   1.1855890 -1.38888755   0.1831449   0.1937777   1.5040857
1.6143354
##  [974,]   1.9531818 -1.38888755   1.0052620   1.7849606  -0.9226341
0.1300580
##  [975,]   1.9531818 -1.38888755   1.8273791   0.1937777   0.6951791
0.8721967
##  [976,]   1.9531818  1.51842111   1.8273791   1.7849606   1.5040857
1.6143354
##  [977,]  -0.3495967  0.06476678   1.0052620   0.9893691   0.6951791  -
0.6120807
##  [978,]  -0.3495967  0.79159394  -0.6389722  -1.3974051  -0.9226341
0.1300580
##  [979,]   0.4179961 -0.66206039   0.1831449   1.7849606   1.5040857
0.1300580
##  [980,]  -1.1171896  0.06476678  -0.6389722   0.9893691   0.6951791  -
1.3542194
##  [981,]  -0.3495967 -1.38888755   0.1831449   1.7849606   0.6951791  -
1.3542194
##  [982,]  -1.1171896 -1.38888755  -0.6389722   0.1937777   0.6951791
1.6143354
##  [983,]  -0.3495967 -0.66206039   1.0052620   0.1937777   0.6951791
1.6143354
##  [984,]  -1.1171896  0.79159394   1.0052620  -0.6018137  -0.1137275
0.1300580
##  [985,]   0.4179961 -1.38888755  -0.6389722  -1.3974051   0.6951791
0.1300580
##  [986,]   0.4179961 -1.38888755   1.0052620  -0.6018137  -0.1137275
1.6143354
##  [987,]   1.1855890  0.06476678   0.1831449   0.9893691   0.6951791
0.8721967
##  [988,]  -0.3495967 -1.38888755   0.1831449   0.1937777  -0.1137275
0.8721967
##  [989,]   1.1855890  0.06476678   1.8273791   1.7849606   1.5040857
1.6143354
##  [990,]  -1.1171896  1.51842111  -0.6389722   0.1937777  -0.1137275
0.1300580
##  [991,]  -1.1171896 -1.38888755  -1.4610893  -0.6018137  -0.1137275  -
1.3542194
##  [992,]   1.1855890  1.51842111  -0.6389722  -1.3974051   0.6951791  -
0.6120807
```

```
##  [993,]  0.4179961 -0.66206039   0.1831449  -0.6018137  -1.7315407   -
1.3542194
##  [994,] -1.1171896  0.79159394  -1.4610893  -1.3974051  -1.7315407
0.8721967
##  [995,]  1.1855890 -0.66206039   1.0052620   0.1937777   1.5040857
0.1300580
##  [996,]  0.4179961  0.06476678  -0.6389722  -1.3974051  -1.7315407   -
0.6120807
##  [997,] -1.1171896  0.79159394   1.0052620  -0.6018137  -0.1137275
0.1300580
##  [998,]  1.1855890 -0.66206039   1.0052620  -1.3974051  -1.7315407   -
0.6120807
##  [999,]  1.1855890  0.06476678  -0.6389722  -1.3974051   1.5040857
0.1300580
## [1000,] -1.1171896  1.51842111   1.8273791   1.7849606   1.5040857
1.6143354
## [1001,] -1.1171896  1.51842111   0.1831449  -0.6018137  -0.1137275
0.1300580
## [1002,]  1.1855890  0.79159394   0.1831449  -1.3974051   0.6951791   -
1.3542194
## [1003,]  0.4179961 -1.38888755   1.0052620  -0.6018137  -0.9226341
0.8721967
## [1004,]  0.4179961 -0.66206039   1.0052620   0.9893691   0.6951791   -
0.6120807
## [1005,]  0.4179961  1.51842111   1.0052620  -0.6018137  -0.1137275   -
0.6120807
## [1006,] -0.3495967  0.79159394  -1.4610893   1.7849606   0.6951791
0.8721967
## [1007,]  1.1855890 -1.38888755  -1.4610893  -0.6018137  -0.1137275   -
1.3542194
## [1008,] -0.3495967  0.06476678   0.1831449  -0.6018137  -0.9226341
1.6143354
## [1009,] -1.1171896 -0.66206039  -0.6389722   0.1937777  -0.9226341
1.6143354
## [1010,] -0.3495967  0.06476678  -1.4610893  -1.3974051  -0.1137275   -
0.6120807
##              Latino Techno..Trance      Opera
##    [1,] -1.3844812      -1.0139085 -0.9616259
##    [2,] -0.6322886      -1.0139085 -0.9616259
##    [3,]  1.6242891      -1.0139085  0.7274909
##    [4,] -1.3844812      -0.2592677 -0.9616259
##    [5,]  0.8720965      -0.2592677 -0.1170675
##    [6,]  0.1199040      -1.0139085  0.7274909
##    [7,]  0.1199040       2.0046548 -0.1170675
##    [8,] -0.6322886       0.4953731 -0.1170675
##    [9,] -1.3844812      -1.0139085 -0.9616259
##   [10,]  1.6242891      -1.0139085 -0.1170675
##   [11,]  0.1199040       1.2500140 -0.1170675
##   [12,] -0.6322886      -1.0139085 -0.1170675
##   [13,] -0.6322886      -1.0139085 -0.1170675
```

```
##    [14,]   0.1199040     -1.0139085 -0.9616259
##    [15,] -1.3844812     -1.0139085 -0.9616259
##    [16,] -0.6322886     -1.0139085 -0.1170675
##    [17,] -1.3844812      1.2500140 -0.9616259
##    [18,] -0.6322886     -1.0139085  0.7274909
##    [19,]  0.8720965      1.2500140  0.7274909
##    [20,]  0.8720965      0.4953731 -0.1170675
##    [21,]  0.1199040      0.4953731  1.5720492
##    [22,] -0.6322886     -1.0139085 -0.1170675
##    [23,]  0.1199040      0.4953731 -0.1170675
##    [24,]  0.8720965     -1.0139085 -0.9616259
##    [25,] -0.6322886      0.4953731  1.5720492
##    [26,]  0.8720965     -0.2592677 -0.9616259
##    [27,]  1.6242891     -0.2592677 -0.1170675
##    [28,]  0.1199040      1.2500140 -0.1170675
##    [29,] -0.6322886      0.4953731 -0.9616259
##    [30,]  0.8720965      0.4953731 -0.1170675
##    [31,]  0.1199040      0.4953731  0.7274909
##    [32,]  1.6242891     -1.0139085 -0.1170675
##    [33,] -0.6322886      0.4953731 -0.9616259
##    [34,] -0.6322886     -1.0139085  2.4166076
##    [35,] -0.6322886     -1.0139085 -0.9616259
##    [36,]  1.6242891     -1.0139085 -0.9616259
##    [37,] -1.3844812     -1.0139085  1.5720492
##    [38,] -1.3844812     -1.0139085 -0.9616259
##    [39,]  0.1199040      1.2500140  1.5720492
##    [40,] -1.3844812     -0.2592677 -0.1170675
##    [41,] -0.6322886      0.4953731 -0.9616259
##    [42,]  1.6242891      2.0046548 -0.9616259
##    [43,]  0.1199040      0.4953731 -0.9616259
##    [44,]  0.1199040      0.4953731 -0.9616259
##    [45,]  1.6242891      1.2500140  0.7274909
##    [46,]  0.8720965      0.4953731  1.5720492
##    [47,]  1.6242891     -0.2592677 -0.1170675
##    [48,]  0.1199040     -0.2592677  0.7274909
##    [49,]  0.8720965     -0.2592677 -0.9616259
##    [50,] -1.3844812     -0.2592677 -0.9616259
##    [51,]  1.6242891     -1.0139085 -0.1170675
##    [52,]  1.6242891      0.4953731 -0.1170675
##    [53,]  1.6242891     -0.2592677  2.4166076
##    [54,]  1.6242891     -0.2592677  2.4166076
##    [55,]  1.6242891      1.2500140  2.4166076
##    [56,]  0.8720965      2.0046548  0.7274909
##    [57,] -1.3844812     -1.0139085  1.5720492
##    [58,] -1.3844812     -1.0139085 -0.1170675
##    [59,]  0.1199040      0.4953731 -0.9616259
##    [60,] -1.3844812      1.2500140  0.7274909
##    [61,] -0.6322886     -1.0139085  0.7274909
##    [62,]  0.8720965      1.2500140  0.7274909
##    [63,]  0.8720965      2.0046548  2.4166076
```

```
##   [64,]   0.1199040    2.0046548 -0.9616259
##   [65,]   0.1199040   -0.2592677 -0.1170675
##   [66,]  -0.6322886    1.2500140 -0.1170675
##   [67,]   0.8720965    2.0046548 -0.9616259
##   [68,]   1.6242891   -1.0139085 -0.9616259
##   [69,]  -0.6322886    1.2500140 -0.1170675
##   [70,]   0.8720965   -1.0139085 -0.1170675
##   [71,]  -0.6322886    0.4953731 -0.9616259
##   [72,]  -1.3844812    0.4953731 -0.9616259
##   [73,]   1.6242891   -1.0139085 -0.9616259
##   [74,]   0.8720965    0.4953731 -0.9616259
##   [75,]  -1.3844812   -0.2592677  1.5720492
##   [76,]   0.8720965   -1.0139085 -0.1170675
##   [77,]  -1.3844812   -1.0139085 -0.9616259
##   [78,]   1.6242891    2.0046548 -0.9616259
##   [79,]   1.6242891    1.2500140 -0.1170675
##   [80,]   0.8720965    1.2500140  1.5720492
##   [81,]   1.6242891    0.4953731 -0.1170675
##   [82,]   1.6242891    0.4953731  0.7274909
##   [83,]  -1.3844812   -1.0139085  0.7274909
##   [84,]   1.6242891    2.0046548  0.7274909
##   [85,]   0.1199040   -1.0139085  2.4166076
##   [86,]  -0.6322886    1.2500140  0.7274909
##   [87,]  -0.6322886    0.4953731  0.7274909
##   [88,]   1.6242891   -0.2592677 -0.9616259
##   [89,]   1.6242891    2.0046548 -0.9616259
##   [90,]  -0.6322886   -1.0139085  0.7274909
##   [91,]  -1.3844812   -1.0139085 -0.9616259
##   [92,]  -1.3844812   -1.0139085 -0.9616259
##   [93,]   0.1199040   -1.0139085  1.5720492
##   [94,]  -1.3844812   -1.0139085  1.5720492
##   [95,]  -1.3844812    1.2500140 -0.9616259
##   [96,]   0.1199040   -0.2592677 -0.1170675
##   [97,]  -1.3844812    1.2500140 -0.9616259
##   [98,]  -1.3844812   -0.2592677 -0.9616259
##   [99,]   1.6242891    0.4953731 -0.9616259
##  [100,]   0.8720965   -1.0139085 -0.9616259
##  [101,]   0.1199040   -0.2592677 -0.1170675
##  [102,]  -1.3844812   -1.0139085 -0.1170675
##  [103,]  -0.6322886   -1.0139085  1.5720492
##  [104,]   1.6242891    1.2500140  1.5720492
##  [105,]   0.1199040    0.4953731 -0.1170675
##  [106,]  -1.3844812   -1.0139085 -0.1170675
##  [107,]   1.6242891    0.4953731  1.5720492
##  [108,]  -0.6322886   -1.0139085 -0.9616259
##  [109,]  -0.6322886   -0.2592677  0.7274909
##  [110,]   0.1199040   -1.0139085  1.5720492
##  [111,]   0.8720965    1.2500140 -0.9616259
##  [112,]  -0.6322886    1.2500140  1.5720492
##  [113,]   1.6242891    1.2500140 -0.9616259
```

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##   [114,] -0.6322886     2.0046548 -0.9616259
##   [115,] -1.3844812    -1.0139085  1.5720492
##   [116,]  1.6242891     0.4953731 -0.1170675
##   [117,] -0.6322886    -1.0139085 -0.9616259
##   [118,]  0.8720965    -1.0139085 -0.9616259
##   [119,] -0.6322886    -1.0139085 -0.9616259
##   [120,] -0.6322886     0.4953731 -0.1170675
##   [121,]  0.8720965     0.4953731 -0.1170675
##   [122,] -1.3844812     0.4953731 -0.9616259
##   [123,]  0.1199040    -1.0139085  0.7274909
##   [124,]  0.1199040    -1.0139085  0.7274909
##   [125,]  0.1199040    -1.0139085  0.7274909
##   [126,]  0.1199040    -0.2592677 -0.1170675
##   [127,] -1.3844812    -1.0139085 -0.9616259
##   [128,] -0.6322886     0.4953731  0.7274909
##   [129,]  1.6242891     2.0046548 -0.1170675
##   [130,]  0.1199040    -1.0139085 -0.9616259
##   [131,]  0.1199040     0.4953731 -0.1170675
##   [132,] -1.3844812     0.4953731 -0.9616259
##   [133,] -0.6322886    -1.0139085 -0.9616259
##   [134,]  0.1199040    -1.0139085  0.7274909
##   [135,]  0.8720965     1.2500140 -0.1170675
##   [136,] -1.3844812    -1.0139085  0.7274909
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##   [138,]  0.8720965    -0.2592677 -0.1170675
##   [139,]  0.1199040    -1.0139085 -0.1170675
##   [140,] -0.6322886     0.4953731 -0.1170675
##   [141,]  0.8720965     0.4953731 -0.1170675
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##   [143,]  0.1199040    -0.2592677 -0.9616259
##   [144,]  0.1199040     0.4953731 -0.9616259
##   [145,]  0.8720965     1.2500140 -0.1170675
##   [146,] -0.6322886     0.4953731 -0.1170675
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##   [150,] -1.3844812    -1.0139085 -0.1170675
##   [151,] -1.3844812    -1.0139085  1.5720492
##   [152,] -0.6322886    -0.2592677 -0.9616259
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```

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## [166,]  1.6242891   -0.2592677 -0.9616259
## [167,] -0.6322886   -1.0139085  2.4166076
## [168,]  0.1199040    0.4953731 -0.1170675
## [169,] -1.3844812   -1.0139085 -0.9616259
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## [171,]  0.8720965   -1.0139085 -0.9616259
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## [173,] -0.6322886   -1.0139085  0.7274909
## [174,] -1.3844812    2.0046548  1.5720492
## [175,]  0.1199040   -1.0139085  2.4166076
## [176,]  0.8720965   -0.2592677 -0.9616259
## [177,] -1.3844812   -0.2592677 -0.9616259
## [178,] -0.6322886   -1.0139085  0.7274909
## [179,] -0.6322886   -1.0139085  1.5720492
## [180,] -1.3844812    1.2500140  2.4166076
## [181,] -1.3844812   -1.0139085 -0.9616259
## [182,]  1.6242891    0.4953731  0.7274909
## [183,]  0.8720965   -1.0139085  2.4166076
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## [187,]  0.1199040   -0.2592677  1.5720492
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## [189,] -0.6322886   -1.0139085  1.5720492
## [190,] -1.3844812   -1.0139085  1.5720492
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## [192,]  0.1199040   -1.0139085  1.5720492
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## [195,] -1.3844812   -1.0139085 -0.9616259
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## [201,] -0.6322886   -0.2592677 -0.9616259
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## [203,] -1.3844812    1.2500140 -0.9616259
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## [211,]  0.8720965    2.0046548 -0.9616259
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## [213,] -1.3844812   -0.2592677  2.4166076
```

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## [214,]  0.1199040    2.0046548 -0.1170675
## [215,]  0.1199040   -1.0139085 -0.1170675
## [216,]  1.6242891   -1.0139085 -0.9616259
## [217,] -1.3844812   -0.2592677 -0.9616259
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## [219,] -1.3844812    0.4953731 -0.1170675
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## [228,]  0.8720965   -1.0139085  0.7274909
## [229,]  0.1199040   -0.2592677  0.7274909
## [230,] -0.6322886    0.4953731  0.7274909
## [231,]  1.6242891   -0.2592677  0.7274909
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## [260,]  1.6242891   -1.0139085  2.4166076
## [261,]  0.1199040    0.4953731  0.7274909
## [262,]  0.1199040   -1.0139085 -0.9616259
## [263,] -0.6322886    0.4953731  1.5720492
```

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## [265,]  0.1199040   0.4953731  0.7274909
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## [295,]  0.8720965  -1.0139085 -0.1170675
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```

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## [418,] -1.3844812   -1.0139085 -0.1170675
## [419,]  0.8720965   -1.0139085 -0.1170675
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## [422,]  0.1199040   -0.2592677  0.7274909
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## [426,] -1.3844812   -0.2592677  0.7274909
## [427,] -0.6322886   -1.0139085 -0.9616259
## [428,]  0.1199040   -0.2592677  1.5720492
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## [442,]  1.6242891   -1.0139085 -0.9616259
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## [446,]  1.6242891   -1.0139085 -0.9616259
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## [448,] -1.3844812   -1.0139085 -0.1170675
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## [454,]  1.6242891   -1.0139085 -0.9616259
## [455,] -0.6322886   -1.0139085 -0.9616259
## [456,] -0.6322886    1.2500140 -0.1170675
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## [461,] -1.3844812   -1.0139085 -0.9616259
## [462,]  0.8720965   -0.2592677  1.5720492
## [463,] -0.6322886    0.4953731 -0.9616259
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##   [469,]  -0.6322886      -0.2592677 -0.1170675
##   [470,]  -1.3844812       1.2500140 -0.9616259
##   [471,]   0.1199040      -1.0139085  0.7274909
##   [472,]  -0.6322886      -0.2592677 -0.9616259
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##   [474,]  -1.3844812      -1.0139085 -0.9616259
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##   [476,]   0.8720965      -1.0139085 -0.1170675
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##   [479,]  -0.6322886       0.4953731 -0.1170675
##   [480,]   0.8720965      -0.2592677 -0.1170675
##   [481,]   1.6242891       1.2500140  1.5720492
##   [482,]  -1.3844812       2.0046548  1.5720492
##   [483,]  -1.3844812      -1.0139085 -0.9616259
##   [484,]   1.6242891      -1.0139085 -0.9616259
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##   [489,]   0.1199040      -1.0139085  1.5720492
##   [490,]  -1.3844812      -1.0139085 -0.9616259
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##   [492,]   1.6242891      -1.0139085 -0.1170675
##   [493,]   0.1199040      -0.2592677 -0.1170675
##   [494,]   0.8720965      -0.2592677 -0.9616259
##   [495,]  -0.6322886      -1.0139085 -0.1170675
##   [496,]  -0.6322886      -0.2592677 -0.9616259
##   [497,]   0.8720965      -0.2592677  1.5720492
##   [498,]   0.8720965      -1.0139085  2.4166076
##   [499,]   0.1199040      -1.0139085 -0.9616259
##   [500,]  -1.3844812       0.4953731 -0.1170675
##   [501,]   0.8720965       1.2500140  1.5720492
##   [502,]   1.6242891      -0.2592677 -0.1170675
##   [503,]  -1.3844812       0.4953731  0.7274909
##   [504,]   0.8720965       2.0046548  1.5720492
##   [505,]  -0.6322886      -1.0139085 -0.9616259
##   [506,]  -0.6322886      -1.0139085 -0.9616259
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##   [508,]   0.8720965      -1.0139085 -0.1170675
##   [509,]  -1.3844812      -1.0139085 -0.9616259
##   [510,]   0.1199040       1.2500140 -0.9616259
##   [511,]   0.1199040      -0.2592677  1.5720492
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##   [513,]   0.8720965       1.2500140 -0.1170675
```

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##   [514,]  0.1199040    0.4953731 -0.9616259
##   [515,] -0.6322886   -1.0139085 -0.1170675
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##   [517,] -0.6322886    1.2500140  0.7274909
##   [518,]  0.8720965    1.2500140  1.5720492
##   [519,]  1.6242891    1.2500140  1.5720492
##   [520,] -0.6322886    1.2500140 -0.9616259
##   [521,]  0.8720965   -0.2592677 -0.9616259
##   [522,]  1.6242891    0.4953731  0.7274909
##   [523,]  0.8720965    1.2500140  0.7274909
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##   [543,]  0.8720965   -0.2592677 -0.1170675
##   [544,]  0.8720965    1.2500140 -0.1170675
##   [545,]  0.1199040   -1.0139085  0.7274909
##   [546,] -1.3844812    0.4953731 -0.9616259
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##   [550,]  0.8720965    1.2500140 -0.1170675
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##  [567,]  0.1199040       -0.2592677 -0.9616259
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##  [585,]  0.8720965        1.2500140 -0.1170675
##  [586,]  0.8720965        1.2500140 -0.1170675
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##  [588,] -1.3844812       -0.2592677 -0.9616259
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##  [592,]  1.6242891       -1.0139085 -0.1170675
##  [593,]  1.6242891        1.2500140 -0.9616259
##  [594,]  0.8720965       -1.0139085 -0.1170675
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##  [596,] -1.3844812       -1.0139085 -0.9616259
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##  [603,]  0.1199040        0.4953731 -0.9616259
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```

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## [619,]   1.6242891     -1.0139085  2.4166076
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## [630,]   1.6242891      0.4953731 -0.1170675
## [631,]   1.6242891      2.0046548 -0.9616259
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## [633,] -0.6322886      1.2500140 -0.1170675
## [634,]   0.1199040     -1.0139085 -0.9616259
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## [640,] -1.3844812     -1.0139085 -0.9616259
## [641,] -1.3844812     -1.0139085 -0.9616259
## [642,]   0.1199040      0.4953731  0.7274909
## [643,]   0.1199040      0.4953731  2.4166076
## [644,]   1.6242891     -0.2592677  1.5720492
## [645,]   0.1199040     -1.0139085 -0.1170675
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## [661,] -0.6322886     -1.0139085 -0.1170675
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## [663,] -1.3844812     -0.2592677 -0.1170675
```

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## [693,] -0.6322886   -0.2592677 -0.1170675
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## [696,]  0.8720965    0.4953731  1.5720492
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## [709,] -1.3844812    1.2500140 -0.9616259
## [710,]  0.8720965   -0.2592677 -0.1170675
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```

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## [714,]  0.8720965   -0.2592677 -0.1170675
## [715,]  0.1199040    0.4953731 -0.9616259
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## [718,] -1.3844812   -1.0139085 -0.9616259
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## [726,]  0.1199040    0.4953731 -0.9616259
## [727,] -0.6322886    1.2500140 -0.9616259
## [728,]  1.6242891    2.0046548 -0.9616259
## [729,] -0.6322886    0.4953731 -0.9616259
## [730,]  0.1199040    0.4953731  0.7274909
## [731,] -1.3844812   -1.0139085 -0.1170675
## [732,]  0.1199040   -0.2592677 -0.1170675
## [733,]  0.1199040   -0.2592677 -0.1170675
## [734,]  1.6242891   -1.0139085  1.5720492
## [735,]  0.8720965   -1.0139085  2.4166076
## [736,] -1.3844812   -1.0139085  0.7274909
## [737,]  1.6242891   -0.2592677  1.5720492
## [738,]  0.8720965    0.4953731 -0.1170675
## [739,] -1.3844812    1.2500140 -0.1170675
## [740,]  0.1199040    0.4953731  1.5720492
## [741,]  0.1199040   -0.2592677 -0.9616259
## [742,]  0.8720965   -1.0139085  2.4166076
## [743,]  1.6242891    2.0046548 -0.1170675
## [744,] -0.6322886   -1.0139085 -0.9616259
## [745,]  0.1199040   -1.0139085  0.7274909
## [746,]  1.6242891    2.0046548 -0.1170675
## [747,]  0.8720965   -0.2592677 -0.1170675
## [748,]  0.1199040    0.4953731  2.4166076
## [749,]  0.1199040    0.4953731  0.7274909
## [750,] -1.3844812   -1.0139085 -0.9616259
## [751,]  1.6242891   -1.0139085  1.5720492
## [752,]  0.8720965   -0.2592677  2.4166076
## [753,]  1.6242891    1.2500140 -0.1170675
## [754,]  0.1199040   -1.0139085 -0.1170675
## [755,]  0.8720965    0.4953731  0.7274909
## [756,]  0.1199040   -1.0139085 -0.9616259
## [757,]  0.1199040    1.2500140 -0.1170675
## [758,]  1.6242891    2.0046548  0.7274909
## [759,] -1.3844812    2.0046548 -0.9616259
## [760,]  0.8720965   -0.2592677  2.4166076
## [761,] -0.6322886    0.4953731 -0.1170675
## [762,] -1.3844812   -0.2592677 -0.9616259
## [763,] -1.3844812    0.4953731 -0.9616259
```

```
##    [764,] -1.3844812    0.4953731  0.7274909
##    [765,]  0.8720965   -1.0139085  0.7274909
##    [766,] -0.6322886   -0.2592677 -0.9616259
##    [767,]  0.8720965    1.2500140  1.5720492
##    [768,]  0.1199040   -0.2592677  0.7274909
##    [769,]  0.1199040    0.4953731 -0.9616259
##    [770,]  0.1199040    0.4953731  0.7274909
##    [771,] -1.3844812   -1.0139085 -0.9616259
##    [772,] -0.6322886   -1.0139085  1.5720492
##    [773,]  0.8720965   -1.0139085 -0.1170675
##    [774,]  0.8720965   -0.2592677 -0.1170675
##    [775,]  0.1199040   -1.0139085  1.5720492
##    [776,]  0.8720965    2.0046548  1.5720492
##    [777,]  1.6242891    2.0046548  0.7274909
##    [778,]  0.1199040    0.4953731 -0.1170675
##    [779,] -1.3844812   -1.0139085 -0.9616259
##    [780,] -0.6322886    0.4953731  0.7274909
##    [781,]  0.8720965    1.2500140 -0.1170675
##    [782,]  0.1199040   -0.2592677  0.7274909
##    [783,]  0.8720965   -0.2592677  0.7274909
##    [784,]  0.1199040    1.2500140  0.7274909
##    [785,]  0.1199040    1.2500140  0.7274909
##    [786,]  0.1199040   -1.0139085  0.7274909
##    [787,]  0.8720965    0.4953731 -0.1170675
##    [788,]  0.1199040    0.4953731 -0.9616259
##    [789,]  0.1199040   -1.0139085 -0.1170675
##    [790,]  0.1199040    1.2500140  1.5720492
##    [791,] -1.3844812    1.2500140 -0.9616259
##    [792,]  0.1199040    0.4953731 -0.1170675
##    [793,]  0.1199040    0.4953731 -0.9616259
##    [794,]  0.8720965    1.2500140 -0.1170675
##    [795,] -1.3844812   -1.0139085 -0.9616259
##    [796,]  1.6242891   -1.0139085  2.4166076
##    [797,]  0.8720965   -0.2592677  0.7274909
##    [798,] -1.3844812    0.4953731 -0.9616259
##    [799,] -0.6322886   -0.2592677 -0.1170675
##    [800,] -0.6322886   -0.2592677  1.5720492
##    [801,] -1.3844812   -1.0139085 -0.9616259
##    [802,] -1.3844812    1.2500140 -0.9616259
##    [803,] -0.6322886    1.2500140 -0.1170675
##    [804,] -1.3844812   -1.0139085 -0.1170675
##    [805,] -0.6322886   -0.2592677 -0.1170675
##    [806,]  0.1199040    0.4953731  0.7274909
##    [807,] -1.3844812   -1.0139085 -0.9616259
##    [808,] -1.3844812   -1.0139085  1.5720492
##    [809,] -0.6322886    0.4953731 -0.9616259
##    [810,] -1.3844812   -1.0139085 -0.9616259
##    [811,] -0.6322886   -1.0139085  2.4166076
##    [812,] -0.6322886   -1.0139085  1.5720492
##    [813,] -1.3844812   -1.0139085 -0.9616259
```

```
## [814,] -1.3844812  -1.0139085 -0.9616259
## [815,] -0.6322886   2.0046548  1.5720492
## [816,]  0.8720965  -0.2592677 -0.1170675
## [817,]  0.8720965   0.4953731 -0.1170675
## [818,] -1.3844812  -1.0139085 -0.1170675
## [819,] -1.3844812   1.2500140 -0.9616259
## [820,]  1.6242891  -0.2592677 -0.9616259
## [821,]  0.1199040  -1.0139085  1.5720492
## [822,] -0.6322886  -1.0139085  1.5720492
## [823,]  0.8720965  -1.0139085 -0.1170675
## [824,]  0.1199040   0.4953731 -0.9616259
## [825,] -0.6322886  -1.0139085  2.4166076
## [826,] -0.6322886  -1.0139085 -0.1170675
## [827,]  0.8720965  -1.0139085  1.5720492
## [828,] -0.6322886  -1.0139085 -0.1170675
## [829,]  0.8720965   1.2500140 -0.9616259
## [830,] -0.6322886  -1.0139085  0.7274909
## [831,]  1.6242891  -0.2592677  0.7274909
## [832,]  0.8720965   0.4953731  1.5720492
## [833,]  0.8720965  -1.0139085  2.4166076
## [834,] -0.6322886  -0.2592677  1.5720492
## [835,] -0.6322886  -0.2592677  0.7274909
## [836,]  0.1199040  -1.0139085 -0.9616259
## [837,] -1.3844812  -1.0139085  0.7274909
## [838,]  1.6242891  -1.0139085  0.7274909
## [839,]  0.8720965  -0.2592677 -0.9616259
## [840,]  0.8720965  -1.0139085 -0.1170675
## [841,]  0.8720965  -1.0139085 -0.1170675
## [842,] -0.6322886   2.0046548 -0.9616259
## [843,] -0.6322886  -0.2592677 -0.9616259
## [844,]  0.1199040   0.4953731 -0.1170675
## [845,]  0.1199040   1.2500140  2.4166076
## [846,]  0.1199040  -1.0139085 -0.9616259
## [847,]  0.1199040   2.0046548  0.7274909
## [848,] -0.6322886  -1.0139085  1.5720492
## [849,] -1.3844812  -0.2592677 -0.9616259
## [850,]  0.1199040  -1.0139085  2.4166076
## [851,] -1.3844812  -1.0139085 -0.9616259
## [852,] -0.6322886   2.0046548 -0.9616259
## [853,]  0.1199040   0.4953731 -0.9616259
## [854,]  0.1199040  -1.0139085  1.5720492
## [855,] -0.6322886  -1.0139085 -0.9616259
## [856,]  0.8720965   1.2500140 -0.1170675
## [857,]  0.8720965   0.4953731  0.7274909
## [858,] -0.6322886   2.0046548 -0.1170675
## [859,] -1.3844812  -1.0139085 -0.9616259
## [860,]  0.1199040   1.2500140 -0.1170675
## [861,] -0.6322886   2.0046548  0.7274909
## [862,] -1.3844812  -0.2592677 -0.9616259
## [863,]  1.6242891   1.2500140 -0.1170675
```

```
## [864,] -1.3844812   2.0046548 -0.1170675
## [865,] -0.6322886   0.4953731  0.7274909
## [866,]  0.1199040  -0.2592677 -0.1170675
## [867,] -1.3844812  -1.0139085  0.7274909
## [868,]  0.8720965  -1.0139085 -0.9616259
## [869,]  0.1199040  -0.2592677 -0.1170675
## [870,] -0.6322886  -1.0139085 -0.9616259
## [871,]  0.1199040   1.2500140 -0.9616259
## [872,] -0.6322886   0.4953731  0.7274909
## [873,] -1.3844812   1.2500140 -0.9616259
## [874,] -0.6322886   1.2500140  0.7274909
## [875,]  1.6242891   0.4953731 -0.9616259
## [876,] -1.3844812   1.2500140 -0.9616259
## [877,]  0.1199040   0.4953731 -0.9616259
## [878,] -0.6322886  -1.0139085 -0.9616259
## [879,] -0.6322886   1.2500140  0.7274909
## [880,] -0.6322886   2.0046548 -0.1170675
## [881,]  1.6242891   1.2500140 -0.9616259
## [882,] -0.6322886  -1.0139085 -0.9616259
## [883,] -1.3844812   1.2500140 -0.9616259
## [884,]  0.8720965   0.4953731 -0.9616259
## [885,] -1.3844812   1.2500140 -0.9616259
## [886,] -1.3844812   0.4953731 -0.9616259
## [887,] -1.3844812  -0.2592677 -0.9616259
## [888,] -1.3844812   0.4953731 -0.1170675
## [889,]  1.6242891  -0.2592677 -0.1170675
## [890,] -0.6322886  -0.2592677 -0.1170675
## [891,] -1.3844812   1.2500140 -0.9616259
## [892,] -0.6322886   0.4953731 -0.9616259
## [893,] -0.6322886  -1.0139085 -0.1170675
## [894,] -0.6322886   0.4953731  1.5720492
## [895,] -0.6322886  -1.0139085 -0.9616259
## [896,] -0.6322886   0.4953731 -0.1170675
## [897,]  0.1199040  -1.0139085 -0.1170675
## [898,]  0.1199040  -0.2592677  0.7274909
## [899,]  0.1199040  -1.0139085 -0.9616259
## [900,] -1.3844812  -1.0139085 -0.9616259
## [901,]  0.1199040  -1.0139085  0.7274909
## [902,] -0.6322886  -1.0139085 -0.1170675
## [903,] -0.6322886  -0.2592677 -0.9616259
## [904,]  0.1199040  -1.0139085 -0.9616259
## [905,]  1.6242891  -1.0139085 -0.1170675
## [906,] -0.6322886   0.4953731 -0.1170675
## [907,]  1.6242891   2.0046548  1.5720492
## [908,]  0.1199040  -1.0139085 -0.9616259
## [909,] -0.6322886   0.4953731 -0.1170675
## [910,] -0.6322886  -0.2592677  0.7274909
## [911,]  0.8720965  -1.0139085 -0.1170675
## [912,]  0.8720965  -1.0139085  2.4166076
## [913,]  0.1199040   0.4953731 -0.1170675
```

```
## [914,] -0.6322886    0.4953731  1.5720492
## [915,]  1.6242891   -0.2592677  1.5720492
## [916,]  0.1199040    1.2500140 -0.9616259
## [917,] -1.3844812   -1.0139085 -0.9616259
## [918,] -0.6322886    0.4953731 -0.1170675
## [919,]  0.8720965   -1.0139085  0.7274909
## [920,]  1.6242891   -1.0139085 -0.1170675
## [921,]  0.1199040   -1.0139085  0.7274909
## [922,] -0.6322886    0.4953731 -0.1170675
## [923,] -0.6322886    1.2500140  0.7274909
## [924,] -0.6322886    0.4953731  0.7274909
## [925,] -1.3844812   -1.0139085 -0.9616259
## [926,]  1.6242891   -0.2592677  0.7274909
## [927,] -0.6322886   -1.0139085 -0.1170675
## [928,] -1.3844812    0.4953731 -0.9616259
## [929,]  0.8720965    0.4953731  0.7274909
## [930,]  0.1199040    0.4953731  0.7274909
## [931,]  0.1199040    0.4953731 -0.1170675
## [932,] -0.6322886   -0.2592677  0.7274909
## [933,]  0.1199040    1.2500140 -0.1170675
## [934,]  0.1199040   -1.0139085 -0.1170675
## [935,]  0.1199040    1.2500140 -0.9616259
## [936,]  0.1199040   -1.0139085 -0.9616259
## [937,]  0.1199040    0.4953731 -0.1170675
## [938,]  1.6242891   -0.2592677  2.4166076
## [939,] -1.3844812    2.0046548  0.7274909
## [940,]  0.8720965    1.2500140 -0.1170675
## [941,] -1.3844812    2.0046548 -0.9616259
## [942,]  0.1199040   -1.0139085 -0.9616259
## [943,]  0.1199040    2.0046548 -0.1170675
## [944,]  0.1199040   -0.2592677 -0.1170675
## [945,]  0.1199040   -0.2592677  0.7274909
## [946,]  0.8720965   -1.0139085  0.7274909
## [947,] -0.6322886   -0.2592677  0.7274909
## [948,] -1.3844812   -1.0139085 -0.9616259
## [949,]  0.8720965   -0.2592677 -0.1170675
## [950,]  0.1199040   -0.2592677 -0.9616259
## [951,] -0.6322886    0.4953731  0.7274909
## [952,] -1.3844812    2.0046548 -0.9616259
## [953,]  0.8720965    1.2500140 -0.1170675
## [954,]  1.6242891   -1.0139085 -0.9616259
## [955,]  1.6242891    1.2500140  0.7274909
## [956,]  0.1199040   -1.0139085 -0.9616259
## [957,] -1.3844812   -1.0139085 -0.1170675
## [958,] -0.6322886   -0.2592677 -0.9616259
## [959,] -0.6322886    1.2500140 -0.1170675
## [960,]  0.1199040   -1.0139085 -0.1170675
## [961,] -1.3844812   -1.0139085  1.5720492
## [962,]  0.8720965    1.2500140  0.7274909
## [963,]  0.1199040   -1.0139085  0.7274909
```

```
##   [964,] -0.6322886   1.2500140  1.5720492
##   [965,]  0.1199040  -0.2592677  1.5720492
##   [966,]  1.6242891   1.2500140  0.7274909
##   [967,]  1.6242891  -1.0139085  2.4166076
##   [968,]  0.1199040  -0.2592677  0.7274909
##   [969,] -0.6322886   0.4953731 -0.1170675
##   [970,] -0.6322886  -1.0139085 -0.9616259
##   [971,] -0.6322886  -1.0139085  2.4166076
##   [972,] -0.6322886   0.4953731 -0.1170675
##   [973,]  0.1199040  -0.2592677 -0.1170675
##   [974,] -1.3844812  -1.0139085  0.7274909
##   [975,] -0.6322886  -0.2592677 -0.9616259
##   [976,]  1.6242891   2.0046548  2.4166076
##   [977,]  1.6242891  -0.2592677  0.7274909
##   [978,] -0.6322886   1.2500140 -0.9616259
##   [979,]  0.1199040  -1.0139085 -0.1170675
##   [980,]  0.8720965  -0.2592677  0.7274909
##   [981,]  0.8720965  -1.0139085  1.5720492
##   [982,] -0.6322886  -1.0139085 -0.1170675
##   [983,] -1.3844812  -1.0139085 -0.1170675
##   [984,]  0.8720965  -0.2592677 -0.9616259
##   [985,]  0.1199040  -1.0139085 -0.9616259
##   [986,] -0.6322886  -1.0139085 -0.1170675
##   [987,] -0.6322886   1.2500140  1.5720492
##   [988,] -0.6322886  -1.0139085 -0.9616259
##   [989,]  1.6242891   1.2500140  0.7274909
##   [990,]  1.6242891   2.0046548  0.7274909
##   [991,] -0.6322886  -1.0139085 -0.1170675
##   [992,] -1.3844812  -0.2592677 -0.9616259
##   [993,] -0.6322886   2.0046548 -0.1170675
##   [994,] -1.3844812  -0.2592677 -0.9616259
##   [995,] -1.3844812  -1.0139085 -0.9616259
##   [996,] -0.6322886   2.0046548 -0.9616259
##   [997,] -1.3844812  -1.0139085 -0.9616259
##   [998,]  0.8720965  -1.0139085 -0.9616259
##   [999,]  0.1199040   2.0046548 -0.1170675
## [1000,]  1.6242891   2.0046548  0.7274909
## [1001,]  0.1199040   0.4953731 -0.9616259
## [1002,] -0.6322886   0.4953731 -0.9616259
## [1003,] -1.3844812   0.4953731 -0.9616259
## [1004,]  0.8720965   1.2500140 -0.1170675
## [1005,] -0.6322886   2.0046548  0.7274909
## [1006,]  0.1199040   0.4953731 -0.1170675
## [1007,]  0.1199040   1.2500140 -0.9616259
## [1008,] -1.3844812  -1.0139085 -0.9616259
## [1009,] -0.6322886  -0.2592677 -0.9616259
## [1010,] -0.6322886   0.4953731 -0.9616259
## attr(,"scaled:center")
## Slow.songs.or.fast.songs                    Dance                    Folk
##                 3.328713                 3.116832                2.291089
```

```
##                    Country        Classical.music              Musical
##                   2.129703               2.954455             2.762376
##                        Pop                   Rock        Metal.or.Hardrock
##                   3.471287               3.760396             2.359406
##                       Punk             Hiphop..Rap           Reggae..Ska
##                   2.455446               2.910891             2.777228
##                 Swing..Jazz             Rock.n.roll           Alternative
##                   2.756436               3.140594             2.824752
##                     Latino           Techno..Trance                 Opera
##                   2.840594               2.343564             2.138614
## attr(,"scaled:scale")
## Slow.songs.or.fast.songs                   Dance                  Folk
##                  0.8334361               1.1712673             1.1404882
##                    Country         Classical.music              Musical
##                  1.0814266               1.2489460             1.2596389
##                        Pop                    Rock        Metal.or.Hardrock
##                  1.1608357               1.1829713             1.3717147
##                       Punk              Hiphop..Rap           Reggae..Ska
##                  1.3027740               1.3758429             1.2163717
##                 Swing..Jazz              Rock.n.roll           Alternative
##                  1.2569266               1.2362367             1.3474570
##                     Latino            Techno..Trance                 Opera
##                  1.3294468               1.3251337             1.1840508
```

```
#as.matrix(scale.hobbies)%*%fact.load.hobbies%*%solve(t(fact.load.hobbies)%*%
fact.load.hobbies)
```

```
fit.pc.music<- principal(music_transformed[-1], nfactors=4, rotate="varimax")
fit.pc.music
```

```
## Principal Components Analysis
## Call: principal(r = music_transformed[-1], nfactors = 4, rotate =
"varimax")
## Standardized loadings (pattern matrix) based upon correlation matrix
##                            RC1   RC3   RC2   RC4   h2   u2  com
## Slow.songs.or.fast.songs  0.10 -0.14 -0.05  0.61 0.40 0.60 1.2
## Dance                    -0.20  0.07  0.49  0.61 0.66 0.34 2.2
## Folk                      0.05  0.68  0.04  0.07 0.47 0.53 1.0
## Country                   0.14  0.54  0.07  0.09 0.32 0.68 1.2
## Classical.music           0.20  0.75 -0.06 -0.10 0.62 0.38 1.2
## Musical                  -0.01  0.55  0.36 -0.20 0.47 0.53 2.0
## Pop                      -0.23  0.03  0.58  0.19 0.43 0.57 1.5
## Rock                      0.73  0.11 -0.05 -0.05 0.56 0.44 1.1
## Metal.or.Hardrock         0.69  0.10 -0.36  0.10 0.63 0.37 1.6
## Punk                      0.77 -0.05 -0.12  0.05 0.61 0.39 1.1
## Hiphop..Rap              -0.09 -0.25  0.55  0.39 0.52 0.48 2.3
## Reggae..Ska               0.49 -0.06  0.54  0.02 0.54 0.46 2.0
## Swing..Jazz               0.41  0.42  0.39 -0.20 0.53 0.47 3.4
## Rock.n.roll               0.63  0.30  0.24 -0.14 0.57 0.43 1.9
## Alternative               0.61  0.17 -0.06 -0.07 0.41 0.59 1.2
```

```
## Latino                    -0.07  0.36  0.63 -0.04 0.53 0.47 1.6
## Techno..Trance            -0.09  0.06  0.11  0.77 0.61 0.39 1.1
## Opera                      0.06  0.77 -0.06 -0.10 0.61 0.39 1.1
##
##                           RC1  RC3  RC2  RC4
## SS loadings              2.98 2.75 2.09 1.68
## Proportion Var           0.17 0.15 0.12 0.09
## Cumulative Var           0.17 0.32 0.43 0.53
## Proportion Explained     0.31 0.29 0.22 0.18
## Cumulative Proportion    0.31 0.60 0.82 1.00
##
## Mean item complexity =  1.6
## Test of the hypothesis that 4 components are sufficient.
##
## The root mean square of the residuals (RMSR) is  0.08
##  with the empirical chi square  1794.42  with prob <  8e-317
##
## Fit based upon off diagonal values = 0.88
```

```r
round(fit.pc.music$values, 3)
```

```
##  [1] 3.790 2.656 1.913 1.126 1.092 0.972 0.863 0.823 0.655 0.647 0.573
0.501
## [13] 0.462 0.443 0.413 0.383 0.358 0.330
```

```r
fit.pc.music$loadings
```

```
##
## Loadings:
##                          RC1    RC3    RC2    RC4
## Slow.songs.or.fast.songs  0.101 -0.139         0.607
## Dance                    -0.195         0.486  0.613
## Folk                             0.676
## Country                   0.138  0.541
## Classical.music           0.196  0.753        -0.101
## Musical                          0.549  0.355 -0.204
## Pop                      -0.229         0.583  0.190
## Rock                      0.734  0.106
## Metal.or.Hardrock         0.692        -0.361
## Punk                      0.771        -0.120
## Hiphop..Rap                     -0.245  0.547  0.394
## Reggae..Ska               0.486         0.545
## Swing..Jazz               0.406  0.417  0.389 -0.196
## Rock.n.roll               0.634  0.296  0.241 -0.138
## Alternative               0.614  0.174
## Latino                           0.359  0.632
## Techno..Trance                          0.111  0.766
## Opera                            0.768        -0.104
##
##                    RC1   RC3   RC2   RC4
## SS loadings      2.976 2.746 2.087 1.678
```

```
## Proportion Var 0.165 0.153 0.116 0.093
## Cumulative Var 0.165 0.318 0.434 0.527

# Loadings with more digits
for (i in c(1,3,2,4)) { print(fit.pc.music$loadings[[1,i]])}

## [1] 0.1005791
## [1] -0.04771002
## [1] -0.1393627
## [1] 0.607374

# Communalities
fit.pc.music$communality

## Slow.songs.or.fast.songs                  Dance                 Folk
##                0.4007175              0.6551056            0.4657410
##                  Country        Classical.music              Musical
##                0.3239415              0.6190906            0.4691442
##                      Pop                   Rock     Metal.or.Hardrock
##                0.4294610              0.5559337            0.6288478
##                     Punk            Hiphop..Rap           Reggae..Ska
##                0.6141975              0.5227669            0.5366799
##                Swing..Jazz            Rock.n.roll          Alternative
##                0.5293669              0.5661608            0.4149442
##                   Latino         Techno..Trance                 Opera
##                0.5349706              0.6105532            0.6083714

# Rotated factor scores, Notice the columns ordering: RC1, RC3, RC2 and RC4
fit.pc.music$scores

##                 RC1            RC3            RC2            RC4
##    [1,] -0.905280763 -1.111868042 -0.9015955175 -0.9908207894
##    [2,]  1.369502046 -1.691773134 -0.8834126853 -0.4871814014
##    [3,]  1.557296385  0.796040392  0.2946552938 -0.5215942352
##    [4,] -0.109651498 -1.737006860 -1.3213308044 -0.5307296708
##    [5,] -1.164891973  0.204316454  0.9882521853  0.1786337646
##    [6,]  1.475223992  0.224793455 -0.2426580274 -0.6876971278
##    [7,] -1.340713907  0.124116404 -0.4631336242  2.5186523565
##    [8,] -0.529767074 -0.678672092 -0.1265706849 -0.0206002358
##    [9,] -0.191465642 -0.838408853 -1.0886738923 -0.7945326523
##   [10,]  0.740400553  0.567975814  1.0807406905 -1.5145375557
##   [11,] -0.788635551 -0.247727919  0.0141213033  0.2332473004
##   [12,] -0.324571727 -0.440033092 -1.7300873504 -1.4457062489
##   [13,]  0.224078787 -0.162149790 -1.2930806376 -0.9369505202
##   [14,] -1.903196723  0.038743584  0.7657864291 -0.6183303023
##   [15,]  1.603316357 -1.667136634  0.7244966884 -1.3344984850
##   [16,]  1.456837930 -0.119273657 -0.7878618934 -0.4608140418
##   [17,] -0.232002809 -1.494511653 -0.1042702080  0.1553548553
##   [18,] -0.005597510 -0.127544958  0.3012742878 -0.4872684972
##   [19,]  0.703238211  1.501045815  1.3259693211  1.1351993628
##   [20,]  1.036774920  0.629596589 -0.3616685904  0.3416337292
```

```
##    [21,]   1.722349234   0.901805846  -0.2679196431   0.3764563062
##    [22,]   1.293629877  -0.646129141  -2.0502000561   0.1597527641
##    [23,]  -1.195871179   0.395957586  -0.5923258215   0.1017872471
##    [24,]   0.035391202  -0.620724332   1.1765974440  -0.7812207960
##    [25,]   0.436926206   0.391743235  -2.0215449867   0.0860316889
##    [26,]  -2.243607318  -0.473831384   0.4791641913  -0.2994383531
##    [27,]  -0.061832102   2.139159586  -0.2370659703   1.5340276588
##    [28,]   0.772633095   0.052932434  -0.8021851615   1.5111639495
##    [29,]   0.054087055  -1.717093937   0.3011187222   0.7733613653
##    [30,]   0.324510012   0.334688407   0.6079344105   0.3194801356
##    [31,]  -0.105210151   0.690743019   0.6430610680   0.4146584766
##    [32,]  -1.491190789  -0.385887236   1.2165453376  -0.7204046784
##    [33,]   0.963625760  -0.757847948  -0.4645849980   1.3191028917
##    [34,]  -0.608603302   1.524297227  -0.0829626839  -1.1421221380
##    [35,]   1.181658366  -0.660652768   0.1493653186  -0.4672336809
##    [36,]  -1.028692320   0.032504293   1.4512049929  -1.0946533607
##    [37,]  -1.802914065   0.851784212  -1.6648737819  -1.1576937721
##    [38,]  -0.042711593  -0.580292139  -2.4991626988   0.0649551664
##    [39,]  -0.529277198   0.668498969   0.5907755114   2.1039706019
##    [40,]   0.664798804  -0.152988996  -0.8364502079   0.0703192721
##    [41,]  -1.967560605  -1.435344937  -0.0349791416   0.3604660235
##    [42,]   1.508261982   1.543549689   0.5186774119   2.4695311916
##    [43,]   1.237009846  -0.359167393   0.1133368962   0.8447883457
##    [44,]  -0.342571009  -1.123648839   0.2245209529   0.3439478920
##    [45,]  -0.742509881   0.572973710   0.3032623550   0.7643604160
##    [46,]  -0.395432107   0.872755471   1.0636210358   0.7288473946
##    [47,]   0.435873977   0.403641820   1.7330473960  -0.0272615274
##    [48,]   0.019764286  -0.389223422   0.1505025916  -0.9095788369
##    [49,]  -0.497347567  -1.617569665   1.6059970273  -0.4090917944
##    [50,]   1.093053542  -1.316394972  -0.8880961526   0.1915016075
##    [51,]   0.834902066   0.715023637   1.5484421372  -1.1190593354
##    [52,]   0.341088394   0.373466508   1.1826017377  -0.4221872589
##    [53,]   0.665317011   2.708747707   2.0470421932   0.5209323936
##    [54,]  -0.754587075   2.103031651   0.6920422394  -0.1337316806
##    [55,]   0.359118593   2.790957776   0.7406557084   1.2264051372
##    [56,]   0.071338387   0.715977504   0.5570662476   1.0838792624
##    [57,]   1.103408056   0.540965624  -0.2185505922  -1.4152647567
##    [58,]   0.814228037   0.076830610  -0.6876625750  -0.8034273684
##    [59,]  -1.718647792   0.138981063  -0.2690084050   1.6790337502
##    [60,]   1.763523907  -0.453086275  -0.7375293753   0.8231255659
##    [61,]   0.125824950   0.320522396   0.2699500628  -1.8456253612
##    [62,]  -0.551707644   0.554226966   0.5303319184   0.6597035701
##    [63,]   1.449167727   2.345300545   1.1557430282   2.0191567776
##    [64,]  -0.459027419  -0.820882021   0.6864745954   1.7760767157
##    [65,]  -0.727253572  -0.805274402  -0.0264549059  -0.7563488228
##    [66,]  -0.644109738  -0.759803155  -0.7458258129   0.8426137635
##    [67,]  -0.147285377  -0.187217392   0.7198493507   1.0655636642
##    [68,]  -1.188137280  -0.124069779   2.0983590999  -0.5876775576
##    [69,]   2.082564510  -0.481066030  -0.2074384844   1.1226315622
##    [70,]  -1.429166340  -0.744237393  -0.1856253406  -1.3929207914
```

```
##    [71,] -1.468875908 -0.554234142  0.8623456691  0.6793119591
##    [72,] -1.117601738 -0.652094591 -0.3124837269  0.0912355956
##    [73,]  0.257741415 -0.619344683  1.2321132565 -1.1779057586
##    [74,] -1.147525669 -0.885425942  0.7475124196  0.2751634797
##    [75,] -1.658585782  0.618482918 -0.7477908336 -0.1583373583
##    [76,]  1.960666640  0.230084032  0.1763957536 -0.3355841541
##    [77,] -1.085035125 -1.349848430 -0.9377481409  0.2539036547
##    [78,] -0.882389181 -0.557192913  0.9725675779  1.2997970084
##    [79,]  0.107495171  0.216944304  2.8217463172  0.2959342948
##    [80,] -0.183961189  1.522704178  0.9752297615  1.1008495445
##    [81,]  0.505005184 -0.450215044  1.6203522869  0.0305932473
##    [82,]  0.453290206 -0.158752217  1.5922015956  0.4909657372
##    [83,]  1.079381366  0.110085074 -3.1350665119  0.3689469789
##    [84,] -0.545663924  0.927671900  0.9839244985  0.9518500931
##    [85,]  2.142417533  1.181182588 -0.1347646011 -1.2025751506
##    [86,] -0.629873840  2.112030295 -1.8609537306  0.5852294233
##    [87,]  0.477673358  0.382562694 -0.0458693648  0.8990546164
##    [88,]  1.337534119 -1.016560183  1.8920565713 -0.2004630139
##    [89,]  0.141081511  0.516086697  0.6361772057  1.4073214693
##    [90,]  0.718230241  0.337031182 -0.6416137495 -0.9846168549
##    [91,] -0.402538499 -0.693583337 -0.5085111572 -1.4641306025
##    [92,]  1.306524461 -0.434179638 -1.0772821989  0.0502709627
##    [93,] -0.318933699  1.574355955 -0.1668074644 -2.2787497242
##    [94,] -0.375939755  2.392325309 -1.4403194098 -0.3658176347
##    [95,] -0.227256280 -1.524231492 -0.0250521061  2.1813755829
##    [96,]  0.082799462 -0.262167071  1.4906700505 -0.7081553915
##    [97,]  0.545798152 -1.566300224 -2.3369755298  0.6771210800
##    [98,] -1.596652789 -1.769004060 -0.5921648814 -0.4816004179
##    [99,]  0.220728895 -1.125643643  0.0437903089  1.1099912420
##   [100,] -0.859740557 -1.422161174  0.7941557935 -0.8090997766
##   [101,]  0.268954712  0.453842277  0.8534000162  0.3756947782
##   [102,]  1.240035910 -0.433891801 -1.5671663057 -0.7826376116
##   [103,]  1.793135468  0.987054663 -0.5732366545 -1.7112551356
##   [104,] -0.919106235  0.428409334  2.2560548080  1.3721220984
##   [105,]  1.046670375  0.390553193 -0.5425610380  0.7299552426
##   [106,] -0.291852121 -0.065735565 -2.3685334799  0.0446815533
##   [107,]  0.271536318  2.072902177  1.3320914707  0.3859401600
##   [108,]  0.402695974 -1.141132440 -0.8606939461 -1.6378191505
##   [109,] -0.103456814  0.042869212 -2.2874060666  0.0378309682
##   [110,]  0.163421263  0.919182469 -1.2746296228 -0.7580738805
##   [111,]  0.187461243  0.590359133  0.6689894366  0.7683965466
##   [112,]  0.322924001  1.408143948 -0.2186629146  0.6881697591
##   [113,] -0.429036750  0.425053143  0.3296943236  0.1345287384
##   [114,] -0.973777988 -0.357500697 -0.8652940899  1.9706268785
##   [115,] -0.352980214 -0.091140170 -0.5478895888 -1.2694914179
##   [116,] -0.180502387  0.734029074  1.0072512004  0.8492797059
##   [117,]  0.202927352 -0.754076001 -0.9881152750 -1.0889745747
##   [118,] -1.537225575 -0.803882050 -0.1743699149 -1.3000552366
##   [119,]  1.195362969 -0.777574616 -0.1131879163 -1.3817865609
##   [120,] -1.559309620 -0.137560204 -0.4034151751 -0.1960154978
```

```
## [121,]  1.313122991  0.545044006 -0.1296436514  0.6884459206
## [122,] -0.275017430 -0.352071245 -0.5277368499  0.4336057500
## [123,]  1.148056358  0.666438017 -0.6295513486 -1.0734815824
## [124,]  0.156891015  1.073509858  0.1046196048 -0.9102631559
## [125,]  0.506763323  2.142160463 -0.7878947179 -0.7419259564
## [126,]  0.885846817  0.033504615  0.0211319876 -0.5065196067
## [127,] -0.423327570 -1.383288356 -0.9617262167  1.0704760500
## [128,]  0.706093087  0.920905100  0.0205529570  0.4188344078
## [129,]  0.781104735  1.570221720  0.2173210745  2.4623157625
## [130,]  0.459170330 -0.603058671  0.6222090366  0.0346081736
## [131,]  0.004775090 -0.267951037 -1.1517589513 -0.8519707732
## [132,] -1.346021011 -1.415276286 -0.3547175741  0.8181776044
## [133,]  0.582021350 -2.035611950  0.3362891864 -0.4530650009
## [134,] -1.327893852  0.908029460 -1.1087106594 -1.3690004524
## [135,] -0.140887387  0.534028111  1.2184666066  0.3640920719
## [136,]  2.014664415 -0.233956292 -0.3141337740 -0.6281301094
## [137,] -1.860801049  0.130574992 -0.6923918703  0.2761390469
## [138,]  0.041600291  1.174064133  1.6431145764 -0.3820646934
## [139,] -1.032793066  0.898634268  0.4282504113 -1.5522554992
## [140,] -0.280498595  0.084646362  1.2551198478  1.0506120414
## [141,] -0.179284783 -0.136745709  0.4897461530 -0.1007876221
## [142,]  1.120400927 -0.889392634 -0.7721605031  0.3965633771
## [143,] -1.112902175 -0.734460378 -0.1549589232  0.5500122193
## [144,]  0.021739130 -1.580681842  0.6057928853  1.1180685604
## [145,]  0.025783905 -0.255932510  0.2287261079 -0.3436837593
## [146,] -0.958436220 -0.617574498 -1.3368228548  0.5890915439
## [147,] -0.566446140 -0.515800010 -0.6247159885  2.3293542590
## [148,]  0.733188754 -0.866544217 -0.5643594131  0.5786483141
## [149,] -0.151722631  0.738327088  0.6227711149  0.8262327286
## [150,] -1.361134118 -0.154186345 -1.6443998091 -1.0798945773
## [151,]  0.769518842  1.076075495 -1.1924013391 -1.3064952198
## [152,]  1.798583126 -1.218883868  0.0029221500 -0.1298796585
## [153,] -0.139107112 -0.114386636  0.7878418213  0.1300231973
## [154,] -1.303549280  0.434428529 -0.0241397357  1.6069648447
## [155,]  0.933367093  0.663245991 -2.0707980390 -0.5645945923
## [156,]  0.025721369  1.115136324 -0.6906635581  0.7686717568
## [157,]  1.187811995 -0.004027409 -0.2960735126  0.0325810110
## [158,]  0.071546453  0.340406768 -1.5570595236  1.6105383153
## [159,]  0.484996370 -0.895085942  1.4138332645  0.8126569695
## [160,]  0.596165630  1.419968445  0.2565497375  0.6258239363
## [161,]  2.403437386 -1.477920892 -0.3449733013  0.1775396384
## [162,]  0.412302849 -0.758721301 -0.1424690823  0.1520941539
## [163,] -1.256536299  1.428314970  1.1195675004 -0.7653460992
## [164,] -1.041169981 -0.802435909 -1.9246616957  1.9260872435
## [165,]  0.456352913 -0.190905024 -0.0236507123  0.4748973877
## [166,] -1.430611142 -0.123323695  1.2188544858  0.8674447958
## [167,] -0.574729933  0.440401509 -3.3824782487  0.3759577660
## [168,]  0.815340818 -0.501518852  0.2909897269  0.2606184953
## [169,]  0.198755317 -0.655328790  0.3755299048 -0.1874542572
## [170,]  0.623841287 -0.149768151 -1.3401624533 -1.0081122487
```

```
##   [171,]   0.717858338  -0.536048498   0.5030606273  -1.3673845655
##   [172,]  -0.360323627  -0.674472385   0.3702464159  -0.4260244431
##   [173,]   1.863030255   0.672067486  -0.6201080169  -0.7264304933
##   [174,]  -1.551796504   1.032783645  -1.4053894486   0.3059473111
##   [175,]  -2.571853348   1.948015990  -2.1996461550  -1.4177259795
##   [176,]   1.091321947  -0.474006935   0.3831814168  -1.2045043941
##   [177,]   1.640244256  -0.744153862  -0.5352882493   0.1305649162
##   [178,]   1.174456366   0.853901651  -1.8545172681  -0.9008660846
##   [179,]   0.352931496   1.253674919  -2.0631457723  -0.7464385455
##   [180,]  -1.840895232   1.651777563  -2.6705295133  -0.0943327229
##   [181,]   1.441468702  -1.141554949  -1.5056283374  -0.2535701358
##   [182,]   0.535454181   0.936599504   1.0562546133   0.2886438225
##   [183,]   0.343999936   1.241238102   0.1738326898  -0.3259653303
##   [184,]  -0.356248402  -0.058370241   1.5657458779  -0.2086198998
##   [185,]   0.519525161   0.238215030  -0.9389737034  -1.0852292436
##   [186,]  -0.990265466  -0.645698012   1.6472895503  -0.9517037636
##   [187,]  -1.906329307   1.381583269  -0.7695854421  -1.2123153901
##   [188,]  -0.585513295  -0.468644353  -1.8833994389   0.5493826733
##   [189,]  -1.442437867   1.295579961  -0.6742040419  -0.6534587568
##   [190,]   0.181245136   1.161020858  -3.0835671265  -0.4968740766
##   [191,]   0.728239241   0.217139168  -1.6412060741   0.3589710115
##   [192,]  -1.081718846   1.872900198   0.3076161776  -1.4436563382
##   [193,]  -0.646657460  -0.733461887   1.0037875933  -0.1347094739
##   [194,]   1.748748780   1.198369159  -1.9933083595  -0.7522764476
##   [195,]   1.188361450  -1.127197442  -1.1320373841  -0.7520576170
##   [196,]  -0.445325410  -0.549946307   0.1092072687  -1.0039220022
##   [197,]   0.489147161  -0.338460661   0.5417853026  -0.1754403115
##   [198,]  -1.683719752  -0.474993950  -0.1034948855  -0.9211482633
##   [199,]   1.328067841  -0.595481816   0.3265483855   0.2843781126
##   [200,]  -1.291264110  -1.438887382  -0.7472884256   1.2995574848
##   [201,]   0.845708294  -0.820213734   0.7767828704  -0.1496937348
##   [202,]   1.168110667  -0.361940996   1.2651918046  -0.2118156736
##   [203,]  -1.439161886  -1.655202360  -0.0264650292   1.2181032451
##   [204,]   0.073214155  -0.075531348  -0.0711571174   0.7059639978
##   [205,]   1.881960581  -0.153233690   0.3955822508  -0.8860292422
##   [206,]  -0.656924049   2.632967611  -0.1657608726  -2.2093856826
##   [207,]   0.267794283   1.696532379  -0.8496621873  -0.2447409972
##   [208,]  -0.422368758   1.404186956  -0.0060574304  -1.2835589503
##   [209,]   1.372942484  -1.020749145   1.8241553481  -1.1895554053
##   [210,]   1.017721753   0.425830203   1.0745656576  -0.3973820265
##   [211,]   1.291171490   1.418373318   0.4840929638   2.6650126911
##   [212,]   0.211701773  -0.509994918   2.8711486261   0.5393332380
##   [213,]   0.730391162   1.321786606  -1.4760896219  -0.4650178648
##   [214,]   0.486604179   0.263263210   0.0993103765   1.9783663848
##   [215,]   1.252088036   0.010641716  -0.0423048494  -1.2511315647
##   [216,]  -2.061274523  -1.318777892   0.1144953425  -0.8707382404
##   [217,]   0.328244902  -1.562989761  -2.4661793255   0.0814414721
##   [218,]  -0.710835033   0.375747329   0.3664435112  -0.3881530004
##   [219,]  -0.952526649  -0.630787690  -0.3146924476   0.4045031328
##   [220,]  -1.735858258  -1.205227991  -0.2807211587   2.4519937624
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## [221,]   0.018480579   0.469093005   0.3185094327  -0.2831113033
## [222,]   1.795328331   0.765040476   0.7352636394   1.1181214192
## [223,]   0.242927949   0.446722067  -0.0519174407  -0.5384932311
## [224,]  -0.956124382   0.022165345   0.8487014454  -0.3467721270
## [225,]   0.946555284   0.312226508  -0.3090547459  -0.6508272918
## [226,]   1.597024469   0.268564248   0.3062964242  -0.4501289837
## [227,]   0.520909020   0.730948628   0.6946354228   2.2467327777
## [228,]   0.452311562   1.423428161  -0.2080182737  -1.4769748432
## [229,]  -0.315253142   1.661572860  -0.4275375110  -0.4541101852
## [230,]   0.193693407  -0.414973497   0.4712228559   0.4124854943
## [231,]  -0.691479351   1.951844278   1.1355427675  -0.9503906838
## [232,]   0.229463281  -0.355685527   0.7058822585  -1.9470717749
## [233,]   0.007789757   0.024561005   0.2083486004  -0.6546166120
## [234,]   1.045166960  -0.231367689   0.6216808738   1.4253772525
## [235,]   1.104504768  -0.366853632   0.1126749580   0.6655874779
## [236,]   0.216606995  -0.283994574  -0.7030308290  -1.6561725232
## [237,]   0.387823170  -0.009131572   1.0683102750  -1.1391361975
## [238,]  -0.783261213  -0.339929390   1.5708015693   0.4161660196
## [239,]  -1.059750902  -1.153104241   1.3988086569  -1.7961888550
## [240,]   0.370556260   0.558826450  -0.2008706947  -0.2751519574
## [241,]  -0.661525337  -1.508392497  -1.3260894009  -0.2092044564
## [242,]  -0.380847732  -0.134447592   0.4750015157  -0.9167857904
## [243,]  -1.642063965   0.307262516   0.2205962005  -1.3605195304
## [244,]   0.705116753   0.145808727   0.7096062096  -1.8054965452
## [245,]   0.317747326   0.456631480   1.5592286154  -0.1820651011
## [246,]   1.796237439  -0.835266585   1.0486739794  -0.9239640323
## [247,]   0.176387680   0.500505750   0.9760910877  -0.8429018499
## [248,]   1.007152653  -0.160005574   1.3150870930  -1.1128077252
## [249,]   0.093861792  -0.083940032  -0.4814907445   0.7374369310
## [250,]   0.758888190   1.963837464   0.2349080637  -0.0423018104
## [251,]  -0.421414006  -1.198375974   0.9590342688  -0.4330402968
## [252,]   0.572210468   0.164564356   1.3634375862   2.0995826322
## [253,]  -0.488201420   0.901365272  -0.2912912099  -1.1953525935
## [254,]  -2.040968676  -1.173054070  -1.4183328532  -0.6844967882
## [255,]  -1.120107442   0.439874479   1.5710250920   0.2434765056
## [256,]   0.762900198   2.339063189   0.1614421771  -0.7325088879
## [257,]  -1.803254477  -0.407728357   0.6611684038  -0.6450922913
## [258,]  -0.381330802   0.546007539  -0.0240235762   1.6354949954
## [259,]   1.063481861  -0.067204389  -2.2914552971  -0.5972404730
## [260,]  -0.448304079   1.156756182  -0.2042690679  -0.7744385025
## [261,]   0.022806638   0.681669981  -0.2428595635   0.2923759898
## [262,]  -1.853002461  -0.388090193  -0.2718987857  -0.2028932582
## [263,]   0.319290114   1.762596147  -0.5130975623   0.3985161209
## [264,]   0.001891519  -0.082175130   1.4004681940   1.3162750670
## [265,]   0.381820929  -0.096919050   0.9688020267   0.2614408406
## [266,]  -1.266163221  -1.091975791   0.7692314294  -0.9244167532
## [267,]  -0.952452558   0.375726657   0.5613954958  -1.1848437092
## [268,]   0.214283795   1.108932246  -1.0178618354   0.6723080295
## [269,]  -1.119997030  -0.535426641   1.1905052668  -1.3482740436
## [270,]  -0.108950539   0.786859293  -1.1024074819  -0.3284376631
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## [271,]    2.465347159 -1.608657546   1.9033653359 -0.5247139954
## [272,]    2.429940251 -1.739267706   1.2344236725  0.0057654731
## [273,]    1.883388625  1.466708985  -0.9679159087 -0.4055264257
## [274,]    0.891809923  0.550349684   1.4652661477  0.3175078097
## [275,]   -0.794957276 -0.290177938   0.8276135799  0.7781253349
## [276,]    0.141764140  1.849591480  -0.1638874389  0.4299936267
## [277,]    0.324149814  0.380594349  -0.7318634907  1.0722418375
## [278,]    0.103330337 -0.292925308  -0.4442818853 -0.5921569882
## [279,]    0.640259034  0.783328654   0.5445748371  0.9391122143
## [280,]   -0.923203089 -1.113632139  -0.1717965440  0.2862031542
## [281,]    0.675951614  0.246782979  -0.4288464159  1.0488710273
## [282,]    1.573774183  0.051024854   0.8088011608  0.4541751767
## [283,]   -1.361461126 -1.175624143  -0.6863615832 -1.6241572514
## [284,]    0.784950867 -0.316314427   1.3743783933  0.2664409475
## [285,]   -1.977368192 -1.462023460  -1.9559085768 -1.8925625084
## [286,]   -1.320340189 -0.067313369  -0.7070234082 -0.1960096042
## [287,]    0.553429103 -0.724037894   1.7925105118 -0.9274850190
## [288,]    0.234240888 -0.398058183  -0.3779437331  0.2297719963
## [289,]   -0.632424123  0.458922822   0.2297291499  1.8091073318
## [290,]   -0.742493651  0.367594779  -0.0267406115  0.0457095606
## [291,]   -0.153373036 -0.969367738   1.9374454796 -1.3121292530
## [292,]    1.201914492  0.373908864   0.0582849403 -0.0153373635
## [293,]   -0.112262485 -0.073071152   1.7660267807  0.2012824854
## [294,]    1.535581253 -0.052275349  -0.7256065140 -2.0215875520
## [295,]    0.698149075 -0.533319050   0.7437469720 -1.3928144085
## [296,]    0.981092692  0.920924579   0.3479296330 -0.6351764669
## [297,]   -0.095913130 -1.486448322   0.0035739054  1.8417205037
## [298,]    0.075554815 -0.292206491  -1.1049549642 -0.0556559545
## [299,]   -0.326033668 -0.563517676   2.4197204831 -0.2179165345
## [300,]    0.127623679 -1.014528426   1.3350013271 -0.8784516447
## [301,]    0.359052198  1.974118183  -2.7530523371 -0.8764154056
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## [303,]   -0.361112505 -0.004745953   1.7337478894  0.2679404817
## [304,]    0.064941555 -0.010727627   0.4270315729  0.1219744788
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## [309,]   -1.521913250  0.159507885  -0.7393011181  2.2865701266
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## [311,]   -1.206955777  0.120342980  -1.2151899489  1.9844920388
## [312,]    0.228041526  2.051500891   2.0698330094  0.5746672215
## [313,]    0.313564768 -1.381940550  -0.4602665155 -0.2094588980
## [314,]   -1.171864093  0.426215894   0.3888066143 -0.0927690920
## [315,]    2.066415792  2.320387703   1.1591013138  2.0033451240
## [316,]   -1.875410616 -0.543564740  -0.7602802013 -1.4085825681
## [317,]   -1.219725580 -0.891955557  -0.4533289727  0.6032989838
## [318,]   -0.401765362 -0.337087634  -0.2803124433  0.9192064995
## [319,]   -0.510100844  0.392015188   0.1676843867 -0.7050182575
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##  [321,]  0.970342141 -0.655153350 -1.0360644455  1.2637581931
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##  [323,]  2.012748537 -0.169728482 -0.7841039542 -1.0414360373
##  [324,] -1.229285816  1.529023392 -0.7342456207 -1.4121925730
##  [325,] -0.121807205 -0.431599936  0.5464344456 -0.1648889452
##  [326,]  1.047538100  0.241618271  0.7911183024  1.3752338975
##  [327,]  0.030215537 -0.380365828  0.2642013991  0.3778907152
##  [328,] -0.535878756 -0.310882989  1.7745000569 -1.1614041340
##  [329,]  1.799038581 -0.509744878 -0.8534585264  0.8952596005
##  [330,] -0.555921920 -0.303594998  0.1026690763  0.5807887787
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##  [343,] -0.280973250 -0.307536660  1.1886793996 -0.4361040511
##  [344,] -0.432541057  0.934907104  0.6227222240 -0.6037619235
##  [345,] -1.066121959  0.058005808 -0.2397762674 -0.7096414516
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##  [347,] -0.349339167 -2.062101203  0.3828668833  0.2557665531
##  [348,]  0.090390347 -0.884519486 -1.3222106026  0.7904505914
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##  [352,]  1.142330313  0.890702916  0.5060809146 -0.8414863695
##  [353,]  0.332172572 -0.409904344 -2.1193114036  0.3622009666
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##  [369,] -0.945391641  0.273614729  1.6010411549  0.2060727388
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##   [371,]   0.360139237  0.147623159  0.7209637839 -0.0144114660
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##   [373,]   1.043497768 -0.592764345 -1.0400644107  0.6261614538
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##   [397,]  -1.195156970  1.979880907 -0.3598904749 -0.5791208868
##   [398,]  -2.025631703  0.125686430  0.3483286930 -0.4630153439
##   [399,]   0.810876924 -0.345880228  0.6390210561  1.4102222648
##   [400,]   0.597945755  1.423987051 -0.4238273109 -0.4592174046
##   [401,]  -1.239108660 -0.233839430 -0.4319334237  0.8176531965
##   [402,]  -0.467437135 -0.391917919 -1.5155551821 -0.8724331824
##   [403,]  -1.028903296  1.531615631 -2.1878522653  1.4910238767
##   [404,]   0.075836026  0.528260947  0.0980684472 -1.1541432541
##   [405,]   0.821111042  1.942272950 -0.9844215709  2.0690110015
##   [406,]  -0.806941672  0.728445618  0.2197037316 -0.3529826400
##   [407,]  -1.005752664  1.892613762  1.3859970732  0.1564317377
##   [408,]  -0.168978574  0.104698819  0.5267256961 -0.3390736885
##   [409,]  -1.312593655  2.841049754 -0.3057134215 -0.3223240036
##   [410,]   0.077517432 -0.093909240  0.8244067667  1.3494998591
##   [411,]   0.802428139 -1.183529269 -0.5785622051  0.9971496891
##   [412,]  -0.756733855  0.166300584  1.5421332719 -0.8663522878
##   [413,]  -0.342979533 -1.037817111 -2.4762384889  2.2495874033
##   [414,]   0.424096828 -0.303942044 -0.6365996255  0.6892285785
##   [415,]  -0.498189702  0.815316137  0.1775602886 -0.0066508621
##   [416,]   0.136105073 -1.661998519  0.7187214797 -0.0497314743
##   [417,]  -1.062995436 -0.419045382  0.1353942370  0.4581004922
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##   [419,]  -2.211305078  0.437912853  0.3571112476 -1.5184908359
##   [420,]   0.077311577  2.319558438  1.0583706557  0.3467772859
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##   [427,]   0.930557226 -1.542007479 -0.5187843486 -2.1728082528
##   [428,]  -0.021214648  0.918613282 -0.4205571665 -0.6277994544
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##   [430,]   1.097652416 -0.555095923 -1.9851396941 -0.0453845180
##   [431,]   0.190871846  0.558471414  0.0948544485  0.9975364774
##   [432,]  -1.272674328  0.599243564  0.0854607311  0.7170497731
##   [433,]   1.482517873 -0.812791025 -0.6721581420 -0.7725024913
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##   [435,]  -1.069681846 -0.629590547  1.5072638763  0.7088208293
##   [436,]   0.976046035 -1.561149885 -1.4441210272 -0.9741917699
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##   [442,]  -1.416187032 -0.795552879  0.2075938357 -1.8646465474
##   [443,]   0.492407027 -0.256347385  1.2635648229 -0.1695515859
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##   [446,]  -1.212521851 -0.513812475  1.4864524762 -0.7593378919
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##   [464,]  -0.901560797 -0.904554010  0.9788549340 -1.0914867575
##   [465,]   0.129086953  0.352801436  0.2168028226  0.7601774244
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##   [470,]   0.731088522 -1.747939561  0.6079760472  1.8368806764
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##   [471,] -1.464344601 -0.070514650  0.8328744286 -0.6748698258
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##   [473,] -1.409182388  0.210240637 -1.5052749447 -0.6225520696
##   [474,]  0.034023168 -1.613541617 -2.2185426845 -1.3471140214
##   [475,] -1.219791414 -1.001728265 -0.0903367611  1.7830574374
##   [476,]  1.356973914  0.734567737  0.7306564398 -0.6445498154
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##   [493,]  0.541384391  0.633776038 -0.8422293310  0.1926975029
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##   [498,]  0.268437607  1.670262217  0.6652303721 -0.6978797268
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##   [516,]  0.785755298  0.653118148 -0.8363504375  0.3844178465
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##    [526,]   0.216432890   0.417536254   0.0503582909  -0.2080644409
##    [527,]   1.532280834  -1.853941412   1.2738187707  -0.1787922668
##    [528,]   1.246240994  -0.832817074   1.0682448500   0.0770080931
##    [529,]  -0.189455869  -0.126176789   0.2007314850   0.4690641480
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##    [611,]   1.006376564   0.063790784  -0.4575753543   0.5464074847
##    [612,]  -1.353273016  -1.333330478  -0.3302270693   0.2150441564
##    [613,]   0.288791964  -0.243305511   0.7679768252   1.2633389376
##    [614,]   0.068871000  -0.699855226   0.5911830921  -0.3237138952
##    [615,]  -0.329463357  -0.572908197   0.6398120169   0.2056466397
##    [616,]   0.524261003   0.844895888   0.1291315486  -0.3347265506
##    [617,]   0.620586049   0.264821405   0.1484855933   0.6336939126
##    [618,]  -1.736703563   2.160684200  -0.4612498607  -0.9824789823
##    [619,]  -0.365359410   1.745903960   1.9990294725   0.5208983532
##    [620,]  -1.050336388   1.497402138  -0.1797017516  -1.4010817030
```

```
##    [621,]  -0.368483162  -0.658898721  -0.5695889982  -0.4009192614
##    [622,]  -0.539202831  -0.291893973  -1.8525093123   0.3026717032
##    [623,]   0.591786201   1.881225319   1.1718797741   0.9981473683
##    [624,]  -0.106462295  -1.237319927  -0.4672125988   0.0008847847
##    [625,]  -0.387762523  -1.449647064   0.7901591313  -1.2251049772
##    [626,]  -0.774459287   0.134513272   0.9862557763   0.6986855338
##    [627,]  -0.429031178  -0.743639610   0.6631626705   0.6129441368
##    [628,]  -1.018524513   0.493690067  -0.4643426625   0.5171347688
##    [629,]   1.806140743  -1.615041710   0.2216426442   0.3998824674
##    [630,]  -0.945495984  -0.162199809   1.2328186541   0.6822074801
##    [631,]   0.728613015  -0.559984375   1.9087591924   1.6531930742
##    [632,]  -0.342911771   0.935255265   0.4496855633   0.2007575257
##    [633,]  -0.268781456  -0.135200654  -0.2507561005   1.7947895827
##    [634,]  -1.067030481  -0.126846086   0.0201377433  -0.0639323796
##    [635,]  -0.237531056   1.014837323   0.5828340685  -0.3335331437
##    [636,]  -0.630846555   0.564566032   1.5349917875  -1.5747089282
##    [637,]   0.920365030   1.231616564   1.5834812918   0.3048468099
##    [638,]  -0.317197243   0.494743215  -1.1023833860  -0.5585432166
##    [639,]   1.126022588  -0.106526618   1.2894877347  -0.6832033709
##    [640,]   1.908619971  -1.236376830  -1.2185016014  -1.0982723958
##    [641,]   0.268409023  -0.638452149  -0.3992185385   1.3860426589
##    [642,]  -0.184200334   0.403496907   0.8143253554   0.2707892805
##    [643,]  -1.406197473   2.241584338  -1.1672006471   0.6136198204
##    [644,]  -0.918199404   0.532110862   0.8158598645  -0.4332388534
##    [645,]  -0.303842774  -0.629926318   0.5646240220   0.5150666360
##    [646,]  -1.133931184   0.831901552   0.1445011282   1.2154269951
##    [647,]  -1.042662991  -0.161039715   0.3834500126  -0.7324435022
##    [648,]  -0.438607603   0.231248631   1.9730881324  -1.2511923740
##    [649,]  -1.329896482   1.019613600   0.9934517170   0.4008254106
##    [650,]   0.601877850  -0.580162823   0.9982528732   0.1725025096
##    [651,]  -1.551197629  -1.399430697   0.1692300063   0.2793074491
##    [652,]  -0.226979387   0.243258093   0.2509906415   1.1866306212
##    [653,]  -1.407641240  -0.688155758  -0.7958501985  -0.6939063899
##    [654,]   0.821497770   0.528144327  -0.2098505407  -0.8694843339
##    [655,]  -1.225399444   0.316782536   0.2293728492   0.4959317148
##    [656,]   1.007734381  -0.973336467  -0.1752663666   0.6751465478
##    [657,]   0.496430841   0.623568407  -1.5663459505  -0.8088896709
##    [658,]  -1.037255289  -1.545889670   0.6346618018  -0.5043011189
##    [659,]  -0.885540648  -0.239582471  -0.1722259742   1.2074819897
##    [660,]   0.861558227  -0.578069102  -0.6802016944  -1.3957276179
##    [661,]   1.344156127  -1.152619874   0.4828916353  -0.9585641947
##    [662,]  -2.030995629  -0.862339098  -1.2250370403  -0.0017961646
##    [663,]  -0.619057970  -0.919980374   0.1459798139   0.0535924439
##    [664,]   0.972482163   0.111017812   0.1888395580   0.0055565035
##    [665,]  -1.163174829   1.664823434  -0.1804157467  -1.6214122396
##    [666,]   2.461031667  -0.530122353  -0.1597828668   0.3513118064
##    [667,]   0.523417810  -0.924515902  -1.7141583636  -0.8953376283
##    [668,]  -0.416153135  -0.579114488   0.0984300327  -1.2218650072
##    [669,]   1.109864438   0.456041061  -0.7026407744  -1.2611582440
##    [670,]   0.424490107   0.323858002   0.4966641831   0.8010984882
```

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##   [671,]  -0.693948639  -0.072523041   0.3298914733  -0.6837715049
##   [672,]  -0.158187903   0.514353849   1.0856967020   0.0769930381
##   [673,]  -1.181985307   2.216389911  -0.7686925238  -2.0039834084
##   [674,]  -0.414556058   0.478643415   0.8608449797  -1.5482676491
##   [675,]  -0.058267861  -0.717660835  -0.8775366727   0.4033923554
##   [676,]  -1.086712453   0.877964351   0.1577477171  -0.0897796988
##   [677,]  -0.917187284  -0.362746452  -1.8979345846  -0.1095521237
##   [678,]  -0.434048689  -0.757591292   0.7081386304  -0.9427916062
##   [679,]   1.581874025   0.939794822  -0.4665564977  -0.8503505300
##   [680,]   2.195935124  -1.376949948   0.2984559011  -0.5998449890
##   [681,]   0.783102481  -0.009794981   2.0766156765   1.5826638183
##   [682,]   1.640716117   0.974449324   0.3425838356   1.9125277690
##   [683,]   0.944368039   0.103382402   0.1638513918   1.7350059812
##   [684,]   0.585360008   0.874179259   0.8063776971  -0.4963242706
##   [685,]  -0.478739252  -1.093880306   1.1538702866   0.4813932596
##   [686,]  -0.166007669   0.250112058   1.1695119994  -0.2188908387
##   [687,]   0.190477645   1.407650587  -0.2192371001   1.3482090404
##   [688,]   1.492981517  -1.091630388   0.5145471226  -0.5151345872
##   [689,]  -0.376913603  -0.318080566   0.0130767463   0.1430725050
##   [690,]  -0.706749322  -0.818478631   0.2959889644   0.0961941930
##   [691,]   0.522935707  -0.428134222   0.0694757813   0.5073853693
##   [692,]   0.844778363  -0.116695338   0.6692215902  -0.1585744788
##   [693,]   1.535019683   0.085319175  -0.0188152323  -0.0592801615
##   [694,]  -0.430909274  -0.320965097   0.7259916433   0.3076897469
##   [695,]   0.586275206   1.566129944   0.2957032749   0.5310497176
##   [696,]   0.160590689   0.740120236   1.5395513637   0.4863182602
##   [697,]  -1.537354008   0.720601507   0.5217247953  -0.0482341273
##   [698,]   0.157653874  -0.760036588  -0.5830437813  -0.3884947343
##   [699,]  -0.681298501   0.010116099   1.9895215156   0.9869531976
##   [700,]  -1.134821904  -0.527414914   1.2872551559  -0.3721748670
##   [701,]  -0.878013705  -0.918523762  -0.5129904118  -0.4028907762
##   [702,]  -1.260147542   1.970954041  -1.1525751102   2.4591608202
##   [703,]  -0.033593964   1.442295906  -1.7410880650  -1.0811827705
##   [704,]   1.099395215  -0.226645795   0.2511683983  -0.3261573062
##   [705,]   0.328857114  -1.024847374   2.4489224934  -0.7085453305
##   [706,]   1.770866803  -0.264621387   0.8617888172   0.8229380472
##   [707,]  -0.809992057   0.174622934   0.3862832749   0.5492132726
##   [708,]   0.219571764   0.479898844  -1.2551318055  -0.4366708324
##   [709,]  -0.604826671  -1.457496421   0.3592347942   0.6722177244
##   [710,]   1.531267646  -0.507307507   0.4128438307  -0.1407909731
##   [711,]  -0.080284759  -0.805573672   1.2252189540   0.1754571204
##   [712,]   0.110439694  -0.314162103   0.6828724041  -0.6456743901
##   [713,]  -1.499167340   0.426594122  -0.1434688742  -1.5606229598
##   [714,]   1.548386923   0.415685974   1.5881451549  -0.4530633316
##   [715,]  -0.042385287  -0.659445366   1.1094961999   0.5925799237
##   [716,]   1.035559502   0.571763316  -0.7416396015  -0.8305677789
##   [717,]  -0.335927618   1.510670213  -0.2234152372   0.1931547596
##   [718,]  -0.498580691  -0.443680735  -0.9687894372  -1.6516643146
##   [719,]   1.235226085   0.593723271  -0.1764328931   0.2970776315
##   [720,]  -0.406141132  -0.642143779  -0.3538907573   0.3514621778
```

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##   [721,]   0.359224156   0.800443213   0.7102617251  -0.2283140189
##   [722,]  -0.888209644   1.306606095  -0.6154729705  -0.8496993094
##   [723,]   0.649802909   0.689158103   1.5252988666  -0.6157360594
##   [724,]  -0.996739474   0.515013058   0.3303707907  -0.7735478605
##   [725,]  -0.615719768   0.842849237   1.6321682183  -0.1352923587
##   [726,]  -0.979935443   0.015295999  -0.0303294585   0.8658369863
##   [727,]  -0.896188229  -0.954732469   1.0680576314   0.3574957706
##   [728,]   0.064703727  -0.801777351   0.4038364585   0.0069003436
##   [729,]  -1.089479923  -0.322684053   1.0594393017   0.9369784805
##   [730,]   1.285071985   0.538862929   0.4927434166  -0.1772856734
##   [731,]   1.722487701  -0.710857051  -1.4449090933  -0.4561631619
##   [732,]   0.383711744  -0.322644502   0.9238172006  -0.5703331954
##   [733,]  -0.093734683  -0.544936399   0.2233822800  -0.4056963913
##   [734,]  -0.249215597   2.632494240   0.3454951049  -0.8670681837
##   [735,]  -1.483892600   2.975302798  -0.6216332958  -0.7083064777
##   [736,]  -2.190867886   0.673108735  -2.2301908788  -2.0699153456
##   [737,]   0.429674246   2.003752835   0.5839785014   0.0820819636
##   [738,]  -0.324163399   0.484981340   0.2990196014  -1.7786047357
##   [739,]   0.239929592  -1.226005617  -1.1410672145   2.3286073837
##   [740,]   0.672915432   1.798178887  -1.2334788564   1.4574658072
##   [741,]  -0.372631320  -0.685479577   0.8792702800   0.3235515656
##   [742,]  -0.730753732   2.210598760  -0.1930073768  -1.2047637558
##   [743,]  -0.067095620   1.210058434  -0.2269906217   0.2872340624
##   [744,]   1.117965113  -1.044286353  -0.5880701377  -0.7107959901
##   [745,]   1.765978934   0.936374843  -0.9518494966  -0.4981980787
##   [746,]  -0.442430740   0.715950833  -0.2990807017   0.7941827806
##   [747,]   0.469812120  -0.122582864   0.1809911156  -0.8101494350
##   [748,]   0.263129277   1.321208135   0.6479765933   0.5042144307
##   [749,]   0.783163711   1.163118363  -0.4803964605   0.4986279412
##   [750,]   1.061543033  -0.062080022  -1.8444131742  -0.5168890370
##   [751,]  -0.681149244   2.066002616   0.8180115187  -0.1654541444
##   [752,]   0.092811149   1.901535924  -0.3866035040  -0.6774365157
##   [753,]  -0.748782463   0.175254373   1.3730618645   1.0219997185
##   [754,]   0.453350388   0.187357943  -0.1451704484  -1.0713868255
##   [755,]  -0.037100719  -0.464251207   0.2976408492   0.3809711794
##   [756,]   1.634446990  -0.323975274   0.0580913950  -1.1120899091
##   [757,]   1.984729844   0.401472660  -0.0068138400   1.3661452203
##   [758,]  -0.282786208   1.518655358   1.7485291683   0.8611145710
##   [759,]  -1.558500485  -0.879405027  -1.3885144808   2.1839729577
##   [760,]   0.378818043   2.324117315   0.9692591223   0.2357965446
##   [761,]   1.092576570  -0.461724010   0.0052391044   0.9519366712
##   [762,]  -0.666512054  -2.214700947   0.4718692763   0.3316647309
##   [763,]   0.531955561  -2.074865937   0.4349180999   0.3488334714
##   [764,]   0.748443462   0.153520490  -1.5274082987   0.1769402226
##   [765,]  -1.031175490   0.163553294   0.8923616034  -1.7901672710
##   [766,]   1.745520581  -0.467477473  -0.5477501494  -0.4209541373
##   [767,]   1.263507144   2.307205346   0.4091926507   2.6793491333
##   [768,]  -0.053672106   1.108149181  -0.9261610139  -1.1931674420
##   [769,]  -0.062680436  -1.010589723   0.6791665685   0.1586130456
##   [770,]   0.022806638   0.681669981  -0.2428595635   0.2923759898
```

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##   [771,]  -2.063682305  -1.472543807  -1.8227492750  -2.3846052796
##   [772,]   0.647334559   1.196364213  -1.4084755232  -0.4596049202
##   [773,]  -1.307805194  -0.015224974   0.1867828851  -0.3657364678
##   [774,]   1.531239404  -0.403390799   0.5806223888   0.5213962029
##   [775,]  -1.222614653   0.389823656  -0.5531685594  -1.5681423330
##   [776,]  -0.400436826   0.439660641  -0.1830301531   0.3065144139
##   [777,]  -0.747566737   1.450454453   0.5387470567   1.1398943492
##   [778,]  -0.428092606  -0.551711386   0.8382020489   0.9023369058
##   [779,]  -1.568176571  -1.524898215   0.0044956969  -1.1722859282
##   [780,]  -0.211258159   1.390199177  -0.0622202510   0.1660505901
##   [781,]  -0.379957382  -0.444542413   0.8531826881  -0.0713986918
##   [782,]  -1.176132484   0.345250136  -0.1467098988  -1.1442936275
##   [783,]   2.351136784   0.994949725   0.5223101557  -0.5957681253
##   [784,]  -0.204771545   1.701377002  -0.4097706426   0.2517535079
##   [785,]  -1.024915151   0.941975577   0.7259024877   0.1626212032
##   [786,]  -0.374498693   0.548553014   0.4229314368   0.1011422551
##   [787,]   0.683397799   0.651899921   0.3649517107  -0.3417722898
##   [788,]  -0.769756760  -0.824817231   1.0772948421  -0.4241552143
##   [789,]   0.093438629  -0.845566347   0.5997318439  -1.0019897957
##   [790,]  -1.218059933   1.619565020  -0.8910711717   2.3519366398
##   [791,]   1.596490639  -0.148057987  -2.4559326042   2.2057828300
##   [792,]  -0.370364202  -0.658967982   0.6853963863  -0.4436400135
##   [793,]  -0.260734836  -0.670324817  -0.3160060757   0.8902481805
##   [794,]   0.020933818  -0.193422980   0.6358612746   0.3865989496
##   [795,]  -1.637304830  -1.781445150  -0.4046847595   0.6384329173
##   [796,]   0.447009393   0.561553565   1.0054695518  -1.6449715646
##   [797,]   0.132981154   0.239720594   0.5508915353   0.8585550097
##   [798,]  -1.478201460  -0.470412183   0.2371324840  -0.4276370199
##   [799,]   0.275998698  -0.290420277  -0.2896167862  -0.1297728765
##   [800,]   0.645507893   1.324350365  -2.0435555637  -0.5844054285
##   [801,]  -0.736420588  -1.212782416   0.0193923085  -0.4138791121
##   [802,]   0.427288101  -1.102799421  -1.2043918099   2.0237208981
##   [803,]   0.435025897  -0.334788721  -0.0889215870   2.8306147900
##   [804,]   0.811772018  -0.737319040  -1.6846183998   0.0498868295
##   [805,]   0.836441693  -0.578407292   1.5664212118  -1.2812599736
##   [806,]   1.700650193   0.267996739   0.5561134157   0.9790694731
##   [807,]  -2.063682305  -1.472543807  -1.8227492750  -2.3846052796
##   [808,]  -1.531424482   1.720865816  -1.9217264083  -1.0755112801
##   [809,]   0.271242451  -0.906513042  -0.6134309096   1.0326338171
##   [810,]  -1.232694205  -1.333697132  -0.9070020270  -0.1895119140
##   [811,]   1.254914033   2.176643464  -1.3616896095  -0.8726706078
##   [812,]   1.027768954   0.823858178  -1.0961120794  -0.3114198991
##   [813,]  -1.608590998  -1.524573653  -1.9096914942  -0.8720064015
##   [814,]  -0.956619226  -1.467775574  -1.7167293218  -0.3790802162
##   [815,]  -0.489143876   0.986468274   0.2418047595   1.7729782399
##   [816,]   1.676976811   0.030901502   0.0403156570   0.9698390607
##   [817,]   2.337999558   0.046936175   0.8856885266   0.5945823723
##   [818,]   0.772467783  -1.820886156   1.1716251623  -1.0577383027
##   [819,]   0.123101572  -0.090948389  -1.9406847421   1.6784395644
##   [820,]  -1.220110911  -1.013590007  -0.0599716703   0.6452698217
```

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## [821,]   0.767425304  0.613868235  0.8513459156 -1.4170662431
## [822,]   1.866025391  0.926834098 -0.5785665139 -0.9439676629
## [823,]   0.281049722 -1.285449515  1.8212370278 -0.6152535184
## [824,]  -1.371459921 -0.611283772 -0.0193193429 -0.1352223152
## [825,]   0.559611086  0.557379664 -1.3059142341 -1.2120821422
## [826,]   0.295393141  0.074540103 -1.9181204262 -0.9753243688
## [827,]   0.813150643  0.838848002  0.9635277858 -1.1241192782
## [828,]   1.161121764  0.862982808  0.3980150448 -0.7454552120
## [829,]   0.542262080 -1.309164327  0.4661850731  1.1155308506
## [830,]   1.330299748  0.609882243 -0.8121879298 -1.0174175823
## [831,]  -0.465993225 -0.233669201  1.8261146953 -0.4889988315
## [832,]   0.909175789  1.018003215  1.5942368932  0.4646539902
## [833,]   0.988893673  2.547012294 -0.1111898383 -0.7525237160
## [834,]  -0.373231930  0.680659994 -0.7634096536 -1.3171688695
## [835,]  -0.094823121  0.953529189 -0.9487178261  0.2309198315
## [836,]  -0.312408222 -0.667314815  0.9933727100 -1.3635132705
## [837,]   1.781508063 -0.976667207  0.1903562106 -0.8615500399
## [838,]   1.797912628  0.965011707  0.4504847712 -0.5843873011
## [839,]   0.479165890 -1.677509595  2.0432154685  0.2531607476
## [840,]  -0.224078684 -0.422675351  1.3664668800 -1.1080154589
## [841,]  -0.565808880 -0.215250076  1.1613529591 -0.6951225462
## [842,]   0.402686272 -0.406892910 -0.6791651383  3.0482260981
## [843,]   0.627763112 -0.650319631 -0.3848494566  0.6999828900
## [844,]  -0.547868108 -0.039059232  0.4328856554  1.1408325650
## [845,]   0.166658266  2.949920064 -0.7095588210  0.6006703250
## [846,]  -1.832515873 -1.375719944  0.6886710282 -0.5015130181
## [847,]  -1.422043258  0.667996406  0.5178443164  1.1674983538
## [848,]   0.575347793  1.610350853  0.6616128968 -1.6253727591
## [849,]   1.316349817 -1.424222147 -0.7611382531 -1.0609716840
## [850,]  -1.751285000  2.364364079 -1.2001746075 -1.7782558643
## [851,]  -0.912592658 -0.818505143  1.1154079166 -0.8576052111
## [852,]  -0.613653937 -1.207825483 -0.3098472923  1.7357285043
## [853,]  -0.867464477 -1.252683452 -0.0756839174  0.2745108558
## [854,]  -1.365649312  1.137988154 -0.1376301668 -0.5606748742
## [855,]  -0.868119298 -1.455292415  0.9265097743 -1.0536497339
## [856,]   0.453176942  0.042971676  0.9498807828  2.0908733199
## [857,]   0.429988164  0.215503910  0.8589784568 -0.4070278738
## [858,]  -0.361386974  0.701870547  0.1469839404  1.1752262458
## [859,]   0.444036516  0.294222518  0.3221276831 -2.2165635460
## [860,]  -0.532911365  0.438742717  0.6744063762  0.9636700254
## [861,]   0.080317415  0.741042276 -0.6799975388  1.7797659674
## [862,]   0.310453306 -0.847408124 -0.6071551769 -0.5917016689
## [863,]  -0.195487357  0.088799151  0.9853389576  1.1435221020
## [864,]  -0.760676142  0.746557443 -0.9980215168  1.4633417940
## [865,]   1.226770322  0.322300116 -0.1339850748  0.3914991360
## [866,]  -0.379074967  0.174206121 -0.0645083987 -0.2099786475
## [867,]   1.336417797  0.475857443 -0.8345096381 -0.5114954681
## [868,]  -0.909195084 -0.075432451  0.4081590941 -0.6842708714
## [869,]  -0.473128840  0.380173569  0.1547200786  0.6677198683
## [870,]   0.887331628  0.042100172 -0.3960066667 -1.1772696957
```

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## [871,]  -1.005483459  -0.730223886  -0.7539320331   1.6886659477
## [872,]   1.028571501   0.390078670  -0.3114846317  -0.1780446852
## [873,]   0.364511223  -0.125251799  -1.1838928323   0.2559421907
## [874,]  -0.245739346   0.394962344  -0.2497530650   1.0796347538
## [875,]  -1.173862623  -1.089504672   0.6892125437   0.1722200819
## [876,]  -1.543665165  -1.139445112  -0.7739799188   0.4604906652
## [877,]  -0.570714570  -1.116474173   1.6991741201  -0.3445701789
## [878,]   1.804159500  -0.074742397  -0.8032247048  -0.7822956760
## [879,]   0.211891703   0.446222205   1.1000369296  -0.6141347240
## [880,]   0.850189252   0.167901012  -1.9082071836   3.0383867087
## [881,]  -1.084946227  -0.958605680   0.7603678594   0.8190575520
## [882,]   0.550421803   0.512163660  -0.2860747555  -1.8530523004
## [883,]   0.724754664  -1.338889595  -1.2274602662   1.5641150149
## [884,]  -0.532140538  -0.775013558   1.0517963580  -0.8680337172
## [885,]   1.637957901  -0.727080972   0.1310864869   0.8456317314
## [886,]   0.074565819  -0.936001955   0.2145826126   0.8962853678
## [887,]   0.842209619  -0.690067063  -2.3819870531   1.3288052818
## [888,]   0.219627567   0.123279953  -0.7473186977   0.5594426184
## [889,]  -0.364684560  -0.302879495  -0.0124277080  -0.4960241582
## [890,]   0.548770363   1.105763156  -0.4556942538  -0.1444782690
## [891,]  -1.105908239  -0.594322901   0.0685767298   1.0334866243
## [892,]  -0.236859508  -0.701773494   0.2235490704   0.3184707715
## [893,]  -0.225714407  -0.200401652  -0.5026480052  -0.4518913682
## [894,]  -0.119692164   0.831988373  -1.0402649299   0.4684024704
## [895,]   0.761029320  -1.286436060   0.2877001858  -0.7070870374
## [896,]  -0.959977676  -0.242429260   0.0731999395   0.8733062181
## [897,]   0.745951376   0.843572061  -0.6468442466  -1.0993296261
## [898,]  -0.628526592  -0.204024621  -0.0310728808  -0.5981701100
## [899,]   1.365901206  -0.658248887   0.0972033640  -1.7002554995
## [900,]  -0.251662332  -1.590008856  -0.1560075402  -0.6649495871
## [901,]  -0.979297566  -0.062726794   0.6991375834  -2.2659470859
## [902,]  -0.657443328  -0.443411629  -0.7354946683  -1.5911819963
## [903,]   0.319228801  -1.164347918  -0.0058728083  -0.6526684141
## [904,]   1.975892440  -0.177792588  -1.0400003191   0.3622829016
## [905,]  -1.377983470  -0.198773915   1.0467459085  -1.7849173376
## [906,]  -0.130061785  -0.247443909   0.6301170011   0.6776686404
## [907,]  -1.068304943   2.000359391   0.4240436098   0.5396165977
## [908,]  -0.600411076  -0.552429994   0.5551062646   0.1780943294
## [909,]  -0.185116881  -0.267963453  -0.6641838418  -0.0335830747
## [910,]   0.221258481   0.232522114   0.7960674747  -0.0288197899
## [911,]   0.879729060  -0.629272538   1.9214929162  -1.5411689723
## [912,]   0.929158000   1.271334037  -1.0179876175  -1.0989254570
## [913,]   0.233805348  -1.103105246   0.2441257550   0.8590904105
## [914,]  -0.032328787   1.549504380  -0.6588955894   0.1721546326
## [915,]   1.543791641   1.077304045  -0.1251121733  -0.2862337511
## [916,]  -0.277935642  -0.340582449   0.2792585467   1.6818388179
## [917,]   1.636874228  -1.040699627  -0.8917035872  -0.9039725121
## [918,]   1.210250617  -0.191000502  -1.5569612341   0.6260985862
## [919,]   1.331293283  -0.606240135   0.5132191400  -0.9238160787
## [920,]   0.690929885  -0.612708085   0.4609427015  -1.6099059390
```

```
##   [921,]   0.266004160   0.846800166   0.0840053747  -0.4284939741
##   [922,]  -0.296805200  -0.823287018  -0.0355806801   0.6763114968
##   [923,]  -1.459573030  -0.349421292   0.4024231770   0.9964924982
##   [924,]   1.058303582   0.400633032  -0.6905786743   0.3372500615
##   [925,]  -1.618886551  -1.623873536  -0.9106965137  -0.7437141001
##   [926,]  -0.783505423   0.552268086   1.6739848187  -0.7047190485
##   [927,]   0.295912483  -0.413448777  -1.3621726319  -0.5382486792
##   [928,]  -0.459731165  -1.882835986   0.6755055620   0.7255781690
##   [929,]  -0.168064051   0.584094800   0.8593022941   0.2726396358
##   [930,]   0.372268051   0.639549686  -0.0114877033  -0.0901249372
##   [931,]  -1.020975546  -0.804667853   0.0609044191   0.3087700824
##   [932,]  -0.196951554  -0.324022100  -0.2438362451   0.1259093312
##   [933,]  -1.120627138  -0.485507790   0.7814611476   0.7075253034
##   [934,]   0.955332220   0.663976538   0.5042668403  -1.6586607783
##   [935,]   0.508415420  -0.381521158  -0.9683758753   0.8090590458
##   [936,]  -1.982244937  -1.287956178  -0.1269146607  -0.9069826224
##   [937,]   0.460646283  -0.044858672  -0.4101692271   0.0686482607
##   [938,]   2.022404800   0.581197280   1.9643743197  -0.4374024026
##   [939,]   0.817097991   1.051287152  -1.2180859322   1.2847370006
##   [940,]  -0.359859343   1.071257104   0.0811060765   0.3299635889
##   [941,]  -0.401453224  -0.828386900   0.4985900877  -0.0545027586
##   [942,]   1.228270259  -1.416722151   1.4696858218  -0.9478630323
##   [943,]  -0.685864494   0.761535716   0.3005700879   0.5326597733
##   [944,]   0.550936625  -0.301454767   0.6794250890  -0.5204211871
##   [945,]  -1.084065864   1.007708929  -0.2773265729   0.0230265166
##   [946,]   0.777620703  -0.041082642   1.2452273771  -0.1858644323
##   [947,]   1.759646578   0.294083633  -1.3557075852   0.5560213994
##   [948,]  -0.381035097  -1.686005060  -0.4901998682  -0.3624711620
##   [949,]  -1.105718210   0.462015611   0.6577219763  -0.4691677465
##   [950,]   0.304722488  -0.780394723  -0.0264061332  -0.3148738066
##   [951,]   1.500792554   0.309290684  -0.3004017189   0.5948847100
##   [952,]   0.801317576  -1.724226942   1.0101277091   0.8445503201
##   [953,]   0.440348480   0.896562579  -0.0857152560  -0.0488482878
##   [954,]   0.672074881  -0.781504872   2.1942435553  -1.1782572871
##   [955,]  -0.587110854   0.333637322   1.3023111031   0.6849832326
##   [956,]   1.108657417  -1.629810278  -1.1781596306  -0.6260733908
##   [957,]   0.417322931  -0.047432271   0.1807113649  -0.2356736022
##   [958,]  -1.539542056  -1.474678807  -0.6409113657  -0.1046649277
##   [959,]  -1.482124719   0.353585109  -0.3863770272   1.9285892499
##   [960,]   1.008229595   0.155510556   1.2172553128  -1.1877544463
##   [961,]   1.547908404   0.747564660  -1.0951545286   0.4012014602
##   [962,]  -0.937710785   0.598594906   1.5116857153   0.5476002090
##   [963,]  -2.255044839   2.062682187  -1.1545851896  -1.1549280358
##   [964,]  -1.460967322   1.576685720  -0.8737450117   1.6535048679
##   [965,]   1.968236012   0.369845753  -0.2910120500   0.5891900385
##   [966,]   0.435479648   1.236576792   0.6715281409   1.6298557157
##   [967,]  -1.045506592   1.314216039  -0.6794585204  -1.3290403562
##   [968,]   1.648817721  -0.080172494  -0.6765039622  -0.5634413751
##   [969,]  -0.513619949  -0.195597213   0.4255919303   0.5855135292
##   [970,]   0.872561974  -0.835125149  -0.4399010070  -0.9097231930
```

```
##   [971,] -0.174662394  1.774604478  0.4358219255 -0.3773248261
##   [972,]  1.374333565  0.656827312 -1.2943153263  0.6513430154
##   [973,]  1.125667482  0.515969415  0.0168558670 -0.5934905331
##   [974,]  1.327236845  1.796027575 -1.2034764852 -0.4098523188
##   [975,]  2.224332645 -1.142967294 -0.6528687164 -0.8066897194
##   [976,]  1.936667355  2.814843076  1.6033487518  1.9852717169
##   [977,]  0.152798676  0.641715742  1.9449517565 -0.6481132512
##   [978,] -0.179258955 -1.038659969 -0.5943231288  1.8132252164
##   [979,]  1.460825924 -0.893386637  0.3775074151 -1.5926706526
##   [980,] -0.687796517  0.781893232  1.1721455797 -0.6065229456
##   [981,]  0.206295298  0.857779475 -0.1952289710 -1.1444646975
##   [982,] -0.121361075  1.170952834 -0.7256160250 -1.2067931942
##   [983,]  1.067049837 -0.942955260 -0.6472125222 -0.7571187094
##   [984,] -0.458237694 -1.026779969  1.4473341487 -0.3475151597
##   [985,]  0.267272206 -0.154306991 -0.9869291320 -1.5608914909
##   [986,]  0.847003806 -0.084735718 -0.5754938752 -1.5632141997
##   [987,]  0.665544106  1.772234484 -1.0387311040  0.6485645671
##   [988,]  0.757445574 -0.692134762 -1.1817036297 -0.9433573658
##   [989,]  1.660115232  0.502410623  1.0930331121 -0.5326301963
##   [990,]  0.194366324  1.060239806  0.4349669705  1.9316186470
##   [991,] -0.471904255 -0.674100709 -1.4745548399 -0.5511964618
##   [992,]  1.400665403 -1.979657236 -1.5419523934  1.1092515073
##   [993,] -0.058599538  0.265452886 -1.4790182012  2.2801773965
##   [994,] -0.936151698 -0.953628745 -0.8770917290  0.1269958602
##   [995,]  1.448829730 -0.617904541  0.0476808321 -0.4297081207
##   [996,]  0.058057804 -1.306558400 -1.8388488234  1.3839977419
##   [997,]  0.377337156 -1.449674388 -0.6347815500 -1.2776410243
##   [998,] -0.018049372 -0.734433156  0.0004649137 -0.0565303935
##   [999,]  1.144093805  0.062944558 -1.0085431404  2.1693187904
## [1000,]  0.969286783  1.693704946  1.7378201928  2.1811791485
## [1001,] -0.725191444 -0.231922936  0.7802227899  0.0891184835
## [1002,]  0.076519813 -1.170388602  0.5401728918  1.5610107592
## [1003,]  1.404760894 -1.219915063 -1.6240088387  1.4619401355
## [1004,]  0.522365060  0.071066965  1.0395488037  0.2883541862
## [1005,]  0.299049556 -0.340554391 -0.0757500211  1.5688317754
## [1006,]  0.047901732  0.945312936  0.6505529350 -0.0113210131
## [1007,] -1.070054041  0.101053892 -0.7781708144  1.5410841972
## [1008,]  0.111285341 -1.404693606 -0.4571929801 -1.3161494102
## [1009,] -0.373128906 -0.407489126 -0.6435240642 -0.3971397440
## [1010,] -1.419859802  0.157139604 -0.7124316352  1.4981924465
```

```r
# Play with FA utilities

fa.parallel(music_transformed[-1]) # See factor recommendation
```

Parallel Analysis Scree Plots

(y-axis) eigenvalues of principal components and factor analysis

Legend:
- PC Actual Data
- PC Simulated Data
- PC Resampled Data
- FA Actual Data
- FA Simulated Data
- FA Resampled Data

(x-axis) Factor/Component Number
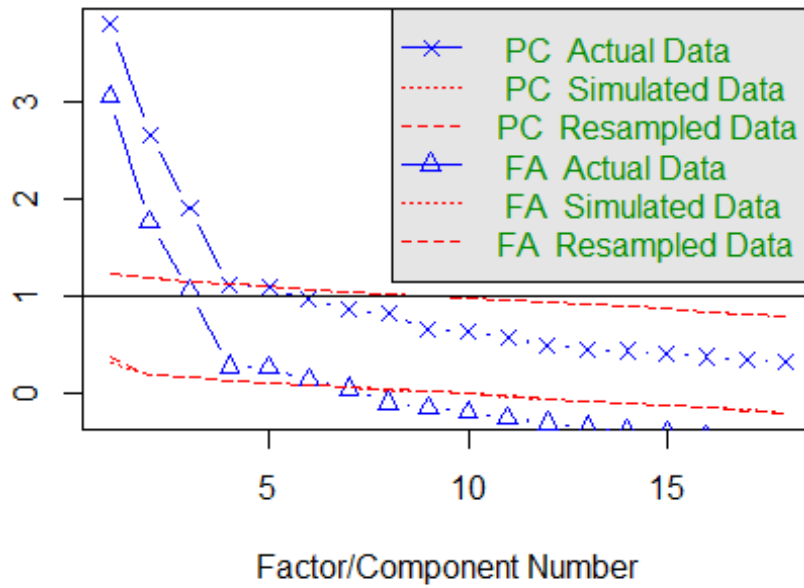
```
## Parallel analysis suggests that the number of factors =  6  and the number
of components =  3

fa.plot(fit.pc.music) # See Correlations within Factors
```

Principal Component Analysis
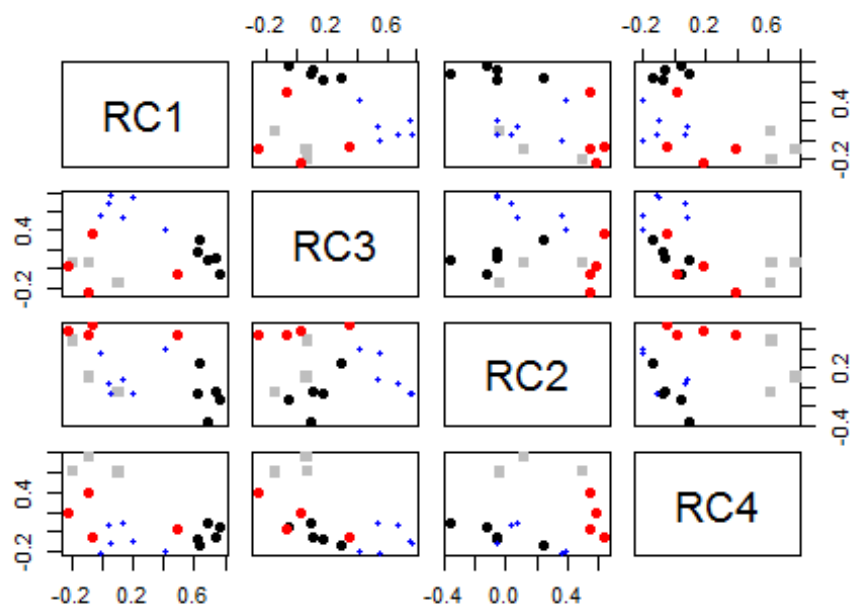

```r
fa.diagram(fit.pc.music) # Visualize the relationship
```

Components Analysis
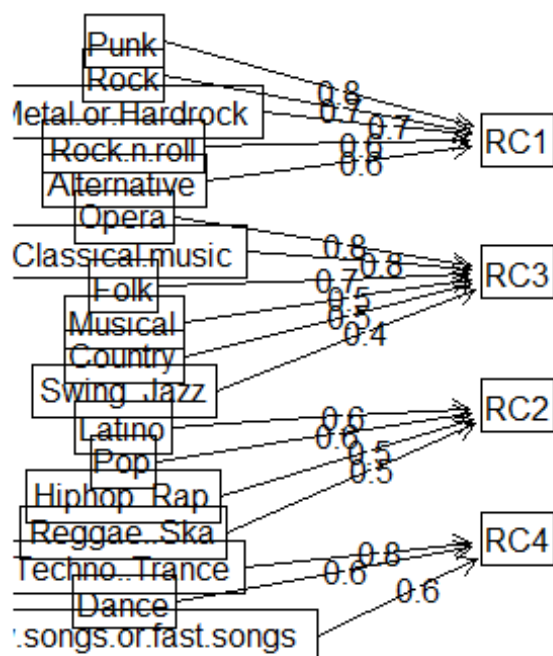
```
vss(music_transformed[-1]) # See Factor recommendations for a simple
structure
```

Very Simple Structure
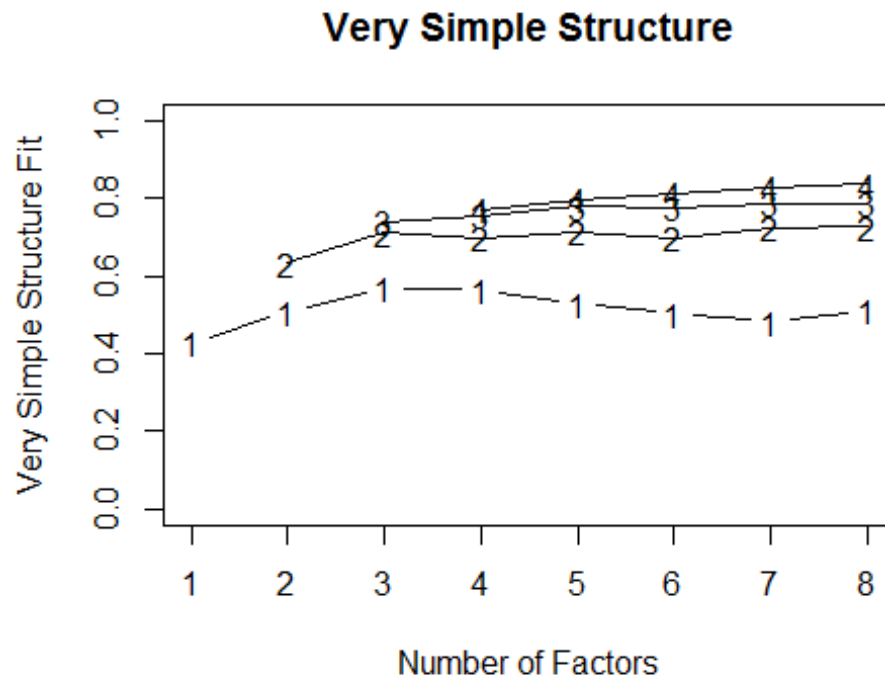

```
##
## Very Simple Structure
## Call: vss(x = music_transformed[-1])
## VSS complexity 1 achieves a maximimum of 0.57  with  3  factors
## VSS complexity 2 achieves a maximimum of 0.73  with  8  factors
##
## The Velicer MAP achieves a minimum of 0.02  with  3  factors
## BIC achieves a minimum of  -191.98  with  7  factors
## Sample Size adjusted BIC achieves a minimum of  -50.73  with  8  factors
##
## Statistics by number of factors
##   vss1 vss2   map dof chisq      prob sqresid  fit RMSEA  BIC SABIC complex
## 1 0.43 0.00 0.033 135  2965   0.0e+00    18.5 0.43 0.144 2031  2460     1.0
## 2 0.51 0.63 0.026 118  1787 7.1e-296    11.8 0.63 0.118  970  1345     1.3
## 3 0.57 0.71 0.022 102   978 3.8e-143     8.4 0.74 0.092  273   597     1.4
## 4 0.56 0.70 0.026  87   729 4.0e-102     7.4 0.77 0.085  127   404     1.6
## 5 0.53 0.71 0.030  73   458  4.0e-57      6.3 0.81 0.072  -47   185     1.7
## 6 0.50 0.70 0.036  60   337  4.1e-40      5.5 0.83 0.068  -79   112     1.9
## 7 0.48 0.73 0.042  48   140  6.1e-11      4.7 0.85 0.044 -192   -40     1.9
## 8 0.51 0.73 0.055  37    88  5.3e-06      4.3 0.87 0.037 -168   -51     1.9
##   eChisq  SRMR eCRMS   eBIC
## 1   5850 0.138 0.146 4916.2
## 2   2352 0.087 0.099 1535.5
## 3    842 0.052 0.064  136.6
```

```
## 4    594 0.044 0.058    -7.6
## 5    329 0.033 0.047 -175.5
## 6    209 0.026 0.042 -205.6
## 7     73 0.015 0.027 -258.8
## 8     44 0.012 0.024 -211.6
```

@Conclusion : The proportion of the total variance for RC4 is about 61% which restores maximum of the total variance. Also the components for RC4 contribute to Techno Trance, Dance, Slow songs or fast songs.

MultiLinear Regression

```
music_transformed
```

```
##       Music Slow.songs.or.fast.songs Dance Folk Country Classical.music
## Musical
## 1        5                        3     2    1       2               2
## 1
## 2        4                        4     2    1       1               1
## 2
## 3        5                        5     2    2       3               4
## 5
## 4        5                        3     2    1       1               1
## 1
## 5        5                        3     4    3       2               4
## 3
## 6        5                        3     2    3       2               3
## 3
## 7        5                        5     5    3       1               2
## 2
## 8        5                        3     3    2       1               2
## 2
## 9        5                        3     3    1       1               2
## 4
## 10       5                        3     2    5       2               2
## 5
## 11       5                        3     3    2       1               2
## 3
## 12       5                        3     1    1       1               4
## 1
## 13       5                        3     1    2       1               4
## 3
## 14       5                        3     5    3       2               1
## 5
## 15       5                        3     2    1       1               2
## 3
## 16       1                        3     2    2       3               4
## 3
## 17       5                        3     3    1       1               1
## 2
```

## 18	5	3	3	3	3	2
2						
## 19	5	3	5	4	3	4
5						
## 20	5	4	3	3	2	4
2						
## 21	5	3	3	2	3	4
3						
## 22	5	5	1	1	3	2
2						
## 23	5	3	3	2	3	3
3						
## 24	5	3	4	2	2	2
4						
## 25	5	2	3	1	1	4
3						
## 26	5	3	4	2	1	2
3						
## 27	5	5	5	5	4	5
3						
## 28	4	5	3	4	1	3
2						
## 29	5	3	5	1	1	1
1						
## 30	5	4	3	4	2	3
3						
## 31	4	3	4	3	3	3
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## 32	4	3	4	1	3	2
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1						
## 42	5	4	5	5	5	5
1						

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	2					
## 45	4	4	4	2	1	3
	3					
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	3					
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	5					
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	3					
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	4					
## 50	5	4	2	1	2	2
	2					
## 51	4	3	2	4	2	5
	5					
## 52	5	3	3	3	1	4
	3					
## 53	5	3	5	5	5	5
	5					
## 54	5	3	4	4	3	4
	5					
## 55	5	3	5	5	3	5
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## 67	4	3	4	2	2	2
	4					

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5							

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## 217	5	4	1	1	1	1

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	3					
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	3					
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	5					

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## 252	5	5	5	2	2	3	5
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## 255	5	3	5	3	2	2	5
## 256	5	3	2	5	4	5	5
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## 258	5	3	5	3	2	3	3
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## 261	3	3	3	3	3	3	3
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## 267	5	3	3	3	2	3	3

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3						

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## 315	5	4	5	4	5	4
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## 317	5	3	4	1	1	1

```
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## 319   5          3   2   3   4        3
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2
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4
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3
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4
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2
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2
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2
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3
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4
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3
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2
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2
## 339   5          3   3   3   2        4
3
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3
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3
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1
```

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2						
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2						

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3						
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3						

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4							
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## 860	5	3	4	4	2	3	3
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## 863	5	4	4	2	2	3	2
## 864	5	5	3	2	2	4	4
## 865	5	3	3	2	3	3	4
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	3						
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	2						
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	1						
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	5						
## 880	4		5	5	1	4	2
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	2						
## 882	5		3	1	1	3	5
	5						
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	1						
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	3						
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	1						
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	3						
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	3						
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	2						
## 892	5		3	4	3	2	1
	3						

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## 894	5	3	2	3	4	3
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1						

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## 946	5	2	5	2	3	3
## 947	5	5	2	1	2	4
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## 950	5	3	3	2	3	1
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## 953	5	2	3	3	3	4
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## 960	4	3	3	2	3	4
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## 963	5	2	3	4	4	5
## 964	4	4	4	3	3	5
## 965	5	4	3	2	3	3
## 966	5	5	5	3	3	3
## 967	5	5	1	1	1	5

The row labels are split across two lines in the source:
- 943 → 1
- 944 → 2
- 945 → 3
- 946 → 3
- 947 → 3
- 948 → 1
- 949 → 4
- 950 → 2
- 951 → 2
- 952 → 1
- 953 → 3
- 954 → 3
- 955 → 3
- 956 → 1
- 957 → 4
- 958 → 2
- 959 → 3
- 960 → 4
- 961 → 1
- 962 → 4
- 963 → 3
- 964 → 1
- 965 → 3
- 966 → 5
- 967 → 5

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## 969	5	4	3	2	2	3
3						
## 970	5	3	2	1	2	3
2						
## 971	5	3	5	1	4	5
5						
## 972	5	4	2	4	3	4
2						
## 973	5	3	3	3	3	3
4						
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5						
## 975	5	3	1	2	2	2
2						
## 976	5	3	5	5	5	5
5						
## 977	5	3	4	2	3	3
5						
## 978	5	4	4	2	2	1
1						
## 979	5	2	2	1	2	2
1						
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4						
## 981	5	3	2	2	2	5
1						
## 982	5	4	1	2	4	5
5						
## 983	5	4	2	1	1	3
2						
## 984	5	4	3	1	1	3
3						
## 985	5	2	1	3	2	3
3						
## 986	5	2	1	3	2	4
2						
## 987	4	3	2	5	3	5
2						
## 988	4	3	2	2	3	2
1						
## 989	5	2	3	2	2	5
2						
## 990	5	5	3	2	2	4
5						
## 991	5	4	2	1	1	2
2						
## 992	5	5	2	1	1	1
1						

```
## 993        4                     4      4      1      4              4
## 1
## 994        5                     3      3      1      2              3
## 1
## 995        5                     4      3      2      2              3
## 4
## 996        5                     4      2      1      1              1
## 2
## 997        5                     3      1      1      1              3
## 2
## 998        5                     4      3      3      3              1
## 3
## 999        5                     4      4      3      1              3
## 2
## 1000       5                     5      5      3      4              5
## 4
## 1001       5                     3      3      3      2              3
## 3
## 1002       5                     5      5      1      2              1
## 4
## 1003       5                     5      3      1      3              1
## 1
## 1004       4                     3      4      3      2              2
## 3
## 1005       5                     3      4      1      2              3
## 2
## 1006       5                     2      5      2      2              5
## 4
## 1007       4                     4      5      1      3              4
## 1
## 1008       4                     3      1      1      2              2
## 2
## 1009       5                     3      3      3      1              3
## 1
## 1010       5                     5      4      3      2              3
## 3
##       Pop Rock Metal.or.Hardrock Punk Hiphop..Rap Reggae..Ska Swing..Jazz
## 1       5    5                 1    1           1           1           1
## 2       3    5                 4    4           1           3           1
## 3       3    5                 3    4           1           4           3
## 4       2    2                 1    4           2           2           1
## 5       5    3                 1    2           5           3           2
## 6       2    5                 5    3           4           3           4
## 7       5    3                 1    1           3           1           1
## 8       4    5                 1    2           3           2           2
## 9       3    5                 5    1           1           2           2
## 10      3    5                 2    3           2           4           4
## 11      4    3                 2    1           3           2           2
## 12      2    5                 1    1           1           1           2
## 13      3    5                 4    2           3           1           1
```

```
## 14      5      2          1      1          2          1          3
## 15      4      5          2      5          3          4          4
## 16      3      5          5      5          2          4          2
## 17      4      4          1      3          2          3          2
## 18      4      4          2      3          3          4          3
## 19      5      4          4      3          4          4          4
## 20      2      4          5      2          1          4          5
## 21      2      5          5      4          4          3          5
## 22      2      5          5      4          1          2          1
## 23      4      3          1      2          2          1          1
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## 26      5      1          1      1          3          1          2
## 27      4      4          3      2          2          1          3
## 28      2      4          2      4          2          4          2
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## 37      4      4          1      1          1          1          1
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## 50      3      5          3      5          3          2          2
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## 52      5      4          3      2          2          4          4
## 53      5      5          4      2          5          5          5
## 54      4      3          2      2          3          3          3
## 55      5      5          4      3          3          3          4
## 56      4      3          3      2          4          3          3
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## 60      3      4          3      5          3          3          4
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## 62      4      4          1      2          3          2          3
## 63      5      4          5      4          5          4          5
```

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## 65     4    5              1    3              2              1              2
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## 82     5    4              2    3              4              4              3
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## 84     5    5              3    1              3              2              4
## 85     1    5              5    5              4              4              5
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## 87     4    5              3    3              4              3              3
## 88     4    5              2    4              3              5              3
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## 99     3    5              2    1              1              3              2
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## 101    4    5              3    2              4              4              3
## 102    2    4              5    4              1              4              3
## 103    1    5              2    5              1              4              5
## 104    5    1              1    1              5              5              4
## 105    2    4              4    3              3              3              4
## 106    2    4              5    1              1              2              3
## 107    4    5              1    2              4              4              4
## 108    2    4              4    1              1              3              4
## 109    2    4              4    3              2              1              1
## 110    3    5              5    3              2              2              2
## 111    4    4              1    1              1              4              5
## 112    3    4              2    2              3              3              4
## 113    3    3              2    2              1              3              4
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## 180	1	1	2	1	1	1	4
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## 185	2	5	1	2	1	1	4
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## 188	4	3	2	2	1	1	2
## 189	3	3	1	1	3	2	2
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## 196	2	3	1	1	5	3	3
## 197	4	4	3	3	4	4	3
## 198	2	2	1	1	3	2	2
## 199	3	5	3	5	5	4	2
## 200	2	3	1	1	4	2	1
## 201	4	4	4	3	5	4	3
## 202	5	5	2	3	5	5	1
## 203	3	2	1	1	5	3	1
## 204	4	5	3	3	3	3	2
## 205	2	5	4	4	2	5	4
## 206	4	4	3	1	1	1	4
## 207	3	4	4	3	1	2	4
## 208	3	3	1	4	2	2	3
## 209	4	4	1	5	4	5	5
## 210	2	5	4	3	5	4	5
## 211	4	5	4	3	4	4	4
## 212	5	5	1	1	5	4	4
## 213	2	4	2	3	3	2	4

```
## 214    5    5            2    5            4            2            2
## 215    3    5            4    3            2            2            5
## 216    3    1            1    1            5            1            1
## 217    1    4            5    3            2            1            1
## 218    4    3            1    2            3            1            2
## 219    4    3            1    1            4            3            1
## 220    3    1            1    1            5            2            1
## 221    1    3            1    2            5            4            4
## 222    3    5            5    4            5            5            5
## 223    5    5            3    3            2            1            4
## 224    4    2            2    1            4            3            4
## 225    4    5            3    4            3            3            2
## 226    2    5            2    4            3            4            4
## 227    4    5            3    3            5            3            2
## 228    2    4            3    3            2            3            5
## 229    3    3            1    2            1            2            5
## 230    4    3            1    4            2            5            3
## 231    5    3            1    3            4            3            3
## 232    4    5            3    3            1            2            3
## 233    2    3            2    2            3            4            5
## 234    4    4            4    4            4            4            2
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## 236    3    5            4    2            1            1            3
## 237    4    4            3    3            2            4            3
## 238    4    3            1    1            5            4            3
## 239    4    2            1    1            5            3            2
## 240    2    4            1    3            3            3            4
## 241    2    3            2    1            2            2            2
## 242    3    3            1    2            5            3            3
## 243    5    4            1    1            1            1            2
## 244    5    5            1    4            1            2            4
## 245    5    5            2    3            2            3            3
## 246    3    4            3    4            4            5            4
## 247    4    5            2    2            3            4            4
## 248    3    5            2    3            3            4            5
## 249    4    5            4    3            4            2            2
## 250    5    5            4    4            2            2            4
## 251    4    3            2    2            4            4            2
## 252    5    5            2    4            4            4            3
## 253    4    5            1    2            2            1            3
## 254    3    1            1    1            1            1            1
## 255    5    3            1    1            4            2            1
## 256    3    5            4    3            3            3            4
## 257    5    2            1    1            3            2            1
## 258    4    4            3    1            4            2            3
## 259    1    5            5    2            1            1            4
## 260    3    4            2    2            2            1            3
## 261    3    3            3    3            3            3            3
## 262    5    2            1    2            2            1            1
## 263    2    5            2    1            3            3            5
```

## 264	5	4	2	2	4	3	2
## 265	5	4	3	3	5	4	3
## 266	5	2	1	1	4	3	3
## 267	4	4	1	1	2	2	4
## 268	2	4	4	4	3	2	2
## 269	5	2	1	1	2	3	3
## 270	3	5	3	4	1	1	1
## 271	4	5	4	5	5	5	5
## 272	4	5	5	5	5	5	4
## 273	2	5	5	5	2	5	4
## 274	4	4	2	4	4	4	5
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## 276	3	4	4	3	2	2	4
## 277	5	5	4	3	1	1	1
## 278	4	5	3	1	2	2	3
## 279	3	4	2	3	5	5	2
## 280	4	3	1	3	3	3	1
## 281	2	5	5	3	2	3	2
## 282	2	4	4	5	4	4	5
## 283	3	2	1	1	1	2	1
## 284	4	4	2	4	4	5	5
## 285	1	1	1	1	1	1	1
## 286	5	5	1	1	3	1	2
## 287	4	4	1	3	5	5	3
## 288	4	4	2	4	4	1	3
## 289	2	3	2	1	4	4	2
## 290	4	4	2	2	4	1	2
## 291	4	4	1	1	4	3	4
## 292	3	5	4	4	3	4	3
## 293	5	4	1	3	3	3	3
## 294	1	5	4	5	1	4	3
## 295	3	4	1	4	3	4	4
## 296	4	5	3	2	2	4	3
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## 298	2	3	2	3	1	3	3
## 299	4	3	1	1	5	4	4
## 300	2	4	1	3	5	5	3
## 301	2	4	5	3	1	1	3
## 302	1	5	5	1	1	1	2
## 303	5	5	2	2	5	3	1
## 304	4	5	4	2	4	2	2
## 305	4	4	2	1	2	3	2
## 306	2	5	2	3	2	2	3
## 307	3	4	2	4	4	5	5
## 308	2	5	4	3	1	1	5
## 309	4	3	1	1	3	1	1
## 310	3	4	1	1	4	1	1
## 311	4	4	2	1	1	2	1
## 312	5	5	2	2	5	5	5
## 313	3	4	3	2	3	3	3

```
## 314   4   2       1   1       4   1   3
## 315   5   5       5   5       2   5   5
## 316   5   2       1   1       2   1   1
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## 319   3   1       1   3       3   2   4
## 320   5   4       1   2       3   3   4
## 321   3   5       4   3       2   3   2
## 322   4   5       2   2       5   2   3
## 323   2   5       5   5       1   3   3
## 324   5   4       1   3       1   1   1
## 325   5   3       2   3       2   3   3
## 326   4   4       4   4       5   5   2
## 327   5   4       2   2       2   3   3
## 328   5   3       1   1       5   4   3
## 329   2   5       4   5       2   4   3
## 330   4   4       1   2       4   2   2
## 331   3   5       3   3       3   2   3
## 332   2   5       2   2       5   1   5
## 333   3   2       1   1       2   3   1
## 334   5   4       2   2       3   2   3
## 335   2   3       2   2       2   2   4
## 336   4   4       2   2       4   4   4
## 337   5   3       1   2       3   3   3
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## 340   2   5       5   5       1   3   3
## 341   2   3       1   2       3   3   2
## 342   2   2       2   2       5   1   1
## 343   3   3       1   2       4   4   3
## 344   5   4       2   2       1   2   2
## 345   5   3       1   1       2   1   1
## 346   4   4       3   4       2   3   2
## 347   3   3       1   1       5   5   1
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## 349   4   2       1   1       1   2   5
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## 352   5   5       2   4       1   4   4
## 353   2   5       5   1       1   1   1
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## 355   4   4       2   3       3   2   2
## 356   4   3       1   1       5   2   1
## 357   5   5       3   2       4   4   3
## 358   2   4       4   3       5   2   2
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## 360   5   2       1   2       4   4   2
## 361   5   5       1   1       5   5   3
## 362   2   5       4   2       3   4   5
## 363   3   5       4   5       2   4   2
```

```
## 364   3   5        3   5        2        4        1
## 365   4   5        4   3        3        3        2
## 366   1   5        4   5        1        5        4
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## 372   5   5        3   3        2        2        5
## 373   2   4        2   5        1        4        2
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## 375   5   3        1   1        3        3        2
## 376   5   4        2   2        5        2        2
## 377   4   1        1   1        5        1        1
## 378   3   5        4   3        1        3        4
## 379   5   4        1   1        4        5        1
## 380   4   4        2   2        3        3        4
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## 382   2   5        3   3        1        1        3
## 383   5   1        1   1        4        2        1
## 384   3   5        3   4        3        3        3
## 385   3   5        5   3        4        4        4
## 386   4   5        3   3        4        5        5
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## 394   1   3        5   3        2        1        1
## 395   3   4        2   1        1        2        2
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## 412   5   5        1   1        4        2        4
## 413   3   5        5   1        1        1        1
```

```
## 414   4   4        4   4        2        2        2
## 415   5   3        2   1        3        2        3
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## 443   5   4        1   4        3        4        4
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## 446   5   3        1   1        4        2        3
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## 450   3   4        2   2        2        3        3
## 451   5   3        1   1        2        2        1
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## 454   3   4        2   2        2        3        3
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## 458   4   5        2   3        2        2        2
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## 461   2   4        2   4        5        5        1
## 462   3   3        1   1        1        3        3
## 463   3   5        1   4        3        3        3
```

```
## 464    5    3         1    1         3         3         1
## 465    3    4         1    4         2         3         2
## 466    3    1         1    2         2         4         4
## 467    4    3         1    1         4         1         3
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## 469    4    5         2    2         5         4         4
## 470    4    3         1    3         4         4         2
## 471    5    2         1    1         3         3         2
## 472    3    5         4    5         2         5         3
## 473    4    3         1    2         1         1         1
## 474    2    4         4    3         1         1         1
## 475    5    3         1    1         5         2         1
## 476    3    5         4    4         3         4         3
## 477    4    5         4    3         3         3         5
## 478    2    5         3    3         1         2         3
## 479    4    4         2    2         2         2         2
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## 485    4    4         3    3         3         3         4
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## 488    1    1         2    4         5         4         2
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## 497    3    3         1    1         2         2         2
## 498    5    5         2    3         1         3         5
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## 501    2    4         2    1         1         2         2
## 502    4    4         2    2         2         2         4
## 503    2    5         3    4         3         3         4
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## 510    4    1         1    1         4         3         3
## 511    4    4         3    2         4         4         4
## 512    3    3         1    1         4         4         4
## 513    1    1         1    1         1         1         2
```

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## 521	4	2	1	1	4	4	2
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## 524	1	3	1	1	2	3	3
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## 527	4	4	4	4	5	5	3
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## 529	5	5	1	2	5	1	3
## 530	3	5	3	2	1	1	2
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## 532	2	5	4	3	1	2	3
## 533	4	4	2	1	2	4	5
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## 535	4	3	1	1	4	4	4
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## 538	3	4	1	3	3	3	1
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## 540	4	5	4	1	1	1	1
## 541	5	5	1	2	4	4	2
## 542	3	2	2	2	4	3	2
## 543	4	4	3	5	5	5	4
## 544	4	4	4	3	3	2	5
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## 546	3	3	3	3	3	3	3
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## 550	5	3	1	1	5	3	3
## 551	3	5	2	2	1	3	3
## 552	4	2	1	1	1	1	1
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## 561	4	3	4	4	4	4	3
## 562	4	4	1	3	5	3	4
## 563	4	3	3	3	5	1	2

```
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## 577    3    3              1    2         5         5         2
## 578    3    3              1    1         1         1         1
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## 587    2    3              4    2         1         3         2
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## 595    3    4              1    4         2         2         4
## 596    1    4              4    5         1         4         1
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## 598    5    5              2    3         4         2         2
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## 600    5    4              3    3         4         4         2
## 601    4    4              4    3         5         5         2
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## 611    4    5              4    2         2         2         4
## 612    5    3              1    1         3         2         1
## 613    3    4              3    3         4         4         3
```

```
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## 615    4    4         1    1         1         4         5
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## 625    5    5         2    1         4         2         2
## 626    5    2         1    3         4         1         2
## 627    3    3         2    1         4         4         4
## 628    2    1         1    1         1         2         3
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## 635    4    3         2    2         4         3         4
## 636    4    4         1    1         2         4         4
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## 639    5    5         3    5         4         4         3
## 640    1    5         5    3         1         2         5
## 641    5    5         4    5         5         2         1
## 642    4    3         2    2         5         4         3
## 643    3    3         2    2         2         2         1
## 644    4    5         1    1         4         1         3
## 645    5    4         2    2         4         4         2
## 646    3    2         1    1         4         2         3
## 647    4    4         1    1         3         2         2
## 648    5    3         1    1         5         2         4
## 649    4    3         1    1         3         2         2
## 650    3    3         3    3         4         4         4
## 651    4    2         1    1         4         2         1
## 652    3    3         2    2         4         3         3
## 653    5    4         1    1         1         1         1
## 654    3    5         5    2         1         3         4
## 655    5    3         2    1         3         2         2
## 656    3    5         3    4         3         4         2
## 657    2    5         3    3         2         1         4
## 658    5    3         1    2         4         2         1
## 659    2    2         2    1         5         2         3
## 660    4    5         4    4         2         1         3
## 661    4    5         3    4         3         5         4
## 662    3    1         1    1         2         1         1
## 663    4    4         1    1         3         4         1
```

```
## 664   4   3              4   5              3              4              3
## 665   1   2              1   1              1              2              3
## 666   2   5              5   5              5              5              3
## 667   2   5              3   2              1              1              1
## 668   1   2              1   3              5              4              4
## 669   2   5              5   1              2              2              4
## 670   3   3              3   4              4              3              3
## 671   3   3              3   1              2              3              3
## 672   3   3              1   1              4              4              4
## 673   4   4              2   2              1              1              3
## 674   5   4              2   1              3              2              4
## 675   3   5              3   3              4              1              1
## 676   5   4              2   1              2              2              2
## 677   1   2              2   1              2              1              2
## 678   4   3              2   3              3              3              2
## 679   2   5              5   4              1              5              3
## 680   1   5              2   5              3              5              4
## 681   5   5              2   3              5              5              2
## 682   3   5              5   4              4              5              4
## 683   4   4              3   4              3              4              3
## 684   5   5              4   3              3              3              3
## 685   5   4              1   2              4              2              2
## 686   4   3              2   3              4              3              4
## 687   4   4              3   3              3              3              3
## 688   3   5              4   4              5              3              3
## 689   4   5              1   5              3              1              1
## 690   4   4              1   2              4              2              2
## 691   2   4              1   3              3              3              3
## 692   3   4              4   2              4              2              4
## 693   4   5              5   4              4              3              4
## 694   4   3              2   1              4              3              3
## 695   3   5              4   2              3              3              5
## 696   5   4              2   2              5              3              4
## 697   5   3              1   1              3              1              3
## 698   4   5              3   5              3              1              1
## 699   5   3              1   1              5              5              3
## 700   5   3              1   2              3              3              2
## 701   1   4              2   1              4              2              1
## 702   2   2              1   1              2              2              3
## 703   4   5              5   2              1              1              2
## 704   3   4              4   4              3              5              3
## 705   5   5              1   2              4              5              2
## 706   3   5              3   4              3              5              4
## 707   5   4              2   1              4              3              2
## 708   3   4              5   2              2              2              2
## 709   5   3              1   1              5              4              1
## 710   3   5              5   3              4              3              4
## 711   5   4              1   2              4              5              3
## 712   4   4              2   3              2              4              2
## 713   4   3              1   1              1              1              3
```

```
## 714   3   4        1   5        4        5        5
## 715   3   5        1   1        4        5        1
## 716   2   5        5   4        1        4        3
## 717   2   3        2   1        4        5        3
## 718   4   4        2   1        1        1        3
## 719   5   5        4   5        2        3        5
## 720   5   3        3   2        2        3        2
## 721   3   2        4   2        4        4        5
## 722   4   4        1   1        1        1        3
## 723   5   5        2   2        4        3        5
## 724   5   4        1   1        2        1        4
## 725   5   3        2   2        3        3        3
## 726   4   2        1   1        4        1        4
## 727   5   2        1   1        5        5        3
## 728   5   5        3   3        2        2        3
## 729   5   2        1   1        5        2        2
## 730   4   5        4   3        4        4        3
## 731   1   5        5   5        3        3        4
## 732   4   4        1   2        4        3        4
## 733   3   3        2   2        4        3        4
## 734   3   4        2   1        1        4        4
## 735   3   2        2   1        1        2        3
## 736   1   1        1   1        1        1        1
## 737   4   5        4   3        2        2        4
## 738   3   4        2   1        1        1        4
## 739   3   5        4   2        5        1        1
## 740   4   5        5   3        1        2        2
## 741   4   4        2   1        5        2        3
## 742   3   3        1   1        1        2        5
## 743   2   4        2   1        3        4        2
## 744   2   4        4   4        3        3        3
## 745   2   5        4   5        1        3        3
## 746   3   4        2   2        1        3        2
## 747   4   5        2   3        1        2        3
## 748   4   2        4   3        5        4        5
## 749   3   4        4   5        3        3        3
## 750   1   5        3   3        1        1        3
## 751   3   3        1   1        5        1        5
## 752   5   5        3   4        1        2        3
## 753   5   3        1   3        4        2        4
## 754   3   4        2   2        1        3        2
## 755   4   3        2   3        4        3        3
## 756   3   5        5   4        1        4        4
## 757   4   5        5   5        2        5        3
## 758   2   3        1   2        5        5        5
## 759   3   1        1   1        3        1        1
## 760   5   4        3   3        3        3        4
## 761   5   5        4   4        2        3        2
## 762   4   1        1   2        5        5        1
## 763   3   3        1   3        4        5        1
```

```
## 764    3    5          3    5          1          1          3
## 765    5    3          1    2          2          2          3
## 766    4    5          5    5          2          2          3
## 767    4    4          5    4          4          4          4
## 768    2    2          5    2          2          2          3
## 769    4    3          2    2          5          3          3
## 770    3    3          3    3          3          3          3
## 771    1    1          1    1          1          1          1
## 772    3    5          5    4          2          3          2
## 773    4    2          1    1          4          1          1
## 774    3    5          5    3          4          3          5
## 775    2    2          1    1          2          2          3
## 776    3    4          1    2          4          2          2
## 777    4    5          1    1          3          1          3
## 778    5    3          1    1          5          3          3
## 779    5    2          1    1          3          2          1
## 780    3    3          2    2          4          2          5
## 781    4    4          1    2          3          3          3
## 782    3    3          1    1          1          1          4
## 783    3    5          5    5          2          5          5
## 784    4    5          4    1          2          3          3
## 785    4    3          1    1          3          3          5
## 786    5    2          3    3          4          3          3
## 787    4    5          4    1          2          2          5
## 788    5    2          2    1          5          3          2
## 789    4    3          2    3          4          4          2
## 790    5    4          1    2          4          1          1
## 791    2    5          5    4          2          1          1
## 792    3    2          1    1          4          3          5
## 793    3    4          3    2          4          3          3
## 794    3    2          4    2          5          3          4
## 795    5    2          1    1          5          1          1
## 796    1    5          1    5          1          5          1
## 797    5    1          4    3          4          4          2
## 798    2    2          1    1          5          2          2
## 799    4    5          3    3          3          3          2
## 800    2    4          5    4          1          1          2
## 801    4    3          1    4          4          1          1
## 802    4    5          3    2          1          1          1
## 803    5    4          4    3          5          3          1
## 804    3    5          4    5          1          1          2
## 805    5    5          3    4          4          4          4
## 806    5    5          5    5          3          4          2
## 807    1    1          1    1          1          1          1
## 808    3    2          2    2          1          1          1
## 809    5    5          3    4          3          2          1
## 810    2    2          2    1          4          1          1
## 811    1    5          5    3          1          3          4
## 812    3    5          4    4          3          2          3
## 813    1    1          1    1          2          1          1
```

```
## 814   2   2        3   1        2        1        1
## 815   4   3        2   3        5        4        3
## 816   2   5        5   3        5        4        4
## 817   4   5        5   5        4        4        5
## 818   5   5        2   2        5        4        4
## 819   4   4        4   3        2        1        1
## 820   4   2        1   2        3        2        1
## 821   3   5        2   2        4        4        4
## 822   4   5        5   5        1        3        4
## 823   5   4        1   3        5        4        3
## 824   3   2        1   1        5        2        2
## 825   3   5        3   2        1        3        2
## 826   2   5        4   2        1        2        2
## 827   4   5        3   3        3        3        5
## 828   4   5        3   3        2        4        3
## 829   4   5        3   4        5        2        1
## 830   3   5        5   4        3        2        4
## 831   4   3        1   1        5        4        4
## 832   5   4        3   4        5        4        4
## 833   2   5        3   4        1        4        4
## 834   3   4        1   1        1        1        5
## 835   3   5        4   2        2        2        2
## 836   5   4        1   1        1        4        3
## 837   4   5        5   5        4        3        5
## 838   2   5        5   4        2        4        5
## 839   5   4        1   1        4        5        3
## 840   4   3        1   2        3        3        3
## 841   5   5        1   1        4        3        3
## 842   4   4        3   4        5        2        2
## 843   4   5        1   4        1        3        2
## 844   4   4        2   2        5        3        2
## 845   2   3        2   3        2        3        5
## 846   5   1        1   1        4        2        2
## 847   4   2        1   1        4        2        4
## 848   5   5        2   2        1        4        4
## 849   3   5        3   4        1        4        2
## 850   2   2        1   1        1        2        4
## 851   4   2        1   1        4        4        3
## 852   2   2        1   2        5        3        2
## 853   2   2        1   1        5        3        2
## 854   3   3        1   1        2        3        2
## 855   3   3        1   1        5        3        3
## 856   5   4        3   4        5        4        2
## 857   4   5        3   3        3        3        5
## 858   4   3        1   2        2        3        3
## 859   2   3        3   1        1        5        5
## 860   4   3        2   2        5        3        3
## 861   3   4        4   3        4        3        3
## 862   3   5        1   2        1        3        3
## 863   5   4        3   1        4        3        4
```

## 864	3	2	1	1	2	2	3
## 865	3	5	4	4	4	3	3
## 866	3	4	2	3	4	2	1
## 867	2	5	4	4	3	4	2
## 868	4	3	1	1	1	3	1
## 869	4	4	3	2	5	2	2
## 870	4	5	3	3	2	1	3
## 871	5	3	3	2	3	1	1
## 872	3	5	4	2	2	3	4
## 873	3	5	3	2	2	2	3
## 874	3	4	2	1	3	3	3
## 875	3	2	1	2	3	2	2
## 876	3	2	1	1	4	1	1
## 877	4	1	1	1	5	5	4
## 878	1	5	3	4	3	3	4
## 879	4	4	2	2	5	4	4
## 880	2	4	5	3	2	1	2
## 881	3	2	1	3	4	2	2
## 882	4	5	2	2	1	1	4
## 883	2	4	3	5	3	2	2
## 884	4	3	1	1	2	3	4
## 885	4	5	3	4	3	4	4
## 886	4	4	4	1	5	4	2
## 887	3	4	5	4	1	1	1
## 888	2	5	3	2	4	3	2
## 889	4	4	3	2	2	1	2
## 890	3	4	3	2	2	3	3
## 891	4	3	1	1	4	2	2
## 892	4	4	2	2	2	4	1
## 893	3	5	3	2	3	2	2
## 894	2	4	3	2	4	3	2
## 895	3	5	3	2	2	4	3
## 896	3	3	1	1	4	3	3
## 897	2	5	3	3	1	2	4
## 898	4	3	1	2	3	2	3
## 899	2	5	2	3	1	3	5
## 900	3	3	2	2	5	3	3
## 901	3	3	1	1	2	4	4
## 902	3	3	1	2	1	2	3
## 903	2	3	2	3	5	4	3
## 904	1	5	5	4	2	3	5
## 905	5	3	1	1	2	2	2
## 906	4	4	1	3	5	3	3
## 907	2	1	1	1	2	3	4
## 908	5	3	2	3	3	3	2
## 909	4	4	3	3	2	2	3
## 910	4	3	2	3	4	4	2
## 911	4	5	1	1	4	4	5
## 912	3	5	5	4	1	1	3
## 913	4	3	2	4	3	3	2

```
## 914    3    4         1    3         1         2         4
## 915    3    5         4    4         2         3         4
## 916    4    4         3    1         4         2         2
## 917    3    5         4    4         1         3         3
## 918    2    5         4    4         2         2         2
## 919    4    5         5    5         3         4         2
## 920    3    4         4    3         3         3         3
## 921    3    4         3    3         2         3         3
## 922    4    3         2    3         4         2         3
## 923    5    3         1    1         4         3         2
## 924    4    4         2    5         3         1         4
## 925    3    2         1    1         2         2         1
## 926    3    2         1    1         3         5         4
## 927    2    4         3    3         1         2         2
## 928    5    3         1    2         4         4         1
## 929    4    3         2    2         4         4         2
## 930    4    2         3    4         2         5         2
## 931    3    2         2    3         5         3         1
## 932    4    3         4    3         2         3         2
## 933    5    3         2    1         4         3         2
## 934    3    4         2    3         1         4         5
## 935    3    4         5    4         2         2         2
## 936    5    2         1    1         2         1         1
## 937    4    3         4    4         2         3         4
## 938    5    5         4    5         4         5         5
## 939    4    5         2    4         4         1         3
## 940    4    4         1    2         1         2         3
## 941    3    3         1    1         4         4         5
## 942    4    4         3    3         4         5         4
## 943    4    2         1    2         1         3         5
## 944    3    4         1    4         4         4         4
## 945    5    4         1    1         2         1         3
## 946    4    4         4    4         5         4         2
## 947    3    5         5    5         2         1         4
## 948    3    3         3    2         4         3         2
## 949    4    3         1    1         2         3         2
## 950    3    4         3    3         2         3         3
## 951    4    5         5    5         4         4         3
## 952    4    3         2    2         4         5         3
## 953    4    5         3    3         1         3         3
## 954    5    4         1    4         4         4         4
## 955    3    3         1    2         4         4         3
## 956    2    5         5    5         1         3         1
## 957    4    4         3    3         3         3         4
## 958    2    2         1    1         5         1         2
## 959    4    1         1    1         3         2         2
## 960    4    3         2    4         2         5         4
## 961    3    5         5    5         3         3         5
## 962    5    3         1    1         5         4         3
## 963    2    1         1    1         1         1         4
```

```
## 964       5     4                 1    1        3        1        4
## 965       3     5                 5    5        3        4        3
## 966       5     5                 2    4        1        3        2
## 967       1     1                 1    1        1        3        4
## 968       2     5                 5    5        1        4        4
## 969       4     3                 2    1        5        3        3
## 970       4     5                 4    3        2        2        3
## 971       3     4                 2    1        4        2        5
## 972       2     5                 4    4        1        4        3
## 973       3     5                 2    4        1        3        3
## 974       2     5                 5    5        1        4        5
## 975       2     5                 5    5        1        5        3
## 976       5     5                 5    5        5        5        5
## 977       5     5                 2    2        3        4        4
## 978       4     4                 3    2        4        2        1
## 979       4     5                 5    3        2        3        5
## 980       5     5                 1    1        3        2        4
## 981       4     4                 4    2        1        3        5
## 982       3     4                 1    1        1        2        3
## 983       2     4                 3    2        2        4        3
## 984       5     3                 1    1        4        4        2
## 985       3     4                 4    3        1        2        1
## 986       4     5                 3    3        1        4        2
## 987       2     4                 2    4        3        3        4
## 988       1     5                 3    2        1        3        3
## 989       2     5                 2    4        3        5        5
## 990       5     5                 5    1        5        2        3
## 991       3     4                 4    1        1        1        2
## 992       1     5                 5    4        5        2        1
## 993       3     4                 4    3        2        3        2
## 994       4     4                 1    1        4        1        1
## 995       3     5                 3    4        2        4        3
## 996       1     4                 4    3        3        2        1
## 997       1     4                 3    1        4        4        2
## 998       3     4                 2    4        2        4        1
## 999       3     5                 5    4        3        2        1
## 1000      4     4                 3    1        5        5        5
## 1001      4     3                 1    1        5        3        2
## 1002      4     3                 2    4        4        3        1
## 1003      2     5                 5    3        1        4        2
## 1004      4     5                 2    3        2        4        4
## 1005      3     3                 4    3        5        4        2
## 1006      4     4                 3    2        4        1        5
## 1007      4     1                 1    4        1        1        2
## 1008      3     4                 1    2        3        3        2
## 1009      3     4                 1    1        2        2        3
## 1010      4     1                 1    2        3        1        1
##       Rock.n.roll Alternative Latino Techno..Trance Opera
## 1               3           1      1              1     1
## 2               4           4      2              1     1
```

```
## 3            5            5            5            1            3
## 4            2            5            1            2            1
## 5            1            2            4            2            2
## 6            4            5            3            1            3
## 7            2            3            3            5            2
## 8            3            1            2            3            2
## 9            2            1            1            1            1
## 10           4            4            5            1            2
## 11           3            3            3            4            2
## 12           2            5            2            1            2
## 13           4            3            2            1            2
## 14           2            1            3            1            1
## 15           4            4            1            1            1
## 16           3            3            2            1            2
## 17           3            1            1            4            1
## 18           3            1            2            1            3
## 19           4            4            4            4            3
## 20           4            3            4            3            2
## 21           4            5            3            3            4
## 22           4            3            2            1            2
## 23           3            2            3            3            2
## 24           3            1            4            1            1
## 25           2            3            2            3            4
## 26           1            1            4            2            1
## 27           5            3            5            2            2
## 28           3            4            3            4            2
## 29           4            3            2            3            1
## 30           4            3            4            3            2
## 31           3            3            3            3            3
## 32           1            1            5            1            2
## 33           4            4            2            3            1
## 34           4            3            2            1            5
## 35           4            4            2            1            1
## 36           3            3            5            1            1
## 37           1            1            1            1            4
## 38           2            1            1            1            1
## 39           2            1            3            4            4
## 40           5            2            1            2            2
## 41           1            1            2            3            1
## 42           5            5            5            5            1
## 43           3            4            3            3            1
## 44           2            4            3            3            1
## 45           3            4            5            4            3
## 46           5            1            4            3            4
## 47           5            4            5            2            2
## 48           3            4            3            2            3
## 49           2            2            4            2            1
## 50           4            2            1            2            1
## 51           4            4            5            1            2
## 52           4            3            5            3            2
```

```
## 53              5              2              5              2              5
## 54              3              3              5              2              5
## 55              4              3              5              4              5
## 56              4              4              4              5              3
## 57              5              5              1              1              4
## 58              5              5              1              1              2
## 59              2              2              3              3              1
## 60              5              5              1              4              3
## 61              4              4              2              1              3
## 62              3              3              4              4              3
## 63              5              5              4              5              5
## 64              3              1              3              5              1
## 65              2              1              3              2              2
## 66              2              1              2              4              2
## 67              2              2              4              5              1
## 68              4              1              5              1              1
## 69              4              3              2              4              2
## 70              2              1              4              1              2
## 71              1              1              2              3              1
## 72              2              3              1              3              1
## 73              3              3              5              1              1
## 74              2              2              4              3              1
## 75              1              1              1              2              4
## 76              5              4              4              1              2
## 77              2              1              1              1              1
## 78              2              2              5              5              1
## 79              5              3              5              4              2
## 80              3              3              4              4              4
## 81              4              2              5              3              2
## 82              4              3              5              3              3
## 83              2              5              1              1              3
## 84              3              1              5              5              3
## 85              5              4              3              1              5
## 86              3              3              2              4              3
## 87              3              3              2              3              3
## 88              4              4              5              2              1
## 89              5              4              5              5              1
## 90              4              4              2              1              3
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## 93              4              3              3              1              4
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## 97              1              4              1              4              1
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## 101             3              2              3              2              2
## 102             3              3              1              1              2
```

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## 152          4          4          2          2          1
```

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## 252            3            2            4            5            2
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## 658	2	2	2	1	1
## 659	2	3	2	4	1
## 660	3	5	2	1	2
## 661	3	3	2	1	2
## 662	1	1	1	2	1
## 663	3	1	1	2	2
## 664	3	4	3	2	2
## 665	4	3	5	1	3
## 666	5	5	3	4	4
## 667	4	5	1	1	1
## 668	1	2	2	1	2
## 669	5	5	4	1	2
## 670	3	4	4	4	2
## 671	2	2	5	2	2
## 672	4	4	4	4	3
## 673	2	3	3	1	5
## 674	4	3	4	1	4
## 675	3	1	3	1	1
## 676	3	1	3	3	2
## 677	1	5	2	2	2
## 678	3	1	4	1	1
## 679	4	4	4	1	5
## 680	5	5	2	3	1
## 681	5	2	5	5	1
## 682	3	4	4	4	4
## 683	4	3	2	5	2
## 684	5	1	5	1	1
## 685	3	2	4	1	1
## 686	4	1	4	3	2
## 687	3	3	3	3	3
## 688	5	3	2	1	1
## 689	2	1	4	1	1
## 690	2	2	4	3	2
## 691	4	4	3	3	2
## 692	5	5	4	2	2
## 693	4	4	2	2	2
## 694	3	3	4	4	1
## 695	5	1	5	4	3
## 696	4	4	4	3	4
## 697	3	1	3	3	1
## 698	2	2	3	1	2
## 699	2	2	5	2	2
## 700	2	1	5	2	1
## 701	2	1	4	1	1
## 702	3	2	3	5	4

```
## 703            3            3            3            1            4
## 704            3            3            3            1            2
## 705            4            3            5            2            1
## 706            4            5            3            3            2
## 707            1            3            2            3            2
## 708            3            4            2            2            4
## 709            1            4            1            4            1
## 710            4            5            4            2            2
## 711            2            2            2            1            1
## 712            4            1            4            1            1
## 713            2            2            4            1            3
## 714            5            5            4            2            2
## 715            3            3            3            3            1
## 716            3            2            3            1            3
## 717            3            2            2            3            3
## 718            3            3            1            1            1
## 719            3            3            2            2            4
## 720            2            2            2            3            1
## 721            3            5            4            2            4
## 722            3            4            3            1            2
## 723            4            5            5            2            2
## 724            3            2            2            1            2
## 725            4            2            5            2            3
## 726            2            4            3            3            1
## 727            2            1            2            4            1
## 728            3            1            5            5            1
## 729            3            3            2            3            1
## 730            5            4            3            3            3
## 731            2            4            1            1            2
## 732            4            5            3            2            2
## 733            3            2            3            2            2
## 734            4            3            5            1            4
## 735            3            2            4            1            5
## 736            2            1            1            1            3
## 737            5            2            5            2            4
## 738            5            4            4            3            2
## 739            4            1            1            4            2
## 740            5            2            3            3            4
## 741            3            3            3            2            1
## 742            4            4            4            1            5
## 743            3            4            5            5            2
## 744            3            4            2            1            1
## 745            5            5            3            1            3
## 746            3            2            5            5            2
## 747            4            4            4            2            2
## 748            2            5            3            3            5
## 749            3            3            3            3            3
## 750            5            5            1            1            1
## 751            4            5            5            1            4
## 752            3            3            4            2            5
```

## 753	2	2	5	4	2
## 754	5	5	3	1	2
## 755	3	2	4	3	3
## 756	5	2	3	1	1
## 757	4	4	3	4	2
## 758	3	2	5	5	3
## 759	2	2	1	5	1
## 760	5	4	4	2	5
## 761	4	4	2	3	2
## 762	1	3	1	2	1
## 763	3	5	1	3	1
## 764	3	4	1	3	3
## 765	3	2	4	1	3
## 766	5	4	2	2	1
## 767	5	3	4	4	4
## 768	4	4	3	2	3
## 769	3	3	3	3	1
## 770	3	3	3	3	3
## 771	1	1	1	1	1
## 772	3	2	2	1	4
## 773	4	2	4	1	2
## 774	4	4	4	2	2
## 775	3	2	3	1	4
## 776	3	4	4	5	4
## 777	5	2	5	5	3
## 778	3	3	3	3	2
## 779	2	1	1	1	1
## 780	3	4	2	3	3
## 781	3	2	4	4	2
## 782	4	1	3	2	3
## 783	5	5	4	2	3
## 784	3	2	3	4	3
## 785	2	2	3	4	3
## 786	2	3	3	1	3
## 787	5	4	4	3	2
## 788	3	3	3	3	1
## 789	2	4	3	1	2
## 790	1	3	3	4	4
## 791	5	5	1	4	1
## 792	3	4	3	3	2
## 793	1	1	3	3	1
## 794	3	3	4	4	2
## 795	1	1	1	1	1
## 796	5	1	5	1	5
## 797	4	3	4	2	3
## 798	2	2	1	3	1
## 799	2	3	2	2	2
## 800	4	4	2	2	4
## 801	3	1	1	1	1
## 802	5	3	1	4	1

## 803	3	3	2	4	2
## 804	3	2	1	1	2
## 805	4	2	2	2	2
## 806	5	4	3	3	3
## 807	1	1	1	1	1
## 808	3	1	1	1	4
## 809	2	2	2	3	1
## 810	3	1	1	1	1
## 811	5	4	2	1	5
## 812	4	4	2	1	4
## 813	2	1	1	1	1
## 814	3	1	1	1	1
## 815	2	1	2	5	4
## 816	5	2	4	2	2
## 817	5	5	4	3	2
## 818	5	1	1	1	2
## 819	3	3	1	4	1
## 820	1	2	5	2	1
## 821	4	5	3	1	4
## 822	5	5	2	1	4
## 823	3	3	4	1	2
## 824	1	3	3	3	1
## 825	5	3	2	1	5
## 826	2	4	2	1	2
## 827	5	3	4	1	4
## 828	5	5	2	1	2
## 829	3	3	4	4	1
## 830	4	4	2	1	3
## 831	3	3	5	2	3
## 832	5	3	4	3	4
## 833	5	3	4	1	5
## 834	3	5	2	2	4
## 835	3	2	2	2	3
## 836	3	3	3	1	1
## 837	4	3	1	1	3
## 838	5	4	5	1	3
## 839	4	4	4	2	1
## 840	4	4	4	1	2
## 841	2	2	4	1	2
## 842	2	3	2	5	1
## 843	2	5	2	2	1
## 844	2	1	3	3	2
## 845	4	4	3	4	5
## 846	1	1	3	1	1
## 847	2	2	3	5	3
## 848	5	5	2	1	4
## 849	3	5	1	2	1
## 850	2	1	3	1	5
## 851	3	1	1	1	1
## 852	2	2	2	5	1

```
## 853          2          2          3          3          1
## 854          2          2          3          1          4
## 855          2          2          2          1          1
## 856          3          2          4          4          2
## 857          3          2          4          3          3
## 858          3          4          2          5          2
## 859          5          3          1          1          1
## 860          3          2          3          4          2
## 861          1          3          2          5          3
## 862          3          4          1          2          1
## 863          2          3          5          4          2
## 864          3          4          1          5          2
## 865          4          4          2          3          3
## 866          2          4          3          2          2
## 867          4          4          1          1          3
## 868          3          3          4          1          1
## 869          3          1          3          2          2
## 870          5          5          2          1          1
## 871          1          2          3          4          1
## 872          5          4          2          3          3
## 873          2          5          1          4          1
## 874          3          3          2          4          3
## 875          2          2          5          3          1
## 876          1          3          1          4          1
## 877          4          1          3          3          1
## 878          5          5          2          1          1
## 879          4          3          2          4          3
## 880          4          4          2          5          2
## 881          2          1          5          4          1
## 882          5          5          2          1          1
## 883          3          2          1          4          1
## 884          3          3          4          3          1
## 885          4          5          1          4          1
## 886          3          1          1          3          1
## 887          3          4          1          2          1
## 888          3          2          1          3          2
## 889          4          2          5          2          2
## 890          5          4          2          2          2
## 891          3          1          1          4          1
## 892          3          2          2          3          1
## 893          3          1          2          1          2
## 894          3          2          2          3          4
## 895          4          2          2          1          1
## 896          2          1          2          3          2
## 897          4          4          3          1          2
## 898          2          4          3          2          3
## 899          5          5          3          1          1
## 900          1          3          1          1          1
## 901          2          1          3          1          3
## 902          3          2          2          1          2
```

```
## 903          3          2          2                    2          1
## 904          4          4          3                    1          1
## 905          3          1          5                    1          2
## 906          3          2          2                    3          2
## 907          3          5          5                    5          4
## 908          2          1          3                    1          1
## 909          2          2          2                    3          2
## 910          5          3          2                    2          3
## 911          5          5          4                    1          2
## 912          4          5          4                    1          5
## 913          4          2          3                    3          2
## 914          4          4          2                    3          4
## 915          5          5          5                    2          4
## 916          3          3          3                    4          1
## 917          5          4          1                    1          1
## 918          4          4          2                    3          2
## 919          4          2          4                    1          3
## 920          3          5          5                    1          2
## 921          5          1          3                    1          3
## 922          2          3          2                    3          2
## 923          1          1          2                    4          3
## 924          5          5          2                    3          3
## 925          1          1          1                    1          1
## 926          3          2          5                    2          3
## 927          2          5          2                    1          2
## 928          2          3          1                    3          1
## 929          4          3          4                    3          3
## 930          3          5          3                    3          3
## 931          1          1          3                    3          2
## 932          3          1          2                    2          3
## 933          2          1          3                    4          2
## 934          5          4          3                    1          2
## 935          2          3          3                    4          1
## 936          1          1          3                    1          1
## 937          3          2          3                    3          2
## 938          5          5          5                    2          5
## 939          5          5          1                    5          3
## 940          4          3          4                    4          2
## 941          2          2          1                    5          1
## 942          4          4          3                    1          1
## 943          3          3          3                    5          2
## 944          3          3          3                    2          2
## 945          3          2          3                    2          3
## 946          4          3          4                    1          3
## 947          5          4          2                    2          3
## 948          1          2          1                    1          1
## 949          3          2          4                    2          2
## 950          3          2          3                    2          1
## 951          4          2          2                    3          3
## 952          5          4          1                    5          1
```

```
## 953             3             4             4             4             2
## 954             4             3             5             1             1
## 955             3             2             5             4             3
## 956             3             1             3             1             1
## 957             4             1             1             1             2
## 958             1             1             2             2             1
## 959             2             3             2             4             2
## 960             5             4             3             1             2
## 961             2             5             1             1             4
## 962             2             3             4             4             3
## 963             1             1             3             1             3
## 964             1             1             2             4             4
## 965             4             5             3             2             4
## 966             5             2             5             4             3
## 967             1             5             5             1             5
## 968             4             2             3             2             3
## 969             3             2             2             3             2
## 970             4             3             2             1             1
## 971             4             4             2             1             5
## 972             4             3             2             3             2
## 973             5             5             3             2             2
## 974             2             3             1             1             3
## 975             4             4             2             2             1
## 976             5             5             5             5             5
## 977             4             2             5             2             3
## 978             2             3             2             4             1
## 979             5             3             3             1             2
## 980             4             1             4             2             3
## 981             4             1             4             1             4
## 982             4             5             2             1             2
## 983             4             5             1             1             2
## 984             3             3             4             2             1
## 985             4             3             3             1             1
## 986             3             5             2             1             2
## 987             4             4             2             4             4
## 988             3             4             2             1             1
## 989             5             5             5             4             3
## 990             3             3             5             5             3
## 991             3             1             2             1             2
## 992             4             2             1             2             1
## 993             1             1             2             5             2
## 994             1             4             1             2             1
## 995             5             3             1             1             1
## 996             1             2             2             5             1
## 997             3             3             1             1             1
## 998             1             2             4             1             1
## 999             5             3             3             5             2
## 1000            5             5             5             5             3
## 1001            3             3             3             3             1
## 1002            4             1             2             3             1
```

```
## 1003           2           4       1               3       1
## 1004           4           2       4               4       2
## 1005           3           2       2               5       3
## 1006           4           4       3               3       2
## 1007           3           1       3               4       1
## 1008           2           5       1               1       1
## 1009           2           5       2               2       1
## 1010           3           2       2               3       1
```

```
fit = lm(Music~Dance+Folk+Pop+Rock, data= music_transformed)
summary(fit)
```

```
##
## Call:
## lm(formula = Music ~ Dance + Folk + Pop + Rock, data = music_transformed)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -3.9013  0.0985  0.2135  0.3052  0.7219
##
## Coefficients:
##             Estimate Std. Error t value Pr(>|t|)
## (Intercept) 4.095090   0.106376  38.497  < 2e-16 ***
## Dance       0.048990   0.019599   2.500   0.0126 *
## Folk        0.008519   0.018064   0.472   0.6373
## Pop         0.025551   0.019544   1.307   0.1914
## Rock        0.099906   0.017557   5.690 1.66e-08 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.6512 on 1005 degrees of freedom
## Multiple R-squared:  0.04085,    Adjusted R-squared:  0.03704
## F-statistic:  10.7 on 4 and 1005 DF,  p-value: 1.698e-08
```

```
coefficients(fit)
```

```
## (Intercept)        Dance        Folk         Pop        Rock
## 4.095089990 0.048989937 0.008519444 0.025550694 0.099906283
```

```
library(GGally)
```

```
## Warning: package 'GGally' was built under R version 3.6.3
```

```
## Registered S3 method overwritten by 'GGally':
##   method from
##   +.gg   ggplot2
```

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

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

```
ggpairs(data=music_transformed, title="Cars Data")
```
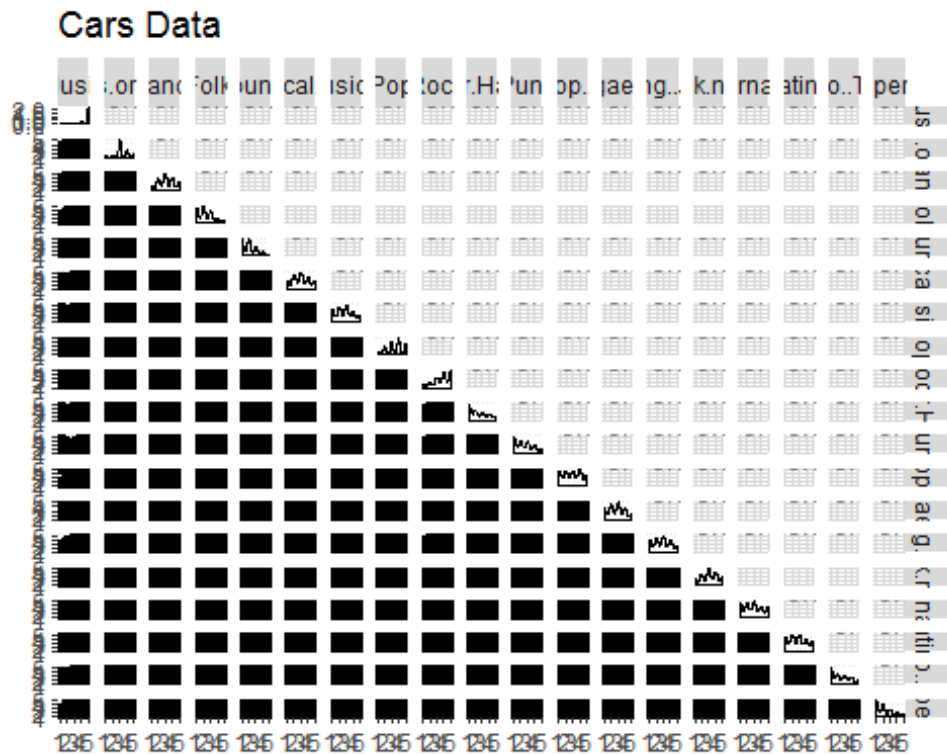


```
confint(fit,level=0.95)
```

```
##                    2.5 %      97.5 %
## (Intercept)   3.88634627 4.30383371
## Dance         0.01052971 0.08745016
## Folk         -0.02692841 0.04396730
## Pop          -0.01280006 0.06390144
## Rock          0.06545376 0.13435880
```

```
# Predicted Values
fitted(fit)
```

```
##        1        2        3        4        5        6        7        8
## 4.828874 4.777773 4.786292 4.452503 4.744080 4.769261 4.793070 4.860833
##        9       10       11       12       13       14       15       16
## 4.826763 4.811851 4.661020 4.703232 4.737302 4.693164 4.803323 4.786292
##       17       18       19       20       21       22       23       24
## 4.752407 4.769446 4.901496 4.718345 4.809731 4.703232 4.661020 4.909823
##       25       26       27       28       29       30       31       32
## 4.826763 4.535748 4.884465 4.726864 4.824836 4.752415 4.818436 4.727042
##       33       34       35       36       37       38       39       40
## 4.726856 4.612030 4.860833 4.695090 4.671466 4.503420 4.892977 4.894903
```

```
##       41       42       43       44       45       46       47       48
## 4.527229 4.807813 4.837394 4.777958 4.809917 4.884457 4.943893 4.752407
##       49       50       51       52       53       54       55       56
## 4.527044 4.777773 4.854433 4.794997 5.009922 4.727049 5.009922 4.710010
##       57       58       59       60       61       62       63       64
## 4.762853 4.818251 4.593258 4.677867 4.711937 4.850387 4.901496 4.699379
##       65       66       67       68       69       70       71       72
## 4.852313 4.626950 4.735561 4.544268 4.835282 4.679978 4.784551 4.420737
##       73       74       75       76       77       78       79       80
## 4.837394 4.586665 4.352597 4.801220 4.550483 4.875938 4.735561 4.952412
##       81       82       83       84       85       86       87       88
## 4.909823 4.826948 4.694720 4.975844 4.677681 4.743895 4.918342 4.901303
##       89       90       91       92       93       94       95       96
## 4.975844 4.835282 4.735376 4.762861 4.520458 4.588599 4.750481 4.635470
##       97       98       99      100      101      102      103      104
## 4.603326 4.352597 4.924743 4.601585 4.918342 4.620365 4.686201 4.584738
##      105      106      107      108      109      110      111      112
## 4.718345 4.620365 4.926862 4.603326 4.660835 4.786292 4.835475 4.792885
##      113      114      115      116      117      118      119      120
## 4.684460 4.809917 4.703417 4.984363 4.786292 4.637581 4.637396 4.610104
##      121      122      123      124      125      126      127      128
## 4.850202 4.720456 4.784181 4.843802 4.754341 4.718345 4.801397 4.769446
##      129      130      131      132      133      134      135      136
## 4.975844 4.967332 4.752222 4.552595 4.752407 4.552417 4.692979 4.777773
##      137      138      139      140      141      142      143      144
## 4.718530 4.843987 4.369636 4.892977 4.760927 4.745822 4.801397 4.809917
##      145      146      147      148      149      150      151      152
## 4.852313 4.750296 4.884457 4.835282 4.752600 4.395002 4.786292 4.701306
##      153      154      155      156      157      158      159      160
## 4.858906 4.659094 4.686201 4.692979 4.803331 4.826955 4.835467 4.926862
##      161      162      163      164      165      166      167      168
## 4.784181 4.811843 4.686579 4.652501 4.809917 4.559188 4.486388 4.735376
##      169      170      171      172      173      174      175      176
## 4.801397 4.777773 4.694905 4.752407 4.769261 4.478054 4.312134 4.728783
##      177      178      179      180      181      182      183      184
## 4.860841 4.703240 4.620365 4.286576 4.752222 4.792885 4.918342 4.661020
##      185      186      187      188      189      190      191      192
## 4.760742 4.527044 4.529163 4.563040 4.643989 4.594814 4.660835 4.563233
##      193      194      195      196      197      198      199      200
## 4.826948 4.703240 4.611845 4.560929 4.711937 4.510013 4.852321 4.650389
##      201      202      203      204      205      206      207      208
## 4.752407 4.854433 4.625024 4.909823 4.818251 4.728976 4.833356 4.594999
##      209      210      211      212      213      214      215      216
## 4.760927 4.867241 4.984371 4.975844 4.620365 4.935374 4.786292 4.386667
##      217      218      219      220      221      222      223      224
## 4.577775 4.701491 4.603511 4.525117 4.641878 4.909830 4.886384 4.569633
##      225      226      227      228      229      230      231      232
## 4.811843 4.769261 4.984371 4.677874 4.661028 4.710010 4.663139 4.860833
##      233      234      235      236      237      238      239      240
## 4.511939 4.809917 4.926862 4.728783 4.769446 4.710010 4.503605 4.758815
```

```
##       241      242      243      244      245      246      247      248
## 4.552410 4.577960 4.786477 4.828874 4.984363 4.694905 4.860833 4.835282
##       249      250      251      252      253      254      255      256
## 4.901303 4.903422 4.661020 4.984363 4.811843 4.427138 4.793070 4.811851
##       257      258      259      260      261      262      263      264
## 4.603704 4.867426 4.686201 4.743895 4.643989 4.635655 4.826770 4.884457
##       265      266      267      268      269      270      271      272
## 4.794997 4.586665 4.769446 4.767335 4.586665 4.826763 4.860833 4.918342
##       273      274      275      276      277      278      279      280
## 4.777780 4.809917 4.767520 4.743895 4.992883 4.803323 4.760934 4.710010
##       281      282      283      284      285      286      287      288
## 4.858721 4.758815 4.429064 4.809917 4.278056 4.877864 4.760927 4.752407
##       289      290      291      292      293      294      295      296
## 4.716418 4.809917 4.801397 4.843802 4.884457 4.735191 4.686386 4.860833
##       297      298      299      300      301      302      303      304
## 4.776031 4.552410 4.759000 4.750296 4.637404 4.686201 5.001402 4.811843
##       305      306      307      308      309      310      311      312
## 4.711937 4.809731 4.841875 4.728791 4.759000 4.784366 4.801397 5.009922
##       313      314      315      316      317      318      319      320
## 4.677867 4.561114 5.001402 4.480165 4.675940 4.933262 4.395187 4.843987
##       321      322      323      324      325      326      327      328
## 4.835282 4.860833 4.760742 4.728968 4.735561 4.826955 4.786477 4.686571
##       329      330      331      332      333      334      335      336
## 4.818251 4.809917 4.884272 4.809731 4.535563 4.786477 4.569448 4.818436
##       337      338      339      340      341      342      343      344
## 4.678052 4.724930 4.843802 4.760742 4.520458 4.403513 4.635470 4.812036
##       345      346      347      348      349      350      351      352
## 4.654620 4.809917 4.528970 4.760927 4.586672 4.684645 4.809917 4.886384
##       353      354      355      356      357      358      359      360
## 4.752222 4.552595 4.769446 4.603511 4.894903 4.701306 4.941782 4.635655
##       361      362      363      364      365      366      367      368
## 4.926854 4.835290 4.794812 4.745822 4.909823 4.735191 4.703417 4.877864
##       369      370      371      372      373      374      375      376
## 4.784551 4.616512 4.894903 5.009922 4.660835 4.629062 4.784551 4.835467
##       377      378      379      380      381      382      383      384
## 4.452688 4.794812 4.884457 4.875945 4.818436 4.760742 4.544268 4.786292
##       385      386      387      388      389      390      391      392
## 4.826763 4.975852 4.860833 4.684645 4.803516 4.535563 4.403513 4.643989
##       393      394      395      396      397      398      399      400
## 4.718530 4.477869 4.726856 4.726856 4.652509 4.486766 4.618438 4.728976
##       401      402      403      404      405      406      407      408
## 4.601585 4.752222 4.984371 4.694905 4.935381 4.544083 4.861026 4.684460
##       409      410      411      412      413      414      415      416
## 4.452696 4.850387 4.909823 4.886384 4.826763 4.818436 4.744080 4.877864
##       417      418      419      420      421      422      423      424
## 4.750481 4.386482 4.552787 4.984363 4.703232 4.746007 4.527229 4.786477
##       425      426      427      428      429      430      431      432
## 4.642063 4.852313 4.703232 4.618438 4.793070 4.752222 4.769446 4.550483
##       433      434      435      436      437      438      439      440
## 4.735191 4.852506 4.727042 4.728783 4.711937 4.577960 4.754334 4.659094
```

```
##      441      442      443      444      445      446      447      448
## 4.801397 4.786477 4.835467 4.586480 4.609919 4.735561 4.675940 4.295095
##      449      450      451      452      453      454      455      456
## 4.809917 4.743895 4.744080 4.760927 4.727042 4.686386 4.803323 4.935374
##      457      458      459      460      461      462      463      464
## 4.527044 4.909823 4.610297 4.560929 4.701306 4.603519 4.826763 4.678052
##      465      466      467      468      469      470      471      472
## 4.792885 4.435657 4.652501 4.593073 4.860833 4.750481 4.644174 4.884272
##      473      474      475      476      477      478      479      480
## 4.612030 4.603326 4.776031 4.835282 4.803323 4.752222 4.858906 4.735376
##      481      482      483      484      485      486      487      488
## 4.892977 4.550491 4.677867 4.860833 4.752407 4.909823 4.610104 4.482536
##      489      490      491      492      493      494      495      496
## 4.803331 4.760742 4.535563 4.760927 4.818251 4.727042 4.760742 4.777773
##      497      498      499      500      501      502      503      504
## 4.635470 4.894903 4.709825 4.728976 4.735384 4.835475 4.867241 4.711937
##      505      506      507      508      509      510      511      512
## 4.576219 4.852321 4.452503 4.527052 4.745822 4.535756 4.867426 4.626950
##      513      514      515      516      517      518      519      520
## 4.352605 4.726856 4.762861 4.918342 4.892977 4.752407 4.835467 4.541971
##      521      522      523      524      525      526      527      528
## 4.552595 4.810109 4.710010 4.682348 4.752222 4.843802 4.752407 4.752407
##      529      530      531      532      533      534      535      536
## 4.877864 4.737302 4.612223 4.786300 4.809917 4.826763 4.669540 4.894903
##      537      538      539      540      541      542      543      544
## 4.503605 4.735376 4.760927 4.860833 4.911942 4.535563 4.858906 4.801397
##      545      546      547      548      549      550      551      552
## 4.769261 4.643989 4.860833 4.603334 4.720271 4.776031 4.811851 4.569633
##      553      554      555      556      557      558      559      560
## 4.669355 4.601592 4.652509 4.593258 4.452688 4.720456 4.552595 4.807805
##      561      562      563      564      565      566      567      568
## 4.718530 4.818436 4.767520 4.901303 4.873641 4.659094 4.510013 4.684460
##      569      570      571      572      573      574      575      576
## 4.784551 4.701498 4.626950 4.510198 4.626950 4.701306 4.741969 4.726864
##      577      578      579      580      581      582      583      584
## 4.635470 4.684460 4.586665 4.943893 4.278056 4.686386 4.667428 4.728968
##      585      586      587      588      589      590      591      592
## 4.744080 4.743895 4.716418 4.652316 4.450577 4.677681 4.835282 4.469727
##      593      594      595      596      597      598      599      600
## 4.469727 4.769261 4.694905 4.577775 4.701491 4.935374 4.784366 4.892977
##      601      602      603      604      605      606      607      608
## 4.703417 4.628884 4.835467 4.760927 4.760927 4.762861 4.786477 4.652501
##      609      610      611      612      613      614      615      616
## 4.454807 4.635470 4.860833 4.686571 4.824836 4.735376 4.801397 4.869352
##      617      618      619      620      621      622      623      624
## 4.875753 4.735376 5.001402 4.643989 4.703417 4.624839 4.901496 4.443991
##      625      626      627      628      629      630      631      632
## 4.877864 4.693164 4.684460 4.476135 4.826763 4.867426 4.826948 4.958813
##      633      634      635      636      637      638      639      640
## 4.718530 4.686579 4.678059 4.826955 4.786485 4.845913 4.894903 4.726671
```

```
##      641      642      643      644      645      646      647      648
## 4.984363 4.669540 4.701498 4.909823 4.794997 4.584553 4.752407 4.678052
##      649      650      651      652      653      654      655      656
## 4.784559 4.733449 4.601585 4.684460 4.786477 4.835282 4.744080 4.835282
##      657      658      659      660      661      662      663      664
## 4.760742 4.727042 4.607993 4.803323 4.811843 4.427138 4.760927 4.669540
##      665      666      667      668      669      670      671      672
## 4.501501 4.711752 4.752222 4.426953 4.711752 4.684460 4.635470 4.643989
##      673      674      675      676      677      678      679      680
## 4.728976 4.737487 4.843802 4.794997 4.435472 4.661020 4.769261 4.735191
##      681      682      683      684      685      686      687      688
## 4.943893 4.892792 4.809917 4.862952 4.875938 4.661020 4.826955 4.826763
##      689      690      691      692      693      694      695      696
## 4.918342 4.752407 4.750296 4.784366 4.820362 4.661020 4.843802 4.835467
##      697      698      699      700      701      702      703      704
## 4.712129 4.852313 4.801590 4.744080 4.692794 4.625031 4.771372 4.743895
##      705      706      707      708      709      710      711      712
## 4.935374 4.924743 4.835467 4.686386 4.629062 4.835282 4.843987 4.769446
##      713      714      715      716      717      718      719      720
## 4.612030 4.752415 4.941782 4.769261 4.577968 4.654427 4.886384 4.678052
##      721      722      723      724      725      726      727      728
## 4.584553 4.786485 4.894903 4.835467 4.793070 4.610104 4.554714 4.828874
##      729      730      731      732      733      734      735      736
## 4.676125 4.811843 4.686201 4.760927 4.577960 4.760934 4.552602 4.295095
##      737      738      739      740      741      742      743      744
## 4.958813 4.735376 4.875753 4.869352 4.858906 4.661028 4.620365 4.660835
##      745      746      747      748      749      750      751      752
## 4.769261 4.752415 4.852313 4.618623 4.743895 4.752230 4.759008 4.854433
##      753      754      755      756      757      758      759      760
## 4.784551 4.735376 4.603511 4.786292 4.869352 4.716418 4.476128 4.901496
##      761      762      763      764      765      766      767      768
## 4.984363 4.452688 4.675940 4.835282 4.678052 4.803323 4.884465 4.469542
##      769      770      771      772      773      774      775      776
## 4.652501 4.643989 4.278056 4.803331 4.552595 4.884272 4.452503 4.677867
##      777      778      779      780      781      782      783      784
## 4.984371 4.678052 4.529155 4.643989 4.752407 4.675940 4.794812 4.837401
##      785      786      787      788      789      790      791      792
## 4.718530 4.595184 4.860833 4.537675 4.603511 4.843987 4.809731 4.527044
##      793      794      795      796      797      798      799      800
## 4.735376 4.527044 4.578145 4.873641 4.486758 4.599473 4.860833 4.611845
##      801      802      803      804      805      806      807      808
## 4.701491 4.950293 4.892977 4.777773 4.926854 4.943893 4.278056 4.446103
##      809      810      811      812      813      814      815      816
## 4.877864 4.550483 4.743710 4.794812 4.278056 4.452503 4.718530 4.769261
##      817      818      819      820      821      822      823      824
## 4.869352 4.779884 4.769446 4.552595 4.786292 4.811843 4.777958 4.535563
##      825      826      827      828      829      830      831      832
## 4.728783 4.720271 4.869352 4.877872 4.901303 4.737302 4.710010 4.835467
##      833      834      835      836      837      838      839      840
## 4.826770 4.677867 4.892792 4.786477 4.803323 4.867241 4.826948 4.710010
```

```
##      841      842      843      844      845      846      847      848
## 4.845913 4.818436 4.909823 4.809917 4.586487 4.478239 4.659094 4.903422
##      849      850      851      852      853      854      855      856
## 4.777773 4.429072 4.601585 4.501493 4.452503 4.701498 4.684460 4.892977
##      857      858      859      860      861      862      863      864
## 4.860833 4.710010 4.618438 4.727049 4.792885 4.835282 4.835467 4.535563
##      865      866      867      868      869      870      871      872
## 4.835282 4.792885 4.769261 4.710010 4.777965 4.803323 4.735561 4.835282
##      873      874      875      876      877      878      879      880
## 4.794812 4.784366 4.625024 4.527044 4.452688 4.694720 4.711937 4.799286
##      881      882      883      884      885      886      887      888
## 4.625024 4.754334 4.750296 4.652501 4.909823 4.760927 4.735376 4.809731
##      889      890      891      892      893      894      895      896
## 4.760927 4.743895 4.750481 4.818436 4.843802 4.669355 4.826763 4.684460
##      897      898      899      900      901      902      903      904
## 4.769261 4.612030 4.760742 4.577960 4.577960 4.537490 4.511939 4.752230
##      905      906      907      908      909      910      911      912
## 4.629062 4.818436 4.516606 4.744080 4.760927 4.718530 4.803323 4.786292
##      913      914      915      916      917      918      919      920
## 4.710010 4.801405 4.794812 4.858906 4.786292 4.760742 4.811843 4.735376
##      921      922      923      924      925      926      927      928
## 4.743895 4.710010 4.776031 4.711937 4.527044 4.593073 4.709825 4.776031
##      929      930      931      932      933      934      935      936
## 4.710010 4.586672 4.535563 4.710010 4.735561 4.686386 4.735376 4.578145
##      937      938      939      940      941      942      943      944
## 4.620550 4.926854 4.837401 4.801397 4.577960 4.760927 4.667613 4.735376
##      945      946      947      948      949      950      951      952
## 4.794997 4.858906 4.777773 4.626950 4.718530 4.735376 4.820362 4.701491
##      953      954      955      956      957      958      959      960
## 4.869352 4.777958 4.741969 4.752222 4.752407 4.452503 4.567707 4.661020
##      961      962      963      964      965      966      967      968
## 4.901311 4.752600 4.427145 4.843987 4.835282 4.992883 4.278056 4.760742
##      969      970      971      972      973      974      975      976
## 4.661020 4.803323 4.824836 4.777780 4.843802 4.786300 4.711752 5.009922
##      977      978      979      980      981      982      983      984
## 4.935374 4.809917 4.803323 4.935374 4.711937 4.637396 4.652316 4.678052
##      985      986      987      988      989      990      991      992
## 4.645915 4.771372 4.686394 4.735191 4.809731 4.886384 4.677867 4.726671
##      993      994      995      996      997      998      999     1000
## 4.775846 4.752407 4.835282 4.626765 4.577775 4.743895 4.892792 4.867426
##     1001     1002     1003     1004     1005     1006     1007     1008
## 4.669540 4.750481 4.801212 4.918342 4.675940 4.858906 4.550668 4.628877
##     1009     1010
## 4.743895 4.518717

residuals(fit)

##               1            2            3            4            5
## 6
##   0.171125809 -0.777772803  0.213707753  0.547496738  0.255919611
```

```
0.230739003
##               7              8              9             10             11
12
##   0.206929674   0.139167122   0.173237259   0.188149421   0.338979687
0.296767828
##              13             14             15             16             17
18
##   0.262697690   0.306835957   0.196676503  -3.786292247   0.247592848
0.230553960
##              19             20             21             22             23
24
##   0.098503948   0.281655348   0.190268510   0.296767828   0.338979687
0.090177184
##              25             26             27             28             29
30
##   0.173237259   0.464251620   0.115535198  -0.726864096   0.175163668
0.247585210
##              31             32             33             34             35
36
##  -0.818435977  -0.727041501   0.273143542   0.387969624   0.139167122
0.304909549
##              37             38             39             40             41
42
##   0.328533835   0.496580393   0.107023392   0.105096984  -0.527228936
0.192187280
##              43             44             45             46             47
48
##   0.162606365   0.222042154  -0.809916533   0.115542836   0.056107046
0.247592848
##              49             50             51             52             53
54
##   0.472956107   0.222227197  -0.854432523   0.205003266  -0.009921779
0.272950862
##              55             56             57             58             59
60
##  -0.009921779   0.289989749   0.237146996   0.181749066   0.406742239
0.322133479
##              61             62             63             64             65
66
##   0.288063341   0.149612974   0.098503948   0.300620644   0.147686565  -
0.626950176
##              67             68             69             70             71
72
##  -0.735560945  -1.544267824   0.164717816   0.320022028   0.215449118  -
0.420737255
##              73             74             75             76             77
78
##   0.162606365   0.413335275   0.647403021   0.198780316  -0.550483136
0.124062280
##              79             80             81             82             83
```

```
84
## -0.735560945   0.047587603   0.090177184   0.173052217   0.305279634
0.024155997
##            85            86            87            88            89
90
##   0.322318522   0.256104654  -0.918342260   0.098696628   0.024155997
0.164717816
##            91            92            93            94            95
96
## -0.735375902   0.237139358   0.479541505   0.411401229   0.249519256
0.364530381
##            97            98            99           100           101
102
##   0.396674110   0.647403021  -1.924742615   0.398415476   0.081657740
0.379635223
##           103           104           105           106           107
108
##   0.313799078   0.415261683  -0.718344652   0.379635223   0.073138297
0.396674110
##           109           110           111           112           113
114
## -0.660835271   0.213707753   0.164525135   0.207114717   0.315540443 -
1.809916533
##           115           116           117           118           119
120
##   0.296582785   0.015636553   0.213707753   0.362418930   0.362603973 -
0.610103968
##           121           122           123           124           125
126
##   0.149798016  -0.720456103   0.215819204   0.156198372  -0.754341198
0.281655348
##           127           128           129           130           131
132
## -1.801397089  -0.769446040   0.024155997   0.032667803  -0.752222109
0.447405413
##           133           134           135           136           137
138
##   0.247592848   0.447582818   0.307021000   0.222227197   0.281470305
0.156013329
##           139           140           141           142           143
144
##   0.630364133   0.107023392   0.239073404  -1.745821754   0.198602911
0.190083467
##           145           146           147           148           149
150
##   0.147686565  -3.750295701   0.115542836   0.164717816  -0.752599832 -
2.395001518
##           151           152           153           154           155
156
##   0.213707753   0.298694236   0.141093530  -2.659093905   0.313799078
```

```
0.307021000
##         157         158         159         160         161
162
##   0.196668865  0.173044579  0.164532773  0.073138297  0.215819204
0.188157059
##         163         164         165         166         167
168
## -0.686578645  0.347499130  0.190083467  0.440812377  0.513611643 -
1.735375902
##         169         170         171         172         173
174
##   0.198602911  0.222227197 -0.694905409  0.247592848  0.230739003
0.521946044
##         175         176         177         178         179
180
##   0.687865876  0.271217134  0.139159484  0.296760190 -0.620364777 -
0.286575792
##         181         182         183         184         185
186
## -0.752222109  0.207114717  0.081657740  0.338979687  0.239258447 -
1.527043893
##         187         188         189         190         191
192
## -0.529162981  0.436959561 -1.643989063  0.405185917 -0.660835271
0.436766881
##         193         194         195         196         197
198
##   0.173052217  0.296760190  0.388154667  0.439071012  0.288063341
0.489987357
##         199         200         201         202         203
204
##   0.147678928  0.349610581 -0.752407152  0.145567477  0.374976233
0.090177184
##         205         206         207         208         209
210
##   0.181749066  0.271024454  0.166644224  0.405000874  0.239073404
0.132759129
##         211         212         213         214         215
216
##   0.015628915  0.024155997  0.379635223  0.064626490 -0.786292247 -
3.386667117
##         217         218         219         220         221
222
##   0.422224804  0.298509193  0.396489068  0.474882515  0.358122388
0.090169547
##         223         224         225         226         227
228
##   0.113616428  0.430366525  0.188157059  0.230739003  0.015628915
0.322125842
##         229         230         231         232         233
```

```
234
## -0.661027951 -0.710010251  0.336860598  0.139167122  0.488060949 -
0.809916533
##           235          236          237          238          239
240
## -0.926861703  0.271217134 -3.769446040  0.289989749  0.496395350
0.241184855
##           241          242          243          244          245
246
## -1.552409544  0.422039762 -1.786477290  0.171125809  0.015636553
0.305094591
##           247          248          249          250          251
252
##  0.139167122  0.164717816  0.098696628  0.096577540  0.338979687
0.015636553
##           253          254          255          256          257
258
##  0.188157059  0.572862389  0.206929674  0.188149421  0.396296387
0.132574086
##           259          260          261          262          263
264
##  0.313799078 -2.743895346 -1.643989063  0.364345338  0.173229622
0.115542836
##           265          266          267          268          269
270
## -1.794996734  0.413335275  0.230553960  0.232665411  0.413335275
0.173237259
##           271          272          273          274          275
276
##  0.139167122  0.081657740  0.222219559  0.190083467  0.232480368
0.256104654
##           277          278          279          280          281
282
##  0.007117109  0.196676503  0.239065766  0.289989749  0.141278572
0.241184855
##           283          284          285          286          287
288
##  0.570935981  0.190083467 -3.278056348  0.122135871  0.239073404
0.247592848
##           289          290          291          292          293
294
##  0.283581756  0.190083467 -0.801397089 -0.843801628  0.115542836
0.264809141
##           295          296          297          298          299
300
##  0.313614035  0.139167122  0.223968562  0.447590456  0.240999812
0.249704299
##           301          302          303          304          305
306
##  0.362596335 -0.686200922 -0.001402335 -0.811842941  0.288063341
```

```
0.190268510
##          307         308         309         310         311
312
##   0.158124780  0.271209496  0.240999812  0.215634161  0.198602911 -
0.009921779
##          313         314         315         316         317
318
## -2.677866521  0.438885969 -0.001402335  0.519834593  0.324059887
0.066737941
##          319         320         321         322         323
324
##   0.604813439  0.156013329  0.164717816  0.139167122  0.239258447
0.271032091
##          325         326         327         328         329
330
##   0.264439055  0.173044579  0.213522710  0.313428993  0.181749066
0.190083467
##          331         332         333         334         335
336
##   0.115727878  0.190268510 -0.535563337  0.213522710  0.430551568
0.181564023
##          337         338         339         340         341
342
##   0.321948436  0.275069950  0.156198372  0.239258447  0.479541505
0.596486675
##          343         344         345         346         347
348
##   0.364530381  0.187964378  0.345380042 -0.809916533  0.471029699
0.239073404
##          349         350         351         352         353
354
##   0.413327637  0.315355401 -2.809916533  0.113616428  0.247777891
0.447405413
##          355         356         357         358         359
360
##   0.230553960  0.396489068 -0.894903016  0.298694236 -0.941781503
0.364345338
##          361         362         363         364         365
366
##   0.073145934  0.164710178  0.205188309  0.254178246 -2.909822816
0.264809141
##          367         368         369         370         371
372
##   0.296582785  0.122135871  0.215449118  0.383488039  0.105096984 -
0.009921779
##          373         374         375         376         377
378
## -0.660835271  0.370938374  0.215449118  0.164532773  0.547311695
0.205188309
##          379         380         381         382         383
```

```
384
##   0.115542836   0.124054642   0.181564023   0.239258447   0.455732176
0.213707753
##            385           386           387           388           389
390
##   0.173237259   0.024148359   0.139167122   0.315355401   0.196483822
0.464436663
##            391           392           393           394           395
396
## -0.403513325  -0.643989063   0.281470305   0.522131087   0.273143542
0.273143542
##            397           398           399           400           401
402
##   0.347491493   0.513233920   0.381561631   0.271024454   0.398415476
0.247777891
##            403           404           405           406           407
408
##   0.015628915  -2.694905409   0.064618853  -0.544082781   0.138974441
0.315540443
##            409           410           411           412           413
414
##   0.547304058   0.149612974   0.090177184   0.113616428   0.173237259
0.181564023
##            415           416           417           418           419
420
##   0.255919611   0.122135871  -0.750480744   0.613517926   0.447212733
0.015636553
##            421           422           423           424           425
426
##   0.296767828   0.253993203   0.472771064   0.213522710   0.357937345
0.147686565
##            427           428           429           430           431
432
##   0.296767828   0.381561631   0.206929674   0.247777891   0.230553960 -
0.550483136
##            433           434           435           436           437
438
##   0.264809141   0.147493885   0.272958499   0.271217134  -0.711936659
0.422039762
##            439           440           441           442           443
444
##   0.245666440   0.340906095   0.198602911   0.213522710   0.164532773 -
0.586479682
##            445           446           447           448           449
450
##   0.390081075   0.264439055  -0.675940113  -1.295095236   0.190083467
0.256104654
##            451           452           453           454           455
456
##   0.255919611   0.239073404   0.272958499   0.313614035  -0.803323497
```

```
0.064626490
##          457          458          459          460          461
462
##   0.472956107   0.090177184   0.389703351  -0.560928988   0.298694236
0.396481430
##          463          464          465          466          467
468
##  -0.826762741   0.321948436   0.207114717   0.564342946   0.347499130  -
0.593072718
##          469          470          471          472          473
474
##   0.139167122   0.249519256  -0.644174106   0.115727878  -1.612030376
0.396674110
##          475          476          477          478          479
480
##   0.223968562   0.164717816   0.196676503   0.247777891   0.141093530
0.264624098
##          481          482          483          484          485
486
##   0.107023392   0.449509226  -1.677866521   0.139167122   0.247592848
0.090177184
##          487          488          489          490          491
492
##  -1.610103968   0.517464459   0.196668865   0.239258447  -0.535563337
0.239073404
##          493          494          495          496          497
498
##   0.181749066   0.272958499   0.239258447   0.222227197  -1.635469619
0.105096984
##          499          500          501          502          503
504
##   0.290174792   0.271024454   0.264616460   0.164525135   0.132759129
0.288063341
##          505          506          507          508          509
510
##   0.423781127   0.147678928   0.547496738   0.472948469   0.254178246  -
0.535756017
##          511          512          513          514          515
516
##   0.132574086   0.373049824   0.647395383   0.273143542   0.237139358
0.081657740
##          517          518          519          520          521
522
##   0.107023392   0.247592848   0.164532773   0.458028670   0.447405413
0.189890786
##          523          524          525          526          527
528
##   0.289989749   0.317651894   0.247777891  -1.843801628   0.247592848  -
0.752407152
##          529          530          531          532          533
```

```
534
##   0.122135871   0.262697690   0.387776943   0.213700115   0.190083467
0.173237259
##            535           536           537           538           539
540
##   0.330460243   0.105096984   0.496395350   0.264624098   0.239073404
0.139167122
##            541           542           543           544           545
546
##   0.088058096   0.464436663   0.141093530   0.198602911   0.230739003
0.356010937
##            547           548           549           550           551
552
##   0.139167122   0.396666473  -0.720271060   0.223968562   0.188149421
0.430366525
##            553           554           555           556           557
558
##   0.330645285  -1.601592162  -0.652508507   0.406742239   0.547311695
0.279543897
##            559           560           561           562           563
564
##  -0.552594587   0.192194918   0.281470305   0.181564023   0.232480368
0.098696628
##            565           566           567           568           569
570
##   0.126358773   0.340906095   0.489987357   0.315540443   0.215449118
0.298501556
##            571           572           573           574           575
576
##   0.373049824  -1.510197686   0.373049824  -0.701305764   0.258031062
0.273135904
##            577           578           579           580           581
582
##   0.364530381   0.315540443   0.413335275   0.056107046   0.721943652
0.313614035
##            583           584           585           586           587
588
##  -1.667428306   0.271032091   0.255919611   0.256104654   0.283581756
0.347684173
##            589           590           591           592           593
594
##   0.549423146   0.322318522   0.164717816  -0.469727192   0.530272808
0.230739003
##            595           596           597           598           599
600
##   0.305094591   0.422224804   0.298509193   0.064626490  -0.784365839
0.107023392
##            601           602           603           604           605
606
##   0.296582785   0.371115779  -0.835467227   0.239073404   0.239073404
```

```
0.237139358
##          607          608          609          610          611
612
## -0.786477290 -1.652500870 -1.454807393 -0.635469619  0.139167122
0.313428993
##          613          614          615          616          617
618
##  0.175163668  0.264624098  0.198602911  0.130647678 -1.875752678
0.264624098
##          619          620          621          622          623
624
## -0.001402335  0.356010937  0.296582785 -0.624838725  0.098503948
0.556008544
##          625          626          627          628          629
630
##  0.122135871  0.306835957  0.315540443  0.523864815 -0.826762741
0.132574086
##          631          632          633          634          635
636
##  0.173052217  0.041187247  0.281470305  0.313421355  0.321940799 -
0.826955421
##          637          638          639          640          641
642
##  0.213515072  0.154086921  0.105096984  0.273328585  0.015636553
0.330460243
##          643          644          645          646          647
648
## -0.701498444  0.090177184 -0.794996734  0.415446726 -0.752407152
0.321948436
##          649          650          651          652          653
654
##  0.215441481  0.266550506  0.398415476  0.315540443 -0.786477290
0.164717816
##          655          656          657          658          659
660
## -0.744080389  0.164717816  0.239258447  0.272958499  0.392007483
0.196676503
##          661          662          663          664          665
666
##  0.188157059  0.572862389  0.239073404  0.330460243  0.498499163
0.288248384
##          667          668          669          670          671
672
##  0.247777891  0.573047432  0.288248384 -0.684459557  0.364530381
0.356010937
##          673          674          675          676          677
678
## -1.728975546 -0.737487353  0.156198372  0.205003266  0.564527988 -
0.661020313
##          679          680          681          682          683
```

```
684
##   0.230739003   0.264809141   0.056107046   0.107208434  -0.809916533
0.137048033
##            685            686            687            688            689
690
##   0.124062280   0.338979687  -2.826955421   0.173237259   0.081657740
0.247592848
##            691            692            693            694            695
696
##   0.249704299   0.215634161   0.179637615   0.338979687   0.156198372
0.164532773
##            697            698            699            700            701
702
##   0.287870661   0.147686565   0.198410230   0.255919611   0.307206042
0.374968595
##            703            704            705            706            707
708
##   0.228627552  -0.743895346   0.064626490   0.075257385   0.164532773
0.313614035
##            709            710            711            712            713
714
##   0.370938374   0.164717816  -0.843986671  -0.769446040   0.387969624
0.247585210
##            715            716            717            718            719
720
##   0.058218497  -0.769260997   0.422032124   0.345572722   0.113616428  -
0.678051564
##            721            722            723            724            725
726
##  -0.584553274   0.213515072   0.105096984   0.164532773  -0.793070326
0.389896032
##            727            728            729            730            731
732
##   0.445286325   0.171125809   0.323874845   0.188157059   0.313799078
0.239073404
##            733            734            735            736            737
738
##   0.422039762  -0.760934234   0.447397775  -2.295095236  -0.958812753
0.264624098
##            739            740            741            742            743
744
##   0.124247322   0.130647678  -0.858906470   0.338972049   0.379635223  -
2.660835271
##            745            746            747            748            749
750
##   0.230739003   0.247585210   0.147686565   0.381376588   0.256104654
0.247770253
##            751            752            753            754            755
756
##   0.240992175   0.145567477   0.215449118   0.264624098  -0.603510932
```

```
0.213707753
##          757          758          759          760          761
762
##   0.130647678  0.283581756  0.523872452  0.098503948  0.015636553
0.547311695
##          763          764          765          766          767
768
##   0.324059887  0.164717816  0.321948436  0.196676503  0.115535198 -
3.469542150
##          769          770          771          772          773
774
## -0.652500870 -1.643989063 -3.278056348  0.196668865  0.447405413
0.115727878
##          775          776          777          778          779
780
## -1.452503262  0.322133479  0.015628915  0.321948436  0.470844656
0.356010937
##          781          782          783          784          785
786
##   0.247592848 -0.675940113  0.205188309  0.162598727 -0.718529695 -
0.595184169
##          787          788          789          790          791
792
##   0.139167122  0.462325212  0.396489068  0.156013329  0.190268510
0.472956107
##          793          794          795          796          797
798
##   0.264624098 -2.527043893 -0.578145281  0.126358773 -1.486758442
0.400526927
##          799          800          801          802          803
804
##   0.139167122  0.388154667  0.298509193 -0.950293309  0.107023392
0.222227197
##          805          806          807          808          809
810
##   0.073145934  0.056107046 -3.278056348 -1.446102906  0.122135871 -
0.550483136
##          811          812          813          814          815
816
##   0.256289697  0.205188309  0.721943652  0.547496738  0.281470305
0.230739003
##          817          818          819          820          821
822
##   0.130647678 -1.779884254 -0.769446040  0.447405413  0.213707753
0.188157059
##          823          824          825          826          827
828
##   0.222042154  0.464436663  0.271217134 -0.720271060  0.130647678
0.122128234
##          829          830          831          832          833
```

```
834
## -3.901303372  0.262697690  0.289989749  0.164532773  0.173229622 -
1.677866521
##            835          836          837          838          839
840
## -0.892791566 -0.786477290  0.196676503  0.132759129  0.173052217 -
0.710010251
##            841          842          843          844          845
846
##  0.154086921  0.181564023  0.090177184  0.190083467  0.413512680 -
0.478238999
##            847          848          849          850          851
852
##  0.340906095  0.096577540  0.222227197 -1.429071656 -0.601584524
0.498506801
##            853          854          855          856          857
858
##  0.547496738  0.298501556  0.315540443  0.107023392  0.139167122
0.289989749
##            859          860          861          862          863
864
## -1.618438369  0.272950862  0.207114717  0.164717816  0.164532773
0.464436663
##            865          866          867          868          869
870
##  0.164717816 -0.792885283 -0.769260997  0.289989749  0.222034516
0.196676503
##            871          872          873          874          875
876
##  0.264439055  0.164717816  0.205188309 -0.784365839  0.374976233
0.472956107
##            877          878          879          880          881
882
##  0.547311695  0.305279634 -0.711936659 -0.799285638  0.374976233
0.245666440
##            883          884          885          886          887
888
##  0.249704299  0.347499130  0.090177184 -1.760926596  0.264624098 -
0.809731490
##            889          890          891          892          893
894
##  0.239073404  0.256104654  0.249519256  0.181564023  0.156198372
0.330645285
##            895          896          897          898          899
900
##  0.173237259 -0.684459557  0.230739003  0.387969624  0.239258447
0.422039762
##            901          902          903          904          905
906
##  0.422039762 -0.537489745  0.488060949  0.247770253 -1.629061626
```

```
0.181564023
##         907          908          909          910          911
912
##   0.483394321  0.255919611  0.239073404  0.281470305  0.196676503
0.213707753
##         913          914          915          916          917
918
##   0.289989749  0.198595273  0.205188309 -0.858906470 -0.786292247
0.239258447
##         919          920          921          922          923
924
## -0.811842941  0.264624098 -0.743895346  0.289989749  0.223968562
0.288063341
##         925          926          927          928          929
930
##   0.472956107  0.406927282  0.290174792  0.223968562  0.289989749 -
1.586672363
##         931          932          933          934          935
936
##   0.464436663  0.289989749  0.264439055  0.313614035  0.264624098
0.421854719
##         937          938          939          940          941
942
## -0.620549820  0.073145934  0.162598727 -0.801397089  0.422039762
0.239073404
##         943          944          945          946          947
948
##   0.332386651 -0.735375902  0.205003266  0.141093530  0.222227197
0.373049824
##         949          950          951          952          953
954
##   0.281470305  0.264624098  0.179637615 -0.701490807  0.130647678
0.222042154
##         955          956          957          958          959
960
##   0.258031062  0.247777891  0.247592848  0.547496738  0.432292933 -
0.661020313
##         961          962          963          964          965
966
##   0.098688991  0.247400168  0.572854752 -0.843986671  0.164717816
0.007117109
##         967          968          969          970          971
972
##   0.721943652  0.239258447  0.338979687  0.196676503  0.175163668
0.222219559
##         973          974          975          976          977
978
##   0.156198372  0.213700115  0.288248384 -0.009921779  0.064626490
0.190083467
##         979          980          981          982          983
```

```
984
##  0.196676503  0.064626490  0.288063341  0.362603973  0.347684173
0.321948436
##          985          986          987          988          989
990
##  0.354084529  0.228627552 -0.686393602 -0.735190859  0.190268510
0.113616428
##          991          992          993          994          995
996
##  0.322133479  0.273328585 -0.775846395  0.247592848  0.164717816
0.373234867
##          997          998          999         1000         1001
1002
##  0.422224804  0.256104654  0.107208434  0.132574086  0.330460243
0.249519256
##         1003         1004         1005         1006         1007
1008
##  0.198787953 -0.918342260  0.324059887  0.141093530 -0.550668179 -
0.628876584
##         1009         1010
##  0.256104654  0.481282870
```

#Anova Table
anova(fit)

```
## Analysis of Variance Table
##
## Response: Music
##             Df Sum Sq Mean Sq F value    Pr(>F)
## Dance        1   3.02  3.0206  7.1237   0.00773 **
## Folk         1   0.33  0.3264  0.7698   0.38049
## Pop          1   1.07  1.0742  2.5334   0.11177
## Rock         1  13.73 13.7299 32.3807 1.662e-08 ***
## Residuals 1005 426.14  0.4240
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

vcov(fit)

```
##                 (Intercept)          Dance          Folk           Pop
## (Intercept)  0.0113157661 -7.590845e-04 -5.928360e-04 -7.606637e-04
## Dance       -0.0007590845  3.841322e-04 -2.628509e-05 -1.638440e-04
## Folk        -0.0005928360 -2.628509e-05  3.263151e-04  4.148151e-06
## Pop         -0.0007606637 -1.638440e-04  4.148151e-06  3.819485e-04
## Rock        -0.0012050029  5.073407e-05 -2.320344e-05 -1.702447e-05
##                     Rock
## (Intercept) -1.205003e-03
## Dance        5.073407e-05
## Folk        -2.320344e-05
## Pop         -1.702447e-05
## Rock         3.082471e-04
```

```
cov2cor(vcov(fit))

##             (Intercept)       Dance        Folk         Pop        Rock
## (Intercept)   1.0000000 -0.36408918 -0.30851341 -0.36588812 -0.64520332
## Dance        -0.3640892  1.00000000 -0.07424215 -0.42774787  0.14743812
## Folk         -0.3085134 -0.07424215  1.00000000  0.01174988 -0.07316177
## Pop          -0.3658881 -0.42774787  0.01174988  1.00000000 -0.04961600
## Rock         -0.6452033  0.14743812 -0.07316177 -0.04961600  1.00000000

temp <- influence.measures(fit)
temp

## Influence measures of
##   lm(formula = Music ~ Dance + Folk + Pop + Rock, data =
## music_transformed) :
##
##          dfb.1_   dfb.Danc  dfb.Folk   dfb.Pop  dfb.Rock      dffit cov.r
## cook.d
## 1     -2.38e-03 -1.21e-02 -9.32e-03  1.54e-02  7.62e-03  0.022794 1.012
## 1.04e-04
## 2     -1.55e-02  2.40e-02  4.31e-02  2.21e-03 -3.81e-02 -0.076217 1.002
## 1.16e-03
## 3      1.45e-03 -7.25e-03 -2.69e-03 -5.00e-04  9.79e-03  0.017448 1.007
## 6.09e-05
## 4      6.44e-02 -1.61e-02 -2.57e-02 -2.36e-02 -4.03e-02  0.066651 1.008
## 8.89e-04
## 5     -5.22e-03  9.75e-04  7.78e-03  1.41e-02 -8.00e-03  0.023326 1.008
## 1.09e-04
## 6      2.43e-03 -4.00e-03  6.83e-03 -1.11e-02  1.04e-02  0.022775 1.008
## 1.04e-04
## 7     -7.72e-03  1.04e-02  5.58e-03  7.30e-03 -5.06e-03  0.021537 1.009
## 9.29e-05
## 8     -3.76e-03 -1.02e-03 -2.16e-03  3.34e-03  7.00e-03  0.010554 1.007
## 2.23e-05
## 9      5.34e-04  2.70e-03 -1.02e-02 -3.93e-03  9.67e-03  0.016325 1.008
## 5.33e-05
## 10    -6.20e-03 -8.22e-03  2.19e-02 -1.58e-04  6.89e-03  0.026655 1.013
## 1.42e-04
## 11     9.00e-03 -6.64e-03 -3.19e-03  9.54e-03 -1.11e-02  0.022177 1.005
## 9.84e-05
## 12     1.60e-02 -1.71e-02 -1.56e-02 -8.70e-03  1.32e-02  0.036635 1.010
## 2.69e-04
## 13     6.23e-03 -2.11e-02 -2.41e-03  4.60e-03  1.03e-02  0.028790 1.009
## 1.66e-04
## 14    -3.23e-03  1.36e-02  9.23e-03  1.15e-02 -2.03e-02  0.037130 1.010
## 2.76e-04
## 15     6.00e-04 -9.96e-03 -1.08e-02  8.55e-03  9.19e-03  0.021077 1.009
## 8.89e-05
## 16    -2.61e-02  1.31e-01  4.86e-02  9.01e-03 -1.76e-01 -0.314471 0.849
## 1.91e-02
```

```
## 17     3.21e-03 -2.55e-03 -1.37e-02  6.34e-03  2.96e-03  0.019473 1.007
7.59e-05
## 18    -3.08e-03 -3.83e-03  6.96e-03  6.13e-03  1.32e-03  0.014671 1.006
4.31e-05
## 19    -7.63e-03  5.25e-03  6.58e-03  3.33e-03  1.38e-03  0.011840 1.011
2.81e-05
## 20     5.75e-03  6.45e-03  8.21e-03 -1.85e-02  2.90e-03  0.024694 1.007
1.22e-04
## 21     1.30e-03  6.13e-03 -3.16e-03 -1.30e-02  1.05e-02  0.018910 1.009
7.16e-05
## 22     1.60e-02 -1.71e-02 -1.56e-02 -8.70e-03  1.32e-02  0.036635 1.010
2.69e-04
## 23     9.00e-03 -6.64e-03 -3.19e-03  9.54e-03 -1.11e-02  0.022177 1.005
9.84e-05
## 24    -3.96e-03  3.52e-03 -1.71e-03  3.81e-04  5.16e-03  0.007665 1.008
1.18e-05
## 25     5.34e-04  2.70e-03 -1.02e-02 -3.93e-03  9.67e-03  0.016325 1.008
5.33e-05
## 26     2.16e-02 -2.46e-03 -2.92e-03  2.74e-02 -5.19e-02  0.064486 1.011
8.32e-04
## 27    -8.54e-03  8.10e-03  1.26e-02 -1.40e-03  1.53e-03  0.016781 1.014
5.64e-05
## 28    -5.28e-03 -1.44e-02 -5.24e-02  4.76e-02 -5.23e-03 -0.079826 1.004
1.27e-03
## 29    -6.82e-04  1.80e-02 -1.10e-02 -1.06e-02  4.91e-03  0.022453 1.012
1.01e-04
## 30    -2.39e-03 -1.27e-05  1.79e-02 -4.73e-03  1.21e-03  0.022288 1.008
9.94e-05
## 31     2.48e-02 -2.43e-02 -2.19e-02 -5.55e-03 -1.03e-02 -0.055880 0.999
6.24e-04
## 32    -4.34e-03 -7.39e-03  4.01e-02 -3.94e-02  1.82e-02 -0.074309 1.003
1.10e-03
## 33     8.15e-03  2.58e-03 -1.52e-02 -5.63e-03  3.89e-03  0.021076 1.007
8.89e-05
## 34     1.69e-02 -2.56e-02 -2.33e-03  1.86e-02 -1.53e-02  0.035268 1.007
2.49e-04
## 35    -3.76e-03 -1.02e-03 -2.16e-03  3.34e-03  7.00e-03  0.010554 1.007
2.23e-05
## 36    -1.07e-03 -1.30e-02  1.03e-02  2.29e-02 -1.16e-02  0.030673 1.008
1.88e-04
## 37     6.71e-03 -3.61e-02  1.22e-02  2.18e-02 -2.62e-03  0.041366 1.010
3.42e-04
## 38     5.35e-02 -3.47e-02 -2.31e-02 -1.25e-02 -1.92e-02  0.060321 1.008
7.28e-04
## 39    -6.86e-03  6.03e-03  2.56e-03  3.56e-03  1.83e-03  0.010979 1.009
2.41e-05
## 40    -6.01e-03 -3.19e-03  2.92e-03  7.45e-03  4.73e-03  0.010868 1.009
2.36e-05
## 41    -3.16e-02  1.11e-03  2.60e-02 -3.09e-02  5.73e-02 -0.077710 1.011
1.21e-03
```

```
## 42    -4.44e-03  2.52e-02  2.09e-02 -2.94e-02  3.91e-03  0.040665 1.023
3.31e-04
## 43    -4.41e-03 -1.20e-02 -1.88e-03  1.47e-02  6.73e-03  0.019831 1.011
7.87e-05
## 44    -8.78e-04 -6.69e-03 -1.22e-02  1.60e-02  2.15e-03  0.022995 1.009
1.06e-04
## 45     1.38e-02 -2.66e-02  1.29e-02 -5.09e-03 -1.27e-02 -0.052459 0.999
5.50e-04
## 46    -5.89e-03  6.88e-03 -2.18e-03  3.78e-03  2.34e-03  0.011729 1.009
2.75e-05
## 47    -4.15e-03  9.02e-04  1.37e-03  2.86e-03  2.91e-03  0.005618 1.009
6.32e-06
## 48     3.21e-03 -2.55e-03 -1.37e-02  6.34e-03  2.96e-03  0.019473 1.007
7.59e-05
## 49     3.95e-02 -1.32e-03 -2.35e-02 -7.81e-03 -3.26e-02  0.048506 1.007
4.71e-04
## 50     4.44e-03 -6.84e-03 -1.23e-02 -6.32e-04  1.09e-02  0.021763 1.008
9.48e-05
## 51     4.59e-02  6.86e-02 -6.35e-02 -7.83e-02 -3.01e-02 -0.121923 1.005
2.97e-03
## 52    -6.22e-03 -7.47e-03  6.31e-03  1.49e-02  7.03e-04  0.019084 1.008
7.29e-05
## 53     1.17e-03 -5.60e-04 -1.06e-03 -3.21e-04 -5.23e-04 -0.001564 1.015
4.90e-07
## 54    -4.55e-03  5.58e-03  1.98e-02  2.55e-03 -8.77e-03  0.026939 1.008
1.45e-04
## 55     1.17e-03 -5.60e-04 -1.06e-03 -3.21e-04 -5.23e-04 -0.001564 1.015
4.90e-07
## 56     2.81e-03  7.75e-03 -3.73e-03  2.42e-03 -7.48e-03  0.019693 1.006
7.76e-05
## 57     1.60e-03 -2.38e-02 -2.05e-03  1.52e-02  8.73e-03  0.029835 1.011
1.78e-04
## 58    -1.16e-03  5.28e-03  4.75e-03 -1.24e-02  9.43e-03  0.018435 1.009
6.80e-05
## 59     6.67e-03  1.55e-02  1.35e-02  1.61e-02 -4.40e-02  0.060364 1.012
7.29e-04
## 60     1.51e-02 -1.19e-02 -1.68e-02 -2.52e-04  2.39e-03  0.027394 1.007
1.50e-04
## 61     4.80e-03 -1.72e-02 -2.60e-03  1.32e-02  5.80e-04  0.023571 1.007
1.11e-04
## 62    -3.12e-03  1.24e-02 -9.31e-03 -2.11e-03  3.84e-03  0.017014 1.010
5.80e-05
## 63    -7.63e-03  5.25e-03  6.58e-03  3.33e-03  1.38e-03  0.011840 1.011
2.81e-05
## 64     1.21e-02  3.50e-02 -1.82e-02 -3.16e-02 -3.42e-03  0.046127 1.014
4.26e-04
## 65    -2.04e-03 -6.18e-04 -8.60e-03  3.48e-03  7.90e-03  0.013949 1.009
3.90e-05
## 66    -3.55e-02 -2.10e-03  3.30e-02  1.16e-02  1.71e-02 -0.050548 1.003
5.11e-04
```

```
## 67     5.31e-03 -5.14e-03  9.08e-03 -4.02e-02  2.07e-02 -0.063868 1.002
8.16e-04
## 68    -5.17e-02  1.31e-02 -5.68e-02 -9.22e-02  1.78e-01 -0.222325 0.985
9.84e-03
## 69    -1.66e-03  2.04e-03 -2.64e-03 -3.65e-03  8.67e-03  0.012397 1.007
3.08e-05
## 70     9.61e-03 -3.96e-02 -1.54e-02  3.59e-02 -1.29e-03  0.050840 1.014
5.17e-04
## 71    -5.20e-03  1.15e-02 -3.40e-03  7.49e-03 -4.59e-03  0.021919 1.009
9.62e-05
## 72    -3.55e-02  3.45e-02 -1.81e-02 -2.23e-02  5.32e-02 -0.065010 1.013
8.46e-04
## 73    -4.41e-03 -1.20e-02 -1.88e-03  1.47e-02  6.73e-03  0.019831 1.011
7.87e-05
## 74     1.51e-02 -1.89e-02 -2.43e-03  3.17e-02 -3.17e-02  0.048440 1.009
4.70e-04
## 75     9.39e-02 -2.31e-02 -2.85e-02 -2.66e-02 -7.49e-02  0.097846 1.010
1.91e-03
## 76    -5.27e-04  9.12e-03  1.37e-02 -2.27e-02  1.02e-02  0.030133 1.014
1.82e-04
## 77    -4.62e-02 -3.50e-02  2.97e-02  4.56e-02  3.30e-02 -0.073936 1.009
1.09e-03
## 78    -4.69e-03  7.79e-03 -7.65e-03  4.00e-03  2.90e-03  0.014566 1.011
4.25e-05
## 79     5.31e-03 -5.14e-03  9.08e-03 -4.02e-02  2.07e-02 -0.063868 1.002
8.16e-04
## 80    -4.16e-03  6.15e-04  3.20e-03  2.45e-03  2.32e-03  0.005627 1.011
6.34e-06
## 81    -3.96e-03  3.52e-03 -1.71e-03  3.81e-04  5.16e-03  0.007665 1.008
1.18e-05
## 82    -3.61e-03  2.82e-03 -1.01e-02  9.01e-03  2.86e-03  0.017372 1.009
6.04e-05
## 83     1.36e-02 -1.35e-02  9.96e-03 -2.28e-02  1.24e-02  0.041403 1.012
3.43e-04
## 84    -1.56e-03  1.67e-03 -1.57e-03  7.30e-04  1.57e-03  0.003197 1.012
2.05e-06
## 85     2.29e-02 -1.22e-02 -1.72e-02 -2.44e-02  1.51e-02  0.045802 1.012
4.20e-04
## 86     8.98e-04  7.98e-04  7.59e-03 -5.01e-03  2.05e-03  0.015632 1.006
4.89e-05
## 87     5.24e-02 -3.29e-02 -2.18e-02 -4.35e-03 -4.97e-02 -0.079244 0.998
1.25e-03
## 88    -3.03e-03  4.17e-03 -6.09e-03  3.68e-04  5.96e-03  0.010209 1.009
2.09e-05
## 89    -1.56e-03  1.67e-03 -1.57e-03  7.30e-04  1.57e-03  0.003197 1.012
2.05e-06
## 90    -1.66e-03  2.04e-03 -2.64e-03 -3.65e-03  8.67e-03  0.012397 1.007
3.08e-05
## 91    -1.23e-02 -4.62e-03  9.56e-03  1.48e-02 -8.18e-03 -0.040388 1.000
3.26e-04
```

```
## 92   -3.80e-03 -2.15e-02  2.84e-02  4.54e-03  7.08e-03  0.038569 1.015
2.98e-04
## 93    3.89e-02 -3.65e-02  1.88e-02 -1.16e-02 -2.16e-02  0.056986 1.008
6.50e-04
## 94    8.64e-03 -5.07e-02  5.22e-02  2.88e-02 -2.32e-02  0.074718 1.017
1.12e-03
## 95    1.50e-03  1.91e-02 -1.48e-02 -3.00e-03 -3.97e-03  0.027923 1.010
1.56e-04
## 96    1.58e-02  6.20e-05 -3.63e-03 -6.57e-03 -1.11e-02  0.022507 1.005
1.01e-04
## 97    3.20e-02 -2.52e-02 -1.96e-02 -1.08e-02  1.15e-03  0.045648 1.009
4.17e-04
## 98    9.39e-02 -2.31e-02 -2.85e-02 -2.66e-02 -7.49e-02  0.097846 1.010
1.91e-03
## 99    5.96e-02 -2.10e-01  1.28e-01  1.21e-01 -1.35e-01 -0.277291 0.970
1.53e-02
## 100   1.98e-02  9.50e-03 -2.10e-02  3.95e-03 -2.56e-02  0.042155 1.008
3.56e-04
## 101  -4.66e-03  2.92e-03  1.94e-03  3.86e-04  4.42e-03  0.007039 1.008
9.92e-06
## 102   2.06e-02 -2.66e-02  1.37e-02 -9.95e-03 -1.28e-03  0.041732 1.008
3.49e-04
## 103   1.81e-02 -1.28e-02 -3.23e-03 -2.36e-02  1.37e-02  0.041419 1.011
3.43e-04
## 104   1.23e-02  1.72e-02 -4.05e-03  1.62e-02 -4.36e-02  0.060176 1.012
7.25e-04
## 105  -1.47e-02 -1.65e-02 -2.10e-02  4.73e-02 -7.41e-03 -0.063014 1.002
7.94e-04
## 106   2.06e-02 -2.66e-02  1.37e-02 -9.95e-03 -1.28e-03  0.041732 1.008
3.49e-04
## 107  -5.15e-03  2.39e-03  4.87e-03  3.83e-04  3.73e-03  0.007783 1.010
1.21e-05
## 108   3.20e-02 -2.52e-02 -1.96e-02 -1.08e-02  1.15e-03  0.045648 1.009
4.17e-04
## 109  -3.34e-02  1.34e-02  6.69e-03  3.07e-02 -4.36e-03 -0.054306 1.003
5.90e-04
## 110   1.45e-03 -7.25e-03 -2.69e-03 -5.00e-04  9.79e-03  0.017448 1.007
6.09e-05
## 111  -9.35e-03  3.86e-03  1.85e-02  1.29e-03  1.04e-03  0.021244 1.012
9.03e-05
## 112  -2.77e-03  1.02e-02  5.44e-03 -8.16e-03  3.07e-03  0.016266 1.007
5.30e-05
## 113   8.39e-03  1.47e-02 -4.23e-03 -1.19e-02 -7.43e-03  0.024401 1.006
1.19e-04
## 114   3.10e-02 -5.96e-02  2.89e-02 -1.14e-02 -2.84e-02 -0.117592 0.969
2.75e-03
## 115   8.86e-03 -1.68e-02 -1.54e-02  1.35e-02  1.53e-03  0.028619 1.008
1.64e-04
## 116  -1.22e-03  1.03e-03 -3.43e-04  4.80e-04  9.68e-04  0.001834 1.011
6.73e-07
```

```
## 117    1.45e-03 -7.25e-03 -2.69e-03 -5.00e-04  9.79e-03  0.017448 1.007
6.09e-05
## 118    9.65e-03 -3.12e-02 -1.98e-03  3.43e-02 -1.52e-02  0.044275 1.010
3.92e-04
## 119    1.83e-02 -3.14e-02 -2.23e-03  7.10e-03 -9.18e-04  0.037119 1.008
2.76e-04
## 120   -2.23e-02 -1.26e-02  6.01e-03 -6.35e-03  4.11e-02 -0.056268 1.004
6.33e-04
## 121    4.69e-04  1.23e-02 -9.44e-03 -1.34e-02  9.77e-03  0.020484 1.013
8.40e-05
## 122   -2.51e-03  4.54e-02 -2.43e-02 -3.35e-02  8.02e-04 -0.063478 1.002
8.06e-04
## 123    5.14e-03  1.13e-02 -3.72e-03 -2.48e-02  1.24e-02  0.029342 1.012
1.72e-04
## 124   -3.63e-03  1.44e-03  4.16e-03 -3.38e-03  7.73e-03  0.012219 1.007
2.99e-05
## 125    2.05e-03  6.57e-02 -5.78e-02 -1.40e-02 -2.48e-02 -0.100848 1.006
2.03e-03
## 126    5.75e-03  6.45e-03  8.21e-03 -1.85e-02  2.90e-03  0.024694 1.007
1.22e-04
## 127    7.08e-03 -6.52e-02  1.06e-01 -1.05e-02 -3.40e-02 -0.155389 0.970
4.80e-03
## 128    1.03e-02  1.28e-02 -2.33e-02 -2.05e-02 -4.40e-03 -0.048995 1.000
4.80e-04
## 129   -1.56e-03  1.67e-03 -1.57e-03  7.30e-04  1.57e-03  0.003197 1.012
2.05e-06
## 130   -2.42e-03  2.69e-03  6.65e-04 -4.94e-04  1.99e-03  0.003719 1.010
2.77e-06
## 131   -2.78e-02  8.29e-03  4.21e-02  3.70e-02 -3.86e-02 -0.082512 1.003
1.36e-03
## 132    2.98e-02 -1.01e-02 -2.20e-02  1.33e-02 -3.18e-02  0.047217 1.007
4.46e-04
## 133    3.21e-03 -2.55e-03 -1.37e-02  6.34e-03  2.96e-03  0.019473 1.007
7.59e-05
## 134    3.05e-02 -5.84e-03  3.50e-02 -4.03e-02 -1.75e-02  0.063916 1.011
8.17e-04
## 135    4.12e-03  1.33e-02  8.99e-03 -1.15e-02 -8.19e-03  0.025059 1.007
1.26e-04
## 136    4.44e-03 -6.84e-03 -1.23e-02 -6.32e-04  1.09e-02  0.021763 1.008
9.48e-05
## 137   -9.80e-04  6.63e-03  8.39e-03  2.49e-03 -8.15e-03  0.020565 1.006
8.47e-05
## 138   -7.36e-03  1.55e-03  4.27e-03  8.27e-03  1.60e-03  0.013447 1.008
3.62e-05
## 139    7.47e-02 -2.65e-02  2.65e-02 -2.53e-02 -7.68e-02  0.094898 1.010
1.80e-03
## 140   -6.86e-03  6.03e-03  2.56e-03  3.56e-03  1.83e-03  0.010979 1.009
2.41e-05
## 141   -5.21e-05 -3.22e-03 -2.98e-03  6.23e-03  2.11e-03  0.013714 1.006
3.76e-05
```

```
## 142  -1.84e-02   1.47e-01 -5.89e-02 -3.16e-02 -6.30e-02 -0.200277 0.975
7.97e-03
## 143  -7.77e-04   7.16e-03 -1.16e-02  1.15e-03  3.73e-03  0.017067 1.008
5.83e-05
## 144  -3.24e-03   6.24e-03 -3.02e-03  1.19e-03  2.98e-03  0.012303 1.006
3.03e-05
## 145  -2.04e-03  -6.18e-04 -8.60e-03  3.48e-03  7.90e-03  0.013949 1.009
3.90e-05
## 146  -1.14e-01  -2.89e-01  2.28e-01  3.32e-01 -8.95e-02 -0.466385 0.854
4.21e-02
## 147  -5.89e-03   6.88e-03 -2.18e-03  3.78e-03  2.34e-03  0.011729 1.009
2.75e-05
## 148  -1.66e-03   2.04e-03 -2.64e-03 -3.65e-03  8.67e-03  0.012397 1.007
3.08e-05
## 149   2.53e-02  -4.81e-04 -5.52e-02 -4.19e-02  2.59e-02 -0.085128 1.004
1.45e-03
## 150  -3.03e-01   1.51e-01 -1.01e-01  1.66e-01  2.04e-01 -0.373473 0.948
2.75e-02
## 151   1.45e-03  -7.25e-03 -2.69e-03 -5.00e-04  9.79e-03  0.017448 1.007
6.09e-05
## 152   1.40e-02   8.74e-03 -1.68e-02 -2.00e-02  4.95e-03  0.029906 1.008
1.79e-04
## 153  -4.80e-03   1.12e-02 -2.73e-03 -1.91e-03  3.18e-03  0.013687 1.009
3.75e-05
## 154  -5.27e-02  -1.80e-01  3.57e-02  2.53e-02  1.63e-01 -0.301064 0.929
1.78e-02
## 155   1.81e-02  -1.28e-02 -3.23e-03 -2.36e-02  1.37e-02  0.041419 1.011
3.43e-04
## 156   4.12e-03   1.33e-02  8.99e-03 -1.15e-02 -8.19e-03  0.025059 1.007
1.26e-04
## 157  -3.86e-03  -7.94e-03  1.43e-02 -2.63e-04  7.80e-03  0.021416 1.010
9.18e-05
## 158  -7.52e-03   4.59e-03  1.20e-02  1.26e-03  1.63e-03  0.016224 1.008
5.27e-05
## 159  -5.59e-03   2.16e-03 -2.53e-03  8.64e-03  2.20e-03  0.013681 1.008
3.75e-05
## 160  -5.15e-03   2.39e-03  4.87e-03  3.83e-04  3.73e-03  0.007783 1.010
1.21e-05
## 161   5.14e-03   1.13e-02 -3.72e-03 -2.48e-02  1.24e-02  0.029342 1.012
1.72e-04
## 162  -1.91e-03  -1.01e-02 -2.27e-03  8.26e-03  8.19e-03  0.017447 1.008
6.09e-05
## 163   8.95e-03   2.01e-02 -8.19e-02 -2.05e-02  2.90e-02 -0.093344 1.007
1.74e-03
## 164   1.38e-02  -5.71e-03 -1.81e-02  9.61e-03 -1.03e-02  0.028908 1.007
1.67e-04
## 165  -3.24e-03   6.24e-03 -3.02e-03  1.19e-03  2.98e-03  0.012303 1.006
3.03e-05
## 166   2.06e-02   2.70e-02 -4.54e-03 -3.26e-03 -4.52e-02  0.061561 1.011
7.58e-04
```

```
## 167    5.73e-02 -2.73e-02 -2.16e-03 -3.65e-02 -2.04e-02  0.067122 1.009
9.01e-04
## 168   -2.90e-02 -1.09e-02  2.26e-02  3.49e-02 -1.94e-02 -0.095589 0.971
1.82e-03
## 169   -7.77e-04  7.16e-03 -1.16e-02  1.15e-03  3.73e-03  0.017067 1.008
5.83e-05
## 170    4.44e-03 -6.84e-03 -1.23e-02 -6.32e-04  1.09e-02  0.021763 1.008
9.48e-05
## 171   -1.42e-02  3.00e-02 -2.30e-02 -1.55e-04 -8.21e-04 -0.051969 1.002
5.40e-04
## 172    3.21e-03 -2.55e-03 -1.37e-02  6.34e-03  2.96e-03  0.019473 1.007
7.59e-05
## 173    2.43e-03 -4.00e-03  6.83e-03 -1.11e-02  1.04e-02  0.022775 1.008
1.04e-04
## 174    5.25e-02 -2.57e-02 -2.42e-02  1.75e-03 -3.96e-02  0.059418 1.007
7.06e-04
## 175    8.76e-02 -5.23e-02  9.10e-02 -4.56e-02 -9.23e-02  0.152228 1.020
4.63e-03
## 176    1.00e-02 -2.10e-02 -1.41e-02  4.62e-03  1.15e-02  0.032841 1.010
2.16e-04
## 177   -6.94e-03  4.05e-04  1.57e-02 -2.89e-03  6.05e-03  0.018744 1.012
7.03e-05
## 178    9.29e-03 -1.41e-02  2.25e-02 -2.21e-02  1.12e-02  0.045127 1.014
4.08e-04
## 179   -3.37e-02  4.34e-02 -2.24e-02  1.63e-02  2.09e-03 -0.068213 1.006
9.31e-04
## 180   -4.76e-02  1.89e-02 -5.48e-04  1.93e-02  3.54e-02 -0.050443 1.017
5.09e-04
## 181   -2.78e-02  8.29e-03  4.21e-02  3.70e-02 -3.86e-02 -0.082512 1.003
1.36e-03
## 182   -2.77e-03  1.02e-02  5.44e-03 -8.16e-03  3.07e-03  0.016266 1.007
5.30e-05
## 183   -4.66e-03  2.92e-03  1.94e-03  3.86e-04  4.42e-03  0.007039 1.008
9.92e-06
## 184    9.00e-03 -6.64e-03 -3.19e-03  9.54e-03 -1.11e-02  0.022177 1.005
9.84e-05
## 185    5.67e-03 -3.39e-03 -3.15e-03 -1.16e-02  1.15e-02  0.022742 1.008
1.04e-04
## 186   -1.28e-01  4.26e-03  7.61e-02  2.53e-02  1.05e-01 -0.157005 0.982
4.91e-03
## 187   -2.33e-02  4.17e-02 -4.39e-02 -2.72e-02  4.64e-02 -0.075359 1.010
1.14e-03
## 188    2.65e-02 -4.93e-02 -1.12e-03  2.98e-02 -2.03e-02  0.056383 1.010
6.36e-04
## 189   -4.99e-02  4.94e-03 -5.39e-02  2.89e-02  5.52e-02 -0.114072 0.975
2.59e-03
## 190    2.89e-02 -2.04e-02  1.44e-02 -2.94e-02 -4.34e-04  0.052397 1.010
5.49e-04
## 191   -3.34e-02  1.34e-02  6.69e-03  3.07e-02 -4.36e-03 -0.054306 1.003
5.90e-04
```

```
## 192    6.10e-03 -4.48e-02  5.56e-02  4.32e-02 -4.10e-02  0.083691 1.018
1.40e-03
## 193  -3.61e-03  2.82e-03 -1.01e-02  9.01e-03  2.86e-03  0.017372 1.009
6.04e-05
## 194    9.29e-03 -1.41e-02  2.25e-02 -2.21e-02  1.12e-02  0.045127 1.014
4.08e-04
## 195    2.62e-02 -2.59e-02 -2.60e-03 -1.04e-02 -9.09e-05  0.040362 1.008
3.26e-04
## 196    3.39e-02 -1.16e-02 -3.11e-03 -1.95e-02 -1.53e-02  0.039106 1.006
3.06e-04
## 197    4.80e-03 -1.72e-02 -2.60e-03  1.32e-02  5.80e-04  0.023571 1.007
1.11e-04
## 198    4.28e-02  6.78e-03 -3.67e-03 -3.05e-02 -3.42e-02  0.053068 1.007
5.63e-04
## 199  -5.39e-03  8.97e-04  1.03e-02 -3.13e-03  6.86e-03  0.014953 1.009
4.48e-05
## 200    1.99e-02  2.44e-02 -1.99e-02 -2.97e-02 -6.36e-03  0.042436 1.010
3.60e-04
## 201  -9.75e-03  7.75e-03  4.15e-02 -1.93e-02 -9.01e-03 -0.059213 1.001
7.01e-04
## 202  -7.81e-03 -1.17e-02  1.08e-02  1.33e-02  5.12e-03  0.020754 1.013
8.62e-05
## 203    1.87e-02  3.39e-02 -2.13e-02 -2.12e-02 -2.08e-02  0.051338 1.011
5.27e-04
## 204  -3.96e-03  3.52e-03 -1.71e-03  3.81e-04  5.16e-03  0.007665 1.008
1.18e-05
## 205  -1.16e-03  5.28e-03  4.75e-03 -1.24e-02  9.43e-03  0.018435 1.009
6.80e-05
## 206  -2.64e-03 -1.80e-02  2.08e-02  1.27e-02 -1.15e-03  0.030312 1.009
1.84e-04
## 207  -2.85e-03  1.65e-02 -3.32e-03 -9.98e-03  4.14e-03  0.018884 1.010
7.14e-05
## 208    1.91e-02 -2.00e-02  1.47e-02  9.25e-04 -1.63e-02  0.034418 1.006
2.37e-04
## 209  -5.21e-05 -3.22e-03 -2.98e-03  6.23e-03  2.11e-03  0.013714 1.006
3.76e-05
## 210  -3.10e-03  1.00e-02  3.02e-03 -1.17e-02  7.81e-03  0.016367 1.011
5.36e-05
## 211  -1.58e-03  1.19e-03  1.66e-03 -2.22e-04  8.60e-04  0.002421 1.015
1.17e-06
## 212  -1.56e-03  1.67e-03 -1.57e-03  7.30e-04  1.57e-03  0.003197 1.012
2.05e-06
## 213    2.06e-02 -2.66e-02  1.37e-02 -9.95e-03 -1.28e-03  0.041732 1.008
3.49e-04
## 214  -3.93e-03  1.24e-03 -1.19e-03  3.26e-03  3.55e-03  0.006388 1.009
8.17e-06
## 215  -5.33e-03  2.67e-02  9.92e-03  1.84e-03 -3.60e-02 -0.064241 1.001
8.25e-04
## 216  -3.93e-01  2.02e-01  1.60e-03 -2.04e-02  4.15e-01 -0.475970 0.883
4.41e-02
```

```
## 217    4.13e-02 -1.85e-02 -2.12e-02 -3.11e-02  2.20e-03  0.056625 1.010
6.42e-04
## 218    6.83e-03  8.93e-03 -1.66e-02  2.34e-03 -6.78e-03  0.025936 1.007
1.35e-04
## 219    2.25e-02 -2.49e-02 -1.93e-02  1.89e-02 -1.44e-02  0.040867 1.008
3.34e-04
## 220    3.66e-02  4.01e-02 -2.56e-02 -2.59e-02 -4.62e-02  0.075453 1.013
1.14e-03
## 221    1.70e-02  2.99e-02  1.02e-02 -4.68e-02 -7.96e-03  0.053597 1.013
5.75e-04
## 222   -6.03e-03  4.46e-03  9.85e-03 -3.67e-03  4.54e-03  0.012949 1.014
3.36e-05
## 223   -5.00e-03 -3.09e-03 -1.70e-03  7.99e-03  5.47e-03  0.011442 1.009
2.62e-05
## 224    1.73e-02 -1.24e-02  1.57e-02  1.32e-02 -3.33e-02  0.043103 1.007
3.72e-04
## 225   -1.91e-03 -1.01e-02 -2.27e-03  8.26e-03  8.19e-03  0.017447 1.008
6.09e-05
## 226    2.43e-03 -4.00e-03  6.83e-03 -1.11e-02  1.04e-02  0.022775 1.008
1.04e-04
## 227   -1.58e-03  1.19e-03  1.66e-03 -2.22e-04  8.60e-04  0.002421 1.015
1.17e-06
## 228    7.79e-03 -8.60e-03  2.43e-02 -1.47e-02  1.13e-04  0.035833 1.009
2.57e-04
## 229   -2.62e-03  6.21e-03 -7.85e-02  1.10e-02  2.64e-02 -0.088340 1.007
1.56e-03
## 230   -6.88e-03 -1.90e-02  9.14e-03 -5.92e-03  1.83e-02 -0.048241 1.001
4.65e-04
## 231   -4.42e-03 -3.24e-02  4.17e-02  3.26e-02 -1.74e-02  0.058766 1.016
6.91e-04
## 232   -3.76e-03 -1.02e-03 -2.16e-03  3.34e-03  7.00e-03  0.010554 1.007
2.23e-05
## 233    4.61e-02 -3.56e-02 -1.78e-03 -1.20e-02 -2.04e-02  0.054747 1.007
6.00e-04
## 234    1.38e-02 -2.66e-02  1.29e-02 -5.09e-03 -1.27e-02 -0.052459 0.999
5.50e-04
## 235    6.53e-02 -3.03e-02 -6.18e-02 -4.86e-03 -4.73e-02 -0.098727 1.000
1.95e-03
## 236    1.00e-02 -2.10e-02 -1.41e-02  4.62e-03  1.15e-02  0.032841 1.010
2.16e-04
## 237    5.13e-02  6.37e-02 -1.16e-01 -1.02e-01 -2.19e-02 -0.243964 0.849
1.15e-02
## 238    2.81e-03  7.75e-03 -3.73e-03  2.42e-03 -7.48e-03  0.019693 1.006
7.76e-05
## 239    4.16e-02 -3.43e-02 -2.28e-02  2.47e-02 -3.88e-02  0.061696 1.009
7.62e-04
## 240    4.04e-03  1.75e-02 -4.11e-03 -2.08e-02  4.90e-03  0.026003 1.009
1.35e-04
## 241   -1.41e-01  3.62e-02  7.76e-02  7.00e-02  4.96e-02 -0.158621 0.981
5.01e-03
```

```
## 242    3.11e-02 -1.82e-02 -2.08e-02  5.40e-04 -1.44e-02  0.038560 1.006
2.98e-04
## 243    3.07e-02  5.96e-02  2.14e-02 -1.30e-01 -1.18e-02 -0.158913 0.971
5.02e-03
## 244   -2.38e-03 -1.21e-02 -9.32e-03  1.54e-02  7.62e-03  0.022794 1.012
1.04e-04
## 245   -1.22e-03  1.03e-03 -3.43e-04  4.80e-04  9.68e-04  0.001834 1.011
6.73e-07
## 246    6.22e-03 -1.32e-02  1.01e-02  6.79e-05  3.60e-04  0.022806 1.006
1.04e-04
## 247   -3.76e-03 -1.02e-03 -2.16e-03  3.34e-03  7.00e-03  0.010554 1.007
2.23e-05
## 248   -1.66e-03  2.04e-03 -2.64e-03 -3.65e-03  8.67e-03  0.012397 1.007
3.08e-05
## 249   -3.03e-03  4.17e-03 -6.09e-03  3.68e-04  5.96e-03  0.010209 1.009
2.09e-05
## 250   -6.81e-03 -3.24e-03  6.83e-03  6.90e-03  4.05e-03  0.011810 1.011
2.79e-05
## 251    9.00e-03 -6.64e-03 -3.19e-03  9.54e-03 -1.11e-02  0.022177 1.005
9.84e-05
## 252   -1.22e-03  1.03e-03 -3.43e-04  4.80e-04  9.68e-04  0.001834 1.011
6.73e-07
## 253   -1.91e-03 -1.01e-02 -2.27e-03  8.26e-03  8.19e-03  0.017447 1.008
6.09e-05
## 254    6.35e-02 -5.12e-03 -2.68e-02 -8.30e-03 -6.35e-02  0.077057 1.009
1.19e-03
## 255   -7.72e-03  1.04e-02  5.58e-03  7.30e-03 -5.06e-03  0.021537 1.009
9.29e-05
## 256   -6.20e-03 -8.22e-03  2.19e-02 -1.58e-04  6.89e-03  0.026655 1.013
1.42e-04
## 257    4.02e-03 -2.07e-02  3.17e-02  3.09e-02 -3.30e-02  0.056290 1.012
6.34e-04
## 258   -6.26e-03  1.01e-02  3.10e-03 -1.73e-03  2.57e-03  0.012978 1.009
3.37e-05
## 259    1.81e-02 -1.28e-02 -3.23e-03 -2.36e-02  1.37e-02  0.041419 1.011
3.43e-04
## 260   -9.71e-03 -8.62e-03 -8.21e-02  5.42e-02 -2.22e-02 -0.168966 0.921
5.61e-03
## 261   -4.99e-02  4.94e-03 -5.39e-02  2.89e-02  5.52e-02 -0.114072 0.975
2.59e-03
## 262    7.14e-03  3.14e-04 -3.39e-03  2.07e-02 -2.54e-02  0.039296 1.008
3.09e-04
## 263   -3.40e-03  4.49e-03  1.20e-02 -1.17e-02  8.46e-03  0.020791 1.011
8.65e-05
## 264   -5.89e-03  6.88e-03 -2.18e-03  3.78e-03  2.34e-03  0.011729 1.009
2.75e-05
## 265    5.46e-02  6.56e-02 -5.55e-02 -1.31e-01 -6.18e-03 -0.167725 0.971
5.59e-03
## 266    1.51e-02 -1.89e-02 -2.43e-03  3.17e-02 -3.17e-02  0.048440 1.009
4.70e-04
```

```
## 267   -3.08e-03 -3.83e-03  6.96e-03  6.13e-03  1.32e-03  0.014671 1.006
4.31e-05
## 268   8.27e-04  1.61e-02  6.00e-03 -2.00e-02  4.00e-03  0.025488 1.009
1.30e-04
## 269   1.51e-02 -1.89e-02 -2.43e-03  3.17e-02 -3.17e-02  0.048440 1.009
4.70e-04
## 270   5.34e-04  2.70e-03 -1.02e-02 -3.93e-03  9.67e-03  0.016325 1.008
5.33e-05
## 271   -3.76e-03 -1.02e-03 -2.16e-03  3.34e-03  7.00e-03  0.010554 1.007
2.23e-05
## 272   -4.66e-03  2.92e-03  1.94e-03  3.86e-04  4.42e-03  0.007039 1.008
9.92e-06
## 273   -5.95e-04 -4.57e-03  1.61e-02 -1.06e-02  9.33e-03  0.026437 1.010
1.40e-04
## 274   -3.24e-03  6.24e-03 -3.02e-03  1.19e-03  2.98e-03  0.012303 1.006
3.03e-05
## 275   -4.74e-03  1.63e-02  6.14e-03 -2.55e-03 -5.15e-03  0.022896 1.008
1.05e-04
## 276   8.98e-04  7.98e-04  7.59e-03 -5.01e-03  2.05e-03  0.015632 1.006
4.89e-05
## 277   -6.48e-04  4.45e-04  1.49e-04  2.22e-04  4.18e-04  0.000833 1.011
1.39e-07
## 278   6.00e-04 -9.96e-03 -1.08e-02  8.55e-03  9.19e-03  0.021077 1.009
8.89e-05
## 279   -5.48e-03 -7.73e-04  2.76e-02 -4.46e-03  4.23e-04  0.030457 1.011
1.86e-04
## 280   2.81e-03  7.75e-03 -3.73e-03  2.42e-03 -7.48e-03  0.019693 1.006
7.76e-05
## 281   -1.43e-03  1.11e-02 -2.84e-03 -1.25e-02  8.76e-03  0.017352 1.011
6.03e-05
## 282   4.04e-03  1.75e-02 -4.11e-03 -2.08e-02  4.90e-03  0.026003 1.009
1.35e-04
## 283   6.73e-02 -5.48e-02 -2.46e-02  1.33e-02 -4.73e-02  0.080361 1.009
1.29e-03
## 284   -3.24e-03  6.24e-03 -3.02e-03  1.19e-03  2.98e-03  0.012303 1.006
3.03e-05
## 285   -5.97e-01  2.08e-01  1.37e-01  2.26e-01  4.01e-01 -0.600675 0.895
7.04e-02
## 286   -3.76e-03 -2.93e-03 -7.06e-03  8.54e-03  6.27e-03  0.014078 1.010
3.97e-05
## 287   -5.21e-05 -3.22e-03 -2.98e-03  6.23e-03  2.11e-03  0.013714 1.006
3.76e-05
## 288   3.21e-03 -2.55e-03 -1.37e-02  6.34e-03  2.96e-03  0.019473 1.007
7.59e-05
## 289   3.84e-03  3.12e-02  7.22e-03 -2.95e-02 -5.00e-03  0.040580 1.013
3.30e-04
## 290   -3.24e-03  6.24e-03 -3.02e-03  1.19e-03  2.98e-03  0.012303 1.006
3.03e-05
## 291   3.14e-03 -2.89e-02  4.70e-02 -4.64e-03 -1.51e-02 -0.068916 1.001
9.49e-04
```

```
## 292    1.96e-02 -7.80e-03 -2.25e-02  1.83e-02 -4.18e-02 -0.066060 0.999
8.72e-04
## 293   -5.89e-03  6.88e-03 -2.18e-03  3.78e-03  2.34e-03  0.011729 1.009
2.75e-05
## 294    1.08e-02  1.49e-03 -3.64e-03 -2.52e-02  1.34e-02  0.033240 1.011
2.21e-04
## 295    1.05e-02 -1.25e-02 -3.00e-03 -8.75e-05  1.35e-03  0.021221 1.006
9.01e-05
## 296   -3.76e-03 -1.02e-03 -2.16e-03  3.34e-03  7.00e-03  0.010554 1.007
2.23e-05
## 297   -2.45e-03  1.27e-02 -1.31e-02  7.69e-03 -4.08e-03  0.026087 1.010
1.36e-04
## 298    4.05e-02 -1.04e-02 -2.23e-02 -2.01e-02 -1.43e-02  0.045614 1.007
4.16e-04
## 299   -1.73e-03  1.76e-02 -3.94e-03 -2.77e-03 -4.58e-03  0.023197 1.008
1.08e-04
## 300    7.49e-03  1.89e-02 -1.50e-02 -2.17e-02  5.86e-03  0.030535 1.011
1.87e-04
## 301    1.02e-02 -2.78e-02  4.44e-02 -9.20e-03 -3.51e-03  0.058344 1.014
6.81e-04
## 302   -3.96e-02  2.81e-02  7.07e-03  5.17e-02 -3.00e-02 -0.090614 1.007
1.64e-03
## 303    1.46e-04 -8.34e-05 -8.95e-05 -4.45e-05 -7.81e-05 -0.000185 1.012
6.85e-09
## 304    8.24e-03  4.37e-02  9.81e-03 -3.57e-02 -3.54e-02 -0.075335 1.001
1.13e-03
## 305    4.80e-03 -1.72e-02 -2.60e-03  1.32e-02  5.80e-04  0.023571 1.007
1.11e-04
## 306    1.30e-03  6.13e-03 -3.16e-03 -1.30e-02  1.05e-02  0.018910 1.009
7.16e-05
## 307   -4.79e-03  1.52e-02  3.62e-03 -9.39e-03  3.44e-03  0.018006 1.010
6.49e-05
## 308    3.87e-03 -1.82e-02  2.06e-02 -7.55e-03  9.54e-03  0.036678 1.012
2.69e-04
## 309   -1.73e-03  1.76e-02 -3.94e-03 -2.77e-03 -4.58e-03  0.023197 1.008
1.08e-04
## 310   -3.95e-05  1.13e-02 -3.55e-03 -8.60e-03  3.87e-03  0.016348 1.007
5.35e-05
## 311   -7.77e-04  7.16e-03 -1.16e-02  1.15e-03  3.73e-03  0.017067 1.008
5.83e-05
## 312    1.17e-03 -5.60e-04 -1.06e-03 -3.21e-04 -5.23e-04 -0.001564 1.015
4.90e-07
## 313   -1.26e-01  9.96e-02  1.41e-01  2.11e-03 -2.01e-02 -0.229643 0.926
1.04e-02
## 314    2.34e-02 -1.13e-02 -2.81e-03  1.33e-02 -3.26e-02  0.041031 1.006
3.37e-04
## 315    1.46e-04 -8.34e-05 -8.95e-05 -4.45e-05 -7.81e-05 -0.000185 1.012
6.85e-09
## 316    4.38e-02 -7.10e-02 -2.19e-02  6.07e-02 -4.57e-02  0.094625 1.016
1.79e-03
```

```
## 317   1.29e-02  1.61e-02 -1.82e-02 -1.24e-02 -6.62e-03  0.030693 1.008
1.89e-04
## 318  -2.94e-03  7.04e-03 -1.54e-03 -4.14e-03  4.44e-03  0.008623 1.012
1.49e-05
## 319   6.13e-02 -3.75e-02  2.57e-02  3.90e-03 -7.51e-02  0.087790 1.010
1.54e-03
## 320  -7.36e-03  1.55e-03  4.27e-03  8.27e-03  1.60e-03  0.013447 1.008
3.62e-05
## 321  -1.66e-03  2.04e-03 -2.64e-03 -3.65e-03  8.67e-03  0.012397 1.007
3.08e-05
## 322  -3.76e-03 -1.02e-03 -2.16e-03  3.34e-03  7.00e-03  0.010554 1.007
2.23e-05
## 323   5.67e-03 -3.39e-03 -3.15e-03 -1.16e-02  1.15e-02  0.022742 1.008
1.04e-04
## 324   3.52e-03 -2.08e-02 -1.39e-02  2.49e-02  7.74e-04  0.034005 1.011
2.31e-04
## 325  -1.91e-03  1.85e-03 -3.26e-03  1.44e-02 -7.44e-03  0.022948 1.007
1.05e-04
## 326  -7.52e-03  4.59e-03  1.20e-02  1.26e-03  1.63e-03  0.016224 1.008
5.27e-05
## 327  -3.66e-03 -7.10e-03 -2.55e-03  1.54e-02  1.40e-03  0.018923 1.008
7.17e-05
## 328   3.03e-03 -1.23e-02 -2.79e-03  2.33e-02 -1.10e-02  0.029807 1.008
1.78e-04
## 329  -1.16e-03  5.28e-03  4.75e-03 -1.24e-02  9.43e-03  0.018435 1.009
6.80e-05
## 330  -3.24e-03  6.24e-03 -3.02e-03  1.19e-03  2.98e-03  0.012303 1.006
3.03e-05
## 331  -3.12e-03  6.80e-03 -2.26e-03 -4.86e-03  6.89e-03  0.010968 1.009
2.41e-05
## 332   1.30e-03  6.13e-03 -3.16e-03 -1.30e-02  1.05e-02  0.018910 1.009
7.16e-05
## 333  -3.77e-02  3.19e-03  3.72e-03  8.57e-03  3.85e-02 -0.048136 1.005
4.64e-04
## 334  -3.66e-03 -7.10e-03 -2.55e-03  1.54e-02  1.40e-03  0.018923 1.008
7.17e-05
## 335   2.76e-02 -1.27e-02  1.54e-02 -1.89e-02 -1.64e-02  0.041213 1.007
3.40e-04
## 336  -5.49e-03  5.39e-03  4.86e-03  1.23e-03  2.28e-03  0.012387 1.007
3.07e-05
## 337   7.37e-03 -1.17e-02 -1.66e-02  2.38e-02 -1.03e-02  0.034762 1.009
2.42e-04
## 338   6.32e-03  2.65e-02 -1.64e-02 -1.61e-02 -3.75e-03  0.034602 1.011
2.40e-04
## 339  -3.63e-03  1.44e-03  4.16e-03 -3.38e-03  7.73e-03  0.012219 1.007
2.99e-05
## 340   5.67e-03 -3.39e-03 -3.15e-03 -1.16e-02  1.15e-02  0.022742 1.008
1.04e-04
## 341   3.89e-02 -3.65e-02  1.88e-02 -1.16e-02 -2.16e-02  0.056986 1.008
6.50e-04
```

```
## 342    8.04e-02 -4.54e-02 -2.60e-02 -1.38e-02 -4.81e-02  0.083949 1.009
1.41e-03
## 343    1.58e-02  6.20e-05 -3.63e-03 -6.57e-03 -1.11e-02  0.022507 1.005
1.01e-04
## 344   -1.07e-02 -8.08e-03  2.20e-02  1.40e-02 -5.34e-04  0.027539 1.014
1.52e-04
## 345    6.12e-05 -3.20e-02  2.78e-02  3.31e-02 -1.67e-02  0.050582 1.013
5.12e-04
## 346    1.38e-02 -2.66e-02  1.29e-02 -5.09e-03 -1.27e-02 -0.052459 0.999
5.50e-04
## 347    4.27e-02 -4.22e-02 -2.16e-02  9.97e-03 -1.93e-02  0.056848 1.009
6.47e-04
## 348   -5.21e-05 -3.22e-03 -2.98e-03  6.23e-03  2.11e-03  0.013714 1.006
3.76e-05
## 349    5.75e-03 -1.47e-02  5.07e-02  1.32e-02 -3.48e-02  0.063820 1.013
8.15e-04
## 350    8.53e-04  1.49e-02 -4.03e-03  1.16e-02 -1.99e-02  0.037172 1.010
2.77e-04
## 351    4.84e-02 -9.31e-02  4.51e-02 -1.78e-02 -4.44e-02 -0.183571 0.917
6.62e-03
## 352   -5.00e-03 -3.09e-03 -1.70e-03  7.99e-03  5.47e-03  0.011442 1.009
2.62e-05
## 353    9.15e-03 -2.73e-03 -1.39e-02 -1.22e-02  1.27e-02  0.027163 1.009
1.48e-04
## 354    2.98e-02 -1.01e-02 -2.20e-02  1.33e-02 -3.18e-02  0.047217 1.007
4.46e-04
## 355   -3.08e-03 -3.83e-03  6.96e-03  6.13e-03  1.32e-03  0.014671 1.006
4.31e-05
## 356    2.25e-02 -2.49e-02 -1.93e-02  1.89e-02 -1.44e-02  0.040867 1.008
3.34e-04
## 357    5.12e-02  2.72e-02 -2.49e-02 -6.35e-02 -4.03e-02 -0.092628 1.000
1.71e-03
## 358    1.40e-02  8.74e-03 -1.68e-02 -2.00e-02  4.95e-03  0.029906 1.008
1.79e-04
## 359    5.40e-02 -9.65e-02 -1.87e-02  5.80e-02 -5.98e-02 -0.121307 1.001
2.94e-03
## 360    7.14e-03  3.14e-04 -3.39e-03  2.07e-02 -2.54e-02  0.039296 1.008
3.09e-04
## 361   -3.49e-03  1.64e-03 -4.48e-03  3.66e-03  4.25e-03  0.008408 1.011
1.42e-05
## 362   -5.42e-03  3.76e-03  1.85e-02 -1.11e-02  7.55e-03  0.024597 1.014
1.21e-04
## 363   -1.31e-03 -7.61e-03  6.18e-03 -3.77e-04  8.76e-03  0.017672 1.008
6.25e-05
## 364    2.67e-03 -2.13e-02  8.55e-03  4.58e-03  9.14e-03  0.029056 1.010
1.69e-04
## 365    1.29e-01 -1.15e-01  5.57e-02 -1.24e-02 -1.68e-01 -0.249827 0.912
1.22e-02
## 366    1.08e-02  1.49e-03 -3.64e-03 -2.52e-02  1.34e-02  0.033240 1.011
2.21e-04
```

```
## 367    8.86e-03 -1.68e-02 -1.54e-02  1.35e-02  1.53e-03  0.028619 1.008
1.64e-04
## 368   -3.76e-03 -2.93e-03 -7.06e-03  8.54e-03  6.27e-03  0.014078 1.010
3.97e-05
## 369   -5.20e-03  1.15e-02 -3.40e-03  7.49e-03 -4.59e-03  0.021919 1.009
9.62e-05
## 370    1.55e-02  3.99e-02  1.09e-02 -3.91e-02 -2.28e-02  0.059112 1.013
6.99e-04
## 371   -6.01e-03 -3.19e-03  2.92e-03  7.45e-03  4.73e-03  0.010868 1.009
2.36e-05
## 372    1.17e-03 -5.60e-04 -1.06e-03 -3.21e-04 -5.23e-04 -0.001564 1.015
4.90e-07
## 373   -3.34e-02  1.34e-02  6.69e-03  3.07e-02 -4.36e-03 -0.054306 1.003
5.90e-04
## 374    1.48e-02 -3.07e-02 -1.79e-02  3.49e-02 -1.44e-02  0.048738 1.011
4.75e-04
## 375   -5.20e-03  1.15e-02 -3.40e-03  7.49e-03 -4.59e-03  0.021919 1.009
9.62e-05
## 376   -5.59e-03  2.16e-03 -2.53e-03  8.64e-03  2.20e-03  0.013681 1.008
3.75e-05
## 377    5.13e-02 -1.58e-02 -2.53e-02  1.75e-02 -6.19e-02  0.075273 1.009
1.13e-03
## 378   -1.31e-03 -7.61e-03  6.18e-03 -3.77e-04  8.76e-03  0.017672 1.008
6.25e-05
## 379   -5.89e-03  6.88e-03 -2.18e-03  3.78e-03  2.34e-03  0.011729 1.009
2.75e-05
## 380   -7.50e-03  9.06e-03  8.22e-03 -1.56e-03  2.02e-03  0.014390 1.011
4.15e-05
## 381   -5.49e-03  5.39e-03  4.86e-03  1.23e-03  2.28e-03  0.012387 1.007
3.07e-05
## 382    5.67e-03 -3.39e-03 -3.15e-03 -1.16e-02  1.15e-02  0.022742 1.008
1.04e-04
## 383    1.52e-02 -3.87e-03  1.67e-02  2.71e-02 -5.24e-02  0.065441 1.011
8.57e-04
## 384    1.45e-03 -7.25e-03 -2.69e-03 -5.00e-04  9.79e-03  0.017448 1.007
6.09e-05
## 385    5.34e-04  2.70e-03 -1.02e-02 -3.93e-03  9.67e-03  0.016325 1.008
5.33e-05
## 386   -2.11e-03  1.91e-03  1.53e-03 -3.54e-04  1.40e-03  0.003110 1.012
1.94e-06
## 387   -3.76e-03 -1.02e-03 -2.16e-03  3.34e-03  7.00e-03  0.010554 1.007
2.23e-05
## 388    8.53e-04  1.49e-02 -4.03e-03  1.16e-02 -1.99e-02  0.037172 1.010
2.77e-04
## 389   -8.56e-03 -7.80e-03  1.45e-02  1.44e-02  5.97e-05  0.022553 1.010
1.02e-04
## 390    3.26e-02 -2.77e-03 -3.23e-03 -7.43e-03 -3.34e-02  0.041739 1.006
3.49e-04
## 391   -5.44e-02  3.07e-02  1.76e-02  9.35e-03  3.25e-02 -0.056777 1.011
6.45e-04
```

```
## 392  -1.95e-02   1.93e-03 -2.11e-02   1.13e-02   2.16e-02 -0.044564 1.002
3.97e-04
## 393  -9.80e-04   6.63e-03  8.39e-03   2.49e-03 -8.15e-03  0.020565 1.006
8.47e-05
## 394   6.52e-02 -2.61e-02 -2.46e-02 -3.74e-02 -1.91e-02  0.072567 1.010
1.05e-03
## 395   8.15e-03   2.58e-03 -1.52e-02 -5.63e-03   3.89e-03  0.021076 1.007
8.89e-05
## 396   8.15e-03   2.58e-03 -1.52e-02 -5.63e-03   3.89e-03  0.021076 1.007
8.89e-05
## 397   5.95e-03 -2.15e-03  2.62e-02 -5.93e-03 -1.27e-02  0.033752 1.008
2.28e-04
## 398   2.11e-02 -2.15e-02  6.47e-02   1.75e-02 -6.49e-02  0.093057 1.016
1.73e-03
## 399   1.80e-02   6.40e-03  1.23e-02 -2.43e-02 -1.19e-02  0.035308 1.007
2.49e-04
## 400  -2.64e-03 -1.80e-02  2.08e-02   1.27e-02 -1.15e-03  0.030312 1.009
1.84e-04
## 401   1.98e-02   9.50e-03 -2.10e-02   3.95e-03 -2.56e-02  0.042155 1.008
3.56e-04
## 402   9.15e-03 -2.73e-03 -1.39e-02 -1.22e-02   1.27e-02  0.027163 1.009
1.48e-04
## 403  -1.58e-03   1.19e-03  1.66e-03 -2.22e-04   8.60e-04  0.002421 1.015
1.17e-06
## 404  -5.54e-02   1.17e-01 -9.00e-02 -6.05e-04 -3.21e-03 -0.203168 0.924
8.12e-03
## 405  -5.42e-03   1.91e-03  7.09e-03   3.72e-04   3.11e-03  0.008901 1.013
1.59e-05
## 406  -3.11e-02   4.97e-03 -1.95e-02   8.43e-03   4.09e-02 -0.052529 1.005
5.52e-04
## 407  -1.03e-02   5.01e-04  1.58e-02   7.54e-03   5.60e-04  0.019455 1.013
7.58e-05
## 408   8.39e-03   1.47e-02 -4.23e-03 -1.19e-02 -7.43e-03  0.024401 1.006
1.19e-04
## 409   3.90e-02 -1.01e-02  4.49e-02 -7.12e-03 -6.59e-02  0.082451 1.011
1.36e-03
## 410  -3.12e-03   1.24e-02 -9.31e-03 -2.11e-03   3.84e-03  0.017014 1.010
5.80e-05
## 411  -3.96e-03   3.52e-03 -1.71e-03   3.81e-04   5.16e-03  0.007665 1.008
1.18e-05
## 412  -5.00e-03 -3.09e-03 -1.70e-03   7.99e-03   5.47e-03  0.011442 1.009
2.62e-05
## 413   5.34e-04   2.70e-03 -1.02e-02 -3.93e-03   9.67e-03  0.016325 1.008
5.33e-05
## 414  -5.49e-03   5.39e-03  4.86e-03   1.23e-03   2.28e-03  0.012387 1.007
3.07e-05
## 415  -5.22e-03   9.75e-04  7.78e-03   1.41e-02 -8.00e-03  0.023326 1.008
1.09e-04
## 416  -3.76e-03 -2.93e-03 -7.06e-03   8.54e-03   6.27e-03  0.014078 1.010
3.97e-05
```

```
## 417  -4.51e-03 -5.74e-02  4.44e-02  9.02e-03  1.19e-02 -0.084032 1.004
1.41e-03
## 418   8.51e-02 -3.65e-02 -7.07e-04 -4.25e-02 -5.00e-02  0.091459 1.010
1.67e-03
## 419   9.02e-03 -5.23e-03  3.57e-02  2.69e-02 -5.29e-02  0.071727 1.013
1.03e-03
## 420  -1.22e-03  1.03e-03 -3.43e-04  4.80e-04  9.68e-04  0.001834 1.011
6.73e-07
## 421   1.60e-02 -1.71e-02 -1.56e-02 -8.70e-03  1.32e-02  0.036635 1.010
2.69e-04
## 422  -3.42e-03 -2.11e-02  8.72e-03  2.36e-02 -8.67e-04  0.030333 1.010
1.84e-04
## 423   2.83e-02 -9.94e-04 -2.33e-02  2.77e-02 -5.14e-02  0.069679 1.011
9.71e-04
## 424  -3.66e-03 -7.10e-03 -2.55e-03  1.54e-02  1.40e-03  0.018923 1.008
7.17e-05
## 425   8.39e-03  3.00e-02  1.04e-02 -1.98e-02 -2.20e-02  0.045735 1.010
4.19e-04
## 426  -2.04e-03 -6.18e-04 -8.60e-03  3.48e-03  7.90e-03  0.013949 1.009
3.90e-05
## 427   1.60e-02 -1.71e-02 -1.56e-02 -8.70e-03  1.32e-02  0.036635 1.010
2.69e-04
## 428   1.80e-02  6.40e-03  1.23e-02 -2.43e-02 -1.19e-02  0.035308 1.007
2.49e-04
## 429  -7.72e-03  1.04e-02  5.58e-03  7.30e-03 -5.06e-03  0.021537 1.009
9.29e-05
## 430   9.15e-03 -2.73e-03 -1.39e-02 -1.22e-02  1.27e-02  0.027163 1.009
1.48e-04
## 431  -3.08e-03 -3.83e-03  6.96e-03  6.13e-03  1.32e-03  0.014671 1.006
4.31e-05
## 432  -4.62e-02 -3.50e-02  2.97e-02  4.56e-02  3.30e-02 -0.073936 1.009
1.09e-03
## 433   1.08e-02  1.49e-03 -3.64e-03 -2.52e-02  1.34e-02  0.033240 1.011
2.21e-04
## 434  -8.92e-03  9.99e-04  1.04e-02  7.91e-03  1.05e-03  0.015906 1.010
5.07e-05
## 435   1.63e-03  2.77e-03 -1.50e-02  1.48e-02 -6.83e-03  0.027884 1.009
1.56e-04
## 436   1.00e-02 -2.10e-02 -1.41e-02  4.62e-03  1.15e-02  0.032841 1.010
2.16e-04
## 437  -1.19e-02  4.26e-02  6.43e-03 -3.27e-02 -1.43e-03 -0.058285 1.002
6.79e-04
## 438   3.11e-02 -1.82e-02 -2.08e-02  5.40e-04 -1.44e-02  0.038560 1.006
2.98e-04
## 439   4.92e-03 -2.39e-02 -1.27e-02  1.56e-02  9.83e-03  0.033367 1.012
2.23e-04
## 440   6.70e-03  2.29e-02 -4.54e-03 -3.22e-03 -2.07e-02  0.038280 1.009
2.93e-04
## 441  -7.77e-04  7.16e-03 -1.16e-02  1.15e-03  3.73e-03  0.017067 1.008
5.83e-05
```

```
## 442  -3.66e-03 -7.10e-03 -2.55e-03  1.54e-02  1.40e-03  0.018923 1.008
7.17e-05
## 443  -5.59e-03  2.16e-03 -2.53e-03  8.64e-03  2.20e-03  0.013681 1.008
3.75e-05
## 444  -3.54e-02  2.71e-02  3.83e-03 -1.04e-03  2.18e-02 -0.045246 1.003
4.10e-04
## 445   2.36e-02  7.78e-03 -4.11e-03 -2.51e-02 -1.10e-02  0.034073 1.006
2.32e-04
## 446  -1.91e-03  1.85e-03 -3.26e-03  1.44e-02 -7.44e-03  0.022948 1.007
1.05e-04
## 447  -2.69e-02 -3.36e-02  3.80e-02  2.60e-02  1.38e-02 -0.064048 1.003
8.20e-04
## 448  -1.99e-01  8.97e-02 -5.85e-02  8.68e-02  1.65e-01 -0.235944 0.999
1.11e-02
## 449  -3.24e-03  6.24e-03 -3.02e-03  1.19e-03  2.98e-03  0.012303 1.006
3.03e-05
## 450   8.98e-04  7.98e-04  7.59e-03 -5.01e-03  2.05e-03  0.015632 1.006
4.89e-05
## 451  -5.22e-03  9.75e-04  7.78e-03  1.41e-02 -8.00e-03  0.023326 1.008
1.09e-04
## 452  -5.21e-05 -3.22e-03 -2.98e-03  6.23e-03  2.11e-03  0.013714 1.006
3.76e-05
## 453   1.63e-03  2.77e-03 -1.50e-02  1.48e-02 -6.83e-03  0.027884 1.009
1.56e-04
## 454   1.05e-02 -1.25e-02 -3.00e-03 -8.75e-05  1.35e-03  0.021221 1.006
9.01e-05
## 455  -2.45e-03  4.07e-02  4.41e-02 -3.49e-02 -3.76e-02 -0.086152 1.002
1.48e-03
## 456  -3.93e-03  1.24e-03 -1.19e-03  3.26e-03  3.55e-03  0.006388 1.009
8.17e-06
## 457   3.95e-02 -1.32e-03 -2.35e-02 -7.81e-03 -3.26e-02  0.048506 1.007
4.71e-04
## 458  -3.96e-03  3.52e-03 -1.71e-03  3.81e-04  5.16e-03  0.007665 1.008
1.18e-05
## 459  -3.96e-03  1.24e-02  4.67e-02  1.59e-02 -4.48e-02  0.073444 1.018
1.08e-03
## 460  -4.34e-02  1.48e-02  3.97e-03  2.49e-02  1.96e-02 -0.049966 1.005
4.99e-04
## 461   1.40e-02  8.74e-03 -1.68e-02 -2.00e-02  4.95e-03  0.029906 1.008
1.79e-04
## 462   1.35e-02 -2.09e-02  3.13e-02  1.11e-03 -1.73e-02  0.043773 1.008
3.83e-04
## 463  -2.55e-03 -1.29e-02  4.87e-02  1.88e-02 -4.62e-02 -0.077968 1.001
1.22e-03
## 464   7.37e-03 -1.17e-02 -1.66e-02  2.38e-02 -1.03e-02  0.034762 1.009
2.42e-04
## 465  -2.77e-03  1.02e-02  5.44e-03 -8.16e-03  3.07e-03  0.016266 1.007
5.30e-05
## 466   5.50e-02 -6.84e-03 -2.21e-03 -7.89e-03 -6.43e-02  0.071127 1.008
1.01e-03
```

```
## 467    1.38e-02 -5.71e-03 -1.81e-02  9.61e-03 -1.03e-02  0.028908 1.007
1.67e-04
## 468   -2.39e-02 -2.21e-02 -1.92e-02  2.10e-02  4.05e-02 -0.061175 1.005
7.49e-04
## 469   -3.76e-03 -1.02e-03 -2.16e-03  3.34e-03  7.00e-03  0.010554 1.007
2.23e-05
## 470    1.50e-03  1.91e-02 -1.48e-02 -3.00e-03 -3.97e-03  0.027923 1.010
1.56e-04
## 471   -4.13e-03  1.49e-03 -2.16e-02 -3.69e-02  4.70e-02 -0.072556 1.005
1.05e-03
## 472   -3.12e-03  6.80e-03 -2.26e-03 -4.86e-03  6.89e-03  0.010968 1.009
2.41e-05
## 473   -7.03e-02  1.07e-01  9.70e-03 -7.76e-02  6.39e-02 -0.146965 0.978
4.30e-03
## 474    3.20e-02 -2.52e-02 -1.96e-02 -1.08e-02  1.15e-03  0.045648 1.009
4.17e-04
## 475   -2.45e-03  1.27e-02 -1.31e-02  7.69e-03 -4.08e-03  0.026087 1.010
1.36e-04
## 476   -1.66e-03  2.04e-03 -2.64e-03 -3.65e-03  8.67e-03  0.012397 1.007
3.08e-05
## 477    6.00e-04 -9.96e-03 -1.08e-02  8.55e-03  9.19e-03  0.021077 1.009
8.89e-05
## 478    9.15e-03 -2.73e-03 -1.39e-02 -1.22e-02  1.27e-02  0.027163 1.009
1.48e-04
## 479   -4.80e-03  1.12e-02 -2.73e-03 -1.91e-03  3.18e-03  0.013687 1.009
3.75e-05
## 480    4.41e-03  1.66e-03 -3.44e-03 -5.31e-03  2.94e-03  0.014526 1.005
4.22e-05
## 481   -6.86e-03  6.03e-03  2.56e-03  3.56e-03  1.83e-03  0.010979 1.009
2.41e-05
## 482    2.76e-02  3.34e-02  3.36e-02 -5.78e-02 -3.03e-02  0.078849 1.015
1.24e-03
## 483   -7.87e-02  6.21e-02  8.80e-02  1.31e-03 -1.25e-02 -0.143143 0.975
4.07e-03
## 484   -3.76e-03 -1.02e-03 -2.16e-03  3.34e-03  7.00e-03  0.010554 1.007
2.23e-05
## 485    3.21e-03 -2.55e-03 -1.37e-02  6.34e-03  2.96e-03  0.019473 1.007
7.59e-05
## 486   -3.96e-03  3.52e-03 -1.71e-03  3.81e-04  5.16e-03  0.007665 1.008
1.18e-05
## 487   -5.89e-02 -3.33e-02  1.59e-02 -1.68e-02  1.09e-01 -0.148885 0.978
4.41e-03
## 488    5.10e-02  6.31e-02 -6.23e-03 -7.66e-02 -5.00e-02  0.105731 1.019
2.24e-03
## 489   -3.86e-03 -7.94e-03  1.43e-02 -2.63e-04  7.80e-03  0.021416 1.010
9.18e-05
## 490    5.67e-03 -3.39e-03 -3.15e-03 -1.16e-02  1.15e-02  0.022742 1.008
1.04e-04
## 491   -3.77e-02  3.19e-03  3.72e-03  8.57e-03  3.85e-02 -0.048136 1.005
4.64e-04
```

```
## 492  -5.21e-05 -3.22e-03 -2.98e-03  6.23e-03  2.11e-03  0.013714 1.006
3.76e-05
## 493  -1.16e-03  5.28e-03  4.75e-03 -1.24e-02  9.43e-03  0.018435 1.009
6.80e-05
## 494   1.63e-03  2.77e-03 -1.50e-02  1.48e-02 -6.83e-03  0.027884 1.009
1.56e-04
## 495   5.67e-03 -3.39e-03 -3.15e-03 -1.16e-02  1.15e-02  0.022742 1.008
1.04e-04
## 496   4.44e-03 -6.84e-03 -1.23e-02 -6.32e-04  1.09e-02  0.021763 1.008
9.48e-05
## 497  -7.12e-02 -2.79e-04  1.63e-02  2.96e-02  4.98e-02 -0.101280 0.975
2.04e-03
## 498  -6.01e-03 -3.19e-03  2.92e-03  7.45e-03  4.73e-03  0.010868 1.009
2.36e-05
## 499   9.75e-03  7.56e-03 -3.93e-03 -1.92e-02  3.90e-03  0.024306 1.007
1.18e-04
## 500  -2.64e-03 -1.80e-02  2.08e-02  1.27e-02 -1.15e-03  0.030312 1.009
1.84e-04
## 501  -1.58e-03  4.40e-03  3.05e-02 -1.72e-02  1.08e-03  0.037591 1.013
2.83e-04
## 502  -9.35e-03  3.86e-03  1.85e-02  1.29e-03  1.04e-03  0.021244 1.012
9.03e-05
## 503  -3.10e-03  1.00e-02  3.02e-03 -1.17e-02  7.81e-03  0.016367 1.011
5.36e-05
## 504   4.80e-03 -1.72e-02 -2.60e-03  1.32e-02  5.80e-04  0.023571 1.007
1.11e-04
## 505   1.82e-02  1.89e-02 -2.24e-02  1.64e-02 -4.32e-02  0.065292 1.013
8.53e-04
## 506  -5.39e-03  8.97e-04  1.03e-02 -3.13e-03  6.86e-03  0.014953 1.009
4.48e-05
## 507   6.44e-02 -1.61e-02 -2.57e-02 -2.36e-02 -4.03e-02  0.066651 1.008
8.89e-04
## 508   2.89e-02  3.55e-03  3.70e-02 -2.91e-02 -3.60e-02  0.063215 1.010
8.00e-04
## 509   2.67e-03 -2.13e-02  8.55e-03  4.58e-03  9.14e-03  0.029056 1.010
1.69e-04
## 510  -1.28e-02 -2.70e-03 -6.57e-02 -7.56e-03  6.40e-02 -0.094496 1.015
1.79e-03
## 511  -6.26e-03  1.01e-02  3.10e-03 -1.73e-03  2.57e-03  0.012978 1.009
3.37e-05
## 512   2.11e-02  1.25e-03 -1.97e-02 -6.92e-03 -1.02e-02  0.030068 1.006
1.81e-04
## 513   7.95e-02 -1.65e-02  5.49e-02 -5.60e-02 -7.98e-02  0.119900 1.014
2.88e-03
## 514   8.15e-03  2.58e-03 -1.52e-02 -5.63e-03  3.89e-03  0.021076 1.007
8.89e-05
## 515  -3.80e-03 -2.15e-02  2.84e-02  4.54e-03  7.08e-03  0.038569 1.015
2.98e-04
## 516  -4.66e-03  2.92e-03  1.94e-03  3.86e-04  4.42e-03  0.007039 1.008
9.92e-06
```

```
## 517  -6.86e-03   6.03e-03   2.56e-03   3.56e-03   1.83e-03   0.010979 1.009
2.41e-05
## 518   3.21e-03  -2.55e-03  -1.37e-02   6.34e-03   2.96e-03   0.019473 1.007
7.59e-05
## 519  -5.59e-03   2.16e-03  -2.53e-03   8.64e-03   2.20e-03   0.013681 1.008
3.75e-05
## 520   3.42e-02   3.54e-02   1.44e-02  -5.90e-02  -2.94e-02   0.073976 1.013
1.10e-03
## 521   2.98e-02  -1.01e-02  -2.20e-02   1.33e-02  -3.18e-02   0.047217 1.007
4.46e-04
## 522  -1.22e-02   8.37e-03   2.15e-02   6.93e-03  -5.86e-03   0.028799 1.014
1.66e-04
## 523   2.81e-03   7.75e-03  -3.73e-03   2.42e-03  -7.48e-03   0.019693 1.006
7.76e-05
## 524   1.40e-02   4.25e-02  -5.76e-03  -4.82e-02  -3.89e-03   0.057106 1.017
6.53e-04
## 525   9.15e-03  -2.73e-03  -1.39e-02  -1.22e-02   1.27e-02   0.027163 1.009
1.48e-04
## 526   4.31e-02  -1.71e-02  -4.93e-02   4.01e-02  -9.16e-02  -0.144807 0.968
4.16e-03
## 527   3.21e-03  -2.55e-03  -1.37e-02   6.34e-03   2.96e-03   0.019473 1.007
7.59e-05
## 528  -9.75e-03   7.75e-03   4.15e-02  -1.93e-02  -9.01e-03  -0.059213 1.001
7.01e-04
## 529  -3.76e-03  -2.93e-03  -7.06e-03   8.54e-03   6.27e-03   0.014078 1.010
3.97e-05
## 530   6.23e-03  -2.11e-02  -2.41e-03   4.60e-03   1.03e-02   0.028790 1.009
1.66e-04
## 531  -1.21e-03  -2.15e-02   4.79e-02   3.05e-02  -3.36e-02   0.066157 1.015
8.76e-04
## 532  -3.41e-03  -5.09e-03   2.47e-02  -1.01e-02   8.33e-03   0.031948 1.014
2.04e-04
## 533  -3.24e-03   6.24e-03  -3.02e-03   1.19e-03   2.98e-03   0.012303 1.006
3.03e-05
## 534   5.34e-04   2.70e-03  -1.02e-02  -3.93e-03   9.67e-03   0.016325 1.008
5.33e-05
## 535   4.42e-03  -7.52e-03   1.10e-02   9.47e-03  -1.18e-02   0.024060 1.006
1.16e-04
## 536  -6.01e-03  -3.19e-03   2.92e-03   7.45e-03   4.73e-03   0.010868 1.009
2.36e-05
## 537   4.16e-02  -3.43e-02  -2.28e-02   2.47e-02  -3.88e-02   0.061696 1.009
7.62e-04
## 538   4.41e-03   1.66e-03  -3.44e-03  -5.31e-03   2.94e-03   0.014526 1.005
4.22e-05
## 539  -5.21e-05  -3.22e-03  -2.98e-03   6.23e-03   2.11e-03   0.013714 1.006
3.76e-05
## 540  -3.76e-03  -1.02e-03  -2.16e-03   3.34e-03   7.00e-03   0.010554 1.007
2.23e-05
## 541  -7.40e-03  -3.25e-03   1.00e-02   6.36e-03   3.43e-03   0.013355 1.015
3.57e-05
```

```
## 542    3.26e-02 -2.77e-03 -3.23e-03 -7.43e-03 -3.34e-02  0.041739 1.006
3.49e-04
## 543   -4.80e-03  1.12e-02 -2.73e-03 -1.91e-03  3.18e-03  0.013687 1.009
3.75e-05
## 544   -7.77e-04  7.16e-03 -1.16e-02  1.15e-03  3.73e-03  0.017067 1.008
5.83e-05
## 545    2.43e-03 -4.00e-03  6.83e-03 -1.11e-02  1.04e-02  0.022775 1.008
1.04e-04
## 546    1.08e-02 -1.07e-03  1.16e-02 -6.24e-03 -1.19e-02  0.024628 1.006
1.21e-04
## 547   -3.76e-03 -1.02e-03 -2.16e-03  3.34e-03  7.00e-03  0.010554 1.007
2.23e-05
## 548    2.31e-02 -2.12e-02  3.12e-02 -2.87e-02 -1.67e-03  0.058444 1.012
6.84e-04
## 549   -1.98e-02  4.60e-02 -2.38e-02  2.04e-02 -2.76e-02 -0.083883 1.005
1.41e-03
## 550   -2.45e-03  1.27e-02 -1.31e-02  7.69e-03 -4.08e-03  0.026087 1.010
1.36e-04
## 551   -6.20e-03 -8.22e-03  2.19e-02 -1.58e-04  6.89e-03  0.026655 1.013
1.42e-04
## 552    1.73e-02 -1.24e-02  1.57e-02  1.32e-02 -3.33e-02  0.043103 1.007
3.72e-04
## 553    1.23e-02 -7.76e-03  1.08e-02 -1.52e-02  1.15e-03  0.029041 1.007
1.69e-04
## 554   -4.36e-02 -5.49e-02 -1.21e-01  5.61e-02  1.15e-01 -0.198640 0.981
7.85e-03
## 555   -1.12e-02  4.03e-03 -4.93e-02  1.11e-02  2.39e-02 -0.063402 1.004
8.04e-04
## 556    6.67e-03  1.55e-02  1.35e-02  1.61e-02 -4.40e-02  0.060364 1.012
7.29e-04
## 557    5.13e-02 -1.58e-02 -2.53e-02  1.75e-02 -6.19e-02  0.075273 1.009
1.13e-03
## 558    9.72e-04 -1.76e-02  9.42e-03  1.30e-02 -3.11e-04  0.024617 1.007
1.21e-04
## 559   -3.68e-02  1.25e-02  2.72e-02 -1.65e-02  3.93e-02 -0.058325 1.006
6.81e-04
## 560   -2.86e-05  2.30e-02 -3.95e-03 -2.05e-02  5.24e-03  0.027631 1.013
1.53e-04
## 561   -9.80e-04  6.63e-03  8.39e-03  2.49e-03 -8.15e-03  0.020565 1.006
8.47e-05
## 562   -5.49e-03  5.39e-03  4.86e-03  1.23e-03  2.28e-03  0.012387 1.007
3.07e-05
## 563   -4.74e-03  1.63e-02  6.14e-03 -2.55e-03 -5.15e-03  0.022896 1.008
1.05e-04
## 564   -3.03e-03  4.17e-03 -6.09e-03  3.68e-04  5.96e-03  0.010209 1.009
2.09e-05
## 565    4.04e-04  1.89e-02 -8.55e-03 -1.98e-02  9.49e-03  0.025761 1.022
1.33e-04
## 566    6.70e-03  2.29e-02 -4.54e-03 -3.22e-03 -2.07e-02  0.038280 1.009
2.93e-04
```

```
## 567    4.28e-02   6.78e-03 -3.67e-03 -3.05e-02 -3.42e-02  0.053068 1.007
5.63e-04
## 568    8.39e-03   1.47e-02 -4.23e-03 -1.19e-02 -7.43e-03  0.024401 1.006
1.19e-04
## 569   -5.20e-03   1.15e-02 -3.40e-03  7.49e-03 -4.59e-03  0.021919 1.009
9.62e-05
## 570    7.37e-05   1.20e-02  2.15e-02 -1.10e-02 -8.91e-03  0.031346 1.009
1.97e-04
## 571    2.11e-02   1.25e-03 -1.97e-02 -6.92e-03 -1.02e-02  0.030068 1.006
1.81e-04
## 572   -9.61e-02  -2.20e-02  1.03e-02 -1.89e-02  1.65e-01 -0.191060 0.985
7.27e-03
## 573    2.11e-02   1.25e-03 -1.97e-02 -6.92e-03 -1.02e-02  0.030068 1.006
1.81e-04
## 574   -3.29e-02  -2.05e-02  3.95e-02  4.69e-02 -1.16e-02 -0.070250 1.003
9.87e-04
## 575   -8.92e-04   2.32e-02  6.69e-03 -1.48e-02 -5.13e-03  0.029296 1.010
1.72e-04
## 576    1.98e-03   5.40e-03  1.97e-02 -1.79e-02  1.97e-03  0.029980 1.009
1.80e-04
## 577    1.58e-02   6.20e-05 -3.63e-03 -6.57e-03 -1.11e-02  0.022507 1.005
1.01e-04
## 578    8.39e-03   1.47e-02 -4.23e-03 -1.19e-02 -7.43e-03  0.024401 1.006
1.19e-04
## 579    1.51e-02  -1.89e-02 -2.43e-03  3.17e-02 -3.17e-02  0.048440 1.009
4.70e-04
## 580   -4.15e-03   9.02e-04  1.37e-03  2.86e-03  2.91e-03  0.005618 1.009
6.32e-06
## 581    1.30e-01  -4.53e-02 -2.98e-02 -4.91e-02 -8.71e-02  0.130669 1.012
3.41e-03
## 582    1.05e-02  -1.25e-02 -3.00e-03 -8.75e-05  1.35e-03  0.021221 1.006
9.01e-05
## 583   -5.08e-02  -1.06e-01 -4.82e-02  1.40e-01  4.09e-02 -0.185565 0.978
6.85e-03
## 584    3.52e-03  -2.08e-02 -1.39e-02  2.49e-02  7.74e-04  0.034005 1.011
2.31e-04
## 585   -5.22e-03   9.75e-04  7.78e-03  1.41e-02 -8.00e-03  0.023326 1.008
1.09e-04
## 586    8.98e-04   7.98e-04  7.59e-03 -5.01e-03  2.05e-03  0.015632 1.006
4.89e-05
## 587    3.84e-03   3.12e-02  7.22e-03 -2.95e-02 -5.00e-03  0.040580 1.013
3.30e-04
## 588    2.22e-02  -5.96e-03 -1.84e-02 -1.64e-02  3.38e-03  0.033813 1.008
2.29e-04
## 589    6.10e-02   3.17e-02 -2.80e-02 -4.45e-02 -5.60e-02  0.086734 1.012
1.50e-03
## 590    2.29e-02  -1.22e-02 -1.72e-02 -2.44e-02  1.51e-02  0.045802 1.012
4.20e-04
## 591   -1.66e-03   2.04e-03 -2.64e-03 -3.65e-03  8.67e-03  0.012397 1.007
3.08e-05
```

```
## 592  -3.16e-02   1.65e-02 -1.86e-02 -1.55e-02   5.61e-02 -0.063583 1.010
8.09e-04
## 593   3.57e-02 -1.87e-02   2.10e-02   1.75e-02 -6.33e-02   0.071784 1.009
1.03e-03
## 594   2.43e-03 -4.00e-03   6.83e-03 -1.11e-02   1.04e-02   0.022775 1.008
1.04e-04
## 595   6.22e-03 -1.32e-02   1.01e-02   6.79e-05   3.60e-04   0.022806 1.006
1.04e-04
## 596   4.13e-02 -1.85e-02 -2.12e-02 -3.11e-02   2.20e-03   0.056625 1.010
6.42e-04
## 597   6.83e-03   8.93e-03 -1.66e-02   2.34e-03 -6.78e-03   0.025936 1.007
1.35e-04
## 598  -3.93e-03   1.24e-03 -1.19e-03   3.26e-03   3.55e-03   0.006388 1.009
8.17e-06
## 599   1.44e-04 -4.13e-02   1.29e-02   3.13e-02 -1.41e-02 -0.059504 1.000
7.08e-04
## 600  -6.86e-03   6.03e-03   2.56e-03   3.56e-03   1.83e-03   0.010979 1.009
2.41e-05
## 601   8.86e-03 -1.68e-02 -1.54e-02   1.35e-02   1.53e-03   0.028619 1.008
1.64e-04
## 602   1.53e-02 -2.72e-02   2.93e-02 -9.56e-03 -2.42e-03   0.048499 1.011
4.71e-04
## 603   2.84e-02 -1.10e-02   1.28e-02 -4.39e-02 -1.12e-02 -0.069526 1.000
9.66e-04
## 604  -5.21e-05 -3.22e-03 -2.98e-03   6.23e-03   2.11e-03   0.013714 1.006
3.76e-05
## 605  -5.21e-05 -3.22e-03 -2.98e-03   6.23e-03   2.11e-03   0.013714 1.006
3.76e-05
## 606  -3.80e-03 -2.15e-02   2.84e-02   4.54e-03   7.08e-03   0.038569 1.015
2.98e-04
## 607   1.35e-02   2.62e-02   9.39e-03 -5.69e-02 -5.16e-03 -0.069747 1.001
9.72e-04
## 608  -6.59e-02   2.72e-02   8.64e-02 -4.59e-02   4.90e-02 -0.137891 0.976
3.78e-03
## 609  -7.94e-02   1.54e-01 -1.27e-01 -1.47e-01   1.94e-01 -0.280381 0.995
1.57e-02
## 610  -2.76e-02 -1.08e-04   6.33e-03   1.15e-02   1.93e-02 -0.039248 1.002
3.08e-04
## 611  -3.76e-03 -1.02e-03 -2.16e-03   3.34e-03   7.00e-03   0.010554 1.007
2.23e-05
## 612   3.03e-03 -1.23e-02 -2.79e-03   2.33e-02 -1.10e-02   0.029807 1.008
1.78e-04
## 613  -6.82e-04   1.80e-02 -1.10e-02 -1.06e-02   4.91e-03   0.022453 1.012
1.01e-04
## 614   4.41e-03   1.66e-03 -3.44e-03 -5.31e-03   2.94e-03   0.014526 1.005
4.22e-05
## 615  -7.77e-04   7.16e-03 -1.16e-02   1.15e-03   3.73e-03   0.017067 1.008
5.83e-05
## 616  -5.25e-03 -1.37e-03   3.55e-03   3.21e-03   6.17e-03   0.010331 1.007
2.14e-05
```

```
## 617    2.60e-02 -1.17e-01  1.17e-01  8.02e-02 -1.18e-01 -0.210709 0.969
8.81e-03
## 618    4.41e-03  1.66e-03 -3.44e-03 -5.31e-03  2.94e-03  0.014526 1.005
4.22e-05
## 619    1.46e-04 -8.34e-05 -8.95e-05 -4.45e-05 -7.81e-05 -0.000185 1.012
6.85e-09
## 620    1.08e-02 -1.07e-03  1.16e-02 -6.24e-03 -1.19e-02  0.024628 1.006
1.21e-04
## 621    8.86e-03 -1.68e-02 -1.54e-02  1.35e-02  1.53e-03  0.028619 1.008
1.64e-04
## 622   -4.63e-02 -5.62e-02  3.60e-02  8.24e-02  9.97e-03 -0.098750 1.011
1.95e-03
## 623   -7.63e-03  5.25e-03  6.58e-03  3.33e-03  1.38e-03  0.011840 1.011
2.81e-05
## 624    6.03e-02 -8.91e-03  2.13e-02 -4.93e-02 -4.32e-02  0.079148 1.010
1.25e-03
## 625   -3.76e-03 -2.93e-03 -7.06e-03  8.54e-03  6.27e-03  0.014078 1.010
3.97e-05
## 626   -3.23e-03  1.36e-02  9.23e-03  1.15e-02 -2.03e-02  0.037130 1.010
2.76e-04
## 627    8.39e-03  1.47e-02 -4.23e-03 -1.19e-02 -7.43e-03  0.024401 1.006
1.19e-04
## 628    3.74e-02  2.52e-02  4.10e-02 -4.17e-02 -5.84e-02  0.088451 1.014
1.57e-03
## 629   -2.55e-03 -1.29e-02  4.87e-02  1.88e-02 -4.62e-02 -0.077968 1.001
1.22e-03
## 630   -6.26e-03  1.01e-02  3.10e-03 -1.73e-03  2.57e-03  0.012978 1.009
3.37e-05
## 631   -3.61e-03  2.82e-03 -1.01e-02  9.01e-03  2.86e-03  0.017372 1.009
6.04e-05
## 632   -2.51e-03  3.52e-03 -9.24e-04 -6.44e-04  2.64e-03  0.004705 1.011
4.43e-06
## 633   -9.80e-04  6.63e-03  8.39e-03  2.49e-03 -8.15e-03  0.020565 1.006
8.47e-05
## 634   -4.08e-03 -9.17e-03  3.74e-02  9.35e-03 -1.32e-02  0.042592 1.012
3.63e-04
## 635    6.81e-05 -8.36e-03  2.45e-02  9.40e-03 -1.25e-02  0.032195 1.008
2.07e-04
## 636    3.60e-02 -2.20e-02 -5.76e-02 -6.04e-03 -7.81e-03 -0.077592 1.001
1.20e-03
## 637   -8.52e-03 -4.93e-03  2.48e-02  5.92e-03 -1.13e-04  0.027556 1.011
1.52e-04
## 638   -6.22e-03 -1.19e-02  4.82e-03  1.40e-02  5.89e-03  0.019325 1.011
7.48e-05
## 639   -6.01e-03 -3.19e-03  2.92e-03  7.45e-03  4.73e-03  0.010868 1.009
2.36e-05
## 640    1.48e-02  2.41e-03 -1.55e-02 -2.62e-02  1.47e-02  0.037498 1.012
2.81e-04
## 641   -1.22e-03  1.03e-03 -3.43e-04  4.80e-04  9.68e-04  0.001834 1.011
6.73e-07
```

```
## 642    4.42e-03 -7.52e-03  1.10e-02  9.47e-03 -1.18e-02  0.024060 1.006
1.16e-04
## 643   -1.73e-04 -2.82e-02 -5.06e-02  2.59e-02  2.09e-02 -0.073700 1.004
1.09e-03
## 644   -3.96e-03  3.52e-03 -1.71e-03  3.81e-04  5.16e-03  0.007665 1.008
1.18e-05
## 645    2.41e-02  2.90e-02 -2.45e-02 -5.80e-02 -2.73e-03 -0.074057 1.001
1.10e-03
## 646    2.22e-02  1.68e-02 -4.32e-03 -1.49e-02 -2.71e-02  0.040889 1.007
3.35e-04
## 647   -9.75e-03  7.75e-03  4.15e-02 -1.93e-02 -9.01e-03 -0.059213 1.001
7.01e-04
## 648    7.37e-03 -1.17e-02 -1.66e-02  2.38e-02 -1.03e-02  0.034762 1.009
2.42e-04
## 649   -1.01e-02  1.38e-02  2.42e-02 -2.16e-03 -6.15e-03  0.031772 1.014
2.02e-04
## 650    2.60e-03  2.48e-02 -4.50e-03 -1.54e-02 -4.46e-03  0.029802 1.009
1.78e-04
## 651    1.98e-02  9.50e-03 -2.10e-02  3.95e-03 -2.56e-02  0.042155 1.008
3.56e-04
## 652    8.39e-03  1.47e-02 -4.23e-03 -1.19e-02 -7.43e-03  0.024401 1.006
1.19e-04
## 653    1.35e-02  2.62e-02  9.39e-03 -5.69e-02 -5.16e-03 -0.069747 1.001
9.72e-04
## 654   -1.66e-03  2.04e-03 -2.64e-03 -3.65e-03  8.67e-03  0.012397 1.007
3.08e-05
## 655    1.52e-02 -2.84e-03 -2.26e-02 -4.10e-02  2.33e-02 -0.067858 1.002
9.21e-04
## 656   -1.66e-03  2.04e-03 -2.64e-03 -3.65e-03  8.67e-03  0.012397 1.007
3.08e-05
## 657    5.67e-03 -3.39e-03 -3.15e-03 -1.16e-02  1.15e-02  0.022742 1.008
1.04e-04
## 658    1.63e-03  2.77e-03 -1.50e-02  1.48e-02 -6.83e-03  0.027884 1.009
1.56e-04
## 659    2.11e-02  4.20e-02 -5.67e-03 -4.02e-02 -2.21e-02  0.059636 1.013
7.12e-04
## 660    6.00e-04 -9.96e-03 -1.08e-02  8.55e-03  9.19e-03  0.021077 1.009
8.89e-05
## 661   -1.91e-03 -1.01e-02 -2.27e-03  8.26e-03  8.19e-03  0.017447 1.008
6.09e-05
## 662    6.35e-02 -5.12e-03 -2.68e-02 -8.30e-03 -6.35e-02  0.077057 1.009
1.19e-03
## 663   -5.21e-05 -3.22e-03 -2.98e-03  6.23e-03  2.11e-03  0.013714 1.006
3.76e-05
## 664    4.42e-03 -7.52e-03  1.10e-02  9.47e-03 -1.18e-02  0.024060 1.006
1.16e-04
## 665    3.91e-02  1.37e-02  3.89e-02 -5.40e-02 -3.70e-02  0.080229 1.013
1.29e-03
## 666    1.17e-02 -1.75e-02 -2.81e-03 -8.30e-03  1.19e-02  0.032277 1.009
2.09e-04
```

```
## 667    9.15e-03 -2.73e-03 -1.39e-02 -1.22e-02  1.27e-02  0.027163 1.009
1.48e-04
## 668    7.73e-02 -5.53e-03 -2.73e-02 -5.14e-02 -4.09e-02  0.083183 1.010
1.38e-03
## 669    1.17e-02 -1.75e-02 -2.81e-03 -8.30e-03  1.19e-02  0.032277 1.009
2.09e-04
## 670   -1.82e-02 -3.18e-02  9.18e-03  2.59e-02  1.61e-02 -0.052954 1.002
5.61e-04
## 671    1.58e-02  6.20e-05 -3.63e-03 -6.57e-03 -1.11e-02  0.022507 1.005
1.01e-04
## 672    1.08e-02 -1.07e-03  1.16e-02 -6.24e-03 -1.19e-02  0.024628 1.006
1.21e-04
## 673    1.69e-02  1.15e-01 -1.33e-01 -8.16e-02  7.37e-03 -0.194043 0.975
7.48e-03
## 674    1.88e-04  5.89e-02  6.28e-03 -6.82e-02  2.07e-04 -0.084600 1.004
1.43e-03
## 675   -3.63e-03  1.44e-03  4.16e-03 -3.38e-03  7.73e-03  0.012219 1.007
2.99e-05
## 676   -6.22e-03 -7.47e-03  6.31e-03  1.49e-02  7.03e-04  0.019084 1.008
7.29e-05
## 677    6.86e-02 -7.24e-03 -2.60e-03 -5.03e-02 -4.21e-02  0.077387 1.009
1.20e-03
## 678   -1.75e-02  1.29e-02  6.23e-03 -1.86e-02  2.16e-02 -0.043263 1.002
3.74e-04
## 679    2.43e-03 -4.00e-03  6.83e-03 -1.11e-02  1.04e-02  0.022775 1.008
1.04e-04
## 680    1.08e-02  1.49e-03 -3.64e-03 -2.52e-02  1.34e-02  0.033240 1.011
2.21e-04
## 681   -4.15e-03  9.02e-04  1.37e-03  2.86e-03  2.91e-03  0.005618 1.009
6.32e-06
## 682   -4.31e-03  5.96e-03  2.49e-03 -4.45e-03  6.05e-03  0.010251 1.009
2.10e-05
## 683    1.38e-02 -2.66e-02  1.29e-02 -5.09e-03 -1.27e-02 -0.052459 0.999
5.50e-04
## 684   -9.21e-03 -1.15e-02  1.61e-02  1.27e-02  4.41e-03  0.023239 1.017
1.08e-04
## 685   -4.69e-03  7.79e-03 -7.65e-03  4.00e-03  2.90e-03  0.014566 1.011
4.25e-05
## 686    9.00e-03 -6.64e-03 -3.19e-03  9.54e-03 -1.11e-02  0.022177 1.005
9.84e-05
## 687    1.24e-01 -7.57e-02 -1.99e-01 -2.08e-02 -2.69e-02 -0.267566 0.917
1.41e-02
## 688    5.34e-04  2.70e-03 -1.02e-02 -3.93e-03  9.67e-03  0.016325 1.008
5.33e-05
## 689   -4.66e-03  2.92e-03  1.94e-03  3.86e-04  4.42e-03  0.007039 1.008
9.92e-06
## 690    3.21e-03 -2.55e-03 -1.37e-02  6.34e-03  2.96e-03  0.019473 1.007
7.59e-05
## 691    7.49e-03  1.89e-02 -1.50e-02 -2.17e-02  5.86e-03  0.030535 1.011
1.87e-04
```

```
## 692  -3.95e-05  1.13e-02 -3.55e-03 -8.60e-03  3.87e-03  0.016348 1.007
5.35e-05
## 693  -4.19e-03 -1.02e-02  5.51e-03  7.98e-03  7.26e-03  0.017416 1.009
6.07e-05
## 694   9.00e-03 -6.64e-03 -3.19e-03  9.54e-03 -1.11e-02  0.022177 1.005
9.84e-05
## 695  -3.63e-03  1.44e-03  4.16e-03 -3.38e-03  7.73e-03  0.012219 1.007
2.99e-05
## 696  -5.59e-03  2.16e-03 -2.53e-03  8.64e-03  2.20e-03  0.013681 1.008
3.75e-05
## 697  -8.66e-03 -1.42e-02  3.46e-02  2.20e-02 -1.29e-02  0.044119 1.014
3.90e-04
## 698  -2.04e-03 -6.18e-04 -8.60e-03  3.48e-03  7.90e-03  0.013949 1.009
3.90e-05
## 699  -1.00e-02  9.35e-03  1.39e-02  7.11e-03 -5.48e-03  0.024319 1.011
1.18e-04
## 700  -5.22e-03  9.75e-04  7.78e-03  1.41e-02 -8.00e-03  0.023326 1.008
1.09e-04
## 701   1.15e-02  1.32e-02  8.82e-03 -3.45e-02  3.89e-03  0.038884 1.011
3.03e-04
## 702   1.02e-02  3.79e-02  2.69e-02 -3.81e-02 -2.35e-02  0.062932 1.015
7.93e-04
## 703  -1.48e-03 -2.37e-02  7.82e-03  1.47e-02  7.71e-03  0.029755 1.012
1.77e-04
## 704  -2.61e-03 -2.32e-03 -2.21e-02  1.46e-02 -5.96e-03 -0.045431 1.000
4.13e-04
## 705  -3.93e-03  1.24e-03 -1.19e-03  3.26e-03  3.55e-03  0.006388 1.009
8.17e-06
## 706  -2.32e-03  8.19e-03 -4.97e-03 -4.72e-03  5.26e-03  0.010795 1.014
2.33e-05
## 707  -5.59e-03  2.16e-03 -2.53e-03  8.64e-03  2.20e-03  0.013681 1.008
3.75e-05
## 708   1.05e-02 -1.25e-02 -3.00e-03 -8.75e-05  1.35e-03  0.021221 1.006
9.01e-05
## 709   1.48e-02 -3.07e-02 -1.79e-02  3.49e-02 -1.44e-02  0.048738 1.011
4.75e-04
## 710  -1.66e-03  2.04e-03 -2.64e-03 -3.65e-03  8.67e-03  0.012397 1.007
3.08e-05
## 711   3.99e-02 -8.39e-03 -2.31e-02 -4.48e-02 -8.67e-03 -0.072803 1.000
1.06e-03
## 712   1.03e-02  1.28e-02 -2.33e-02 -2.05e-02 -4.40e-03 -0.048995 1.000
4.80e-04
## 713   1.69e-02 -2.56e-02 -2.33e-03  1.86e-02 -1.53e-02  0.035268 1.007
2.49e-04
## 714  -2.39e-03 -1.27e-05  1.79e-02 -4.73e-03  1.21e-03  0.022288 1.008
9.94e-05
## 715  -3.33e-03  5.96e-03  1.16e-03 -3.58e-03  3.69e-03  0.007491 1.012
1.12e-05
## 716  -8.10e-03  1.34e-02 -2.28e-02  3.70e-02 -3.47e-02 -0.075977 1.002
1.15e-03
```

```
## 717    2.15e-02 -1.39e-02  3.32e-02 -1.84e-02 -1.74e-02  0.050111 1.009
5.03e-04
## 718    1.62e-02 -3.57e-02 -1.68e-02  2.26e-02 -5.88e-04  0.044831 1.011
4.02e-04
## 719   -5.00e-03 -3.09e-03 -1.70e-03  7.99e-03  5.47e-03  0.011442 1.009
2.62e-05
## 720   -1.55e-02  2.46e-02  3.51e-02 -5.02e-02  2.16e-02 -0.073242 1.004
1.07e-03
## 721   -3.13e-02 -2.36e-02  6.08e-03  2.10e-02  3.81e-02 -0.057544 1.005
6.62e-04
## 722   -8.52e-03 -4.93e-03  2.48e-02  5.92e-03 -1.13e-04  0.027556 1.011
1.52e-04
## 723   -6.01e-03 -3.19e-03  2.92e-03  7.45e-03  4.73e-03  0.010868 1.009
2.36e-05
## 724   -5.59e-03  2.16e-03 -2.53e-03  8.64e-03  2.20e-03  0.013681 1.008
3.75e-05
## 725    2.96e-02 -3.99e-02 -2.14e-02 -2.80e-02  1.94e-02 -0.082601 1.002
1.36e-03
## 726    1.42e-02  8.05e-03 -3.84e-03  4.06e-03 -2.63e-02  0.035950 1.007
2.59e-04
## 727    1.21e-02 -4.41e-02  3.73e-02  4.37e-02 -4.02e-02  0.073665 1.014
1.09e-03
## 728   -2.38e-03 -1.21e-02 -9.32e-03  1.54e-02  7.62e-03  0.022794 1.012
1.04e-04
## 729    5.16e-03  1.64e-02 -1.80e-02  1.18e-02 -1.94e-02  0.042060 1.011
3.54e-04
## 730   -1.91e-03 -1.01e-02 -2.27e-03  8.26e-03  8.19e-03  0.017447 1.008
6.09e-05
## 731    1.81e-02 -1.28e-02 -3.23e-03 -2.36e-02  1.37e-02  0.041419 1.011
3.43e-04
## 732   -5.21e-05 -3.22e-03 -2.98e-03  6.23e-03  2.11e-03  0.013714 1.006
3.76e-05
## 733    3.11e-02 -1.82e-02 -2.08e-02  5.40e-04 -1.44e-02  0.038560 1.006
2.98e-04
## 734    1.75e-02  2.46e-03 -8.80e-02  1.42e-02 -1.35e-03 -0.097002 1.005
1.88e-03
## 735    1.97e-02 -5.52e-03  3.52e-02 -6.72e-03 -3.51e-02  0.053443 1.009
5.72e-04
## 736   -3.53e-01  1.60e-01 -1.04e-01  1.55e-01  2.93e-01 -0.419932 0.957
3.49e-02
## 737    5.85e-02 -8.21e-02  2.15e-02  1.50e-02 -6.16e-02 -0.109646 1.000
2.40e-03
## 738    4.41e-03  1.66e-03 -3.44e-03 -5.31e-03  2.94e-03  0.014526 1.005
4.22e-05
## 739   -1.72e-03  7.71e-03 -7.75e-03 -5.29e-03  7.80e-03  0.013899 1.010
3.87e-05
## 740   -5.25e-03 -1.37e-03  3.55e-03  3.21e-03  6.17e-03  0.010331 1.007
2.14e-05
## 741    2.92e-02 -6.82e-02  1.67e-02  1.16e-02 -1.94e-02 -0.083393 1.000
1.39e-03
```

```
## 742    1.34e-03 -3.18e-03  4.02e-02 -5.63e-03 -1.35e-02  0.045283 1.011
4.10e-04
## 743    2.06e-02 -2.66e-02  1.37e-02 -9.95e-03 -1.28e-03  0.041732 1.008
3.49e-04
## 744   -1.35e-01  5.44e-02  2.71e-02  1.25e-01 -1.77e-02 -0.220392 0.927
9.56e-03
## 745    2.43e-03 -4.00e-03  6.83e-03 -1.11e-02  1.04e-02  0.022775 1.008
1.04e-04
## 746   -2.39e-03 -1.27e-05  1.79e-02 -4.73e-03  1.21e-03  0.022288 1.008
9.94e-05
## 747   -2.04e-03 -6.18e-04 -8.60e-03  3.48e-03  7.90e-03  0.013949 1.009
3.90e-05
## 748    8.90e-03  6.66e-03  1.26e-02  4.16e-03 -2.69e-02  0.037161 1.007
2.76e-04
## 749    8.98e-04  7.98e-04  7.59e-03 -5.01e-03  2.05e-03  0.015632 1.006
4.89e-05
## 750    3.55e-03 -1.84e-04  1.79e-02 -2.34e-02  1.10e-02  0.035766 1.013
2.56e-04
## 751   -7.24e-03  2.02e-02  2.70e-02 -1.36e-02 -6.33e-03  0.038035 1.015
2.90e-04
## 752   -7.81e-03 -1.17e-02  1.08e-02  1.33e-02  5.12e-03  0.020754 1.013
8.62e-05
## 753   -5.20e-03  1.15e-02 -3.40e-03  7.49e-03 -4.59e-03  0.021919 1.009
9.62e-05
## 754    4.41e-03  1.66e-03 -3.44e-03 -5.31e-03  2.94e-03  0.014526 1.005
4.22e-05
## 755   -3.42e-02  3.80e-02  2.94e-02 -2.87e-02  2.20e-02 -0.062220 1.005
7.74e-04
## 756    1.45e-03 -7.25e-03 -2.69e-03 -5.00e-04  9.79e-03  0.017448 1.007
6.09e-05
## 757   -5.25e-03 -1.37e-03  3.55e-03  3.21e-03  6.17e-03  0.010331 1.007
2.14e-05
## 758    3.84e-03  3.12e-02  7.22e-03 -2.95e-02 -5.00e-03  0.040580 1.013
3.30e-04
## 759    4.92e-02  1.97e-02 -2.64e-02 -1.80e-02 -5.45e-02  0.073058 1.010
1.07e-03
## 760   -7.63e-03  5.25e-03  6.58e-03  3.33e-03  1.38e-03  0.011840 1.011
2.81e-05
## 761   -1.22e-03  1.03e-03 -3.43e-04  4.80e-04  9.68e-04  0.001834 1.011
6.73e-07
## 762    5.13e-02 -1.58e-02 -2.53e-02  1.75e-02 -6.19e-02  0.075273 1.009
1.13e-03
## 763    1.29e-02  1.61e-02 -1.82e-02 -1.24e-02 -6.62e-03  0.030693 1.008
1.89e-04
## 764   -1.66e-03  2.04e-03 -2.64e-03 -3.65e-03  8.67e-03  0.012397 1.007
3.08e-05
## 765    7.37e-03 -1.17e-02 -1.66e-02  2.38e-02 -1.03e-02  0.034762 1.009
2.42e-04
## 766    6.00e-04 -9.96e-03 -1.08e-02  8.55e-03  9.19e-03  0.021077 1.009
8.89e-05
```

```
## 767  -8.54e-03  8.10e-03  1.26e-02 -1.40e-03  1.53e-03  0.016781 1.014
5.64e-05
## 768  -3.21e-01  1.26e-01 -1.37e-01  1.48e-01  2.81e-01 -0.418061 0.875
3.40e-02
## 769  -2.59e-02  1.07e-02  3.40e-02 -1.81e-02  1.93e-02 -0.054299 1.003
5.90e-04
## 770  -4.99e-02  4.94e-03 -5.39e-02  2.89e-02  5.52e-02 -0.114072 0.975
2.59e-03
## 771  -5.97e-01  2.08e-01  1.37e-01  2.26e-01  4.01e-01 -0.600675 0.895
7.04e-02
## 772  -3.86e-03 -7.94e-03  1.43e-02 -2.63e-04  7.80e-03  0.021416 1.010
9.18e-05
## 773   2.98e-02 -1.01e-02 -2.20e-02  1.33e-02 -3.18e-02  0.047217 1.007
4.46e-04
## 774  -3.12e-03  6.80e-03 -2.26e-03 -4.86e-03  6.89e-03  0.010968 1.009
2.41e-05
## 775  -1.71e-01  4.29e-02  6.83e-02  6.26e-02  1.07e-01 -0.177204 0.986
6.26e-03
## 776   1.51e-02 -1.19e-02 -1.68e-02 -2.52e-04  2.39e-03  0.027394 1.007
1.50e-04
## 777  -1.58e-03  1.19e-03  1.66e-03 -2.22e-04  8.60e-04  0.002421 1.015
1.17e-06
## 778   7.37e-03 -1.17e-02 -1.66e-02  2.38e-02 -1.03e-02  0.034762 1.009
2.42e-04
## 779   3.15e-02 -4.20e-02 -2.14e-02  4.54e-02 -3.80e-02  0.070373 1.012
9.91e-04
## 780   1.08e-02 -1.07e-03  1.16e-02 -6.24e-03 -1.19e-02  0.024628 1.006
1.21e-04
## 781   3.21e-03 -2.55e-03 -1.37e-02  6.34e-03  2.96e-03  0.019473 1.007
7.59e-05
## 782  -2.69e-02 -3.36e-02  3.80e-02  2.60e-02  1.38e-02 -0.064048 1.003
8.20e-04
## 783  -1.31e-03 -7.61e-03  6.18e-03 -3.77e-04  8.76e-03  0.017672 1.008
6.25e-05
## 784  -8.13e-03 -1.03e-02  1.90e-02  7.42e-03  5.59e-03  0.024221 1.014
1.17e-04
## 785   2.50e-03 -1.69e-02 -2.14e-02 -6.36e-03  2.08e-02 -0.052524 1.001
5.52e-04
## 786  -1.39e-02  2.91e-02 -2.20e-02 -4.60e-02  4.76e-02 -0.073112 1.007
1.07e-03
## 787  -3.76e-03 -1.02e-03 -2.16e-03  3.34e-03  7.00e-03  0.010554 1.007
2.23e-05
## 788   2.48e-02 -4.27e-02 -1.12e-03  4.48e-02 -3.87e-02  0.065783 1.011
8.66e-04
## 789   2.25e-02 -2.49e-02 -1.93e-02  1.89e-02 -1.44e-02  0.040867 1.008
3.34e-04
## 790  -7.36e-03  1.55e-03  4.27e-03  8.27e-03  1.60e-03  0.013447 1.008
3.62e-05
## 791   1.30e-03  6.13e-03 -3.16e-03 -1.30e-02  1.05e-02  0.018910 1.009
7.16e-05
```

```
## 792    3.95e-02 -1.32e-03 -2.35e-02 -7.81e-03 -3.26e-02  0.048506 1.007
4.71e-04
## 793    4.41e-03  1.66e-03 -3.44e-03 -5.31e-03  2.94e-03  0.014526 1.005
4.22e-05
## 794   -2.13e-01  7.09e-03  1.27e-01  4.20e-02  1.75e-01 -0.261078 0.936
1.34e-02
## 795   -2.88e-02  2.46e-02  2.82e-02 -4.41e-02  4.26e-02 -0.073382 1.008
1.08e-03
## 796    4.04e-04  1.89e-02 -8.55e-03 -1.98e-02  9.49e-03  0.025761 1.022
1.33e-04
## 797   -9.48e-02  7.74e-02  4.23e-03 -1.18e-01  1.77e-01 -0.221079 0.988
9.73e-03
## 798    2.69e-02  4.43e-02 -2.30e-02 -4.13e-02 -2.13e-02  0.064961 1.014
8.45e-04
## 799   -3.76e-03 -1.02e-03 -2.16e-03  3.34e-03  7.00e-03  0.010554 1.007
2.23e-05
## 800    2.62e-02 -2.59e-02 -2.60e-03 -1.04e-02 -9.09e-05  0.040362 1.008
3.26e-04
## 801    6.83e-03  8.93e-03 -1.66e-02  2.34e-03 -6.78e-03  0.025936 1.007
1.35e-04
## 802    4.54e-02 -8.45e-02  6.22e-02  1.54e-02 -6.41e-02 -0.123514 1.001
3.05e-03
## 803   -6.86e-03  6.03e-03  2.56e-03  3.56e-03  1.83e-03  0.010979 1.009
2.41e-05
## 804    4.44e-03 -6.84e-03 -1.23e-02 -6.32e-04  1.09e-02  0.021763 1.008
9.48e-05
## 805   -3.49e-03  1.64e-03 -4.48e-03  3.66e-03  4.25e-03  0.008408 1.011
1.42e-05
## 806   -4.15e-03  9.02e-04  1.37e-03  2.86e-03  2.91e-03  0.005618 1.009
6.32e-06
## 807   -5.97e-01  2.08e-01  1.37e-01  2.26e-01  4.01e-01 -0.600675 0.895
7.04e-02
## 808   -1.32e-01  1.48e-01 -6.22e-02 -3.52e-02  1.29e-01 -0.203915 0.989
8.28e-03
## 809   -3.76e-03 -2.93e-03 -7.06e-03  8.54e-03  6.27e-03  0.014078 1.010
3.97e-05
## 810   -4.62e-02 -3.50e-02  2.97e-02  4.56e-02  3.30e-02 -0.073936 1.009
1.09e-03
## 811    7.05e-03  6.25e-04  7.47e-03 -2.43e-02  1.22e-02  0.032846 1.011
2.16e-04
## 812   -1.31e-03 -7.61e-03  6.18e-03 -3.77e-04  8.76e-03  0.017672 1.008
6.25e-05
## 813    1.30e-01 -4.53e-02 -2.98e-02 -4.91e-02 -8.71e-02  0.130669 1.012
3.41e-03
## 814    6.44e-02 -1.61e-02 -2.57e-02 -2.36e-02 -4.03e-02  0.066651 1.008
8.89e-04
## 815   -9.80e-04  6.63e-03  8.39e-03  2.49e-03 -8.15e-03  0.020565 1.006
8.47e-05
## 816    2.43e-03 -4.00e-03  6.83e-03 -1.11e-02  1.04e-02  0.022775 1.008
1.04e-04
```

```
## 817  -5.25e-03 -1.37e-03  3.55e-03  3.21e-03  6.17e-03  0.010331 1.007
2.14e-05
## 818  -5.43e-03  2.10e-01  9.15e-02 -1.97e-01 -6.76e-02 -0.291806 0.979
1.69e-02
## 819   1.03e-02  1.28e-02 -2.33e-02 -2.05e-02 -4.40e-03 -0.048995 1.000
4.80e-04
## 820   2.98e-02 -1.01e-02 -2.20e-02  1.33e-02 -3.18e-02  0.047217 1.007
4.46e-04
## 821   1.45e-03 -7.25e-03 -2.69e-03 -5.00e-04  9.79e-03  0.017448 1.007
6.09e-05
## 822  -1.91e-03 -1.01e-02 -2.27e-03  8.26e-03  8.19e-03  0.017447 1.008
6.09e-05
## 823  -8.78e-04 -6.69e-03 -1.22e-02  1.60e-02  2.15e-03  0.022995 1.009
1.06e-04
## 824   3.26e-02 -2.77e-03 -3.23e-03 -7.43e-03 -3.34e-02  0.041739 1.006
3.49e-04
## 825   1.00e-02 -2.10e-02 -1.41e-02  4.62e-03  1.15e-02  0.032841 1.010
2.16e-04
## 826  -1.98e-02  4.60e-02 -2.38e-02  2.04e-02 -2.76e-02 -0.083883 1.005
1.41e-03
## 827  -5.25e-03 -1.37e-03  3.55e-03  3.21e-03  6.17e-03  0.010331 1.007
2.14e-05
## 828  -6.53e-03 -1.68e-03  8.55e-03  3.06e-03  5.39e-03  0.012475 1.009
3.12e-05
## 829   1.22e-01 -1.68e-01  2.45e-01 -1.48e-02 -2.40e-01 -0.410967 0.841
3.26e-02
## 830   6.23e-03 -2.11e-02 -2.41e-03  4.60e-03  1.03e-02  0.028790 1.009
1.66e-04
## 831   2.81e-03  7.75e-03 -3.73e-03  2.42e-03 -7.48e-03  0.019693 1.006
7.76e-05
## 832  -5.59e-03  2.16e-03 -2.53e-03  8.64e-03  2.20e-03  0.013681 1.008
3.75e-05
## 833  -3.40e-03  4.49e-03  1.20e-02 -1.17e-02  8.46e-03  0.020791 1.011
8.65e-05
## 834  -7.87e-02  6.21e-02  8.80e-02  1.31e-03 -1.25e-02 -0.143143 0.975
4.07e-03
## 835   3.59e-02 -4.97e-02 -2.08e-02  3.71e-02 -5.04e-02 -0.085449 0.999
1.46e-03
## 836   1.35e-02  2.62e-02  9.39e-03 -5.69e-02 -5.16e-03 -0.069747 1.001
9.72e-04
## 837   6.00e-04 -9.96e-03 -1.08e-02  8.55e-03  9.19e-03  0.021077 1.009
8.89e-05
## 838  -3.10e-03  1.00e-02  3.02e-03 -1.17e-02  7.81e-03  0.016367 1.011
5.36e-05
## 839  -3.61e-03  2.82e-03 -1.01e-02  9.01e-03  2.86e-03  0.017372 1.009
6.04e-05
## 840  -6.88e-03 -1.90e-02  9.14e-03 -5.92e-03  1.83e-02 -0.048241 1.001
4.65e-04
## 841  -6.22e-03 -1.19e-02  4.82e-03  1.40e-02  5.89e-03  0.019325 1.011
7.48e-05
```

```
## 842   -5.49e-03   5.39e-03   4.86e-03   1.23e-03   2.28e-03   0.012387 1.007
3.07e-05
## 843   -3.96e-03   3.52e-03  -1.71e-03   3.81e-04   5.16e-03   0.007665 1.008
1.18e-05
## 844   -3.24e-03   6.24e-03  -3.02e-03   1.19e-03   2.98e-03   0.012303 1.006
3.03e-05
## 845    1.57e-02  -1.50e-02   5.04e-02  -1.79e-02  -1.84e-02   0.062483 1.013
7.81e-04
## 846   -3.68e-02   2.33e-02   2.19e-02  -3.76e-02   5.53e-02  -0.074307 1.012
1.10e-03
## 847    6.70e-03   2.29e-02  -4.54e-03  -3.22e-03  -2.07e-02   0.038280 1.009
2.93e-04
## 848   -6.81e-03  -3.24e-03   6.83e-03   6.90e-03   4.05e-03   0.011810 1.011
2.79e-05
## 849    4.44e-03  -6.84e-03  -1.23e-02  -6.32e-04   1.09e-02   0.021763 1.008
9.48e-05
## 850   -1.36e-01   1.23e-01  -1.22e-01   3.11e-02   1.29e-01  -0.227768 0.991
1.03e-02
## 851   -2.99e-02  -1.43e-02   3.17e-02  -5.97e-03   3.87e-02  -0.063668 1.005
8.11e-04
## 852    5.02e-02   8.50e-03  -2.51e-02  -3.14e-02  -3.32e-02   0.059476 1.008
7.08e-04
## 853    6.44e-02  -1.61e-02  -2.57e-02  -2.36e-02  -4.03e-02   0.066651 1.008
8.89e-04
## 854    7.37e-05   1.20e-02   2.15e-02  -1.10e-02  -8.91e-03   0.031346 1.009
1.97e-04
## 855    8.39e-03   1.47e-02  -4.23e-03  -1.19e-02  -7.43e-03   0.024401 1.006
1.19e-04
## 856   -6.86e-03   6.03e-03   2.56e-03   3.56e-03   1.83e-03   0.010979 1.009
2.41e-05
## 857   -3.76e-03  -1.02e-03  -2.16e-03   3.34e-03   7.00e-03   0.010554 1.007
2.23e-05
## 858    2.81e-03   7.75e-03  -3.73e-03   2.42e-03  -7.48e-03   0.019693 1.006
7.76e-05
## 859   -7.67e-02  -2.72e-02  -5.23e-02   1.04e-01   5.07e-02  -0.150200 0.978
4.49e-03
## 860   -4.55e-03   5.58e-03   1.98e-02   2.55e-03  -8.77e-03   0.026939 1.008
1.45e-04
## 861   -2.77e-03   1.02e-02   5.44e-03  -8.16e-03   3.07e-03   0.016266 1.007
5.30e-05
## 862   -1.66e-03   2.04e-03  -2.64e-03  -3.65e-03   8.67e-03   0.012397 1.007
3.08e-05
## 863   -5.59e-03   2.16e-03  -2.53e-03   8.64e-03   2.20e-03   0.013681 1.008
3.75e-05
## 864    3.26e-02  -2.77e-03  -3.23e-03  -7.43e-03  -3.34e-02   0.041739 1.006
3.49e-04
## 865   -1.66e-03   2.04e-03  -2.64e-03  -3.65e-03   8.67e-03   0.012397 1.007
3.08e-05
## 866    1.06e-02  -3.92e-02  -2.08e-02   3.13e-02  -1.18e-02  -0.062312 1.000
7.76e-04
```

```
## 867  -8.10e-03  1.34e-02 -2.28e-02  3.70e-02 -3.47e-02 -0.075977 1.002
1.15e-03
## 868   2.81e-03  7.75e-03 -3.73e-03  2.42e-03 -7.48e-03  0.019693 1.006
7.76e-05
## 869  -5.90e-03 -4.40e-03  1.62e-02  6.02e-03  5.77e-04  0.020443 1.008
8.37e-05
## 870   6.00e-04 -9.96e-03 -1.08e-02  8.55e-03  9.19e-03  0.021077 1.009
8.89e-05
## 871  -1.91e-03  1.85e-03 -3.26e-03  1.44e-02 -7.44e-03  0.022948 1.007
1.05e-04
## 872  -1.66e-03  2.04e-03 -2.64e-03 -3.65e-03  8.67e-03  0.012397 1.007
3.08e-05
## 873  -1.31e-03 -7.61e-03  6.18e-03 -3.77e-04  8.76e-03  0.017672 1.008
6.25e-05
## 874   1.44e-04 -4.13e-02  1.29e-02  3.13e-02 -1.41e-02 -0.059504 1.000
7.08e-04
## 875   1.87e-02  3.39e-02 -2.13e-02 -2.12e-02 -2.08e-02  0.051338 1.011
5.27e-04
## 876   3.95e-02 -1.32e-03 -2.35e-02 -7.81e-03 -3.26e-02  0.048506 1.007
4.71e-04
## 877   5.13e-02 -1.58e-02 -2.53e-02  1.75e-02 -6.19e-02  0.075273 1.009
1.13e-03
## 878   1.36e-02 -1.35e-02  9.96e-03 -2.28e-02  1.24e-02  0.041403 1.012
3.43e-04
## 879  -1.19e-02  4.26e-02  6.43e-03 -3.27e-02 -1.43e-03 -0.058285 1.002
6.79e-04
## 880  -1.05e-02 -9.82e-02  5.09e-02  8.58e-02 -2.43e-02 -0.124822 1.008
3.11e-03
## 881   1.87e-02  3.39e-02 -2.13e-02 -2.12e-02 -2.08e-02  0.051338 1.011
5.27e-04
## 882   4.92e-03 -2.39e-02 -1.27e-02  1.56e-02  9.83e-03  0.033367 1.012
2.23e-04
## 883   7.49e-03  1.89e-02 -1.50e-02 -2.17e-02  5.86e-03  0.030535 1.011
1.87e-04
## 884   1.38e-02 -5.71e-03 -1.81e-02  9.61e-03 -1.03e-02  0.028908 1.007
1.67e-04
## 885  -3.96e-03  3.52e-03 -1.71e-03  3.81e-04  5.16e-03  0.007665 1.008
1.18e-05
## 886   3.85e-04  2.38e-02  2.20e-02 -4.61e-02 -1.56e-02 -0.101373 0.970
2.04e-03
## 887   4.41e-03  1.66e-03 -3.44e-03 -5.31e-03  2.94e-03  0.014526 1.005
4.22e-05
## 888  -5.53e-03 -2.61e-02  1.35e-02  5.55e-02 -4.46e-02 -0.080535 1.001
1.30e-03
## 889  -5.21e-05 -3.22e-03 -2.98e-03  6.23e-03  2.11e-03  0.013714 1.006
3.76e-05
## 890   8.98e-04  7.98e-04  7.59e-03 -5.01e-03  2.05e-03  0.015632 1.006
4.89e-05
## 891   1.50e-03  1.91e-02 -1.48e-02 -3.00e-03 -3.97e-03  0.027923 1.010
1.56e-04
```

```
## 892  -5.49e-03   5.39e-03   4.86e-03   1.23e-03   2.28e-03   0.012387 1.007
3.07e-05
## 893  -3.63e-03   1.44e-03   4.16e-03  -3.38e-03   7.73e-03   0.012219 1.007
2.99e-05
## 894   1.23e-02  -7.76e-03   1.08e-02  -1.52e-02   1.15e-03   0.029041 1.007
1.69e-04
## 895   5.34e-04   2.70e-03  -1.02e-02  -3.93e-03   9.67e-03   0.016325 1.008
5.33e-05
## 896  -1.82e-02  -3.18e-02   9.18e-03   2.59e-02   1.61e-02  -0.052954 1.002
5.61e-04
## 897   2.43e-03  -4.00e-03   6.83e-03  -1.11e-02   1.04e-02   0.022775 1.008
1.04e-04
## 898   1.69e-02  -2.56e-02  -2.33e-03   1.86e-02  -1.53e-02   0.035268 1.007
2.49e-04
## 899   5.67e-03  -3.39e-03  -3.15e-03  -1.16e-02   1.15e-02   0.022742 1.008
1.04e-04
## 900   3.11e-02  -1.82e-02  -2.08e-02   5.40e-04  -1.44e-02   0.038560 1.006
2.98e-04
## 901   3.11e-02  -1.82e-02  -2.08e-02   5.40e-04  -1.44e-02   0.038560 1.006
2.98e-04
## 902  -4.16e-02   4.99e-02   1.67e-03  -1.16e-02   2.37e-02  -0.059956 1.007
7.19e-04
## 903   4.61e-02  -3.56e-02  -1.78e-03  -1.20e-02  -2.04e-02   0.054747 1.007
6.00e-04
## 904   3.55e-03  -1.84e-04   1.79e-02  -2.34e-02   1.10e-02   0.035766 1.013
2.56e-04
## 905  -6.52e-02   1.35e-01   7.90e-02  -1.54e-01   6.35e-02  -0.214684 0.981
9.17e-03
## 906  -5.49e-03   5.39e-03   4.86e-03   1.23e-03   2.28e-03   0.012387 1.007
3.07e-05
## 907   3.27e-02   4.75e-02   1.53e-02  -4.85e-02  -4.91e-02   0.084642 1.015
1.43e-03
## 908  -5.22e-03   9.75e-04   7.78e-03   1.41e-02  -8.00e-03   0.023326 1.008
1.09e-04
## 909  -5.21e-05  -3.22e-03  -2.98e-03   6.23e-03   2.11e-03   0.013714 1.006
3.76e-05
## 910  -9.80e-04   6.63e-03   8.39e-03   2.49e-03  -8.15e-03   0.020565 1.006
8.47e-05
## 911   6.00e-04  -9.96e-03  -1.08e-02   8.55e-03   9.19e-03   0.021077 1.009
8.89e-05
## 912   1.45e-03  -7.25e-03  -2.69e-03  -5.00e-04   9.79e-03   0.017448 1.007
6.09e-05
## 913   2.81e-03   7.75e-03  -3.73e-03   2.42e-03  -7.48e-03   0.019693 1.006
7.76e-05
## 914  -5.28e-03   9.21e-03   1.37e-02  -7.74e-03   2.33e-03   0.020123 1.009
8.11e-05
## 915  -1.31e-03  -7.61e-03   6.18e-03  -3.77e-04   8.76e-03   0.017672 1.008
6.25e-05
## 916   2.92e-02  -6.82e-02   1.67e-02   1.16e-02  -1.94e-02  -0.083393 1.000
1.39e-03
```

```
## 917  -5.33e-03  2.67e-02  9.92e-03  1.84e-03 -3.60e-02 -0.064241 1.001
8.25e-04
## 918   5.67e-03 -3.39e-03 -3.15e-03 -1.16e-02  1.15e-02  0.022742 1.008
1.04e-04
## 919   8.24e-03  4.37e-02  9.81e-03 -3.57e-02 -3.54e-02 -0.075335 1.001
1.13e-03
## 920   4.41e-03  1.66e-03 -3.44e-03 -5.31e-03  2.94e-03  0.014526 1.005
4.22e-05
## 921  -2.61e-03 -2.32e-03 -2.21e-02  1.46e-02 -5.96e-03 -0.045431 1.000
4.13e-04
## 922   2.81e-03  7.75e-03 -3.73e-03  2.42e-03 -7.48e-03  0.019693 1.006
7.76e-05
## 923  -2.45e-03  1.27e-02 -1.31e-02  7.69e-03 -4.08e-03  0.026087 1.010
1.36e-04
## 924   4.80e-03 -1.72e-02 -2.60e-03  1.32e-02  5.80e-04  0.023571 1.007
1.11e-04
## 925   3.95e-02 -1.32e-03 -2.35e-02 -7.81e-03 -3.26e-02  0.048506 1.007
4.71e-04
## 926   1.64e-02  1.52e-02  1.32e-02 -1.44e-02 -2.78e-02  0.041965 1.008
3.52e-04
## 927   9.75e-03  7.56e-03 -3.93e-03 -1.92e-02  3.90e-03  0.024306 1.007
1.18e-04
## 928  -2.45e-03  1.27e-02 -1.31e-02  7.69e-03 -4.08e-03  0.026087 1.010
1.36e-04
## 929   2.81e-03  7.75e-03 -3.73e-03  2.42e-03 -7.48e-03  0.019693 1.006
7.76e-05
## 930  -2.21e-02  5.65e-02 -1.95e-01 -5.09e-02  1.34e-01 -0.245676 0.985
1.20e-02
## 931   3.26e-02 -2.77e-03 -3.23e-03 -7.43e-03 -3.34e-02  0.041739 1.006
3.49e-04
## 932   2.81e-03  7.75e-03 -3.73e-03  2.42e-03 -7.48e-03  0.019693 1.006
7.76e-05
## 933  -1.91e-03  1.85e-03 -3.26e-03  1.44e-02 -7.44e-03  0.022948 1.007
1.05e-04
## 934   1.05e-02 -1.25e-02 -3.00e-03 -8.75e-05  1.35e-03  0.021221 1.006
9.01e-05
## 935   4.41e-03  1.66e-03 -3.44e-03 -5.31e-03  2.94e-03  0.014526 1.005
4.22e-05
## 936   2.10e-02 -1.79e-02 -2.06e-02  3.22e-02 -3.11e-02  0.053534 1.010
5.74e-04
## 937  -1.88e-02  4.29e-02 -2.28e-02 -3.01e-02  2.65e-02 -0.060780 1.004
7.39e-04
## 938  -3.49e-03  1.64e-03 -4.48e-03  3.66e-03  4.25e-03  0.008408 1.011
1.42e-05
## 939  -8.13e-03 -1.03e-02  1.90e-02  7.42e-03  5.59e-03  0.024221 1.014
1.17e-04
## 940   3.14e-03 -2.89e-02  4.70e-02 -4.64e-03 -1.51e-02 -0.068916 1.001
9.49e-04
## 941   3.11e-02 -1.82e-02 -2.08e-02  5.40e-04 -1.44e-02  0.038560 1.006
2.98e-04
```

```
## 942  -5.21e-05 -3.22e-03 -2.98e-03  6.23e-03  2.11e-03  0.013714 1.006
3.76e-05
## 943   2.14e-03  2.13e-02  9.81e-03 -2.97e-03 -2.12e-02  0.038346 1.009
2.94e-04
## 944  -1.23e-02 -4.62e-03  9.56e-03  1.48e-02 -8.18e-03 -0.040388 1.000
3.26e-04
## 945  -6.22e-03 -7.47e-03  6.31e-03  1.49e-02  7.03e-04  0.019084 1.008
7.29e-05
## 946  -4.80e-03  1.12e-02 -2.73e-03 -1.91e-03  3.18e-03  0.013687 1.009
3.75e-05
## 947   4.44e-03 -6.84e-03 -1.23e-02 -6.32e-04  1.09e-02  0.021763 1.008
9.48e-05
## 948   2.11e-02  1.25e-03 -1.97e-02 -6.92e-03 -1.02e-02  0.030068 1.006
1.81e-04
## 949  -9.80e-04  6.63e-03  8.39e-03  2.49e-03 -8.15e-03  0.020565 1.006
8.47e-05
## 950   4.41e-03  1.66e-03 -3.44e-03 -5.31e-03  2.94e-03  0.014526 1.005
4.22e-05
## 951  -4.19e-03 -1.02e-02  5.51e-03  7.98e-03  7.26e-03  0.017416 1.009
6.07e-05
## 952  -1.61e-02 -2.10e-02  3.90e-02 -5.51e-03  1.59e-02 -0.060977 1.002
7.44e-04
## 953  -5.25e-03 -1.37e-03  3.55e-03  3.21e-03  6.17e-03  0.010331 1.007
2.14e-05
## 954  -8.78e-04 -6.69e-03 -1.22e-02  1.60e-02  2.15e-03  0.022995 1.009
1.06e-04
## 955  -8.92e-04  2.32e-02  6.69e-03 -1.48e-02 -5.13e-03  0.029296 1.010
1.72e-04
## 956   9.15e-03 -2.73e-03 -1.39e-02 -1.22e-02  1.27e-02  0.027163 1.009
1.48e-04
## 957   3.21e-03 -2.55e-03 -1.37e-02  6.34e-03  2.96e-03  0.019473 1.007
7.59e-05
## 958   6.44e-02 -1.61e-02 -2.57e-02 -2.36e-02 -4.03e-02  0.066651 1.008
8.89e-04
## 959   1.44e-02  2.51e-02  1.41e-02 -2.98e-03 -4.57e-02  0.061864 1.011
7.66e-04
## 960  -1.75e-02  1.29e-02  6.23e-03 -1.86e-02  2.16e-02 -0.043263 1.002
3.74e-04
## 961  -5.28e-03  5.18e-03  6.52e-03 -4.05e-03  5.27e-03  0.011252 1.010
2.53e-05
## 962  -8.32e-03  1.58e-04  1.81e-02  1.38e-02 -8.53e-03  0.027967 1.010
1.57e-04
## 963   5.06e-02  7.82e-04  4.68e-02 -3.42e-02 -6.78e-02  0.092629 1.012
1.72e-03
## 964   3.99e-02 -8.39e-03 -2.31e-02 -4.48e-02 -8.67e-03 -0.072803 1.000
1.06e-03
## 965  -1.66e-03  2.04e-03 -2.64e-03 -3.65e-03  8.67e-03  0.012397 1.007
3.08e-05
## 966  -6.48e-04  4.45e-04  1.49e-04  2.22e-04  4.18e-04  0.000833 1.011
1.39e-07
```

```
## 967    1.30e-01 -4.53e-02 -2.98e-02 -4.91e-02 -8.71e-02  0.130669 1.012
3.41e-03
## 968    5.67e-03 -3.39e-03 -3.15e-03 -1.16e-02  1.15e-02  0.022742 1.008
1.04e-04
## 969    9.00e-03 -6.64e-03 -3.19e-03  9.54e-03 -1.11e-02  0.022177 1.005
9.84e-05
## 970    6.00e-04 -9.96e-03 -1.08e-02  8.55e-03  9.19e-03  0.021077 1.009
8.89e-05
## 971   -6.82e-04  1.80e-02 -1.10e-02 -1.06e-02  4.91e-03  0.022453 1.012
1.01e-04
## 972   -5.95e-04 -4.57e-03  1.61e-02 -1.06e-02  9.33e-03  0.026437 1.010
1.40e-04
## 973   -3.63e-03  1.44e-03  4.16e-03 -3.38e-03  7.73e-03  0.012219 1.007
2.99e-05
## 974   -3.41e-03 -5.09e-03  2.47e-02 -1.01e-02  8.33e-03  0.031948 1.014
2.04e-04
## 975    1.17e-02 -1.75e-02 -2.81e-03 -8.30e-03  1.19e-02  0.032277 1.009
2.09e-04
## 976    1.17e-03 -5.60e-04 -1.06e-03 -3.21e-04 -5.23e-04 -0.001564 1.015
4.90e-07
## 977   -3.93e-03  1.24e-03 -1.19e-03  3.26e-03  3.55e-03  0.006388 1.009
8.17e-06
## 978   -3.24e-03  6.24e-03 -3.02e-03  1.19e-03  2.98e-03  0.012303 1.006
3.03e-05
## 979    6.00e-04 -9.96e-03 -1.08e-02  8.55e-03  9.19e-03  0.021077 1.009
8.89e-05
## 980   -3.93e-03  1.24e-03 -1.19e-03  3.26e-03  3.55e-03  0.006388 1.009
8.17e-06
## 981    4.80e-03 -1.72e-02 -2.60e-03  1.32e-02  5.80e-04  0.023571 1.007
1.11e-04
## 982    1.83e-02 -3.14e-02 -2.23e-03  7.10e-03 -9.18e-04  0.037119 1.008
2.76e-04
## 983    2.22e-02 -5.96e-03 -1.84e-02 -1.64e-02  3.38e-03  0.033813 1.008
2.29e-04
## 984    7.37e-03 -1.17e-02 -1.66e-02  2.38e-02 -1.03e-02  0.034762 1.009
2.42e-04
## 985    1.32e-02 -3.18e-02  1.30e-02  7.11e-03 -2.01e-03  0.038457 1.009
2.96e-04
## 986   -1.48e-03 -2.37e-02  7.82e-03  1.47e-02  7.71e-03  0.029755 1.012
1.77e-04
## 987   -7.55e-03  2.06e-02 -8.15e-02  3.11e-02  1.92e-03 -0.099070 1.008
1.96e-03
## 988   -3.00e-02 -4.14e-03  1.01e-02  7.00e-02 -3.72e-02 -0.092337 1.005
1.70e-03
## 989    1.30e-03  6.13e-03 -3.16e-03 -1.30e-02  1.05e-02  0.018910 1.009
7.16e-05
## 990   -5.00e-03 -3.09e-03 -1.70e-03  7.99e-03  5.47e-03  0.011442 1.009
2.62e-05
## 991    1.51e-02 -1.19e-02 -1.68e-02 -2.52e-04  2.39e-03  0.027394 1.007
1.50e-04
```

```
## 992    1.48e-02  2.41e-03 -1.55e-02 -2.62e-02  1.47e-02  0.037498 1.012
2.81e-04
## 993  -1.01e-02 -4.34e-02  4.60e-02  3.14e-02 -1.64e-02 -0.073644 1.002
1.08e-03
## 994    3.21e-03 -2.55e-03 -1.37e-02  6.34e-03  2.96e-03  0.019473 1.007
7.59e-05
## 995  -1.66e-03  2.04e-03 -2.64e-03 -3.65e-03  8.67e-03  0.012397 1.007
3.08e-05
## 996    3.02e-02  9.94e-04 -2.00e-02 -3.49e-02  4.50e-03  0.047268 1.010
4.47e-04
## 997    4.13e-02 -1.85e-02 -2.12e-02 -3.11e-02  2.20e-03  0.056625 1.010
6.42e-04
## 998    8.98e-04  7.98e-04  7.59e-03 -5.01e-03  2.05e-03  0.015632 1.006
4.89e-05
## 999  -4.31e-03  5.96e-03  2.49e-03 -4.45e-03  6.05e-03  0.010251 1.009
2.10e-05
## 1000 -6.26e-03  1.01e-02  3.10e-03 -1.73e-03  2.57e-03  0.012978 1.009
3.37e-05
## 1001  4.42e-03 -7.52e-03  1.10e-02  9.47e-03 -1.18e-02  0.024060 1.006
1.16e-04
## 1002  1.50e-03  1.91e-02 -1.48e-02 -3.00e-03 -3.97e-03  0.027923 1.010
1.56e-04
## 1003  3.98e-03  7.04e-03 -1.18e-02 -1.37e-02  1.16e-02  0.022807 1.010
1.04e-04
## 1004  5.24e-02 -3.29e-02 -2.18e-02 -4.35e-03 -4.97e-02 -0.079244 0.998
1.25e-03
## 1005  1.29e-02  1.61e-02 -1.82e-02 -1.24e-02 -6.62e-03  0.030693 1.008
1.89e-04
## 1006 -4.80e-03  1.12e-02 -2.73e-03 -1.91e-03  3.18e-03  0.013687 1.009
3.75e-05
## 1007 -3.30e-02 -3.55e-02  2.94e-02  4.36e-03  5.48e-02 -0.082211 1.011
1.35e-03
## 1008 -4.01e-02  5.25e-02  3.08e-02 -1.20e-02 -3.77e-04 -0.071338 1.006
1.02e-03
## 1009  8.98e-04  7.98e-04  7.59e-03 -5.01e-03  2.05e-03  0.015632 1.006
4.89e-05
## 1010  2.42e-02  5.48e-03  1.74e-02  6.27e-03 -5.41e-02  0.063118 1.010
7.97e-04
##          hat inf
## 1     0.00742
## 2     0.00404
## 3     0.00281
## 4     0.00621
## 5     0.00350
## 6     0.00410
## 7     0.00456
## 8     0.00243
## 9     0.00374
## 10    0.00838
## 11    0.00181
```

```
## 12     0.00638
## 13     0.00505
## 14     0.00614
## 15     0.00483
## 16     0.00281     *
## 17     0.00261
## 18     0.00171
## 19     0.00606
## 20     0.00324
## 21     0.00416
## 22     0.00638
## 23     0.00181
## 24     0.00305
## 25     0.00374
## 26     0.00805
## 27     0.00880
## 28     0.00506
## 29     0.00688
## 30     0.00342
## 31     0.00197
## 32     0.00439
## 33     0.00251
## 34     0.00348
## 35     0.00243
## 36     0.00426
## 37     0.00664
## 38     0.00618
## 39     0.00443
## 40     0.00450
## 41     0.00905
## 42     0.01831     *
## 43     0.00623
## 44     0.00451
## 45     0.00177
## 46     0.00434
## 47     0.00422
## 48     0.00261
## 49     0.00442
## 50     0.00404
## 51     0.00848
## 52     0.00365
## 53     0.01034     *
## 54     0.00410
## 55     0.01034     *
## 56     0.00195
## 57     0.00663
## 58     0.00433
## 59     0.00917
## 60     0.00305
## 61     0.00283
```

```
## 62    0.00543
## 63    0.00606
## 64    0.00980
## 65    0.00376
## 66    0.00274
## 67    0.00318
## 68    0.00860    *
## 69    0.00239
## 70    0.01049
## 71    0.00435
## 72    0.00993
## 73    0.00623
## 74    0.00576
## 75    0.00950
## 76    0.00957
## 77    0.00754
## 78    0.00578
## 79    0.00318
## 80    0.00586
## 81    0.00305
## 82    0.00424
## 83    0.00769
## 84    0.00733
## 85    0.00842
## 86    0.00158
## 87    0.00313
## 88    0.00450
## 89    0.00733
## 90    0.00239
## 91    0.00128
## 92    0.01098    *
## 93    0.00592
## 94    0.01362    *
## 95    0.00526
## 96    0.00161
## 97    0.00556
## 98    0.00950
## 99    0.00858    *
## 100   0.00471
## 101   0.00313
## 102   0.00508
## 103   0.00729
## 104   0.00875
## 105   0.00324
## 106   0.00508
## 107   0.00476
## 108   0.00556
## 109   0.00285
## 110   0.00281
## 111   0.00698
```

```
## 112   0.00260
## 113   0.00252
## 114   0.00177    *
## 115   0.00392
## 116   0.00577
## 117   0.00281
## 118   0.00625
## 119   0.00441
## 120   0.00358
## 121   0.00781
## 122   0.00327
## 123   0.00772
## 124   0.00258
## 125   0.00746
## 126   0.00324
## 127   0.00311    *
## 128   0.00171
## 129   0.00733
## 130   0.00544
## 131   0.00505
## 132   0.00468
## 133   0.00261
## 134   0.00850
## 135   0.00281
## 136   0.00404
## 137   0.00226
## 138   0.00313
## 139   0.00943
## 140   0.00443
## 141   0.00139
## 142   0.00548    *
## 143   0.00311
## 144   0.00177
## 145   0.00376
## 146   0.00627    *
## 147   0.00434
## 148   0.00239
## 149   0.00537
## 150   0.00998    *
## 151   0.00281
## 152   0.00422
## 153   0.00396
## 154   0.00529    *
## 155   0.00729
## 156   0.00281
## 157   0.00498
## 158   0.00370
## 159   0.00292
## 160   0.00476
## 161   0.00772
```

```
## 162    0.00362
## 163    0.00772
## 164    0.00292
## 165    0.00177
## 166    0.00814
## 167    0.00714
## 168    0.00128      *
## 169    0.00311
## 170    0.00404
## 171    0.00236
## 172    0.00261
## 173    0.00410
## 174    0.00544
## 175    0.01994      *
## 176    0.00615
## 177    0.00758
## 178    0.00962
## 179    0.00508
## 180    0.01281      *
## 181    0.00505
## 182    0.00260
## 183    0.00313
## 184    0.00181
## 185    0.00381
## 186    0.00442      *
## 187    0.00846
## 188    0.00697
## 189    0.00202      *
## 190    0.00700
## 191    0.00285
## 192    0.01511      *
## 193    0.00424
## 194    0.00962
## 195    0.00455
## 196    0.00334
## 197    0.00283
## 198    0.00493
## 199    0.00431
## 200    0.00617
## 201    0.00261
## 202    0.00848
## 203    0.00783
## 204    0.00305
## 205    0.00433
## 206    0.00525
## 207    0.00539
## 208    0.00305
## 209    0.00139
## 210    0.00637
## 211    0.00998      *
```

```
## 212   0.00733
## 213   0.00508
## 214   0.00411
## 215   0.00281
## 216   0.00803      *
## 217   0.00752
## 218   0.00318
## 219   0.00447
## 220   0.01049
## 221   0.00933
## 222   0.00860
## 223   0.00427
## 224   0.00422
## 225   0.00362
## 226   0.00410
## 227   0.00998      *
## 228   0.00520
## 229   0.00746
## 230   0.00195
## 231   0.01259      *
## 232   0.00243
## 233   0.00528
## 234   0.00177
## 235   0.00476
## 236   0.00615
## 237   0.00171      *
## 238   0.00195
## 239   0.00647
## 240   0.00488
## 241   0.00437      *
## 242   0.00352
## 243   0.00331      *
## 244   0.00742
## 245   0.00577
## 246   0.00236
## 247   0.00243
## 248   0.00239
## 249   0.00450
## 250   0.00627
## 251   0.00181
## 252   0.00577
## 253   0.00362
## 254   0.00756
## 255   0.00456
## 256   0.00838
## 257   0.00842
## 258   0.00403
## 259   0.00729
## 260   0.00158      *
## 261   0.00202      *
```

```
## 262   0.00489
## 263   0.00604
## 264   0.00434
## 265   0.00365    *
## 266   0.00576
## 267   0.00171
## 268   0.00504
## 269   0.00576
## 270   0.00374
## 271   0.00243
## 272   0.00313
## 273   0.00594
## 274   0.00177
## 275   0.00408
## 276   0.00158
## 277   0.00575
## 278   0.00483
## 279   0.00679
## 280   0.00195
## 281   0.00632
## 282   0.00488
## 283   0.00826
## 284   0.00177
## 285   0.01351    *
## 286   0.00558
## 287   0.00139
## 288   0.00261
## 289   0.00854
## 290   0.00177
## 291   0.00311
## 292   0.00258
## 293   0.00434
## 294   0.00660
## 295   0.00194
## 296   0.00243
## 297   0.00569
## 298   0.00437
## 299   0.00390
## 300   0.00627
## 301   0.01075
## 302   0.00729
## 303   0.00727
## 304   0.00362
## 305   0.00283
## 306   0.00416
## 307   0.00544
## 308   0.00764
## 309   0.00390
## 310   0.00243
## 311   0.00311
```

```
## 312    0.01034      *
## 313    0.00305      *
## 314    0.00368
## 315    0.00727
## 316    0.01367      *
## 317    0.00378
## 318    0.00699
## 319    0.00878
## 320    0.00313
## 321    0.00239
## 322    0.00243
## 323    0.00381
## 324    0.00659
## 325    0.00318
## 326    0.00370
## 327    0.00331
## 328    0.00381
## 329    0.00433
## 330    0.00177
## 331    0.00378
## 332    0.00416
## 333    0.00340
## 334    0.00331
## 335    0.00386
## 336    0.00197
## 337    0.00490
## 338    0.00663
## 339    0.00258
## 340    0.00381
## 341    0.00592
## 342    0.00826
## 343    0.00161
## 344    0.00895
## 345    0.00894
## 346    0.00177
## 347    0.00610
## 348    0.00139
## 349    0.00992
## 350    0.00583
## 351    0.00177      *
## 352    0.00427
## 353    0.00505
## 354    0.00468
## 355    0.00171
## 356    0.00447
## 357    0.00450
## 358    0.00422
## 359    0.00693
## 360    0.00489
## 361    0.00555
```

```
## 362   0.00929
## 363   0.00313
## 364   0.00548
## 365   0.00305     *
## 366   0.00660
## 367   0.00392
## 368   0.00558
## 369   0.00435
## 370   0.00988
## 371   0.00450
## 372   0.01034     *
## 373   0.00285
## 374   0.00722
## 375   0.00435
## 376   0.00292
## 377   0.00790
## 378   0.00313
## 379   0.00434
## 380   0.00565
## 381   0.00197
## 382   0.00381
## 383   0.00860
## 384   0.00281
## 385   0.00374
## 386   0.00694
## 387   0.00243
## 388   0.00583
## 389   0.00553
## 390   0.00340
## 391   0.00826
## 392   0.00202
## 393   0.00226
## 394   0.00806
## 395   0.00251
## 396   0.00251
## 397   0.00397
## 398   0.01357     *
## 399   0.00361
## 400   0.00525
## 401   0.00471
## 402   0.00505
## 403   0.00998     *
## 404   0.00236     *
## 405   0.00793
## 406   0.00392
## 407   0.00818
## 408   0.00252
## 409   0.00944
## 410   0.00543
## 411   0.00305
```

```
## 412   0.00427
## 413   0.00374
## 414   0.00197
## 415   0.00350
## 416   0.00558
## 417   0.00526
## 418   0.00925
## 419   0.01068
## 420   0.00577
## 421   0.00638
## 422   0.00598
## 423   0.00905
## 424   0.00331
## 425   0.00683
## 426   0.00376
## 427   0.00638
## 428   0.00361
## 429   0.00456
## 430   0.00505
## 431   0.00171
## 432   0.00754
## 433   0.00660
## 434   0.00489
## 435   0.00439
## 436   0.00615
## 437   0.00283
## 438   0.00352
## 439   0.00771
## 440   0.00529
## 441   0.00311
## 442   0.00331
## 443   0.00292
## 444   0.00251
## 445   0.00322
## 446   0.00318
## 447   0.00378
## 448   0.01365    *
## 449   0.00177
## 450   0.00158
## 451   0.00350
## 452   0.00139
## 453   0.00439
## 454   0.00194
## 455   0.00483
## 456   0.00411
## 457   0.00442
## 458   0.00305
## 459   0.01463    *
## 460   0.00334
## 461   0.00422
```

```
## 462    0.00512
## 463    0.00374
## 464    0.00490
## 465    0.00260
## 466    0.00665
## 467    0.00292
## 468    0.00447
## 469    0.00243
## 470    0.00526
## 471    0.00532
## 472    0.00378
## 473    0.00348      *
## 474    0.00556
## 475    0.00569
## 476    0.00239
## 477    0.00483
## 478    0.00505
## 479    0.00396
## 480    0.00128
## 481    0.00443
## 482    0.01272      *
## 483    0.00305      *
## 484    0.00243
## 485    0.00261
## 486    0.00305
## 487    0.00358      *
## 488    0.01711      *
## 489    0.00498
## 490    0.00381
## 491    0.00340
## 492    0.00139
## 493    0.00433
## 494    0.00439
## 495    0.00381
## 496    0.00404
## 497    0.00161      *
## 498    0.00450
## 499    0.00296
## 500    0.00525
## 501    0.00842
## 502    0.00698
## 503    0.00637
## 504    0.00283
## 505    0.00987
## 506    0.00431
## 507    0.00621
## 508    0.00747
## 509    0.00548
## 510    0.01286
## 511    0.00403
```

```
## 512   0.00274
## 513   0.01414
## 514   0.00251
## 515   0.01098    *
## 516   0.00313
## 517   0.00443
## 518   0.00261
## 519   0.00292
## 520   0.01083
## 521   0.00468
## 522   0.00958
## 523   0.00195
## 524   0.01335    *
## 525   0.00505
## 526   0.00258    *
## 527   0.00261
## 528   0.00261
## 529   0.00558
## 530   0.00505
## 531   0.01205    *
## 532   0.00931
## 533   0.00177
## 534   0.00374
## 535   0.00224
## 536   0.00450
## 537   0.00647
## 538   0.00128
## 539   0.00139
## 540   0.00243
## 541   0.00958
## 542   0.00340
## 543   0.00396
## 544   0.00311
## 545   0.00410
## 546   0.00202
## 547   0.00243
## 548   0.00904
## 549   0.00568
## 550   0.00569
## 551   0.00838
## 552   0.00422
## 553   0.00325
## 554   0.00641    *
## 555   0.00397
## 556   0.00917
## 557   0.00790
## 558   0.00327
## 559   0.00468
## 560   0.00862
## 561   0.00226
```

```
## 562   0.00197
## 563   0.00408
## 564   0.00450
## 565   0.01704    *
## 566   0.00529
## 567   0.00493
## 568   0.00252
## 569   0.00435
## 570   0.00464
## 571   0.00274
## 572   0.00667    *
## 573   0.00274
## 574   0.00422
## 575   0.00541
## 576   0.00506
## 577   0.00161
## 578   0.00252
## 579   0.00576
## 580   0.00422
## 581   0.01351
## 582   0.00194
## 583   0.00517    *
## 584   0.00659
## 585   0.00350
## 586   0.00158
## 587   0.00854
## 588   0.00398
## 589   0.01035
## 590   0.00842
## 591   0.00239
## 592   0.00765
## 593   0.00765
## 594   0.00410
## 595   0.00236
## 596   0.00752
## 597   0.00318
## 598   0.00411
## 599   0.00243
## 600   0.00443
## 601   0.00392
## 602   0.00714
## 603   0.00292
## 604   0.00139
## 605   0.00139
## 606   0.01098    *
## 607   0.00331
## 608   0.00292    *
## 609   0.01521    *
## 610   0.00161
## 611   0.00243
```

```
## 612   0.00381
## 613   0.00688
## 614   0.00128
## 615   0.00311
## 616   0.00264
## 617   0.00526    *
## 618   0.00128
## 619   0.00727
## 620   0.00202
## 621   0.00392
## 622   0.01037
## 623   0.00606
## 624   0.00845
## 625   0.00558
## 626   0.00614
## 627   0.00252
## 628   0.01181
## 629   0.00374
## 630   0.00403
## 631   0.00424
## 632   0.00548
## 633   0.00226
## 634   0.00772
## 635   0.00421
## 636   0.00370
## 637   0.00697
## 638   0.00659
## 639   0.00450
## 640   0.00786
## 641   0.00577
## 642   0.00224
## 643   0.00464
## 644   0.00305
## 645   0.00365
## 646   0.00408
## 647   0.00261
## 648   0.00490
## 649   0.00906
## 650   0.00525
## 651   0.00471
## 652   0.00252
## 653   0.00331
## 654   0.00239
## 655   0.00350
## 656   0.00239
## 657   0.00381
## 658   0.00439
## 659   0.00963
## 660   0.00483
## 661   0.00362
```

```
## 662   0.00756
## 663   0.00139
## 664   0.00224
## 665   0.01075
## 666   0.00526
## 667   0.00505
## 668   0.00878
## 669   0.00526
## 670   0.00252
## 671   0.00161
## 672   0.00202
## 673   0.00525    *
## 674   0.00552
## 675   0.00258
## 676   0.00365
## 677   0.00785
## 678   0.00181
## 679   0.00410
## 680   0.00660
## 681   0.00422
## 682   0.00385
## 683   0.00177
## 684   0.01191    *
## 685   0.00578
## 686   0.00181
## 687   0.00370    *
## 688   0.00374
## 689   0.00313
## 690   0.00261
## 691   0.00627
## 692   0.00243
## 693   0.00396
## 694   0.00181
## 695   0.00258
## 696   0.00292
## 697   0.00977
## 698   0.00376
## 699   0.00630
## 700   0.00350
## 701   0.00671
## 702   0.01167    *
## 703   0.00709
## 704   0.00158
## 705   0.00411
## 706   0.00858
## 707   0.00292
## 708   0.00194
## 709   0.00722
## 710   0.00239
## 711   0.00313
```

```
## 712   0.00171
## 713   0.00348
## 714   0.00342
## 715   0.00693
## 716   0.00410
## 717   0.00591
## 718   0.00704
## 719   0.00427
## 720   0.00490
## 721   0.00408
## 722   0.00697
## 723   0.00450
## 724   0.00292
## 725   0.00456
## 726   0.00358
## 727   0.01135
## 728   0.00742
## 729   0.00706
## 730   0.00362
## 731   0.00729
## 732   0.00139
## 733   0.00352
## 734   0.00679
## 735   0.00598
## 736   0.01365    *
## 737   0.00548
## 738   0.00128
## 739   0.00526
## 740   0.00264
## 741   0.00396
## 742   0.00746
## 743   0.00508
## 744   0.00285    *
## 745   0.00410
## 746   0.00342
## 747   0.00376
## 748   0.00400
## 749   0.00158
## 750   0.00869
## 751   0.01035
## 752   0.00848
## 753   0.00435
## 754   0.00128
## 755   0.00447
## 756   0.00281
## 757   0.00264
## 758   0.00854
## 759   0.00812
## 760   0.00606
## 761   0.00577
```

```
## 762    0.00790
## 763    0.00378
## 764    0.00239
## 765    0.00490
## 766    0.00483
## 767    0.00880
## 768    0.00592    *
## 769    0.00292
## 770    0.00202    *
## 771    0.01351    *
## 772    0.00498
## 773    0.00468
## 774    0.00378
## 775    0.00621
## 776    0.00305
## 777    0.00998    *
## 778    0.00490
## 779    0.00930
## 780    0.00202
## 781    0.00261
## 782    0.00378
## 783    0.00313
## 784    0.00924
## 785    0.00226
## 786    0.00632
## 787    0.00243
## 788    0.00844
## 789    0.00447
## 790    0.00313
## 791    0.00416
## 792    0.00442
## 793    0.00128
## 794    0.00442    *
## 795    0.00674
## 796    0.01704    *
## 797    0.00917    *
## 798    0.01092
## 799    0.00243
## 800    0.00455
## 801    0.00318
## 802    0.00705
## 803    0.00443
## 804    0.00404
## 805    0.00555
## 806    0.00422
## 807    0.01351    *
## 808    0.00826
## 809    0.00558
## 810    0.00754
## 811    0.00687
```

```
## 812   0.00313
## 813   0.01351
## 814   0.00621
## 815   0.00226
## 816   0.00410
## 817   0.00264
## 818   0.01107    *
## 819   0.00171
## 820   0.00468
## 821   0.00281
## 822   0.00362
## 823   0.00451
## 824   0.00340
## 825   0.00615
## 826   0.00568
## 827   0.00264
## 828   0.00439
## 829   0.00450    *
## 830   0.00505
## 831   0.00195
## 832   0.00292
## 833   0.00604
## 834   0.00305    *
## 835   0.00385
## 836   0.00331
## 837   0.00483
## 838   0.00637
## 839   0.00424
## 840   0.00195
## 841   0.00659
## 842   0.00197
## 843   0.00305
## 844   0.00177
## 845   0.00950
## 846   0.01004
## 847   0.00529
## 848   0.00627
## 849   0.00404
## 850   0.01051    *
## 851   0.00471
## 852   0.00597
## 853   0.00621
## 854   0.00464
## 855   0.00252
## 856   0.00443
## 857   0.00243
## 858   0.00195
## 859   0.00361    *
## 860   0.00410
## 861   0.00260
```

```
## 862    0.00239
## 863    0.00292
## 864    0.00340
## 865    0.00239
## 866    0.00260
## 867    0.00410
## 868    0.00195
## 869    0.00357
## 870    0.00483
## 871    0.00318
## 872    0.00239
## 873    0.00313
## 874    0.00243
## 875    0.00783
## 876    0.00442
## 877    0.00790
## 878    0.00769
## 879    0.00283
## 880    0.01013
## 881    0.00783
## 882    0.00771
## 883    0.00627
## 884    0.00292
## 885    0.00305
## 886    0.00139    *
## 887    0.00128
## 888    0.00416
## 889    0.00139
## 890    0.00158
## 891    0.00526
## 892    0.00197
## 893    0.00258
## 894    0.00325
## 895    0.00374
## 896    0.00252
## 897    0.00410
## 898    0.00348
## 899    0.00381
## 900    0.00352
## 901    0.00352
## 902    0.00522
## 903    0.00528
## 904    0.00869
## 905    0.00722    *
## 906    0.00197
## 907    0.01268    *
## 908    0.00350
## 909    0.00139
## 910    0.00226
## 911    0.00483
```

```
## 912   0.00281
## 913   0.00195
## 914   0.00432
## 915   0.00313
## 916   0.00396
## 917   0.00281
## 918   0.00381
## 919   0.00362
## 920   0.00128
## 921   0.00158
## 922   0.00195
## 923   0.00569
## 924   0.00283
## 925   0.00442
## 926   0.00447
## 927   0.00296
## 928   0.00569
## 929   0.00195
## 930   0.00992    *
## 931   0.00340
## 932   0.00195
## 933   0.00318
## 934   0.00194
## 935   0.00128
## 936   0.00674
## 937   0.00404
## 938   0.00555
## 939   0.00924
## 940   0.00311
## 941   0.00352
## 942   0.00139
## 943   0.00558
## 944   0.00128
## 945   0.00365
## 946   0.00396
## 947   0.00404
## 948   0.00274
## 949   0.00226
## 950   0.00128
## 951   0.00396
## 952   0.00318
## 953   0.00264
## 954   0.00451
## 955   0.00541
## 956   0.00505
## 957   0.00261
## 958   0.00621
## 959   0.00854
## 960   0.00181
## 961   0.00546
```

```
## 962  0.00537
## 963  0.01085
## 964  0.00313
## 965  0.00239
## 966  0.00575
## 967  0.01351
## 968  0.00381
## 969  0.00181
## 970  0.00483
## 971  0.00688
## 972  0.00594
## 973  0.00258
## 974  0.00931
## 975  0.00526
## 976  0.01034    *
## 977  0.00411
## 978  0.00177
## 979  0.00483
## 980  0.00411
## 981  0.00283
## 982  0.00441
## 983  0.00398
## 984  0.00490
## 985  0.00496
## 986  0.00709
## 987  0.00868
## 988  0.00660
## 989  0.00416
## 990  0.00427
## 991  0.00305
## 992  0.00786
## 993  0.00379
## 994  0.00261
## 995  0.00239
## 996  0.00671
## 997  0.00752
## 998  0.00158
## 999  0.00385
## 1000 0.00403
## 1001 0.00224
## 1002 0.00526
## 1003 0.00552
## 1004 0.00313
## 1005 0.00378
## 1006 0.00396
## 1007 0.00928
## 1008 0.00540
## 1009 0.00158
## 1010 0.00719
```

```
#View(temp)

#diagnostic plots
plot(fit)
```


Residuals vs Fitted

Fitted values
lm(Music ~ Dance + Folk + Pop + Rock)

Normal Q-Q

Theoretical Quantiles
lm(Music ~ Dance + Folk + Pop + Rock)

Scale-Location
Im(Music ~ Dance + Folk + Pop + Rock)

Residuals vs Leverage
Im(Music ~ Dance + Folk + Pop + Rock)
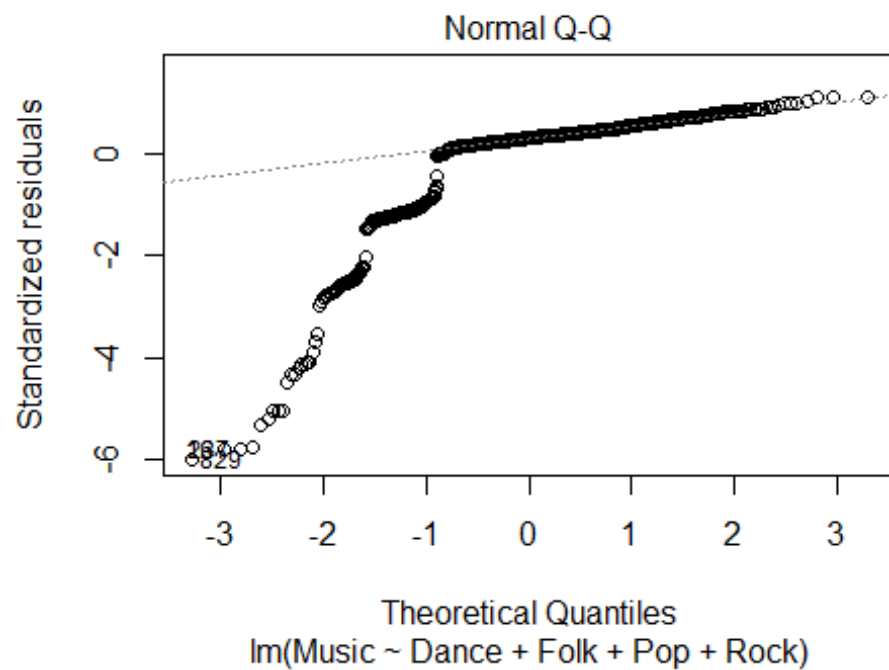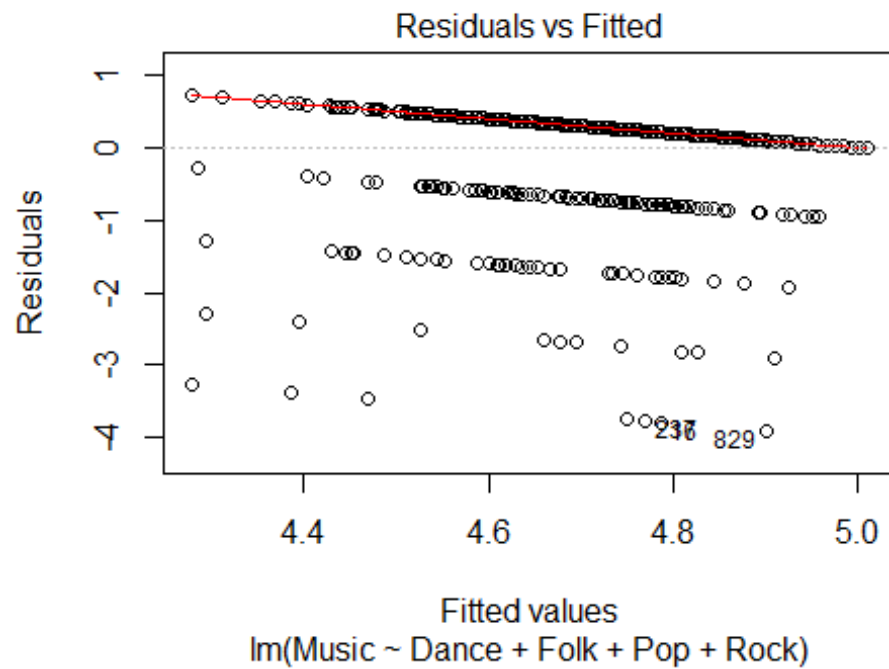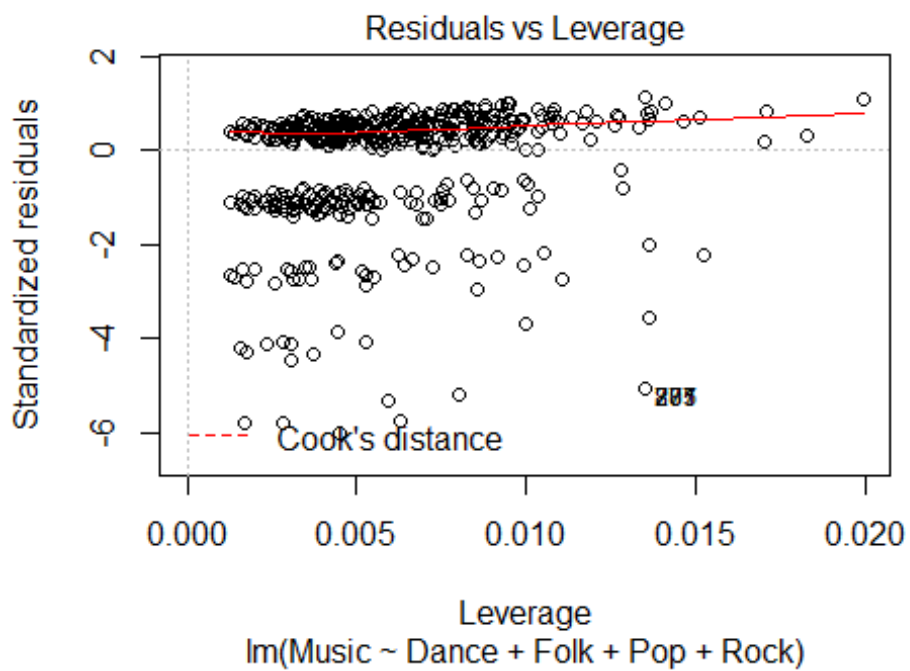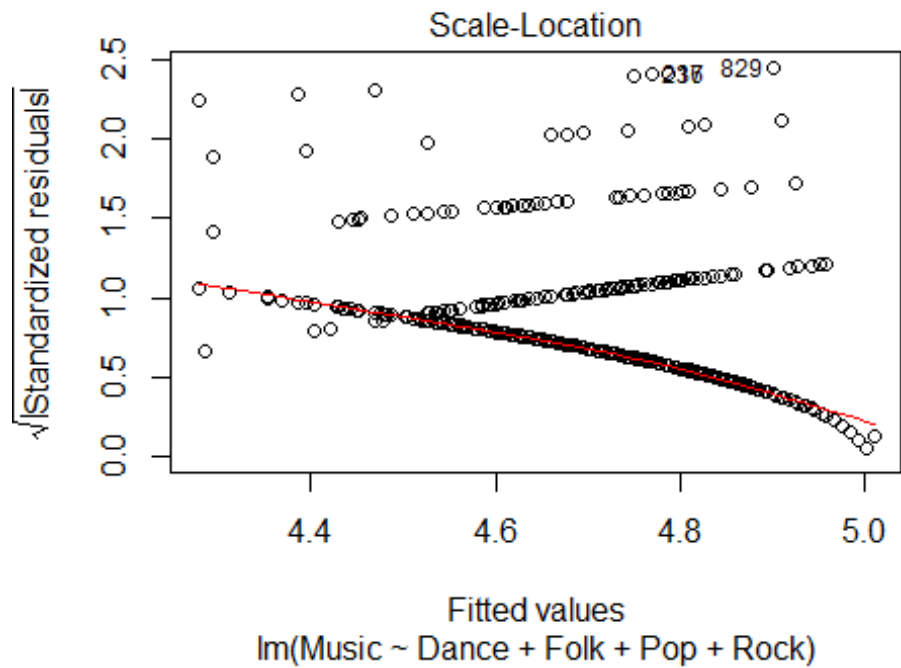
```r
library(car)
```

```
## Warning: package 'car' was built under R version 3.6.2
```

```
## Loading required package: carData

## Registered S3 methods overwritten by 'car':
##   method                         from
##   influence.merMod               lme4
##   cooks.distance.influence.merMod lme4
##   dfbeta.influence.merMod        lme4
##   dfbetas.influence.merMod       lme4

##
## Attaching package: 'car'

## The following object is masked from 'package:psych':
##
##     logit

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

```r
# Assessing Outliers
outlierTest(fit)
```

```
##       rstudent unadjusted p-value Bonferroni p
## 829 -6.112465        1.4023e-09    1.4163e-06
## 16  -5.920677        4.3977e-09    4.4417e-06
## 237 -5.890059        5.2623e-09    5.3149e-06
## 146 -5.872980        5.8144e-09    5.8725e-06
## 768 -5.418935        7.5071e-08    7.5821e-05
## 216 -5.291622        1.4886e-07    1.5035e-04
## 285 -5.132006        3.4407e-07    3.4751e-04
## 771 -5.132006        3.4407e-07    3.4751e-04
## 807 -5.132006        3.4407e-07    3.4751e-04
## 365 -4.518498        6.9682e-06    7.0379e-03
```

```r
qqPlot(fit, main="QQ Plot")
```

QQ Plot
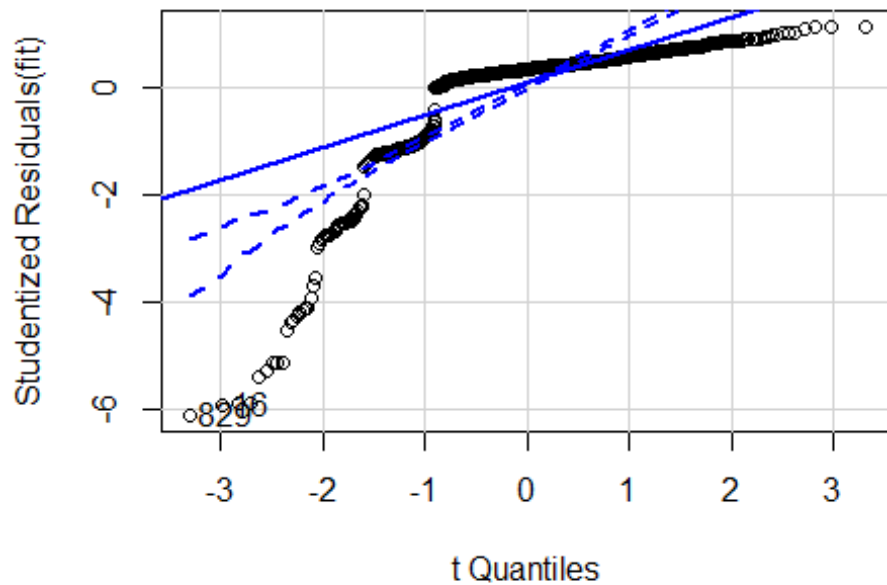

```
## [1]  16 829
```

```
leveragePlots(fit) # leverage plots
```

Leverage Plots
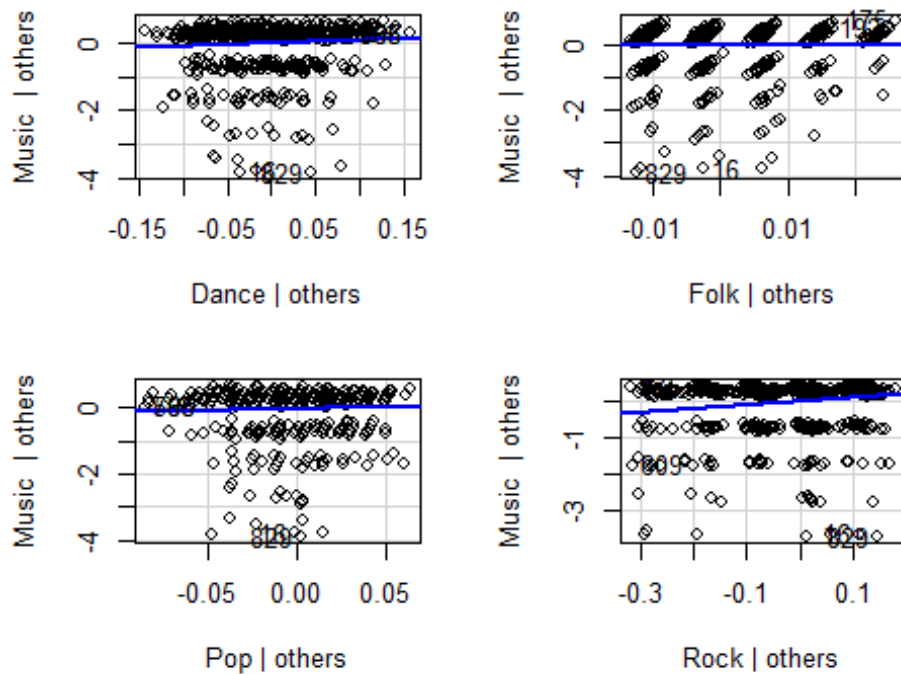
```
# Influential Observations
# added variable plots
avPlots(fit)
```

Added-Variable Plots
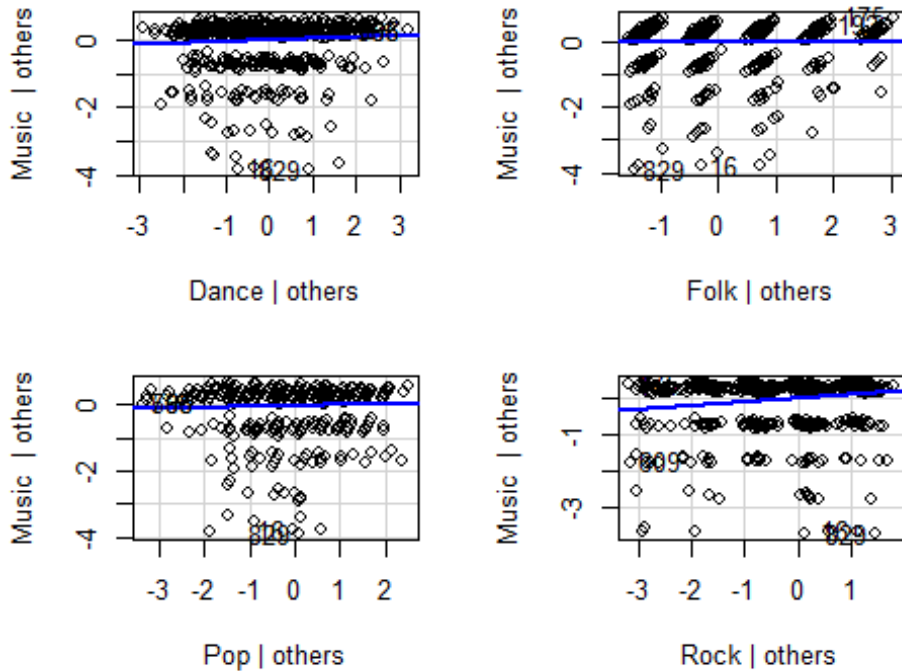

```
# Cook's D plot
# identify D values > 4/(n-k-1)
cutoff <- 4/((nrow(music_transformed)-length(fit$coefficients)-2))
plot(fit, which=4, cook.levels=cutoff)
```

Cook's distance

lm(Music ~ Dance + Folk + Pop + Rock)
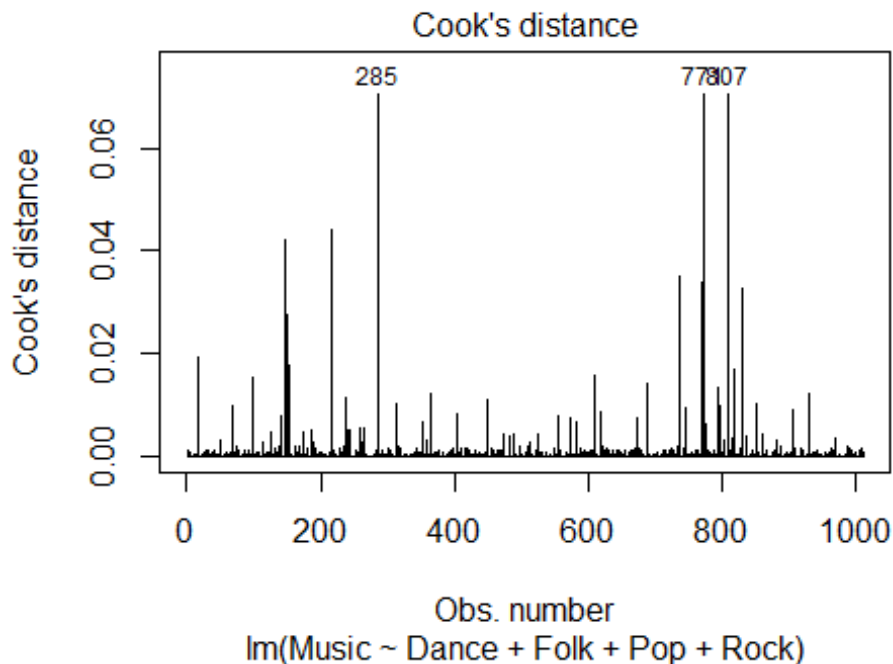
```
# Influence Plot
influencePlot(fit, id.method="identify", main="Influence Plot", sub="Circle
size is proportial to Cook's Distance" )

## Warning in plot.window(...): "id.method" is not a graphical parameter

## Warning in plot.xy(xy, type, ...): "id.method" is not a graphical
parameter

## Warning in axis(side = side, at = at, labels = labels, ...): "id.method"
is not
## a graphical parameter

## Warning in axis(side = side, at = at, labels = labels, ...): "id.method"
is not
## a graphical parameter

## Warning in box(...): "id.method" is not a graphical parameter

## Warning in title(...): "id.method" is not a graphical parameter

## Warning in plot.xy(xy.coords(x, y), type = type, ...): "id.method" is not
a
## graphical parameter
```

Influence Plot
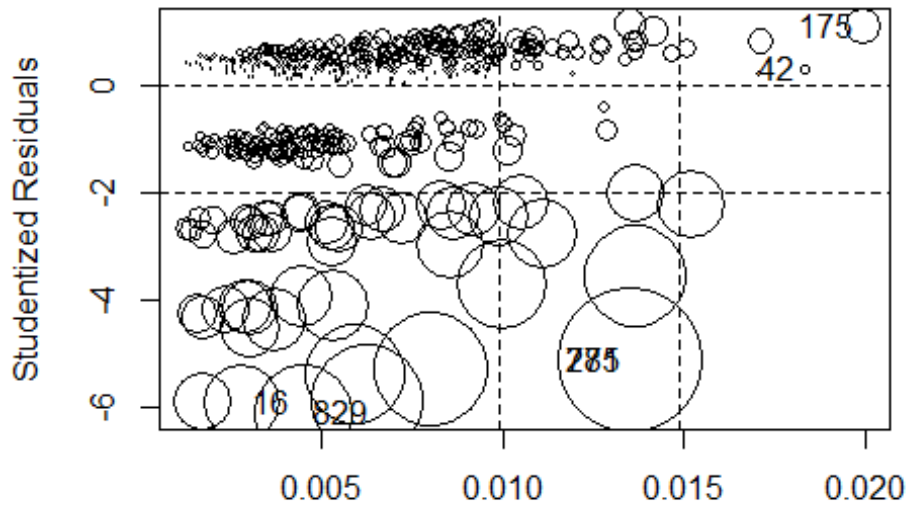
Circle size is proportial to Cook's Distance

```
##        StudRes         Hat        CookD
## 16  -5.9206771 0.002813165 0.0191301835
## 42   0.2977488 0.018310936 0.0003310249
## 175  1.0671308 0.019943719 0.0046340470
## 285 -5.1320059 0.013514346 0.0703874274
## 771 -5.1320059 0.013514346 0.0703874274
## 829 -6.1124651 0.004500099 0.0325992685

# Normality of Residuals
# qq plot for studentized resid
qqPlot(fit, main="QQ Plot")
```

QQ Plot
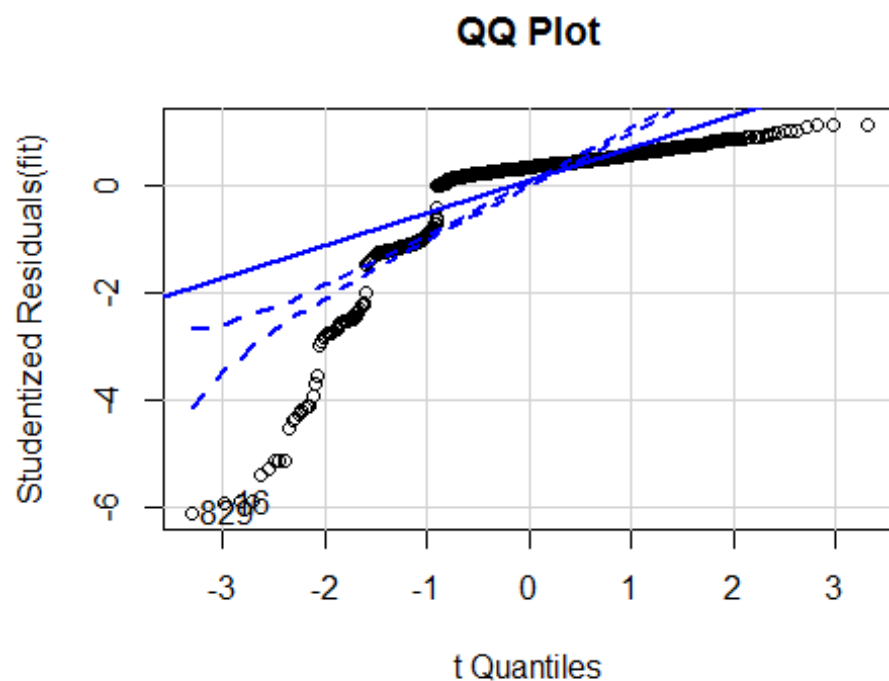

```
## [1]  16 829
```

```
# distribution of studentized residuals
library(MASS)

##
## Attaching package: 'MASS'

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

sresid <- studres(fit)
hist(sresid, freq=FALSE,
     main="Distribution of Studentized Residuals")
xfit<-seq(min(sresid),max(sresid),length=40)
yfit<-dnorm(xfit)
lines(xfit, yfit)
```

Distribution of Studentized Residuals
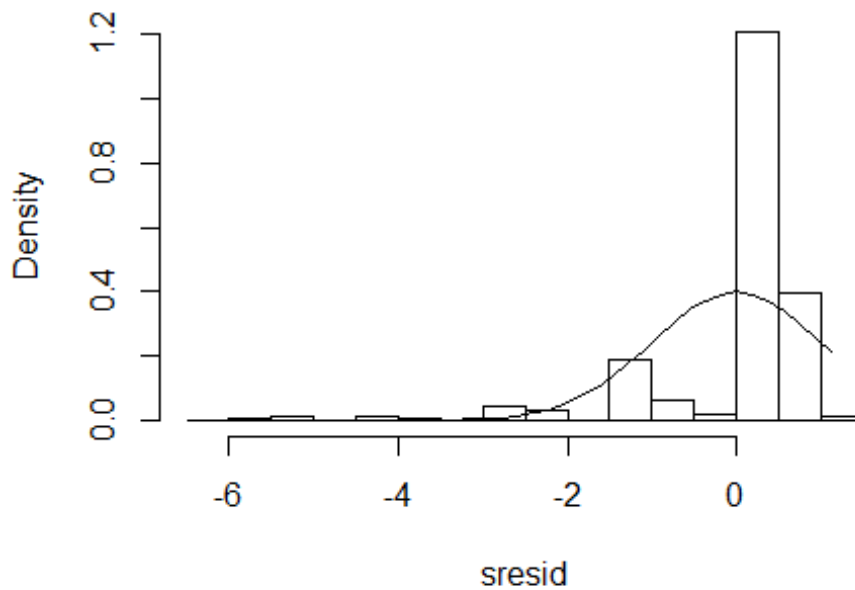

```
#Non-constant Error Variance
# Evaluate homoscedasticity
# non-constant error variance test
ncvTest(fit)

## Non-constant Variance Score Test
## Variance formula: ~ fitted.values
## Chisquare = 186.2589, Df = 1, p = < 2.22e-16

# plot studentized residuals vs. fitted values
spreadLevelPlot(fit)
```

Spread-Level Plot for fit
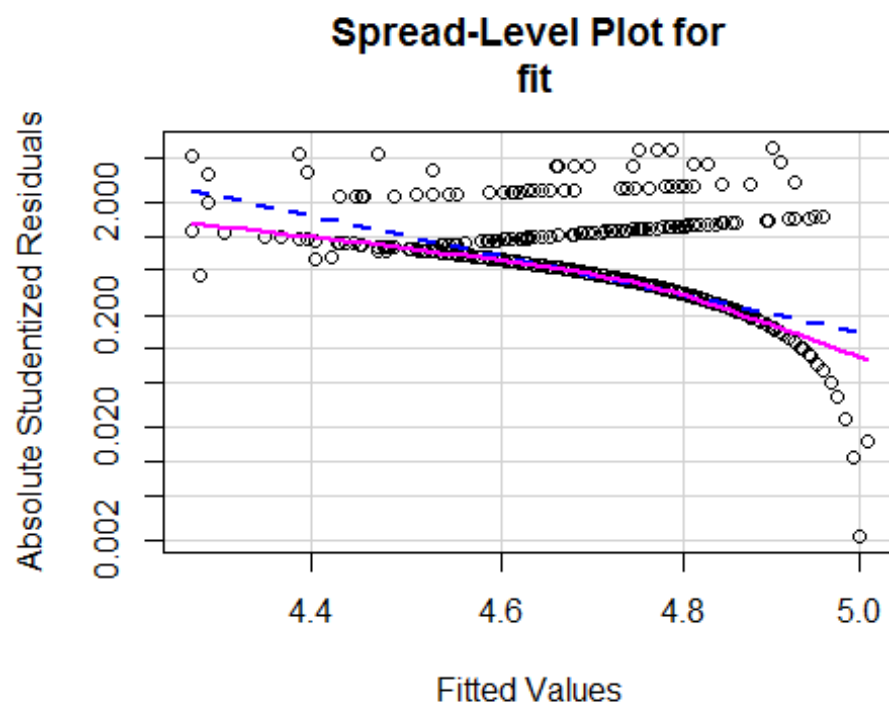
```
##
## Suggested power transformation:  19.69395

#Multi-collinearity
# Evaluate Collinearity
vif(fit) # variance inflation factors

##    Dance      Folk       Pop      Rock
## 1.254015 1.010017 1.224775 1.026496

 #sqrt(vif(fit)) > 2

#Nonlinearity
# component + residual plot
crPlots(fit)
```

Component + Residual Plots
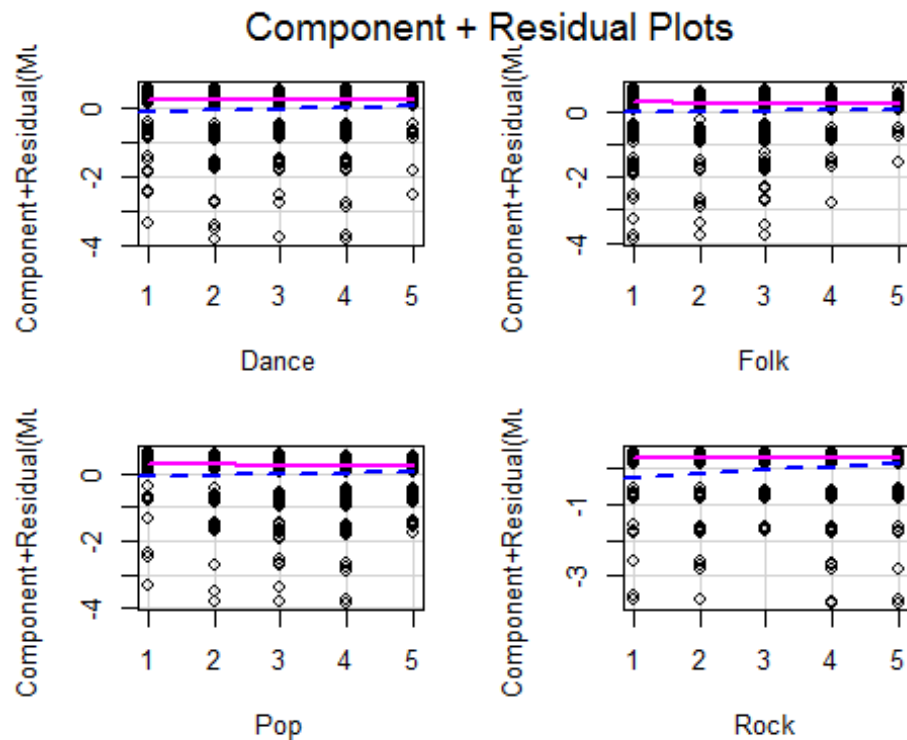

```
# Ceres plots
ceresPlots(fit)

## Warning in simpleLoess(y, x, w, span, degree = degree, parametric =
## parametric, : pseudoinverse used at 3

## Warning in simpleLoess(y, x, w, span, degree = degree, parametric =
## parametric, : neighborhood radius 1

## Warning in simpleLoess(y, x, w, span, degree = degree, parametric =
## parametric, : reciprocal condition number 0

## Warning in simpleLoess(y, x, w, span, degree = degree, parametric =
## parametric, : pseudoinverse used at 3

## Warning in simpleLoess(y, x, w, span, degree = degree, parametric =
## parametric, : neighborhood radius 1

## Warning in simpleLoess(y, x, w, span, degree = degree, parametric =
## parametric, : reciprocal condition number 0

## Warning in simpleLoess(y, x, w, span, degree = degree, parametric =
## parametric, : pseudoinverse used at 3

## Warning in simpleLoess(y, x, w, span, degree = degree, parametric =
## parametric, : neighborhood radius 1

## Warning in simpleLoess(y, x, w, span, degree = degree, parametric =
## parametric, : reciprocal condition number 0
```

```
## Warning in simpleLoess(y, x, w, span, degree = degree, parametric =
## parametric, : pseudoinverse used at 0.98

## Warning in simpleLoess(y, x, w, span, degree = degree, parametric =
## parametric, : neighborhood radius 2.02

## Warning in simpleLoess(y, x, w, span, degree = degree, parametric =
## parametric, : reciprocal condition number 1.4341e-016

## Warning in simpleLoess(y, x, w, span, degree = degree, parametric =
## parametric, : There are other near singularities as well. 1

## Warning in simpleLoess(y, x, w, span, degree = degree, parametric =
## parametric, : pseudoinverse used at 0.98

## Warning in simpleLoess(y, x, w, span, degree = degree, parametric =
## parametric, : neighborhood radius 2.02

## Warning in simpleLoess(y, x, w, span, degree = degree, parametric =
## parametric, : reciprocal condition number 1.4341e-016

## Warning in simpleLoess(y, x, w, span, degree = degree, parametric =
## parametric, : There are other near singularities as well. 1

## Warning in simpleLoess(y, x, w, span, degree = degree, parametric =
## parametric, : pseudoinverse used at 0.98

## Warning in simpleLoess(y, x, w, span, degree = degree, parametric =
## parametric, : neighborhood radius 2.02

## Warning in simpleLoess(y, x, w, span, degree = degree, parametric =
## parametric, : reciprocal condition number 1.4341e-016

## Warning in simpleLoess(y, x, w, span, degree = degree, parametric =
## parametric, : There are other near singularities as well. 1

## Warning in simpleLoess(y, x, w, span, degree = degree, parametric =
## parametric, : pseudoinverse used at 5.02

## Warning in simpleLoess(y, x, w, span, degree = degree, parametric =
## parametric, : neighborhood radius 2.02

## Warning in simpleLoess(y, x, w, span, degree = degree, parametric =
## parametric, : reciprocal condition number 1.1959e-016

## Warning in simpleLoess(y, x, w, span, degree = degree, parametric =
## parametric, : There are other near singularities as well. 1

## Warning in simpleLoess(y, x, w, span, degree = degree, parametric =
## parametric, : pseudoinverse used at 5.02

## Warning in simpleLoess(y, x, w, span, degree = degree, parametric =
## parametric, : neighborhood radius 2.02
```

```
## Warning in simpleLoess(y, x, w, span, degree = degree, parametric =
## parametric, : reciprocal condition number 1.1959e-016

## Warning in simpleLoess(y, x, w, span, degree = degree, parametric =
## parametric, : There are other near singularities as well. 1

## Warning in simpleLoess(y, x, w, span, degree = degree, parametric =
## parametric, : pseudoinverse used at 5.02

## Warning in simpleLoess(y, x, w, span, degree = degree, parametric =
## parametric, : neighborhood radius 2.02

## Warning in simpleLoess(y, x, w, span, degree = degree, parametric =
## parametric, : reciprocal condition number 1.1959e-016

## Warning in simpleLoess(y, x, w, span, degree = degree, parametric =
## parametric, : There are other near singularities as well. 1

## Warning in simpleLoess(y, x, w, span, degree = degree, parametric =
## parametric, : pseudoinverse used at 5.02

## Warning in simpleLoess(y, x, w, span, degree = degree, parametric =
## parametric, : neighborhood radius 2.02

## Warning in simpleLoess(y, x, w, span, degree = degree, parametric =
## parametric, : reciprocal condition number 1.5311e-016

## Warning in simpleLoess(y, x, w, span, degree = degree, parametric =
## parametric, : There are other near singularities as well. 1

## Warning in simpleLoess(y, x, w, span, degree = degree, parametric =
## parametric, : pseudoinverse used at 5.02

## Warning in simpleLoess(y, x, w, span, degree = degree, parametric =
## parametric, : neighborhood radius 2.02

## Warning in simpleLoess(y, x, w, span, degree = degree, parametric =
## parametric, : reciprocal condition number 1.5311e-016

## Warning in simpleLoess(y, x, w, span, degree = degree, parametric =
## parametric, : There are other near singularities as well. 1

## Warning in simpleLoess(y, x, w, span, degree = degree, parametric =
## parametric, : pseudoinverse used at 5.02

## Warning in simpleLoess(y, x, w, span, degree = degree, parametric =
## parametric, : neighborhood radius 2.02

## Warning in simpleLoess(y, x, w, span, degree = degree, parametric =
## parametric, : reciprocal condition number 1.5311e-016

## Warning in simpleLoess(y, x, w, span, degree = degree, parametric =
## parametric, : There are other near singularities as well. 1
```

CERES Plots


```
#Non-independence of Errors
# Test for Autocorrelated Errors
durbinWatsonTest(fit)

##  lag Autocorrelation D-W Statistic p-value
##    1      0.02657895         1.94623   0.388
##  Alternative hypothesis: rho != 0

# Global test of model assumptions
#install.packages("gvlma")
library(gvlma)
gvmodel <- gvlma(fit)
summary(gvmodel)

##
## Call:
## lm(formula = Music ~ Dance + Folk + Pop + Rock, data = music_transformed)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -3.9013  0.0985  0.2135  0.3052  0.7219
##
## Coefficients:
##             Estimate Std. Error t value Pr(>|t|)
## (Intercept) 4.095090   0.106376  38.497  < 2e-16 ***
## Dance       0.048990   0.019599   2.500   0.0126 *
## Folk        0.008519   0.018064   0.472   0.6373
```

```
## Pop            0.025551   0.019544   1.307   0.1914
## Rock           0.099906   0.017557   5.690 1.66e-08 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.6512 on 1005 degrees of freedom
## Multiple R-squared:  0.04085,    Adjusted R-squared:  0.03704
## F-statistic:  10.7 on 4 and 1005 DF,  p-value: 1.698e-08
##
##
## ASSESSMENT OF THE LINEAR MODEL ASSUMPTIONS
## USING THE GLOBAL TEST ON 4 DEGREES-OF-FREEDOM:
## Level of Significance =  0.05
##
## Call:
##  gvlma(x = fit)
##
##                     Value    p-value                   Decision
## Global Stat       5670.911 0.0000000 Assumptions NOT satisfied!
## Skewness          1415.112 0.0000000 Assumptions NOT satisfied!
## Kurtosis          4240.094 0.0000000 Assumptions NOT satisfied!
## Link Function       12.359 0.0004389 Assumptions NOT satisfied!
## Heteroscedasticity   3.346 0.0673552    Assumptions acceptable.

fit

##
## Call:
## lm(formula = Music ~ Dance + Folk + Pop + Rock, data = music_transformed)
##
## Coefficients:
## (Intercept)        Dance         Folk          Pop         Rock
##    4.095090     0.048990     0.008519     0.025551     0.099906

summary(fit)

##
## Call:
## lm(formula = Music ~ Dance + Folk + Pop + Rock, data = music_transformed)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -3.9013  0.0985  0.2135  0.3052  0.7219
##
## Coefficients:
##             Estimate Std. Error t value Pr(>|t|)
## (Intercept) 4.095090   0.106376  38.497  < 2e-16 ***
## Dance       0.048990   0.019599   2.500   0.0126 *
## Folk        0.008519   0.018064   0.472   0.6373
## Pop         0.025551   0.019544   1.307   0.1914
## Rock        0.099906   0.017557   5.690 1.66e-08 ***
```

```
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.6512 on 1005 degrees of freedom
## Multiple R-squared:  0.04085,    Adjusted R-squared:  0.03704
## F-statistic:  10.7 on 4 and 1005 DF,  p-value: 1.698e-08

fit1 <- fit
fit2 <- lm(Music~Dance+Folk+Pop, data = music_transformed)

# compare models
anova(fit1, fit2)

## Analysis of Variance Table
##
## Model 1: Music ~ Dance + Folk + Pop + Rock
## Model 2: Music ~ Dance + Folk + Pop
##   Res.Df    RSS Df Sum of Sq      F    Pr(>F)
## 1   1005 426.14
## 2   1006 439.86 -1    -13.73 32.381 1.662e-08 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

step <- stepAIC(fit, direction="both")

## Start:  AIC=-861.58
## Music ~ Dance + Folk + Pop + Rock
##
##          Df Sum of Sq    RSS     AIC
## - Folk    1    0.0943 426.23 -863.36
## - Pop     1    0.7247 426.86 -861.86
## <none>                426.14 -861.58
## - Dance   1    2.6492 428.78 -857.32
## - Rock    1   13.7299 439.86 -831.55
##
## Step:  AIC=-863.36
## Music ~ Dance + Pop + Rock
##
##          Df Sum of Sq    RSS     AIC
## - Pop     1    0.7187 426.95 -863.65
## <none>                426.23 -863.36
## + Folk    1    0.0943 426.14 -861.58
## - Dance   1    2.7390 428.97 -858.89
## - Rock    1   13.9717 440.20 -832.78
##
## Step:  AIC=-863.65
## Music ~ Dance + Rock
##
##          Df Sum of Sq    RSS     AIC
## <none>                426.95 -863.65
## + Pop     1    0.7187 426.23 -863.36
```

```
## + Folk   1    0.0883 426.86 -861.86
## - Dance  1    4.9857 431.93 -853.93
## - Rock   1   14.3175 441.27 -832.34

step$anova # display results

## Stepwise Model Path
## Analysis of Deviance Table
##
## Initial Model:
## Music ~ Dance + Folk + Pop + Rock
##
## Final Model:
## Music ~ Dance + Rock
##
##
##     Step Df   Deviance Resid. Df Resid. Dev        AIC
## 1                           1005    426.1351 -861.5788
## 2 - Folk  1 0.09431191      1006    426.2294 -863.3553
## 3  - Pop  1 0.71870767      1007    426.9481 -863.6536

#install.packages("leaps")
library(leaps)

## Warning: package 'leaps' was built under R version 3.6.3

leaps<-
regsubsets(Music~Dance+Folk+Pop+Rock+Country,data=music_transformed,nbest=10)
# view results
summary(leaps)

## Subset selection object
## Call: regsubsets.formula(Music ~ Dance + Folk + Pop + Rock + Country,
##      data = music_transformed, nbest = 10)
## 5 Variables  (and intercept)
##          Forced in Forced out
## Dance        FALSE      FALSE
## Folk         FALSE      FALSE
## Pop          FALSE      FALSE
## Rock         FALSE      FALSE
## Country      FALSE      FALSE
## 10 subsets of each size up to 5
## Selection Algorithm: exhaustive
##          Dance Folk Pop Rock Country
## 1  ( 1 )  " "   " "  " " "*"   " "
## 1  ( 2 )  "*"   " "  " " " "   " "
## 1  ( 3 )  " "   " "  "*" " "   " "
## 1  ( 4 )  " "   "*"  " " " "   " "
## 1  ( 5 )  " "   " "  " " " "   "*"
## 2  ( 1 )  "*"   " "  " " "*"   " "
## 2  ( 2 )  " "   " "  "*" "*"   " "
```

```
## 2  ( 3 )   " "     " "     " "   "*"    "*"
## 2  ( 4 )   " "     "*"     " "   "*"    " "
## 2  ( 5 )   "*"     " "     "*"   " "    " "
## 2  ( 6 )   "*"     "*"     " "   " "    " "
## 2  ( 7 )   " "     "*"     "*"   " "    " "
## 2  ( 8 )   "*"     " "     " "   " "    "*"
## 2  ( 9 )   " "     " "     "*"   " "    "*"
## 2  ( 10 )  " "     "*"     " "   " "    "*"
## 3  ( 1 )   "*"     " "     "*"   "*"    " "
## 3  ( 2 )   "*"     " "     " "   "*"    "*"
## 3  ( 3 )   "*"     "*"     " "   "*"    " "
## 3  ( 4 )   " "     " "     "*"   "*"    "*"
## 3  ( 5 )   " "     "*"     "*"   "*"    " "
## 3  ( 6 )   " "     "*"     " "   "*"    "*"
## 3  ( 7 )   "*"     "*"     "*"   " "    " "
## 3  ( 8 )   "*"     " "     "*"   " "    "*"
## 3  ( 9 )   "*"     "*"     " "   " "    "*"
## 3  ( 10 )  " "     "*"     "*"   " "    "*"
## 4  ( 1 )   "*"     " "     "*"   "*"    "*"
## 4  ( 2 )   "*"     "*"     " "   "*"    "*"
## 4  ( 3 )   "*"     "*"     "*"   "*"    " "
## 4  ( 4 )   " "     "*"     "*"   "*"    "*"
## 4  ( 5 )   "*"     "*"     "*"   " "    "*"
## 5  ( 1 )   "*"     "*"     "*"   "*"    "*"

# plot a table of models showing variables in each model.
# models are ordered by the selection statistic.
plot(leaps)
```
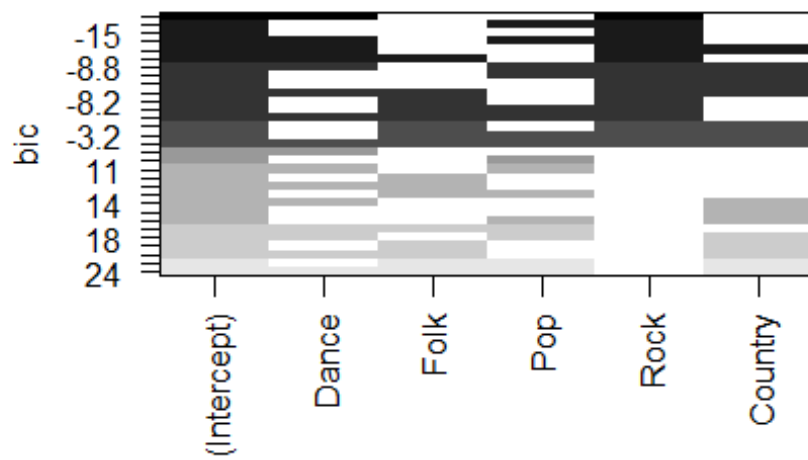
```
plot(leaps,scale="r2")
```
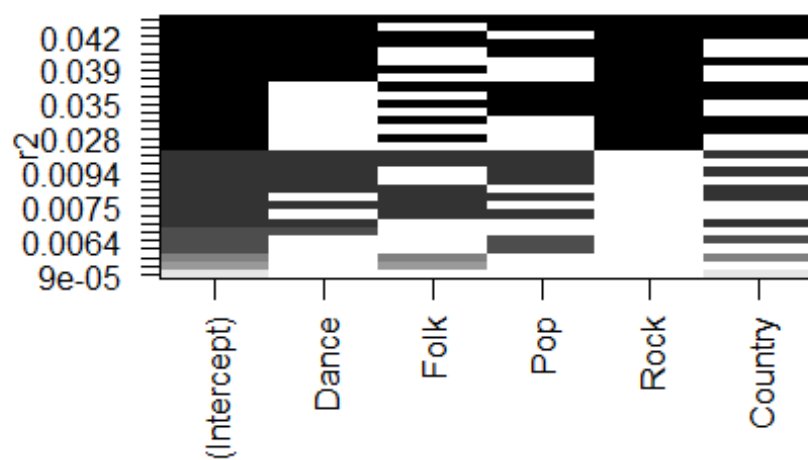


```
#subsets(leaps, statistic="rsq")
```

```
# All Subsets Regression
plot(leaps,scale="bic")
```



```
summary(leaps)

## Subset selection object
## Call: regsubsets.formula(Music ~ Dance + Folk + Pop + Rock + Country,
##      data = music_transformed, nbest = 10)
## 5 Variables  (and intercept)
##          Forced in Forced out
## Dance         FALSE      FALSE
## Folk          FALSE      FALSE
## Pop           FALSE      FALSE
## Rock          FALSE      FALSE
## Country       FALSE      FALSE
## 10 subsets of each size up to 5
## Selection Algorithm: exhaustive
##           Dance Folk Pop Rock Country
## 1  ( 1 )  " "   " "  " " "*"  " "
## 1  ( 2 )  "*"   " "  " " " "  " "
## 1  ( 3 )  " "   " "  "*" " "  " "
## 1  ( 4 )  " "   "*"  " " " "  " "
## 1  ( 5 )  " "   " "  " " " "  "*"
## 2  ( 1 )  "*"   " "  " " "*"  " "
## 2  ( 2 )  " "   " "  "*" "*"  " "
## 2  ( 3 )  " "   " "  " " "*"  "*"
## 2  ( 4 )  " "   "*"  " " "*"  " "
```

```
## 2  ( 5 )   "*"   " "   "*"   " "   " "
## 2  ( 6 )   "*"   "*"   " "   " "   " "
## 2  ( 7 )   " "   "*"   "*"   " "   " "
## 2  ( 8 )   "*"   " "   " "   " "   "*"
## 2  ( 9 )   " "   " "   "*"   " "   "*"
## 2  ( 10 )  " "   "*"   " "   " "   "*"
## 3  ( 1 )   "*"   " "   "*"   "*"   " "
## 3  ( 2 )   "*"   " "   " "   "*"   "*"
## 3  ( 3 )   "*"   "*"   " "   "*"   " "
## 3  ( 4 )   " "   " "   "*"   "*"   "*"
## 3  ( 5 )   " "   "*"   "*"   "*"   " "
## 3  ( 6 )   " "   "*"   " "   "*"   "*"
## 3  ( 7 )   "*"   "*"   "*"   " "   " "
## 3  ( 8 )   "*"   " "   "*"   " "   "*"
## 3  ( 9 )   "*"   "*"   " "   " "   "*"
## 3  ( 10 )  " "   "*"   "*"   " "   "*"
## 4  ( 1 )   "*"   " "   "*"   "*"   "*"
## 4  ( 2 )   "*"   "*"   " "   "*"   "*"
## 4  ( 3 )   "*"   "*"   "*"   "*"   " "
## 4  ( 4 )   " "   "*"   "*"   "*"   "*"
## 4  ( 5 )   "*"   "*"   "*"   " "   "*"
## 5  ( 1 )   "*"   "*"   "*"   "*"   "*"
```

```
#View(leaps)
```

```
leaps
```

```
## Subset selection object
## Call: regsubsets.formula(Music ~ Dance + Folk + Pop + Rock + Country,
##      data = music_transformed, nbest = 10)
## 5 Variables  (and intercept)
##          Forced in Forced out
## Dance        FALSE      FALSE
## Folk         FALSE      FALSE
## Pop          FALSE      FALSE
## Rock         FALSE      FALSE
## Country      FALSE      FALSE
## 10 subsets of each size up to 5
## Selection Algorithm: exhaustive
```

```
coef(leaps,1:5)
```

```
## [[1]]
## (Intercept)        Rock
##  4.37996937  0.09353105
##
## [[2]]
## (Intercept)       Dance
##  4.58608525  0.04671344
##
## [[3]]
```

```
## (Intercept)          Pop
##  4.57411248  0.04539258
##
## [[4]]
## (Intercept)          Folk
##  4.68824121  0.01896127
##
## [[5]]
## (Intercept)       Country
##  4.74404707 -0.00580546
```

```r
# Calculate Relative Importance for Each Predictor
#install.packages("relaimpo")
library(relaimpo)
```

```
## Warning: package 'relaimpo' was built under R version 3.6.3

## Loading required package: boot

##
## Attaching package: 'boot'

## The following object is masked from 'package:car':
##
##     logit

## The following object is masked from 'package:psych':
##
##     logit

## The following object is masked from 'package:lattice':
##
##     melanoma

## Loading required package: survey

## Warning: package 'survey' was built under R version 3.6.3

## Loading required package: grid

## Loading required package: Matrix

## Loading required package: survival

##
## Attaching package: 'survival'

## The following object is masked from 'package:boot':
##
##     aml

##
## Attaching package: 'survey'
```

```
## The following object is masked from 'package:graphics':
##
##      dotchart

## Loading required package: mitools

## Warning: package 'mitools' was built under R version 3.6.3

## This is the global version of package relaimpo.

## If you are a non-US user, a version with the interesting additional metric
pmvd is available

## from Ulrike Groempings web site at prof.beuth-hochschule.de/groemping.

calc.relimp(fit,type=c("lmg","last","first","pratt"),rela=TRUE)

## Warning in rev(variances[[p]]) - variances[[p + 1]]: Recycling array of
length 1 in vector-array arithmetic is deprecated.
##    Use c() or as.vector() instead.

## Response variable: Music
## Total response variance: 0.4403232
## Analysis based on 1010 observations
##
## 4 Regressors:
## Dance Folk Pop Rock
## Proportion of variance explained by model: 4.09%
## Metrics are normalized to sum to 100% (rela=TRUE).
##
## Relative importance metrics:
##
##               lmg         last      first       pratt
## Dance 0.16042852 0.154039556 0.1619915 0.17452170
## Folk  0.01504095 0.005483838 0.0253054 0.01168017
## Pop   0.10140330 0.042140512 0.1502477 0.08687960
## Rock  0.72312724 0.798336095 0.6624554 0.72691853
##
## Average coefficients for different model sizes:
##
##                1X         2Xs         3Xs          4Xs
## Dance 0.04671344 0.04663482 0.04739102 0.048989937
## Folk  0.01896127 0.01557162 0.01205119 0.008519444
## Pop   0.04539258 0.04088266 0.03431910 0.025550694
## Rock  0.09353105 0.09617783 0.09833106 0.099906283

# Bootstrap Measures of Relative Importance (1000 samples)
boot <- boot.relimp(fit, b = 1000, type = c("lmg","last", "first", "pratt"),
rank = TRUE,diff = TRUE, rela = TRUE)

booteval.relimp(boot) # print result
```

```
## Warning in rev(variances[[p]]) - variances[[p + 1]]: Recycling array of
## length 1 in vector-array arithmetic is deprecated.
##    Use c() or as.vector() instead.

## Response variable: Music
## Total response variance: 0.4403232
## Analysis based on 1010 observations
##
## 4 Regressors:
## Dance Folk Pop Rock
## Proportion of variance explained by model: 4.09%
## Metrics are normalized to sum to 100% (rela=TRUE).
##
## Relative importance metrics:
##
##               lmg        last      first       pratt
## Dance 0.16042852 0.154039556 0.1619915 0.17452170
## Folk  0.01504095 0.005483838 0.0253054 0.01168017
## Pop   0.10140330 0.042140512 0.1502477 0.08687960
## Rock  0.72312724 0.798336095 0.6624554 0.72691853
##
## Average coefficients for different model sizes:
##
##                1X         2Xs         3Xs          4Xs
## Dance 0.04671344 0.04663482 0.04739102 0.048989937
## Folk  0.01896127 0.01557162 0.01205119 0.008519444
## Pop   0.04539258 0.04088266 0.03431910 0.025550694
## Rock  0.09353105 0.09617783 0.09833106 0.099906283
##
##
##   Confidence interval information ( 1000 bootstrap replicates, bty= perc ):
## Relative Contributions with confidence intervals:
##
##                              Lower  Upper
##             percentage 0.95 0.95    0.95
## Dance.lmg    0.1604    _BCD  0.0204  0.3451
## Folk.lmg     0.0150    _BCD  0.0011  0.1819
## Pop.lmg      0.1014    _BCD  0.0098  0.2706
## Rock.lmg     0.7231    A___  0.4659  0.8999
##
## Dance.last   0.1540    _BCD  0.0100  0.3450
## Folk.last    0.0055    _BCD  0.0000  0.1625
## Pop.last     0.0421    _BCD  0.0001  0.2195
## Rock.last    0.7983    A___  0.5443  0.9142
##
## Dance.first  0.1620    _BCD  0.0147  0.3482
## Folk.first   0.0253    _BCD  0.0001  0.1985
## Pop.first    0.1502    _BCD  0.0088  0.3193
## Rock.first   0.6625    A___  0.3830  0.9093
##
```

```
## Dance.pratt   0.1745      _BCD  0.0119  0.3796
## Folk.pratt    0.0117      _BCD -0.0034  0.1786
## Pop.pratt     0.0869      _BCD -0.0104  0.2830
## Rock.pratt    0.7269      A___  0.4650  0.9088
##
## Letters indicate the ranks covered by bootstrap CIs.
## (Rank bootstrap confidence intervals always obtained by percentile method)
## CAUTION: Bootstrap confidence intervals can be somewhat liberal.
##
##
##  Differences between Relative Contributions:
##
##                                 Lower    Upper
##                  difference 0.95 0.95     0.95
## Dance-Folk.lmg     0.1454           -0.0963  0.3250
## Dance-Pop.lmg      0.0590           -0.1729  0.2809
## Dance-Rock.lmg    -0.5627      *    -0.8592 -0.1223
## Folk-Pop.lmg      -0.0864           -0.2419  0.0936
## Folk-Rock.lmg     -0.7081      *    -0.8828 -0.3444
## Pop-Rock.lmg      -0.6217      *    -0.8785 -0.2368
##
## Dance-Folk.last    0.1486           -0.0899  0.3374
## Dance-Pop.last     0.1119           -0.1654  0.3319
## Dance-Rock.last   -0.6443      *    -0.8634 -0.2058
## Folk-Pop.last     -0.0367           -0.1917  0.1038
## Folk-Rock.last    -0.7929      *    -0.9027 -0.4326
## Pop-Rock.last     -0.7562      *    -0.8972 -0.4025
##
## Dance-Folk.first  0.1367           -0.1114  0.3253
## Dance-Pop.first   0.0117           -0.1974  0.2314
## Dance-Rock.first -0.5005      *    -0.8757 -0.0473
## Folk-Pop.first    -0.1249           -0.2914  0.1033
## Folk-Rock.first   -0.6371      *    -0.8943 -0.2725
## Pop-Rock.first    -0.5122      *    -0.8878 -0.1031
##
## Dance-Folk.pratt  0.1628           -0.0974  0.3691
## Dance-Pop.pratt   0.0876           -0.1898  0.3572
## Dance-Rock.pratt -0.5524      *    -0.8699 -0.0896
## Folk-Pop.pratt    -0.0752           -0.2561  0.1099
## Folk-Rock.pratt   -0.7152      *    -0.8990 -0.3477
## Pop-Rock.pratt    -0.6400      *    -0.8971 -0.2362
##
## * indicates that CI for difference does not include 0.
## CAUTION: Bootstrap confidence intervals can be somewhat liberal.

plot(booteval.relimp(boot,sort=TRUE)) # plot result

## Warning in rev(variances[[p]]) - variances[[p + 1]]: Recycling array of
length 1 in vector-array arithmetic is deprecated.
##   Use c() or as.vector() instead.
```

Relative importances for Music
with 95% bootstrap confidence intervals

Method LMG

Method Last

Method First

Method Pratt
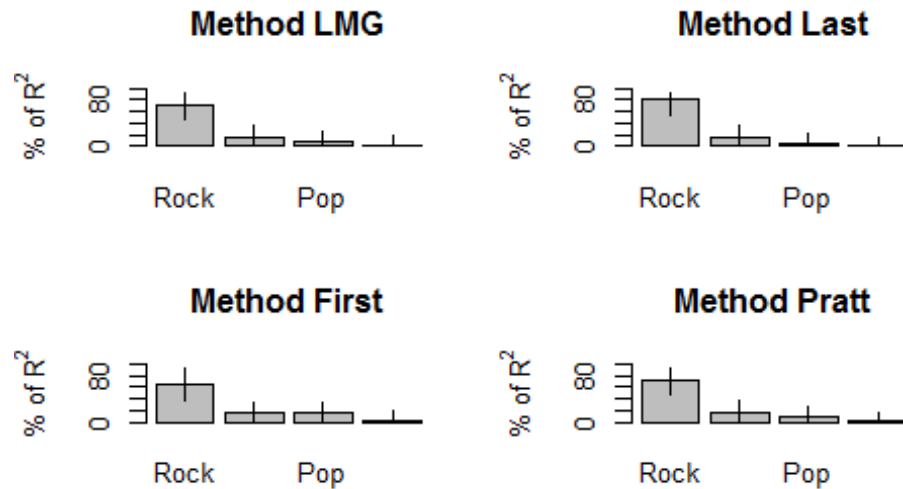
$R^2 = 4.09\%$, metrics are normalized to sum 100%.

```
summary(fit)

##
## Call:
## lm(formula = Music ~ Dance + Folk + Pop + Rock, data = music_transformed)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -3.9013  0.0985  0.2135  0.3052  0.7219
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept) 4.095090   0.106376  38.497  < 2e-16 ***
## Dance       0.048990   0.019599   2.500   0.0126 *
## Folk        0.008519   0.018064   0.472   0.6373
## Pop         0.025551   0.019544   1.307   0.1914
## Rock        0.099906   0.017557   5.690 1.66e-08 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.6512 on 1005 degrees of freedom
## Multiple R-squared:  0.04085,    Adjusted R-squared:  0.03704
## F-statistic:  10.7 on 4 and 1005 DF,  p-value: 1.698e-08
```