Classification using ANN

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```
bannerCommenter::banner("Classification using ANN")
```

```
##
## ####################################################################
## ##                    Classification using ANN                   ##
## ####################################################################
### Loads Necessary Packages & Library###

###### Loading Packages & Libraries ######

library(NeuralNetTools)
library(mice)
```

```
##
## Attachement du package : 'mice'
## L'objet suivant est masqué depuis 'package:stats':
##
##     filter
## Les objets suivants sont masqués depuis 'package:base':
##
##     cbind, rbind
library(dplyr)
```

```
##
## Attachement du package : 'dplyr'
## Les objets suivants sont masqués depuis 'package:stats':
##
##     filter, lag
## Les objets suivants sont masqués depuis 'package:base':
##
##     intersect, setdiff, setequal, union
library(tidyverse)
```

```
## -- Attaching packages --------------------------------------- tidyverse 1.3.1 --
## v ggplot2 3.3.5     v purrr   0.3.4
## v tibble  3.1.4     v stringr 1.4.0
## v tidyr   1.1.3     v forcats 0.5.1
## v readr   2.0.1
## -- Conflicts ------------------------------------------ tidyverse_conflicts() --
## x dplyr::filter() masks mice::filter(), stats::filter()
```

```
## x dplyr::lag()    masks stats::lag()
library(rpart)
library(ggplot2)
library(caTools)
library(caret)
```

Le chargement a nécessité le package : lattice

##
Attachement du package : 'caret'

L'objet suivant est masqué depuis 'package:purrr':
##
lift

```
library(ModelMetrics)
```

##
Attachement du package : 'ModelMetrics'

Les objets suivants sont masqués depuis 'package:caret':
##
confusionMatrix, precision, recall, sensitivity, specificity

L'objet suivant est masqué depuis 'package:base':
##
kappa

```
library(e1071)
library(neuralnet)
```

##
Attachement du package : 'neuralnet'

L'objet suivant est masqué depuis 'package:dplyr':
##
compute

```
library(nnet)
library(ggvis)
```

##
Attachement du package : 'ggvis'

L'objet suivant est masqué depuis 'package:ggplot2':
##
resolution

```
library(gmodels)
library(VIM)
```

Le chargement a nécessité le package : colorspace

Le chargement a nécessité le package : grid

VIM is ready to use.

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

##
Attachement du package : 'VIM'

```
## L'objet suivant est masqué depuis 'package:datasets':
##
##     sleep
library(stargazer)
```

```
##
## Please cite as:

##  Hlavac, Marek (2018). stargazer: Well-Formatted Regression and Summary Statistics Tables.

##  R package version 5.2.2. https://CRAN.R-project.org/package=stargazer
bannerCommenter::banner("Loads My Data")
```

```
##
## ###################################################################
## ##                      Loads My Data                          ##
## ###################################################################
############ Loads My Data ############

library(readxl)

library(readxl)
ma_23_ratios <- read_excel("C:/Users/win7/Desktop/ma 23 ratios.xlsx", sheet = "ANN classification")
View(ma_23_ratios)
mydata <- ma_23_ratios
attach(mydata)
mydata = subset(mydata, select = -c(year))    ## or you can use this ===> mydata <- mydata %>% select(-
is.na(mydata) %>% table()
```

```
## .
## FALSE   TRUE
## 26751   321
sum(is.na(mydata))
```

```
## [1] 321
View(mydata)
```

```
bannerCommenter::banner("Exploratory Data Analysis")
```

```
##
## ###################################################################
## ##                 Exploratory Data Analysis                   ##
## ###################################################################
Hmisc::contents(mydata)
```

```
##
## Data frame:mydata    1128 observations and 24 variables    Maximum # NAs:42
##
##
##      Storage NAs
## Y    double   0
## R1   double  11
## R2   double  11
## R3   double  42
```

```
## R4    double   11
## R5    double   10
## R6    double   15
## R7    double   10
## R8    double   10
## R9    double    9
## R10   double   20
## R11   double   10
## R12   double   10
## R13   double    9
## R14   double   11
## R15   double   10
## R16   double   15
## R17   double   11
## R18   double   42
## R19   double   10
## R20   double   11
## R21   double    9
## R22   double   15
## R23   double    9
```

```
glimpse(mydata)                    # we can use str()
```

```
## Rows: 1,128
## Columns: 24
## $ Y   <dbl> 1, 1, 1, 1, 1, 1, 0, 0, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, ~
## $ R1  <dbl> 4.6758486, 4.8488081, 4.4497371, 8.1243342, 5.3014441, 5.8234514, ~
## $ R2  <dbl> 6.0344649, 5.8235977, 5.3875043, 9.2762822, 6.7191415, 6.3286277, ~
## $ R3  <dbl> 0.869801621, 0.967639213, 0.755264612, 0.971035829, 1.292495564, 2~
## $ R4  <dbl> 3.31726254, 3.86150870, 3.64862031, 6.54057108, 3.90493649, 5.3665~
## $ R5  <dbl> 0.6276279, 0.6673903, 0.6505275, 0.8163018, 0.7983859, 0.9150584, ~
## $ R6  <dbl> 1.6166626, 1.7175572, 2.0071667, 4.0829302, 2.6078339, 4.2990669, ~
## $ R7  <dbl> 0.60200010, 0.57127620, 0.70144957, 0.75002690, 0.52577611, 0.3651~
## $ R8  <dbl> 0.95916725, 0.85598520, 1.07827811, 0.91881078, 0.65854885, 0.3990~
## $ R9  <dbl> 1.14968744, 1.03344303, 1.32403926, 1.02982812, 0.77369705, 0.4739~
## $ R10 <dbl> 1.74483058, 1.29092378, 1.59217115, 1.30311987, 1.13315104, 0.4706~
## $ R11 <dbl> 64.29239, 61.68977, 64.99840, 31.30277, 25.27144, 23.58608, 24.348~
## $ R12 <dbl> 1.000000, 1.000000, 1.053633, 1.000000, 1.000000, 1.000000, 1.0000~
## $ R13 <dbl> 0.35707612, 0.38310226, 0.38310226, 0.68697231, 0.74728562, 0.7641~
## $ R14 <dbl> 2.800523, 2.610269, 2.610269, 1.455663, 1.338176, 1.308662, 1.3218~
## $ R15 <dbl> 0.35707612, 0.38310226, 0.40364932, 0.68697231, 0.74728562, 0.7641~
## $ R16 <dbl> 0.95892278, 1.15180716, 1.15502458, 3.73967921, 3.70651449, 8.9960~
## $ R17 <dbl> 3.43318614, 3.34292165, 3.34292165, 7.80660902, 6.28908638, 5.2848~
## $ R18 <dbl> 11.3608678, 15.1654582, 9.9223423, 10.5216536, 8.3229603, 13.03817~
## $ R19 <dbl> 6.8392435, 8.6636653, 6.9600227, 7.8915233, 4.3760136, 4.7611436, ~
## $ R20 <dbl> 19.153461, 22.614498, 17.242746, 11.487396, 5.855878, 6.230728, -5~
## $ R21 <dbl> 0.068392435, 0.086636653, 0.066057349, 0.078915233, 0.043760136, 0~
## $ R22 <dbl> 0.183666903, 0.260475411, 0.199157953, 0.429591776, 0.217048976, 0~
## $ R23 <dbl> 0.13061447, 0.15672637, 0.13137571, 0.10835495, 0.06439450, 0.0617~
```

```
car::brief(mydata)
```

```
## # A tibble: 1,128 x 24
##        Y    R1    R2     R3     R4    R5    R6    R7    R8     R9    R10
##    <dbl> <dbl> <dbl>  <dbl>  <dbl> <dbl> <dbl> <dbl> <dbl>  <dbl>  <dbl>
```

```
## 1     1 4.68   6.03    0.870 3.32    0.628 1.62   0.602  0.959    1.15    1.74
## 2     1 4.85   5.82    0.968 3.86    0.667 1.72   0.571  0.856    1.03    1.29
## 3     1 4.45   5.39    0.755 3.65    0.651 2.01   0.701  1.08     1.32    1.59
## 4     1 8.12   9.28    0.971 6.54    0.816 4.08   0.750  0.919    1.03    1.30
## 5     1 5.30   6.72    1.29  3.90    0.798 2.61   0.526  0.659    0.774   1.13
## 6     1 5.82   6.33    2.11  5.37    0.915 4.30   0.365  0.399    0.474   0.471
## 7     0 3.64   4.58    17.1  2.92    0.909 0.453  0.0414 0.0456   0.0584  0.0714
## 8     0 0.366  1.06    0.213 0.0709  0.749 0.846  0.213  0.284    4.70    4.26
## 9     1 0.453  0.763  -0.129 0.111   0.673 4.95   1.62   2.41    -7.73    16.5
## 10    1 0.573  0.730  -0.183 0.0550  0.625 3.36   1.26   2.01    -5.45    26.7
## # ... with 1,118 more rows, and 13 more variables: R11 <dbl>, R12 <dbl>,
## #   R13 <dbl>, R14 <dbl>, R15 <dbl>, R16 <dbl>, R17 <dbl>, R18 <dbl>,
## #   R19 <dbl>, R20 <dbl>, R21 <dbl>, R22 <dbl>, R23 <dbl>
```

```
dim(mydata)
```

```
## [1] 1128    24
```

```
typeof(mydata)                          # Or we can use mode()
```

```
## [1] "list"
```

```
colnames(mydata)
```

```
##  [1] "Y"   "R1"  "R2"  "R3"  "R4"  "R5"  "R6"  "R7"  "R8"  "R9"  "R10" "R11"
## [13] "R12" "R13" "R14" "R15" "R16" "R17" "R18" "R19" "R20" "R21" "R22" "R23"
```

```
summary(mydata)
```

```
##       Y                R1                 R2                  R3
##  Min.   :0.0000   Min.   : -11.1631   Min.   : -0.8772   Min.   :-3145.5472
##  1st Qu.:0.0000   1st Qu.:   0.5417   1st Qu.:  0.7890   1st Qu.:   -0.1445
##  Median :1.0000   Median :   0.9918   Median :  1.3516   Median :    0.2791
##  Mean   :0.6826   Mean   :   4.1747   Mean   :  5.3265   Mean   :    1.1294
##  3rd Qu.:1.0000   3rd Qu.:   1.7979   3rd Qu.:  2.2956   3rd Qu.:    0.8211
##  Max.   :1.0000   Max.   :1602.4773   Max.   :2443.9012   Max.   : 1371.1929
##                   NA's   :11          NA's   :11          NA's   :42
##       R4                R5                 R6                 R7
##  Min.   : -0.35276   Min.   : 0.00008   Min.   : -0.4768   Min.   : -0.3717
##  1st Qu.:  0.04401   1st Qu.: 0.34566   1st Qu.:  0.3412   1st Qu.:  0.1726
##  Median :  0.16028   Median : 0.60534   Median :  1.1204   Median :  0.4064
##  Mean   :  1.20567   Mean   : 0.64260   Mean   :  6.5001   Mean   :  0.9205
##  3rd Qu.:  0.61920   3rd Qu.: 0.79855   3rd Qu.:  3.6682   3rd Qu.:  0.8217
##  Max.   :304.13968   Max.   :41.40030   Max.   :1063.4291   Max.   :228.7970
##  NA's   :11          NA's   :10         NA's   :15         NA's   :10
##       R8                R9                R10                R11
##  Min.   : -1.6867   Min.   :-2520.4948   Min.   :  -2.733   Min.   :-3699.74
##  1st Qu.:  0.3837   1st Qu.:  -0.1084   1st Qu.:   1.901   1st Qu.:   59.65
##  Median :  0.7499   Median :   0.8799   Median :   5.822   Median :   85.94
##  Mean   :  2.6077   Mean   :   0.0671   Mean   :  48.233   Mean   :   85.33
##  3rd Qu.:  1.4465   3rd Qu.:   2.9334   3rd Qu.:  15.086   3rd Qu.:   96.13
##  Max.   :601.2176   Max.   : 423.6621   Max.   :12711.205   Max.   :19744.76
##  NA's   :10         NA's   :9          NA's   :20         NA's   :10
##       R12               R13                R14                R15
##  Min.   : -1.00   Min.   :-1.35008   Min.   : -621.611   Min.   :-97.44756
##  1st Qu.:  1.00   1st Qu.: 0.04358   1st Qu.:    2.574   1st Qu.:  0.03788
##  Median :  1.00   Median : 0.13495   Median :    6.868   Median :  0.13738
```

```
## Mean   : 1.26     Mean   : 0.30828    Mean   :   78.444    Mean   : 0.40833
## 3rd Qu.: 1.00     3rd Qu.: 0.36840    3rd Qu.:   20.986    3rd Qu.: 0.36609
## Max.   :100.00    Max.   :37.99738    Max.   :13596.645    Max.   :103.02589
## NA's   :10        NA's   :9           NA's   :11           NA's   :10
##      R16                 R17                 R18
## Min.   :-278.4193   Min.   :  -0.5745   Min.   :-161986.63
## 1st Qu.:   0.1171   1st Qu.:   0.0854   1st Qu.:     -6.91
## Median :   0.4112   Median :   0.3438   Median :      4.51
## Mean   :   2.7293   Mean   :   5.4655   Mean   :   -323.92
## 3rd Qu.:   0.9709   3rd Qu.:   1.1692   3rd Qu.:     14.17
## Max.   : 843.3735   Max.   :1227.8955   Max.   :   6787.08
## NA's   :15          NA's   :11          NA's   :42
##      R19                 R20                 R21                 R22
## Min.   :-967.873    Min.   :-15349.69   Min.   :-1.89482    Min.   :-63.32486
## 1st Qu.:  -1.593    1st Qu.:    -2.80   1st Qu.:-0.01327    1st Qu.: -0.02591
## Median :   1.855    Median :    13.37   Median : 0.02029    Median :  0.06051
## Mean   :   6.525    Mean   :   647.40   Mean   : 0.07150    Mean   :  0.11553
## 3rd Qu.:   6.937    3rd Qu.:    71.76   3rd Qu.: 0.07189    3rd Qu.:  0.24219
## Max.   :2446.082    Max.   :172456.97   Max.   :20.70064    Max.   : 28.62023
## NA's   :10          NA's   :11          NA's   :9           NA's   :15
##      R23
## Min.   :-269.4676
## 1st Qu.:  -0.0048
## Median :   0.1013
## Mean   :   2.7658
## 3rd Qu.:   0.3428
## Max.   :3094.3749
## NA's   :9
```

```r
psych::describe(mydata, skew = TRUE, IQR = TRUE)
```

```
##     vars    n    mean      sd median trimmed   mad       min       max
## Y      1 1128    0.68    0.47   1.00    0.73  0.00      0.00      1.00
## R1     2 1117    4.17   49.70   0.99    1.23  0.80    -11.16   1602.48
## R2     3 1117    5.33   74.25   1.35    1.61  1.00     -0.88   2443.90
## R3     4 1086    1.13  162.87   0.28    0.26  0.71  -3145.55   1371.19
## R4     5 1117    1.21   10.61   0.16    0.33  0.22     -0.35    304.14
## R5     6 1118    0.64    1.75   0.61    0.58  0.33      0.00     41.40
## R6     7 1113    6.50   35.61   1.12    2.09  1.49     -0.48   1063.43
## R7     8 1118    0.92    7.71   0.41    0.50  0.43     -0.37    228.80
## R8     9 1118    2.61   24.20   0.75    0.90  0.69     -1.69    601.22
## R9    10 1119    0.07   81.33   0.88    1.31  1.95  -2520.49    423.66
## R10   11 1108   48.23  438.00   5.82    9.23  6.99     -2.73  12711.20
## R11   12 1118   85.33  611.47  85.94   78.45 19.07  -3699.74  19744.76
## R12   13 1118    1.26    5.14   1.00    1.00  0.00     -1.00    100.00
## R13   14 1119    0.31    1.62   0.13    0.20  0.18     -1.35     38.00
## R14   15 1117   78.44  573.28   6.87   13.54  7.82   -621.61  13596.65
## R15   16 1118    0.41    5.48   0.14    0.20  0.18    -97.45    103.03
## R16   17 1113    2.73   28.37   0.41    0.55  0.51   -278.42    843.37
## R17   18 1117    5.47   48.90   0.34    0.67  0.47     -0.57   1227.90
## R18   19 1086 -323.92 7031.19   4.51    2.17 15.03 -161986.63   6787.08
## R19   20 1118    6.52  110.04   1.85    2.45  6.54   -967.87   2446.08
## R20   21 1117  647.40 6080.04  13.37   45.69 42.20 -15349.69 172456.97
## R21   22 1119    0.07    0.74   0.02    0.03  0.06     -1.89     20.70
## R22   23 1113    0.12    3.99   0.06    0.11  0.18    -63.32     28.62
```

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```
## R23    24 1119    2.77   92.91    0.10    0.15  0.26    -269.47   3094.37
##             range    skew kurtosis      se   IQR
## Y           1.00  -0.78    -1.39    0.01  1.00
## R1       1613.64  30.03   955.53    1.49  1.26
## R2       2444.78  31.79  1038.66    2.22  1.51
## R3       4516.74 -11.53   269.36    4.94  0.97
## R4        304.49  23.36   620.43    0.32  0.58
## R5         41.40  22.66   525.48    0.05  0.45
## R6       1063.91  24.40   701.57    1.07  3.33
## R7        229.17  26.25   727.31    0.23  0.65
## R8        602.90  18.83   396.94    0.72  1.06
## R9       2944.16 -26.29   823.48    2.43  3.04
## R10     12713.94  23.68   645.94   13.16 13.18
## R11     23444.49  29.30   955.39   18.29 36.48
## R12       101.00  19.03   362.50    0.15  0.00
## R13        39.35  22.48   519.91    0.05  0.32
## R14     14218.26  16.09   316.83   17.15 18.41
## R15       200.47   7.21   310.73    0.16  0.33
## R16      1121.79  22.85   699.41    0.85  0.85
## R17      1228.47  18.05   390.74    1.46  1.08
## R18    168773.70 -22.42   511.76  213.36 21.08
## R19      3413.95  14.80   336.62    3.29  8.53
## R20    187806.66  21.46   575.57  181.92 74.56
## R21        22.60  21.31   550.88    0.02  0.09
## R22        91.95  -7.18   110.01    0.12  0.27
## R23      3363.84  32.90  1092.57    2.78  0.35
```

```r
#######################################
## cleaning my data from Missing Value ##
#######################################

mydata %>% summarise_all(funs(sum(is.na(.))))
```

```
## Warning: `funs()` was deprecated in dplyr 0.8.0.
## Please use a list of either functions or lambdas:
##
##   # Simple named list:
##   list(mean = mean, median = median)
##
##   # Auto named with `tibble::lst()`:
##   tibble::lst(mean, median)
##
##   # Using lambdas
##   list(~ mean(., trim = .2), ~ median(., na.rm = TRUE))
## This warning is displayed once every 8 hours.
## Call `lifecycle::last_warnings()` to see where this warning was generated.
```

```
## # A tibble: 1 x 24
##       Y    R1    R2    R3    R4    R5    R6    R7    R8    R9   R10   R11   R12
##   <int> <int> <int> <int> <int> <int> <int> <int> <int> <int> <int> <int> <int>
## 1     0    11    11    42    11    10    15    10    10     9    20    10    10
## # ... with 11 more variables: R13 <int>, R14 <int>, R15 <int>, R16 <int>,
## #   R17 <int>, R18 <int>, R19 <int>, R20 <int>, R21 <int>, R22 <int>, R23 <int>
```

```r
unique(mydata$R1)
```

```
##   [1]  4.675849e+00  4.848808e+00  4.449737e+00  8.124334e+00  5.301444e+00
##   [6]  5.823451e+00  3.639089e+00  3.658721e-01  4.527655e-01  5.727234e-01
##  [11]  6.771233e-01  7.154036e-01  7.236983e-01  6.910621e-01  8.001419e-01
##  [16]  8.517881e-01  1.441093e+00  1.595527e+00  1.566831e+00  1.772397e+00
##  [21]  1.898751e+00  2.145050e+00  2.792027e+00  2.749896e+00  5.732896e-01
##  [26]  6.544754e-01  6.537879e-01  5.124576e-01  6.096333e-01  5.702739e-01
##  [31]  4.969945e-01  8.511461e-01  1.052682e+00  1.204484e+00  1.500044e+00
##  [36]  1.132987e+00  1.097140e+00  1.185434e+00  1.363593e+00  1.533099e+00
##  [41]  1.199694e+01  9.809559e+00  1.588182e+01  1.485778e+01  1.355791e+01
##  [46]  1.117104e+01  1.113274e+01  1.167897e+01  9.021362e-01  9.435016e-01
##  [51]  9.658631e-01  1.051237e+00  1.100636e+00  1.134422e+00  1.273602e-01
##  [56]  1.143854e+00  2.089758e+00  2.016391e+00  1.751435e+00  1.422826e+00
##  [61]  1.343705e+00  2.088118e+00  4.957387e+00 -1.116314e+01  2.568947e+00
##  [66]  3.659340e+00  3.093616e+00  2.555925e+00  2.998808e+00  2.787335e+00
##  [71]  2.475805e-02  6.587396e+00  9.550684e-01  1.094087e+00  1.183026e+00
##  [76]  1.028366e+00  1.651118e+00  2.406751e+00  1.481966e+00  1.490295e+00
##  [81]  5.440013e-01  7.152653e-01  3.083283e-01  1.908032e-01  2.023355e-01
##  [86]  3.372017e-01  3.031646e-01  4.360151e-01  3.943018e-01  4.350792e-01
##  [91]  5.106285e-01  3.188251e-01  6.160834e-01  6.463421e-01  6.288027e-01
##  [96]  5.983400e-01  2.753950e+00  2.993419e+00  2.898991e+00  2.853467e+00
## [101]  3.647612e+00  3.379163e+00  3.679353e+00  4.066886e+00  4.422713e+00
## [106]  3.653444e+00  7.959477e+00  6.735476e+00  6.250693e+00  4.550165e+00
## [111]  6.847594e+00  2.632175e+00  1.210106e+00  1.069205e+00  1.252808e+00
## [116]  1.797886e+00  1.606122e+00  1.666687e+00  1.577855e+00  1.517725e+00
## [121]  8.825886e-01  1.150273e+00  1.208096e+00  1.180695e+00  7.251635e-01
## [126]  2.478038e+00  1.592654e+00  1.163546e+00  3.778255e-01  4.168410e-01
## [131]  4.437375e-01  7.340985e-01  8.123261e-01  8.518377e-01  8.867250e-01
## [136]  1.064767e+00  3.788999e-01  4.528991e-01  3.410256e-01  1.446771e-01
## [141]  1.758566e-01  3.763767e-01  3.019369e-01  1.673448e-01  1.634823e+00
## [146]  8.993785e-01  1.178380e+00  8.228124e-01  7.361093e-01  5.646219e-01
## [151]  3.123380e-01  2.702509e-01  6.386621e-01  7.103795e-01  8.061607e-01
## [156]  8.995098e-01  1.537564e+00  2.587893e+00  2.774675e+00  1.307515e-01
## [161]  4.779229e-01  3.753971e-01  4.135888e-01  5.906660e-01  5.109174e-01
## [166]  2.070812e+00  1.156111e+00  4.138942e-01  1.036746e+00  9.778602e-01
## [171]  1.024884e+00  9.947059e-01  1.448909e+00  1.307457e+00  1.450849e+00
## [176]  1.340298e+00  1.279601e+00  1.466384e+00  1.315159e+00  8.329473e-01
## [181]  9.017147e-01  8.901843e-01  1.335153e+00  1.549669e+00  5.002041e+00
## [186]  8.732631e+00  1.644336e+00  5.905513e+00  2.875816e+00  2.657905e+00
## [191]  3.407207e+00  5.777822e+01  4.483993e+00  3.028524e+00  9.671473e+00
## [196]  8.441090e+00  1.035899e+01  9.357225e+00  7.595767e+00  5.350643e+00
## [201]  6.238289e-01  3.314748e+00  1.416312e+00  3.369660e-01  7.977943e-01
## [206]  1.719103e+00  2.934679e-01  1.493390e+00 -2.204702e-01 -1.828011e-01
## [211] -1.118779e-01 -1.477327e-01  5.290666e-02  2.778818e-01  1.222103e+00
## [216]  7.512869e-01  2.674808e-01  1.758190e-01  1.112819e-01  1.506605e-01
## [221]  2.774684e-01  4.108165e-01  1.054379e+00  2.077992e-01  9.980730e-01
## [226]  1.146004e+00  2.092313e+00  1.503430e+00  1.201958e+00  4.681938e-01
## [231]  5.786833e-01  1.126517e+01  8.601238e-01  6.663111e-01  6.908348e-01
## [236]  5.263572e-01  1.740082e-01  1.143285e+00  2.712461e+00  1.966405e+00
## [241]  1.120273e+00  1.154397e+00  2.815498e-01  2.964647e-01  3.996025e-01
## [246]  1.436584e+00  8.682071e-01  6.318948e-01  5.976831e-01  5.213948e-01
## [251]  2.541085e+00  9.192620e-01  1.605345e+00  1.207695e+00  4.366972e-01
## [256]  7.504793e-01  1.138741e+00  1.056749e+00  9.918451e-01  1.031400e+00
## [261]  9.702416e-01  1.106758e+00  1.038129e+00  3.322359e+00  8.199153e-01
## [266]  8.723407e-01  5.007416e-01  4.034482e-01  6.393401e-01  1.102282e+00
```

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## [271]   1.572612e+00   1.759715e+00   6.462605e-01   4.898737e+00   2.756957e+00
## [276]   3.095835e+00   7.456109e+00   3.707106e+00   2.390834e+00   1.771821e+00
## [281]   2.163684e-01   2.136681e-01   2.636607e-01   3.004171e-01   3.722475e-01
## [286]   2.897663e-01   2.768923e-01   3.216690e-01   2.389021e-01   2.728197e-01
## [291]   2.865238e-01   2.795250e-01   2.832035e-01   2.565939e-01   2.426192e-01
## [296]   2.859344e-01   3.377614e+00   4.500333e+00   3.820791e+00   4.432570e+00
## [301]   4.633986e+00   4.391469e+00   3.113404e+00   3.470369e+00   9.424170e-01
## [306]   8.929188e-01            NA   6.647690e-01   8.274198e-01   9.296995e-01
## [311]   1.338078e+00   1.036534e+00   4.859542e-01   7.877437e-01   7.463260e-01
## [316]   5.742280e-01   8.517360e-01   1.065616e+00   1.251857e+00   1.354375e+00
## [321]   3.446422e-01   2.858069e-01   2.509107e-01   3.083644e-01   7.465224e-01
## [326]   8.054550e-01   5.795720e-01   1.708085e-01   1.916906e+00   2.149160e+00
## [331]   2.441761e+00   2.812560e+00   2.727747e+00   3.225013e+00   2.950204e+00
## [336]   2.305170e+00   2.587409e+00   2.099801e+00   1.922818e+00   1.584972e+00
## [341]   1.821696e+00   1.780344e+00   1.557350e+00   1.327529e+00   6.053419e-01
## [346]   5.809205e-01   5.243882e-01   5.775082e-01   6.933790e-01   8.088439e-01
## [351]   7.925371e-01   7.616267e-01   3.217369e-01  -4.304406e-01  -7.818787e-01
## [356]  -5.812305e-01  -2.956305e-01  -4.961398e-01   1.746706e+00   1.198977e+00
## [361]   1.158438e+00   7.131297e-01   2.162392e+00   1.254384e+00   1.058884e+00
## [366]   1.251008e+00   1.257421e+00   1.420800e+00   8.948994e-01   8.347421e-01
## [371]   1.041073e+00   1.029033e+00   9.233157e-01   6.360344e-01   5.733693e-01
## [376]   6.527599e-01   5.560103e-01   5.547277e-01   1.266215e+00   1.197324e+00
## [381]   6.414349e-01   5.748419e-01   7.440271e-01   5.024935e-01   5.247542e-01
## [386]   7.481378e-01   7.399232e-01   1.410077e+00   1.569524e+00   1.392563e+00
## [391]   1.228644e+00   8.417159e-01   1.587003e-01   1.314569e-01   1.864710e-01
## [396]   2.394853e-01   2.742093e-03   3.276840e-01   4.176570e-01   5.305433e-01
## [401]   1.788291e+00   2.175902e+00   1.694947e+00   1.613780e+00   1.550696e+00
## [406]   1.720727e+00   2.123672e+00   1.415473e+00   4.181627e-01   4.225572e-01
## [411]   6.680787e-01   6.910404e-01   6.410256e-01   4.299195e-01   1.158128e+00
## [416]   1.072109e+00   5.937675e-01   6.428804e-01   7.796801e-01   7.374611e-02
## [421]   6.245313e-02   4.398676e-02   1.619862e-01   1.057587e-01   9.141070e+00
## [426]   2.375535e+00   6.977056e+00   4.583193e+00   7.293645e+00   3.147574e+00
## [431]   1.428817e+00   6.321581e-01   6.646402e-01   6.564463e-01   7.876105e-01
## [436]   6.468975e-01   7.146434e-01   7.908221e-01   4.909240e-01   1.076519e+00
## [441]   9.867621e-01   1.169409e+00   1.217879e+00   1.204624e+00   1.373731e+00
## [446]   1.169572e+00   1.145191e+00   1.851438e+00   1.363271e+00   1.351629e+00
## [451]   1.143652e+00   1.077958e+00   1.006041e+00   1.066025e+00   1.194305e+00
## [456]   5.079553e-01   4.777697e-01   5.361596e-01   7.030731e-01   6.753355e-01
## [461]   7.939789e-01   7.554688e-01   9.301480e-01   4.804873e-01   4.504605e-01
## [466]   5.250626e-01   6.992813e-01   8.616031e-01   4.578144e-01   6.425499e-01
## [471]   7.480510e-01   3.812549e-03   2.149910e-02   2.501786e-02   2.100548e-02
## [476]   1.827422e-02   1.288800e-02   1.279318e-02   1.156783e-02   4.548375e-01
## [481]   4.412074e-01   4.022026e-01   3.693816e-01   3.278954e-01   3.412650e-01
## [486]   3.381528e-01   3.359612e-01   1.217446e+00   9.200410e-01   9.320144e-01
## [491]   8.647425e-01   8.966324e-01   1.006042e+00   1.073724e+00   1.330263e+00
## [496]   5.469623e-01   6.443626e-01   7.615766e-01   9.314590e-01   1.098771e+00
## [501]   8.564497e-01   1.111390e+00   1.189964e+00   3.757902e+00   2.535471e+00
## [506]   4.445353e+00   1.356157e+00   1.376245e+00   1.249943e+00   4.657222e-01
## [511]   1.349132e+00   4.200090e-01   5.164762e-01   7.497130e-01   1.004511e+00
## [516]   1.766705e+02   2.234879e+02   1.149744e+00   2.033021e+00   3.681823e-01
## [521]   4.699713e-01   4.898055e-01   4.205157e-04   5.679594e-01   2.646950e-01
## [526]   6.349927e-01   5.329562e-01   5.200343e-01   5.379018e-01   5.439383e-01
## [531]   5.417113e-01   5.583569e-01   5.471706e-01   5.728511e+00   7.707571e+00
## [536]   1.172083e+01   1.862293e+01   3.879807e+01   2.401274e+00   1.602477e+03
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## [541]   1.920994e+01   1.625987e+00   1.593257e+00   1.031230e+00   8.787600e-01
## [546]   7.082302e-01   4.100710e-01   2.080845e+00   1.355839e+00   1.615590e+00
## [551]   2.070586e+00   1.268044e+00   5.943706e-01   5.222835e-01   2.264975e-01
## [556]   7.727174e-02   1.244766e-01   3.763466e-01   9.023554e-02   2.109879e-01
## [561]   1.166160e+00   1.058577e-01   1.139474e-01   9.664736e-02   5.714862e-02
## [566]   1.569533e-01   5.573990e-01   4.580855e-01   1.507977e+00   1.392841e+00
## [571]   7.082244e+00   3.878316e+00   5.700110e+00   6.448571e+00   2.618908e+00
## [576]   2.917245e+00   8.775724e-01   9.027467e-01   8.741497e-01   9.334347e-01
## [581]   8.436375e-01   9.395142e-01   8.227151e-01   7.419082e-01   5.995769e-01
## [586]   7.200773e-01   6.138078e-01   7.174432e-01   8.201034e-01   7.146021e-01
## [591]   8.053668e-01   9.071816e-01   4.304406e-01   4.961398e-01   1.255644e+00
## [596]   3.427311e+00   4.061611e+00   2.529883e+00   3.653579e+00   1.445876e+00
## [601]   1.403917e+00   1.891071e+00   1.581947e+00   1.177765e+00   1.137335e+00
## [606]   1.055323e+00   9.174391e-01   7.532012e-01   2.824262e+01   5.311937e-01
## [611]   2.379171e-01   4.560593e-01   4.963867e-01   6.549580e-01   6.443877e-01
## [616]   7.272379e-01   6.767707e-01   8.159760e-01   1.005162e+00   2.406057e-01
## [621]   2.690944e-01   2.671029e-01   8.588598e-01   5.450599e-01   4.803283e-01
## [626]   2.949371e-01   9.316924e-01   3.886565e+00   4.599147e+00   3.487249e+00
## [631]   2.966027e+00   2.710059e+00   2.554927e+00   1.471725e+00   2.490120e+00
## [636]   2.824262e-03   1.322418e+00   3.734655e+00   1.548435e+00   1.955354e+00
## [641]   1.177236e+00   1.124891e+00   1.037580e+00   1.036213e+00   1.369017e+00
## [646]   1.367259e+00   1.338964e+00   1.091713e+00   4.059946e+00   2.231713e+00
## [651]   2.781067e+00   2.801094e+00   5.905784e+00   3.781552e+00   3.435694e+00
## [656]   3.446273e+00   4.717495e+00   7.689218e+00   1.055908e+01   6.079349e+00
## [661]   1.143913e+00   1.387297e+00   1.200701e+00   1.221579e+00   1.152858e+00
## [666]   0.000000e+00   1.022111e+00   1.017298e+00   2.738001e+00   2.631055e+00
## [671]   2.727069e+00   3.066532e+00   1.741794e+00   1.826210e+00   1.956458e+00
## [676]   1.833284e+00   1.945551e+00   3.062873e+00   6.257083e+00   6.445087e+00
## [681]   4.202333e-01   2.667293e-01   2.678653e-01   8.697211e-02   2.007173e+00
## [686]   2.680681e+00   3.030331e+00   2.250448e+00   2.437531e+00   2.375619e+00
## [691]   2.780105e+00   3.025105e+00   2.356358e+00   2.114226e+00   2.250436e+00
## [696]   2.008155e+00   2.222225e+00   1.370095e+00   2.510246e+00   1.603156e+00
## [701]   1.508080e-01   1.570796e-01   1.752766e-01   2.606514e-01   8.335578e-01
## [706]   3.935342e-01   5.015731e-01   7.269419e-01   1.096802e+00   3.709588e+00
## [711]   3.207236e+00   3.669739e+00   8.104816e+00   3.084951e+00   7.232295e+00
## [716]   3.217386e+00   3.339677e+00   3.866617e+00   4.139627e+00   5.594563e+00
## [721]   7.861362e+00   6.142702e+00   7.535048e+00   8.748271e-01   2.423081e-01
## [726]   1.633510e-01   1.170435e-02   1.168393e-02   1.703991e-02   7.191419e-02
## [731]   1.850378e-01   1.567470e-01   1.734095e-01   1.704066e-01   4.889458e-01
## [736]   2.337295e-01   1.667277e-01   1.811160e-01   1.241130e-01   4.961397e-01
## [741]   1.471408e+00   1.344747e+00   9.965466e-01   1.051039e+00   1.853623e+00
## [746]   9.578232e-01   1.244093e+00   6.629580e-01   1.200086e+00   1.627774e+00
## [751]   1.797259e+00   1.728163e+00   1.763696e+00   1.631866e+00   1.812982e+00
## [756]   9.983816e-01   7.894331e-01   7.056086e-01   6.934201e-01   6.604551e-01
## [761]   7.888449e-01   7.948696e-01   6.437096e-01   7.150149e-01   1.055574e+00
## [766]   1.301809e+00   1.308606e+00   3.858551e+00   3.794362e+00   3.385740e+00
## [771]   4.307682e+00   3.277282e+00   1.442390e+00   1.372897e+00   9.119199e-01
## [776]   9.127750e-01   1.736797e+00   7.406264e-01   1.871067e+00   2.965898e+00
## [781]   4.096836e+01   3.808144e+01   1.183667e+01   1.116935e+01   4.613838e+00
## [786]   5.567404e+00   8.185914e+00   4.017826e+00   1.561214e+00   1.625950e+00
## [791]   1.473391e+00   1.346663e+00   1.345385e+00   1.070215e+00   8.598109e-01
## [796]   7.992409e-01   4.860033e-01   5.077962e-01   6.307297e-01   6.802295e-01
## [801]   9.167797e-01   1.105822e+00   1.082144e+00   9.557394e-01   6.849985e-01
## [806]   7.225881e-01   7.509285e-01   8.059822e-01   8.665570e-01   8.759034e-01
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## [811]  8.323753e-01  2.230235e+00  1.370207e+00  1.511722e+00  1.158136e+00
## [816]  1.926979e+00  1.334206e+00  1.906171e+00  5.335560e+00  1.102583e+01
## [821]  1.625987e+00  7.241035e-01  1.361381e+00  4.210039e-01  5.191923e-01
## [826]  7.569351e-01  1.022857e+00  3.792194e+00  1.311718e+00  2.857217e-01
## [831]  2.584278e+00  3.274973e+00  3.433376e+00  2.309523e+00  1.715018e+00
## [836]  1.859829e+00  1.657368e+00  1.867425e+00  6.197769e-01  9.122299e-01
## [841]  6.049649e-01  8.157738e-01  8.636935e-01  5.998178e-01  1.685121e+00
## [846]  3.025156e+00  8.852323e-01  4.141814e-01  6.399438e-01  3.723790e-01
## [851]  2.886929e-01  7.970921e-02 -7.815969e-03  8.226260e-02  1.161479e-01
## [856]  7.440058e-02  8.318567e-02  1.599233e-01  5.307386e-02  5.957566e-02
## [861]  1.457784e-01  1.928768e-01  5.833237e+00  5.068361e+00  4.501159e+00
## [866]  5.436919e+00  1.386348e+02  6.902314e+01  6.990920e+01  6.238641e+00
## [871]  3.363778e-01  3.745276e-01  2.999606e-01  5.681536e-01  6.888258e-01
## [876]  6.442532e-01  6.570256e-01  6.420564e-01  1.150273e+00  1.026668e+00
## [881]  1.004186e+00  4.416809e-01  1.549620e+00  9.263848e-01  8.720988e-01
```

unique(mydata$R2)

```
##   [1]  6.034465e+00  5.823598e+00  5.387504e+00  9.276282e+00  6.719141e+00
##   [6]  6.328628e+00  4.576760e+00  1.064402e+00  7.625653e-01  7.301660e-01
##  [11]  9.493541e-01  9.364731e-01  9.188347e-01  9.374081e-01  9.804605e-01
##  [16]  9.892637e-01  1.611824e+00  1.800645e+00  1.696943e+00  2.016132e+00
##  [21]  2.230317e+00  2.645976e+00  3.116357e+00  3.009317e+00  1.192901e+00
##  [26]  1.221384e+00  1.147365e+00  1.205564e+00  1.175468e+00  1.227804e+00
##  [31]  1.226735e+00  1.364133e+00  1.856399e+00  1.934475e+00  2.590903e+00
##  [36]  2.016931e+00  1.717710e+00  1.936490e+00  2.122025e+00  1.985716e+00
##  [41]  1.286350e+01  1.063227e+01  1.707729e+01  1.614087e+01  1.489324e+01
##  [46]  1.236659e+01  1.297409e+01  1.269877e+01  1.007827e+00  9.966652e-01
##  [51]  1.027952e+00  1.112501e+00  1.163437e+00  1.183188e+00  1.189627e+00
##  [56]  1.180448e+00  2.208120e+00  2.066041e+00  1.824723e+00  1.462474e+00
##  [61]  1.377169e+00  2.159959e+00  5.208336e+00  4.590019e+00  2.568985e+00
##  [66]  3.659416e+00  3.093688e+00  2.556075e+00  2.998919e+00  2.787436e+00
##  [71]  2.475911e-02  6.600642e+00  1.737806e+00  1.893981e+00  1.962785e+00
##  [76]  1.645994e+00  2.295636e+00  2.423881e+00  2.437125e+00  2.044628e+00
##  [81]  1.745852e+00  1.635414e+00  1.365056e+00  1.330684e+00  1.240262e+00
##  [86]  1.596857e+00  1.597771e+00  2.189228e+00  4.351694e-01  4.977495e-01
##  [91]  5.534724e-01  3.390174e-01  6.590094e-01  7.750316e-01  7.862671e-01
##  [96]  8.647958e-01  3.238912e+00  3.646269e+00  3.314694e+00  3.424631e+00
## [101]  4.154237e+00  4.036214e+00  3.858615e+00  4.416790e+00  6.906559e+00
## [106]  5.564686e+00  1.061859e+01  9.772892e+00  9.069492e+00  6.590846e+00
## [111]  1.028601e+01  3.616805e+00  1.247022e+00  1.069205e+00  1.252808e+00
## [116]  1.803610e+00  1.606122e+00  1.666687e+00  1.577855e+00  1.517725e+00
## [121]  1.083668e+00  1.321071e+00  1.316009e+00  1.287053e+00  7.866283e-01
## [126]  2.567297e+00  1.669601e+00  1.256383e+00  4.330471e-01  4.991900e-01
## [131]  5.271815e-01  8.180505e-01  9.557818e-01  9.928764e-01  1.055363e+00
## [136]  1.067751e+00  4.118294e-01  5.160325e-01  4.428244e-01  3.020895e-01
## [141]  3.249776e-01  5.623562e-01  4.673536e-01  3.046848e-01  3.119924e+00
## [146]  2.535105e+00  2.222292e+00  1.758188e+00  1.539632e+00  1.470525e+00
## [151]  1.120030e+00  9.255937e-01  1.503841e+00  1.766956e+00  1.757083e+00
## [156]  1.887053e+00  2.660603e+00  3.496340e+00  3.465552e+00  2.342321e-01
## [161]  7.342819e-01  5.516674e-01  6.786156e-01  9.691634e-01  6.615404e-01
## [166]  2.325105e+00  1.544691e+00  5.298316e-01  1.890500e+00  2.037842e+00
## [171]  1.862437e+00  2.115998e+00  2.992064e+00  2.643525e+00  2.292641e+00
## [176]  1.920178e+00  1.458357e+00  1.700208e+00  1.593303e+00  1.371112e+00
## [181]  1.346184e+00  1.303609e+00  1.622873e+00  1.806508e+00  5.002041e+00
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## [186]  8.732631e+00  1.644336e+00  5.905832e+00  2.876606e+00  2.657905e+00
## [191]  3.407207e+00  5.778072e+01  4.483993e+00  3.028524e+00  9.671473e+00
## [196]  8.441090e+00  1.035899e+01  9.357225e+00  7.595767e+00  5.350643e+00
## [201]  1.416702e+00  4.286787e+00  2.544451e+00  1.929024e+00  1.940019e+00
## [206]  2.756871e+00  1.160648e+00  2.606555e+00  1.227325e-01  1.744611e-01
## [211]  2.287956e-01  2.064397e-01  4.335767e-01  5.403909e-01  1.237400e+00
## [216]  7.743723e-01  3.784055e-01  3.440455e-01  2.564885e-01  2.853760e-01
## [221]  3.783281e-01  5.573142e-01  1.057552e+00  2.084525e-01  9.980730e-01
## [226]  1.146004e+00  2.393919e+00  1.965460e+00  1.201958e+00  4.681938e-01
## [231]  5.786833e-01  1.126517e+01  1.022825e+00  8.182107e-01  8.603855e-01
## [236]  6.972517e-01  2.803473e-01  1.303157e+00  3.007135e+00  2.298928e+00
## [241]  1.120273e+00  1.154397e+00  3.689755e-01  4.425050e-01  4.715471e-01
## [246]  1.689950e+00  1.021330e+00  7.890453e-01  1.589117e+00  1.663048e+00
## [251]  3.983731e+00  2.639587e+00  3.974883e+00  4.841188e+00  4.976986e+00
## [256]  8.181348e+00  1.138741e+00  1.056749e+00  1.049913e+00  1.031400e+00
## [261]  1.052025e+00  1.106758e+00  1.123625e+00  3.322359e+00  1.340757e+00
## [266]  1.276519e+00  1.333151e+00  1.531037e+00  1.694532e+00  2.250140e+00
## [271]  2.834644e+00  4.496281e+00  1.630022e+00  6.672138e+00  3.777968e+00
## [276]  3.830406e+00  9.271036e+00  4.706244e+00  3.131379e+00  2.242084e+00
## [281]  4.951451e-01  5.014964e-01  5.422867e-01  6.157153e-01  6.004914e-01
## [286]  4.562235e-01  4.869090e-01  6.018206e-01  1.272298e+00  1.264615e+00
## [291]  1.253695e+00  1.208948e+00  1.177450e+00  1.179452e+00  1.170823e+00
## [296]  1.149179e+00  3.423452e+00  4.548123e+00  3.875494e+00  4.483520e+00
## [301]  4.683500e+00  4.523676e+00  3.447624e+00  3.553187e+00  9.659575e-01
## [306]  9.033051e-01            NA  8.036358e-01  9.597461e-01  1.422255e+00
## [311]  2.062462e+00  1.255449e+00  1.421770e+00  1.444214e+00  1.499512e+00
## [316]  1.491535e+00  1.456711e+00  1.781457e+00  1.926996e+00  2.381698e+00
## [321]  3.446422e-01  2.858069e-01  2.509107e-01  3.083644e-01  7.465224e-01
## [326]  8.054550e-01  5.795720e-01  2.163800e-01  2.850917e+00  3.255388e+00
## [331]  3.405613e+00  3.768457e+00  3.016818e+00  3.271281e+00  2.995351e+00
## [336]  2.701533e+00  2.640966e+00  2.208319e+00  1.980215e+00  1.671141e+00
## [341]  2.135087e+00  1.885619e+00  1.744795e+00  1.502456e+00  1.107060e+00
## [346]  1.078058e+00  1.065371e+00  1.058528e+00  1.138696e+00  1.143634e+00
## [351]  1.135574e+00  1.090454e+00  4.162685e-01 -5.582033e-01 -8.772120e-01
## [356] -6.573125e-01 -4.021984e-01 -5.715280e-01  1.843016e+00  1.278608e+00
## [361]  1.235348e+00  7.618026e-01  2.281217e+00  1.390230e+00  1.165693e+00
## [366]  1.349930e+00  1.374545e+00  1.586483e+00  1.301242e+00  1.216556e+00
## [371]  1.727328e+00  1.835468e+00  1.673953e+00  1.522005e+00  1.510419e+00
## [376]  1.313558e+00  1.570552e+00  1.009036e+00  2.081706e+00  2.039706e+00
## [381]  1.719468e+00  1.572080e+00  1.801625e+00  1.285837e+00  1.500916e+00
## [386]  1.738656e+00  1.644957e+00  2.086560e+00  2.124303e+00  2.088025e+00
## [391]  1.687916e+00  1.241534e+00  1.610333e-01  1.357731e-01  1.923594e-01
## [396]  2.473712e-01  2.847763e-03  3.451696e-01  4.349450e-01  6.257884e-01
## [401]  2.451470e+00  2.845283e+00  2.363983e+00  2.140019e+00  1.930359e+00
## [406]  2.343858e+00  2.616218e+00  1.668207e+00  4.891571e-01  4.854386e-01
## [411]  7.459956e-01  9.894546e-01  1.019469e+00  1.133425e+00  1.642104e+00
## [416]  2.198701e+00  6.327348e-01  6.802543e-01  8.357735e-01  8.067873e-02
## [421]  7.244417e-02  4.853993e-02  1.787538e-01  1.163915e-01  9.159881e+00
## [426]  2.380423e+00  6.979649e+00  4.583549e+00  7.298322e+00  3.148281e+00
## [431]  1.429165e+00  7.216961e-01  7.510857e-01  7.890665e-01  8.847492e-01
## [436]  9.416953e-01  1.193258e+00  1.060782e+00  1.248386e+00  1.137171e+00
## [441]  1.033393e+00  1.269752e+00  1.299713e+00  1.326766e+00  1.419326e+00
## [446]  1.197686e+00  1.210221e+00  1.854910e+00  1.366847e+00  1.358548e+00
## [451]  1.149421e+00  1.084468e+00  1.008732e+00  1.071834e+00  1.194623e+00
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## [456]   1.039271e+00   1.042686e+00   1.096231e+00   1.269967e+00   1.412738e+00
## [461]   1.542278e+00   1.555697e+00   1.751525e+00   8.044597e-01   9.243297e-01
## [466]   1.036191e+00   1.215016e+00   1.574368e+00   1.032001e+00   1.274926e+00
## [471]   1.409640e+00   7.427358e-01   7.388763e-01   7.348793e-01   7.107893e-01
## [476]   7.170619e-01   6.902488e-01   4.398661e-01   4.323772e-01   4.548375e-01
## [481]   4.412074e-01   4.022026e-01   3.693816e-01   3.278954e-01   3.412650e-01
## [486]   3.381528e-01   3.359612e-01   1.263036e+00   9.514823e-01   1.002302e+00
## [491]   1.101525e+00   1.155018e+00   1.285741e+00   1.319938e+00   1.527207e+00
## [496]   1.781094e+00   1.516440e+00   1.471469e+00   1.528665e+00   1.457526e+00
## [501]   1.426669e+00   2.387500e+00   2.190044e+00   5.628155e+00   5.206875e+00
## [506]   7.685183e+00   2.910339e+00   4.459961e+00   4.050660e+00   2.030097e+00
## [511]   2.277999e+00   1.537558e+00   1.500352e+00   1.627894e+00   1.809166e+00
## [516]   1.776388e+02   2.246861e+02   2.033575e+00   3.645085e+00   4.031717e-01
## [521]   5.008358e-01   5.112913e-01   4.813023e-04   6.140582e-01   3.429748e-01
## [526]   7.794006e-01   6.291015e-01   6.216064e-01   6.476649e-01   6.543733e-01
## [531]   6.805472e-01   7.197211e-01   7.644068e-01   5.749720e+00   7.721278e+00
## [536]   1.174224e+01   1.862889e+01   3.881310e+01   3.648552e+00   2.443901e+03
## [541]   1.921736e+01   1.704252e+00   1.755807e+00   1.226520e+00   9.400417e-01
## [546]   7.132777e-01   9.228734e-01   2.166031e+00   1.395350e+00   2.112600e+00
## [551]   2.887896e+00   2.203534e+00   1.009722e+00   1.005852e+00   8.410742e-01
## [556]   7.016930e-01   4.263429e-01   5.948235e-01   6.952348e-01   7.890092e-01
## [561]   1.325030e+00   1.333037e-01   1.408247e-01   1.233944e-01   7.074324e-02
## [566]   1.569533e-01   5.573990e-01   4.580855e-01   2.090042e+00   1.995604e+00
## [571]   9.203189e+00   4.791786e+00   5.700110e+00   6.448571e+00   3.203120e+00
## [576]   3.719510e+00   1.343646e+00   1.370849e+00   1.289870e+00   1.304333e+00
## [581]   1.295845e+00   1.416279e+00   1.243487e+00   1.188487e+00   6.031107e-01
## [586]   7.236616e-01   6.166713e-01   7.186250e-01   8.213427e-01   7.157033e-01
## [591]   8.065393e-01   9.083919e-01   5.582033e-01   5.715280e-01   1.339039e+00
## [596]   4.379026e+00   5.641722e+00   3.235824e+00   4.790981e+00   2.801508e+00
## [601]   2.503725e+00   3.119999e+00   2.958997e+00   1.443630e+00   1.392477e+00
## [606]   1.249687e+00   1.278168e+00   1.352164e+00   3.291999e+01   5.761930e-01
## [611]   3.226742e-01   4.560593e-01   4.963867e-01   6.549580e-01   6.443877e-01
## [616]   7.272379e-01   6.767707e-01   8.159760e-01   1.005162e+00   2.677427e-01
## [621]   2.978176e-01   2.960029e-01   8.886685e-01   9.130079e-01   9.075886e-01
## [626]   6.505066e-01   6.491954e-01   4.227866e+00   4.979415e+00   3.786299e+00
## [631]   3.252959e+00   2.973619e+00   2.713260e+00   1.610680e+00   2.662610e+00
## [636]   3.291999e-03   1.339993e+00   3.737216e+00   1.587986e+00   2.009742e+00
## [641]   1.262438e+00   1.125505e+00   1.038223e+00   1.036867e+00   1.370741e+00
## [646]   1.369589e+00   1.342039e+00   1.094994e+00   4.084204e+00   2.250104e+00
## [651]   2.786239e+00   2.806397e+00   5.960556e+00   3.812802e+00   3.458823e+00
## [656]   3.464704e+00   4.732254e+00   7.707990e+00   1.058462e+01   6.100447e+00
## [661]   1.143913e+00   1.387297e+00   1.200701e+00   1.221579e+00   1.152858e+00
## [666]   0.000000e+00   1.022111e+00   1.017298e+00   2.753059e+00   2.640533e+00
## [671]   2.735725e+00   3.087993e+00   1.757414e+00   1.840671e+00   1.962206e+00
## [676]   2.098940e+00   2.074045e+00   3.199553e+00   6.557998e+00   6.798246e+00
## [681]   4.331395e-01   2.853530e-01   2.860231e-01   9.395621e-02   2.007173e+00
## [686]   2.680681e+00   3.030331e+00   2.250448e+00   2.437531e+00   2.375619e+00
## [691]   2.780105e+00   3.025105e+00   2.357400e+00   2.116222e+00   2.252779e+00
## [696]   2.009713e+00   2.222694e+00   1.370148e+00   2.510862e+00   1.603820e+00
## [701]   1.676515e-01   1.794933e-01   2.077397e-01   3.263312e-01   9.276462e-01
## [706]   4.581804e-01   5.735696e-01   7.320315e-01   1.105666e+00   3.724476e+00
## [711]   3.231079e+00   3.680961e+00   8.111736e+00   3.095116e+00   7.251722e+00
## [716]   3.220536e+00   3.343059e+00   3.871154e+00   4.142321e+00   5.598386e+00
## [721]   7.865865e+00   6.143993e+00   7.538581e+00   1.116427e+00   1.070454e+00
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## [726]    2.375010e+00  1.711138e-01  1.703257e-01  2.938490e-01  6.235948e-01
## [731]    1.212136e+00  1.574604e-01  1.747003e-01  1.717138e-01  4.894153e-01
## [736]    2.337295e-01  1.708639e-01  1.819786e-01  1.242320e-01  5.715280e-01
## [741]    1.814611e+00  1.702009e+00  1.337220e+00  1.405212e+00  2.234293e+00
## [746]    1.220332e+00  1.259391e+00  6.860434e-01  1.317282e+00  1.686426e+00
## [751]    1.877713e+00  1.841352e+00  1.937583e+00  1.809996e+00  2.042357e+00
## [756]    1.248005e+00  1.351628e+00  1.338691e+00  1.304431e+00  1.387788e+00
## [761]    1.216350e+00  1.246251e+00  1.162043e+00  1.085909e+00  1.861159e+00
## [766]    1.870221e+00  1.956353e+00  4.354154e+00  4.232261e+00  3.770632e+00
## [771]    4.818598e+00  3.670212e+00  1.806848e+00  1.634009e+00  1.417942e+00
## [776]    1.151771e+00  1.991620e+00  1.032016e+00  1.871067e+00  2.965898e+00
## [781]    4.096956e+01  3.808526e+01  1.183680e+01  1.117007e+01  4.614146e+00
## [786]    5.568187e+00  8.186913e+00  4.017826e+00  1.608251e+00  1.674191e+00
## [791]    1.518347e+00  1.375081e+00  1.377857e+00  1.103596e+00  8.892401e-01
## [796]    8.242429e-01  4.860033e-01  5.077962e-01  6.307297e-01  6.802295e-01
## [801]    9.167797e-01  1.105822e+00  1.082144e+00  9.557394e-01  7.247475e-01
## [806]    7.958671e-01  8.270815e-01  8.774194e-01  9.226786e-01  9.266442e-01
## [811]    8.853207e-01  2.814789e+00  1.370207e+00  1.511722e+00  1.158136e+00
## [816]    1.926979e+00  1.334206e+00  1.906171e+00  5.335560e+00  1.102583e+01
## [821]    1.704252e+00  7.594550e-01  1.417114e+00  1.535918e+00  1.500052e+00
## [826]    1.632141e+00  1.824815e+00  3.792194e+00  1.311718e+00  2.857217e-01
## [831]    2.584278e+00  3.274973e+00  3.433376e+00  2.309523e+00  1.715018e+00
## [836]    1.859829e+00  1.657368e+00  1.867425e+00  1.149731e+00  1.080248e+00
## [841]    1.070855e+00  1.099168e+00  1.007911e+00  7.428141e-01  1.859285e+00
## [846]    3.247487e+00  8.973746e-01  4.731004e-01  7.126347e-01  4.380261e-01
## [851]    3.391960e-01  8.970233e-02  8.862713e-05  9.102816e-02  1.161479e-01
## [856]    7.440058e-02  8.318567e-02  1.599233e-01  5.307386e-02  5.957566e-02
## [861]    1.457784e-01  1.928768e-01  6.124725e+00  5.303164e+00  4.771037e+00
## [866]    5.632482e+00  1.386618e+02  6.905766e+01  6.992639e+01  6.281337e+00
## [871]    4.322711e-01  4.525063e-01  3.983787e-01  7.336106e-01  7.302863e-01
## [876]    7.195231e-01  7.072562e-01  6.850809e-01  1.321071e+00  1.498216e+00
## [881]    1.354647e+00  9.166861e-01  2.424142e+00  1.854461e+00  1.517626e+00
```

unique(mydata$R3)

```
##    [1]  8.698016e-01  9.676392e-01  7.552646e-01  9.710358e-01  1.292496e+00
##    [6]  2.109891e+00  1.713269e+01  2.129441e-01 -1.293367e-01 -1.834048e-01
##   [11] -1.935009e-02 -2.222303e-02 -3.430020e-02 -3.259396e-02 -8.417011e-03
##   [16] -6.057371e-03  8.856192e-01  1.023511e+00  8.306839e-01  9.607532e-01
##   [21]  1.218154e+00  1.683373e+00  1.361262e+00  1.087004e+00  1.818712e-01
##   [26]  2.005346e-01  1.286148e-01  1.754810e-01  2.050259e-01  3.104508e-01
##   [31]  3.032289e-01  5.842581e-01  2.309587e-01  2.486109e-01  2.867527e-01
##   [36]  2.239909e-01  2.153384e-01  2.098204e-01  2.048184e-01  1.766680e-01
##   [41]  1.751100e+00  1.807126e+00  1.817739e+00  1.777106e+00  1.644721e+00
##   [46]  1.524218e+00  1.083945e+00  8.390558e-01  2.418172e-02 -9.083597e-03
##   [51]  5.248638e-02  2.170065e-01  2.113091e-01  3.091221e-01  3.989228e-01
##   [56]  3.608611e-01  6.595038e-01  6.243652e-01  4.355705e-01  1.958406e-01
##   [61]  1.396619e-01  4.655971e-01  1.187342e+00  1.242707e+00  2.175167e+01
##   [66]  2.979616e+01  3.336576e+01  1.492433e+01  1.484872e+01  1.792372e+01
##   [71] -7.383647e+02  1.136508e+00  9.557705e-01  1.194703e+00  1.195220e+00
##   [76]  1.158984e+00  1.479909e+00  9.472964e-01  8.997925e-01  8.903036e-01
##   [81]  8.513924e+00  1.040578e+00  5.015447e+00  2.148251e+00  3.310726e+00
##   [86]  3.618731e+00  3.479556e+00  7.227034e+00 -5.508665e+00 -4.655807e+00
##   [91] -5.935512e+00 -8.595062e+00 -8.089345e-01 -6.637156e-01 -3.040135e-01
##   [96] -1.592962e-01  1.308845e+00  1.771150e+00  2.152397e+00  2.077966e+00
```

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## [101]   2.518152e+00   1.655748e+00   1.933931e+00   1.546932e+00   6.621267e-01
## [106]   5.676515e-01   5.211649e-01   4.371761e-01   4.544711e-01   5.467564e-01
## [111]   5.262610e-01   4.422901e-01   2.035444e-01   5.777351e-02   1.631656e-01
## [116]   4.174831e-01   4.305182e-01   4.573026e-01   3.958345e-01   2.411518e-01
## [121]   1.334448e-01   3.812955e-01   4.241220e-01   2.184928e-01  -3.485696e-01
## [126]   3.375516e+00   1.089602e+00   2.069021e-01  -2.162339e+01  -2.470041e+01
## [131]  -1.028072e+01  -1.117299e+00  -1.899285e-01  -1.537508e-02   1.611684e-01
## [136]   1.159365e-01  -2.498814e-01  -3.103126e-01  -2.140884e-01  -1.528162e+00
## [141]  -1.856144e-01  -1.509528e-01  -4.131486e-01  -1.084611e+00   5.684341e-01
## [146]   5.410470e-01   4.104032e-01   3.979333e-01   2.862375e+01   2.974749e-01
## [151]   1.240726e-01  -8.180923e-02   5.783587e-01   1.034477e+00   1.097424e+00
## [156]   1.346724e+00   2.169331e+00   3.848291e+00   4.513004e+00  -8.735469e+00
## [161]  -1.532027e-01  -2.436251e-01  -1.460892e-01  -1.280399e-02  -1.975728e-01
## [166]   7.871236e-01   2.593435e-01  -7.438437e-01   7.238438e-01   7.043671e-01
## [171]   7.572961e-01   8.610201e-01   1.103845e+00   1.000719e+00   1.287197e+00
## [176]   1.961913e+00   3.865768e-01   6.258033e-01   3.938520e-01   2.904737e-01
## [181]   3.234938e-01   3.202516e-01   4.607950e-01   3.228310e-01   3.496011e-01
## [186]   1.009511e+00   4.868246e-01   1.164719e+00   1.091531e+00   9.459057e-01
## [191]   8.812875e-01   1.167070e+00   5.925027e-01   6.014774e-01   6.188975e-01
## [196]   6.526117e-01   6.985602e-01   9.771352e-01   9.157601e-01   6.922354e-01
## [201]   6.702336e-01   7.333986e-01   4.445211e-01   3.605629e-01   6.855384e-01
## [206]   1.633592e-01   2.481982e-01   8.445484e-01  -1.541329e+00  -1.193130e+00
## [211]  -1.988478e+00  -1.595897e+00  -1.217699e+00  -1.157506e+00   2.919345e-01
## [216]  -7.070395e-01  -9.981945e-01  -9.215051e-01  -1.161829e+00  -1.154596e+00
## [221]  -8.335605e-01  -4.836267e-01   3.558060e-02  -2.004760e+00  -2.765368e-03
## [226]   9.475283e-03   3.372520e-01   6.641633e-01   1.942094e-01  -4.357591e+01
## [231]  -1.391138e+00   1.133433e-01   2.939373e-02  -3.600081e-01  -1.721193e-01
## [236]  -4.274627e-01  -2.116013e+00   4.521783e-01   1.185142e+00   2.816228e+00
## [241]   1.179559e+00   2.287214e+00  -4.364000e+00  -5.686806e+00  -2.432725e+00
## [246]   1.991496e+00   3.046565e-02  -2.911028e-01   1.710488e+00   1.239919e+00
## [251]   5.397551e+00   9.726935e-01   7.274309e-01   8.434536e-01   7.413724e-01
## [256]   9.103287e-01   1.365415e-01   3.711139e-02   2.739516e-01   5.564176e-02
## [261]   7.203548e-02   1.232923e+00   2.057499e-01   2.978787e+00   5.054439e-01
## [266]   2.692101e-01   5.083284e-01   1.481292e+00   1.560901e+00   1.564133e+00
## [271]   1.076264e+00   3.156681e+00   7.295414e-01   7.673936e-01   6.778320e-01
## [276]   4.702332e-01   6.086067e-01   6.082426e-01   6.671281e-01   4.954741e-01
## [281]  -2.904595e+01  -9.234426e+00  -1.750301e+00  -3.145547e+03  -7.650242e-01
## [286]  -1.180278e+00  -6.722513e-01  -3.849557e-01   1.908713e+00   2.132688e+00
## [291]   1.539916e+00   1.042802e+00   8.637574e-01   6.099195e-01   5.726394e-01
## [296]   5.386938e-01   1.593903e+00   1.880000e+00   1.722645e+00   2.043707e+00
## [301]   2.652115e+00   1.961679e+00   2.130926e+00   2.075965e+00  -2.351999e+00
## [306]            NA   8.081029e-02  -9.202390e-02  -5.193225e-02   1.349049e+00
## [311]   1.794744e+00   2.799089e-01   1.548208e+00   6.722241e-01   5.758996e-01
## [316]   1.065205e+00   9.310447e-01   1.609298e+00   2.410637e+00   4.474668e+00
## [321]  -1.791200e+00  -8.876804e+00  -1.186510e+01  -9.497701e-01  -3.469652e-01
## [326]  -7.306606e-01  -1.125261e+01   1.376622e+00   1.380025e+00   1.180487e+00
## [331]   1.368143e+00   1.056572e+00   1.032986e+00   1.028670e+00   8.312062e-01
## [336]   3.893208e-01   4.976757e-01   2.901966e-01   2.574288e-01   5.710901e-01
## [341]   4.119704e-01   2.867995e-01   4.157067e-01   8.489332e-02   7.250089e-02
## [346]   5.220740e-02   3.311443e-02   7.149220e-02   6.688358e-02   5.682884e-02
## [351]   3.891409e-02  -6.828348e-01   1.338120e+00   1.595325e+00   1.755608e+00
## [356]   1.305590e+00   1.630217e+00   8.664828e-01   2.898117e-01   3.241523e-01
## [361]  -1.972668e-01   1.371868e+00   4.878062e-01   1.532809e-01   2.832201e-01
## [366]   4.419461e-01   5.090608e-01   1.932881e-01   1.228561e-01   2.824201e-01
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## [371]    2.803042e-01   2.806787e-01   2.705499e-01   2.233285e-01   1.243886e-01
## [376]    1.338145e-01   3.461950e-03   2.124044e-01   2.202083e-01   1.144194e-01
## [381]    1.129377e-01   1.815208e-01   6.938180e-02   3.894245e-01   6.874923e-01
## [386]    5.591884e-01   1.302020e+00   1.290109e+00   1.065483e+00   1.884458e+00
## [391]    5.699604e-01  -2.959898e+01  -2.001368e+01  -1.681831e+01  -9.210758e+00
## [396]   -1.150419e+01  -5.752672e+00  -2.814377e+00  -1.236272e+00   4.981948e-01
## [401]    4.780716e-01   3.968479e-01   3.718870e-01   4.237186e-01   4.523161e-01
## [406]    4.550601e-01   3.446519e-01  -2.189084e+01  -4.774856e+01  -5.012497e-01
## [411]   -1.726036e-02   3.324194e-02   1.618757e-01   5.455303e-01   4.878224e+00
## [416]   -6.491250e+00  -4.342170e+00  -7.032108e-01  -1.125339e+01  -1.218812e+01
## [421]   -1.445490e+01  -4.057562e+00  -1.782197e+01   1.371193e+03   1.387486e+02
## [426]    9.743482e+00   5.547791e+01   1.872654e+01  -5.386322e+00  -2.494116e+00
## [431]   -6.158748e-01  -7.531908e-02  -6.062978e-02   1.308036e-01   2.457416e-02
## [436]    2.055716e-01   9.464290e-02   3.440591e-02   2.953860e-01   3.305874e-01
## [441]    3.144082e-01   3.874403e-01   2.382922e-01   2.496286e-01   2.314083e-01
## [446]    2.274880e-01   2.091013e-01   9.582922e-02   5.445824e-02   6.256658e-03
## [451]    5.529675e-02   1.473652e-01   6.874955e-02   1.204133e-01   2.099111e-01
## [456]    3.972461e-01   4.390914e-01   5.452216e-01   6.107556e-01   7.514098e-01
## [461]   -1.066228e+00  -1.612686e-01   6.990023e-02   3.469848e-01   5.750093e-01
## [466]    8.481751e-02   3.673932e-01   3.630999e-01  -2.269053e+00  -1.272267e+00
## [471]   -8.678948e-01  -7.861529e-01  -6.167673e-01  -7.591002e-01  -1.850733e+00
## [476]   -2.089944e+00  -4.339919e+00  -4.396282e+00  -5.180953e+00  -5.860877e+00
## [481]   -7.180442e+00  -7.967047e+00  -9.557623e+00  -7.656136e+00   2.986897e-01
## [486]   -7.014559e-02   2.520160e-03   1.299917e-01   1.605858e-01   3.171964e+00
## [491]    6.265590e-01   6.398638e-01   4.485171e-01   3.514200e-01   3.586229e-01
## [496]    3.265816e-01   2.139252e-01   1.158936e-01   1.334956e+02   1.735192e+02
## [501]    6.358039e-01   7.084761e-01   7.731005e-01   1.209708e+00   5.094805e-01
## [506]    2.635751e-01   2.168709e-01   1.895109e-01   2.791434e-01   2.986730e-01
## [511]    2.907288e-01   2.814639e-01   7.025693e+01   6.277861e+01   4.545462e-01
## [516]    5.266258e-01  -5.644979e+00  -3.830696e+00  -4.531145e+00  -6.404690e+00
## [521]   -1.086369e+00  -2.399379e+00  -3.704489e+00  -8.537736e+00  -2.509730e+00
## [526]   -9.155828e+00  -5.356323e+00  -4.854505e+00  -1.614419e+00  -4.625032e-01
## [531]    1.178651e+00   1.782842e+00   1.588145e-01   1.530904e-01   7.603849e-02
## [536]   -1.630505e-02  -1.211908e-01  -3.326580e-02   2.885187e-01   1.856146e-01
## [541]    3.818826e-01   4.891118e-01   4.480995e-01   3.499045e-01   3.076529e-01
## [546]    3.379289e-03   2.360372e-03  -1.113154e-01  -1.693161e-01  -1.378802e-01
## [551]   -8.949218e-02  -5.310247e-02  -3.418194e-02   6.311188e-01  -3.126788e+00
## [556]   -4.097851e+00  -4.503279e+00  -6.479086e+00  -6.830386e+00  -6.839512e-01
## [561]   -1.066626e+00   3.658146e-01   3.058841e-01   7.485126e-01   6.676609e-01
## [566]    5.588480e-01   7.513289e-01   3.222398e+00   4.843965e-01   2.787455e-01
## [571]    2.701623e-01   2.283614e-01   1.711934e-01   1.585783e-01   1.831403e-01
## [576]    1.205622e-01   1.393760e-01  -5.584901e-01  -4.605953e-01  -6.994811e-01
## [581]   -5.619838e-01  -3.854574e-01  -6.626531e-01  -5.351232e-01  -2.988337e-01
## [586]   -3.793966e-01   4.444733e-01   3.367567e-01   1.064538e+00   7.698326e-01
## [591]    8.103244e-01   4.981764e-01   4.641621e-01   4.577721e-01   6.030432e-01
## [596]    5.483259e-01   1.365421e-01   1.104836e-01   7.151427e-02   9.183107e-02
## [601]    2.169028e-01   5.325949e-01  -1.054357e+00  -1.210299e+00  -5.198151e-01
## [606]   -4.935181e-01  -4.935746e-01  -4.869312e-01  -4.461013e-01  -3.017052e-01
## [611]   -1.193617e-01   3.206520e-03   8.476609e+00  -4.198973e-02  -6.129452e-02
## [616]   -1.852633e-01  -1.978057e-01   6.984956e-01   8.476533e-01   6.467388e-01
## [621]    5.442782e-01   5.026970e-01   6.775010e-01   2.788011e-01   6.893286e-01
## [626]   -1.663038e+00   5.509515e-01   2.025720e+01   3.431042e-01   5.548147e-01
## [631]    9.421345e-02   3.612074e-01   2.703379e-01   1.723906e-01   5.135309e-02
## [636]    1.546763e+00   6.694467e-01   7.982899e-01   6.215491e-01   1.836004e+00
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## [641]   1.594839e+00   1.724954e+00   1.863292e+00   2.032308e+00   2.272298e+00
## [646]   2.555982e+00   2.072681e+00   6.933576e-01   1.515982e+00   7.358500e-01
## [651]   8.551133e-01   1.838475e+00  -1.422380e+01   3.118630e-01   2.420586e-01
## [656]   6.341257e-01   5.997444e-01   8.470935e-01   1.101746e+00   6.128101e-01
## [661]   6.298539e-01   6.883486e-01   7.694789e-01   7.387186e-01   1.737491e+00
## [666]   1.951061e+00   2.678843e+00  -7.501024e+00  -1.119360e+01  -1.400141e+01
## [671]  -4.342369e+01   1.961450e+00   1.763168e+00   1.514161e+00   1.546218e+00
## [676]   1.989488e+00   1.588239e+00   1.671821e+00   2.010603e+00   3.387247e-01
## [681]   2.519403e-01   2.253195e-01   1.988445e-01   2.307332e-01   2.401195e-01
## [686]   5.805858e-01   2.375946e-01  -7.670416e+00  -7.354811e+00  -6.342459e+00
## [691]  -2.071727e+00  -1.384466e-01  -1.493653e+01  -2.050046e+00  -6.799523e-01
## [696]  -2.167078e-01   6.777067e-02   7.001762e-01   4.652634e-01   4.761339e-01
## [701]   8.186908e-01   8.572391e-01   9.383277e-01   8.372463e-01   9.470519e-01
## [706]   9.860018e-01   9.337310e-01   1.138961e+00   1.624442e+00   1.114999e+00
## [711]   2.132076e+00   3.851827e-02   5.058326e+00  -8.592150e-01  -9.243899e-01
## [716]  -1.373428e+00  -5.588363e-01  -8.216226e-01  -7.137030e-01  -7.564521e-01
## [721]  -1.506729e+00  -4.444733e-01   1.431245e+00   1.014596e+00   8.694902e-01
## [726]   8.149052e-01   2.653488e+00   5.548973e-01   3.189768e-01  -9.838320e-01
## [731]   3.038294e-01   5.938610e-01   6.263272e-01   8.218983e-01   9.617190e-01
## [736]   8.605560e-01   8.822236e-01   3.601246e-01   4.567943e-01   4.705593e-01
## [741]   3.338173e-01   4.083969e-01   2.902331e-01   2.757505e-01   1.765132e-01
## [746]   1.123561e-01   3.970130e-01   5.501380e-01   5.558093e-01   1.703540e+00
## [751]   1.472124e+00   1.499447e+00   1.603567e+00   1.071542e+00   4.013979e-01
## [756]   3.180366e-01   2.160894e-01   5.328064e-02   2.658017e+00   2.216605e-02
## [761]   1.127717e+00   2.755229e+00   2.325336e+02   7.840432e+02   5.318315e+02
## [766]   5.035239e+02   2.563561e+02   2.844988e+02   3.648988e+02   7.514086e+02
## [771]   2.195213e-01   2.282071e-01   1.631056e-01   1.381202e-01   1.227651e-01
## [776]   5.206149e-02  -7.395180e-02  -1.215427e-01  -4.213583e-01  -4.263141e-01
## [781]  -2.963972e-01  -2.162747e-01  -3.967475e-04   4.934376e-02   3.553994e-02
## [786]  -1.891235e-02  -2.436988e+00  -1.029497e+00  -6.259166e-01  -3.720147e-01
## [791]  -2.290333e-01  -2.195571e-01  -2.784741e-01   6.777468e-01   2.479300e-01
## [796]   3.556785e-01   7.828031e-02   2.063634e-01   1.130779e-01   3.014375e-01
## [801]   4.459344e-01   4.719525e-01   1.588145e-01  -1.037505e-01   1.958326e-01
## [806]   2.789494e-01   2.994117e-01   2.936902e-01   2.878721e-01   4.552405e-01
## [811]   5.532953e-01   4.536959e-01   3.386429e-01   2.606942e-01   2.320823e-01
## [816]   2.163619e-01   2.302240e-01   3.786343e-01   7.768754e-02   9.484714e-02
## [821]   8.776499e-02   1.278809e-02  -2.881500e-01   2.764348e-01   3.029781e-01
## [826]  -1.727706e+00  -2.276914e+00  -1.185263e+00  -2.799812e+00  -4.917787e+00
## [831]  -1.762647e+01  -1.876563e+01  -1.896857e+01  -2.970768e+00  -3.367863e+00
## [836]  -3.488954e+00  -3.008222e+00  -2.827815e+00  -2.760671e+00  -2.276626e+00
## [841]  -3.106973e+00   2.093888e+00   2.069189e+00   1.788072e+00   2.113876e+00
## [846]   2.383644e-01  -6.762963e+00  -3.081428e+00  -7.916377e+00  -2.657445e+00
## [851]  -9.575334e-01  -1.355040e+00  -1.669963e+00  -1.631878e+00   3.812955e-01
## [856]   4.444733e-01   7.884666e-01   7.957687e-01  -1.396427e-01   1.509095e+00
## [861]   1.040102e+00   8.225281e-01
```

```
unique(mydata$R4)
```

```
##    [1]   3.317263e+00   3.861509e+00   3.648620e+00   6.540571e+00   3.904936e+00
##    [6]   5.366552e+00   2.923586e+00   7.092735e-02   1.111397e-01   5.500150e-02
##   [11]   2.823165e-02   2.211271e-01   5.768914e-02   1.000330e-01   1.473774e-02
##   [16]   1.010241e-01   8.841454e-02   1.682799e-01   1.257703e-01   1.478654e-01
##   [21]   2.534329e-01   1.100403e-01   2.352054e-01   2.570868e-01   1.192156e-01
##   [26]   1.423208e-01   1.393390e-01   1.277053e-01   2.212509e-01   1.602840e-01
##   [31]   5.799869e-02   1.528699e-01   2.305664e-01   2.417701e-01   3.739291e-01
```

```
##  [36] 1.498311e-01 3.067340e-01 2.958208e-01 5.479537e-01 5.887140e-01
##  [41] 3.810724e+00 5.248222e-01 9.085628e-01 1.055481e+00 3.933665e-01
##  [46] 8.889868e-01 3.027244e+00 4.057157e+00 2.825587e-02 5.784467e-02
##  [51] 1.232739e-02 1.010520e-01 6.036873e-02 4.284534e-02 7.699307e-02
##  [56] 2.445018e-02 1.892045e-01 1.500635e-01 1.400542e-01 2.474906e-01
##  [61] 4.450846e-01 9.615981e-01 1.401924e+00 1.049696e+00 8.128673e-01
##  [66] 1.321454e+00 1.810012e+00 8.333223e-01 1.243185e+00 1.500247e+00
##  [71] 1.496298e+00 4.934292e+00 4.631137e-03 4.902996e-02 1.987602e-02
##  [76] 5.375609e-03 8.450066e-03 2.948220e-04 7.054854e-02 2.004062e-01
##  [81] 7.606242e-02 4.188166e-01 2.004641e-01 3.588986e-02 1.859381e-02
##  [86] 3.758332e-02 3.562996e-02 3.562172e-02 3.135831e-03 3.274647e-02
##  [91] 1.494129e-01 1.066325e-01 9.104723e-02 1.458750e-01 1.866638e-02
##  [96] 8.802426e-02 3.155945e-01 3.360083e-01 5.863243e-01 7.693417e-01
## [101] 5.435024e-01 3.742311e-01 1.511452e+00 1.302191e+00 5.803349e-01
## [106] 7.203404e-01 1.751508e+00 1.702275e+00 1.579754e+00 9.898437e-01
## [111] 1.139542e+00 7.765816e-01 3.146191e-01 1.553408e-01 2.005505e-01
## [116] 1.785320e-01 3.628758e-01 3.776914e-02 1.065119e-01 1.318263e-01
## [121] 4.886145e-02 2.532705e-02 2.835359e-02 2.760643e-02 1.139373e-01
## [126] 2.037204e-01 5.144666e-02 1.118455e-02 1.487761e-03 1.894314e-03
## [131] 4.086636e-03 9.132547e-04 9.874971e-03 3.063457e-02 8.981109e-03
## [136] 1.369466e-01 2.223624e-03 2.577616e-03 2.039906e-02 0.000000e+00
## [141] 2.792945e-03 2.280830e-04 6.031959e-04 1.532739e-03 6.051528e-01
## [146] 6.876514e-02 8.443995e-02 4.825054e-02 5.042419e-02 4.790003e-02
## [151] 1.880213e-02 2.515657e-02 1.145476e-01 1.290589e-01 1.985553e-01
## [156] 2.440622e-01 1.335558e+00 2.151122e+00 2.267130e+00 3.358591e-02
## [161] 1.885470e-01 9.369349e-02 4.235172e-02 6.048451e-02 1.819832e-01
## [166] 1.336409e-01 3.014484e-01 2.084460e-03 2.560351e-02 1.540021e-02
## [171] 9.635867e-02 2.987365e-02 1.921669e-01 3.505782e-01 4.143014e-01
## [176] 3.773647e-01 1.682239e-01 2.317574e-01 1.965326e-01 2.675391e-01
## [181] 1.832896e-01 1.107724e-01 3.857223e-01 1.343229e-01 3.520552e+00
## [186] 7.029226e+00 1.475248e+00 3.230567e+00 2.438277e+00 2.250146e+00
## [191] 2.675222e+00 4.414770e+01 3.187945e+00 2.104456e+00 6.050919e+00
## [196] 6.337754e+00 7.155777e+00 7.489259e+00 5.234786e+00 3.233008e+00
## [201] 2.828147e-01 2.832028e+00 7.382317e-01 1.529974e-01 1.823869e-01
## [206] 3.141762e-01 4.157188e-02 4.576453e-01 7.004369e-02 3.655724e-02
## [211] 2.929984e-01 2.631308e-01 1.160819e-01 1.150194e-01 1.142064e-01
## [216] 9.101793e-02 7.365877e-02 2.953924e-02 6.472499e-03 1.787910e-02
## [221] 3.769810e-02 2.202211e-02 8.129027e-03 2.541572e-03 8.234755e-01
## [226] 1.537744e+00 1.020506e+00 9.367593e-01 3.412560e-01 3.791278e-01
## [231] 9.979753e+00 6.772335e-01 3.035629e-01 4.760129e-01 3.082332e-01
## [236] 9.927483e-03 3.085181e-01 9.360376e-01 5.163243e-01 1.537334e-02
## [241] 2.188315e-01 3.069847e-02 4.689570e-03 3.247820e-02 1.633311e-02
## [246] 9.871007e-03 3.562513e-02 6.135702e-03 4.604792e-02 7.073349e-03
## [251] 1.039942e-03 1.899279e-01 4.942884e-01 6.528637e-03 4.774985e-01
## [256] 2.174573e-02 4.438354e-03 1.070490e-02 6.483365e-02 8.172969e-02
## [261] 2.388766e-02 1.262223e-01 1.720753e-01 7.334590e-02 6.287875e-02
## [266] 2.919948e-02 1.040482e-02 8.738744e-02 1.217939e-01 4.840183e-01
## [271] 8.421431e-02 1.637186e+00 1.009069e+00 4.806313e-01 3.387674e+00
## [276] 1.315005e+00 2.056566e-01 2.328925e-01 3.702295e-03 3.695605e-03
## [281] 4.041462e-03 4.155467e-03 5.686573e-03 4.408356e-03 4.792273e-03
## [286] 7.340824e-03 1.880876e-01 2.435311e-01 2.589201e-01 1.619088e-01
## [291] 1.533467e-01 1.358848e-01 1.383324e-01 1.560122e-01 8.664076e-01
## [296] 1.017858e+00 7.942986e-01 7.425583e-01 1.673815e+00 1.532080e+00
## [301] 1.414125e+00 8.785841e-01 6.851944e-02 5.824596e-02          NA
```

```
## [306]   3.062644e-02  2.684354e-04  1.204985e-01  1.426544e-01  2.519458e-01
## [311]   4.939628e-02  1.750520e-02  8.549075e-02  4.889624e-02  9.572366e-02
## [316]   3.563337e-01  4.643614e-01  4.948550e-01  2.240571e-02  1.714502e-03
## [321]   9.355426e-03  1.644697e-03  4.037782e-03  1.370917e-01  1.023731e-01
## [326]   7.367390e-03  9.438778e-02  2.807568e-01  4.204048e-01  2.584747e-01
## [331]   2.557614e-01  1.243393e+00  1.181042e+00  5.676016e-01  2.882199e-01
## [336]   1.628137e-01  1.752007e-01  1.918185e-01  6.840950e-02  1.001439e-01
## [341]   3.420811e-01  6.133040e-02  4.671891e-03  2.802785e-03  1.114740e-02
## [346]   1.355399e-03  1.541015e-02  1.118053e-02  6.009863e-02  3.664752e-02
## [351]   5.188820e-02 -5.850566e-02 -9.815515e-02 -1.167653e-01 -1.916756e-01
## [356]  -3.527608e-01  1.678403e+00  1.162212e+00  1.061805e-01  7.736861e-02
## [361]   5.125639e-01  3.732295e-01  2.045992e-01  2.871786e-01  1.359344e-01
## [366]   1.617582e-01  2.364707e-01  2.018958e-01  3.406095e-01  1.751832e-01
## [371]   7.399243e-02  4.407643e-02  7.243578e-02  2.295892e-01  2.461206e-01
## [376]   3.422850e-01  8.356565e-01  8.043714e-01  8.697505e-02  1.727038e-01
## [381]   2.955971e-01  1.506030e-01  3.186830e-01  6.149574e-01  5.910903e-01
## [386]   1.208447e+00  1.318441e+00  8.409639e-02  1.758811e-02  3.402194e-02
## [391]   6.105900e-02  3.308585e-04  3.854245e-02  7.237593e-02  4.910245e-02
## [396]   9.821484e-01  1.436757e+00  1.158689e+00  1.210575e+00  1.257017e+00
## [401]   1.321604e+00  1.605764e+00  1.170303e+00  1.152681e-02  7.449829e-03
## [406]   1.281357e-01  5.002350e-03  6.395520e-03  4.475300e-02  3.383816e-01
## [411]   6.320497e-01  2.595450e-02  5.899751e-02  9.540532e-02  2.365478e-02
## [416]   2.897922e-02  9.439947e-03  3.476367e-02  4.869504e-03  2.427027e+00
## [421]   6.307233e-01  2.390296e+00  2.126882e+00  4.065018e+00  9.673318e-01
## [426]   5.089401e-01  1.168306e-02  1.127955e-02  1.198365e-02  3.892359e-02
## [431]   4.269248e-02  7.027308e-02  6.571192e-03  1.601849e-02  2.388228e-01
## [436]   3.353996e-01  1.438410e-01  1.212930e-01  9.986162e-02  1.262085e-01
## [441]   1.639175e-01  1.282482e-01  5.939160e-01  1.172760e-01  3.961745e-01
## [446]   3.257306e-01  2.155863e-01  2.455197e-01  1.119386e-01  3.590227e-01
## [451]   6.337202e-02  6.659572e-02  1.048738e-01  1.364600e-01  9.968388e-02
## [456]   9.808452e-02  1.064197e-01  1.554819e-01  4.120810e-01  3.540137e-01
## [461]   3.905248e-01  5.332520e-01  6.531457e-01  3.749927e-01  4.978279e-01
## [466]   5.489807e-01  9.790903e-03  7.357969e-03  2.810534e-02  3.232758e-02
## [471]   4.689905e-02  1.413236e-01  7.730048e-03  2.061488e-02  2.069919e-02
## [476]   3.861355e-02  2.506817e-02  2.307484e-02  2.562314e-02  3.561778e-02
## [481]   3.737029e-02  4.401499e-02  1.645910e-01  2.704840e-01  1.500248e-01
## [486]   1.241734e-01  1.155272e-01  1.242999e-01  1.555998e-01  3.446435e-01
## [491]   1.286721e-01  1.935465e-01  1.005460e-01  1.147826e-01  5.779974e-02
## [496]   5.054714e-01  1.239771e-01  1.891689e-01  3.337412e+00  2.211471e+00
## [501]   3.870859e+00  1.082708e+00  1.228593e+00  1.115843e+00  2.385904e-01
## [506]   1.211607e+00  4.674253e-02  3.798741e-02  7.840490e-02  2.346546e-01
## [511]   4.234136e-02  1.138697e-01  1.928091e-01  4.643152e-01  3.335446e-03
## [516]   8.702515e-03  1.109956e-02  3.316440e-02  5.079453e-02  2.072883e-02
## [521]   9.550679e-03  2.472920e-02  9.776553e-03  8.452685e-03  7.068102e-03
## [526]   3.699726e-03  1.132853e-02  4.333474e-02  5.726316e+00  7.557912e+00
## [531]   1.157369e+01  1.835516e+01  3.821275e+01  8.172423e-01  3.041397e+02
## [536]   9.581531e+00  4.910684e-01  4.134539e-01  2.883488e-01  2.680820e-01
## [541]   2.710289e-01  6.826569e-02  1.602231e-01  9.824432e-02  1.066780e+00
## [546]   1.415481e+00  6.676558e-01  1.495370e-01  5.957347e-02  5.098445e-02
## [551]   2.611690e-02  5.229592e-02  2.780898e-01  6.164175e-03  1.135236e-01
## [556]   7.323104e-01  2.030034e-02  3.530247e-02  2.660612e-03  3.941847e-04
## [561]   8.374190e-02  1.632872e-01  6.704825e-04  6.567082e-01  9.664989e-01
## [566]   5.544085e+00  2.485483e+00  1.839698e+00  3.451380e+00  1.688535e+00
## [571]   1.991307e+00  3.212048e-01  1.297615e-01  4.207717e-02  7.850948e-02
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## [576]  5.465430e-02  5.221988e-02  7.433907e-02  1.224321e-01  1.262927e-01
## [581]  2.541853e-01  5.349542e-01  6.468565e-01  5.220460e-01  6.363386e-01
## [586]  7.000081e-01  5.850566e-02  3.527608e-01  1.217142e+00  2.617569e-01
## [591]  9.465089e-01  1.509827e+00  2.043059e+00  1.107333e-01  2.624833e-01
## [596]  3.100966e-01  2.849576e-01  6.765970e-02  3.870494e-01  3.094634e-01
## [601]  3.554449e-01  3.851850e-01  1.940278e+01  4.411188e-01  1.309410e-01
## [606]  1.162302e-01  7.013011e-02  9.444369e-02  7.335423e-02  1.987026e-01
## [611]  1.736926e-01  3.340601e-01  3.409206e-01  1.441642e-01  1.617563e-01
## [616]  1.565972e-01  8.261997e-01  2.382623e-01  5.154341e-02  1.151239e-02
## [621]  9.315613e-02  3.208027e+00  3.800563e+00  2.613521e+00  2.236757e+00
## [626]  2.060474e+00  2.154115e+00  1.112422e+00  2.097113e+00  2.239131e-01
## [631]  1.940278e-03  1.874934e-01  7.595394e-02  5.698262e-01  1.016173e+00
## [636]  7.556890e-02  6.019257e-02  5.137163e-02  5.341203e-02  7.910864e-01
## [641]  7.439916e-01  7.136288e-01  6.111852e-01  7.310886e-01  9.576546e-01
## [646]  7.150418e-01  1.150177e+00  1.524493e+00  1.015010e+00  1.174288e+00
## [651]  1.375792e+00  3.024469e+00  3.774424e+00  4.982362e+00  5.449208e+00
## [656]  1.033655e+00  1.273179e+00  1.077666e+00  1.154044e+00  1.119134e+00
## [661]  7.900769e-01  9.561193e-01  4.495350e-01  5.311313e-02  1.320827e-01
## [666]  4.142011e-01  2.420571e-02  6.948901e-02  2.016352e-01  2.692994e-01
## [671]  1.056734e-01  8.319800e-01  1.126624e+00  8.884979e-01  1.727287e-01
## [676]  2.461532e-02  4.025636e-03  1.512908e-03  4.950278e-01  8.551696e-01
## [681]  1.000982e+00  4.492026e-01  4.836179e-01  3.788219e-01  7.324356e-01
## [686]  8.682691e-01  9.135638e-01  8.144800e-01  7.882373e-01  7.448024e-01
## [691]  1.095683e+00  7.953024e-01  1.334977e+00  7.989465e-01  6.355570e-03
## [696]  2.111441e-03  1.181867e-03  7.033784e-03  5.238699e-01  9.422125e-03
## [701]  2.829104e-02  1.425137e-01  3.868177e-01  1.806753e+00  1.297446e+00
## [706]  1.627095e+00  5.371450e+00  2.428397e+00  6.150375e+00  1.009088e+00
## [711]  1.024094e+00  1.105395e+00  2.417301e+00  2.740272e+00  2.757900e+00
## [716]  2.397681e+00  1.129650e+00  6.299104e-02  1.708724e-01  3.906420e-02
## [721]  2.746139e-03  2.766728e-03  4.226069e-03  2.521639e-02  1.348107e-01
## [726]  8.482422e-01  6.134688e-01  6.735758e-01  8.547536e-01  1.295239e+00
## [731]  8.908063e-01  7.251215e-01  6.678184e-01  2.290821e-01  1.095883e-01
## [736]  9.187578e-02  4.613927e-01  2.519398e-01  1.238948e-01  2.960509e-01
## [741]  2.322370e-01  3.720280e-02  8.344980e-02  3.167808e-02  9.991062e-02
## [746]  5.181554e-02  5.215356e-02  2.414881e-02  1.732468e-02  6.191963e-01
## [751]  7.351038e-01  5.974733e-01  4.890858e-01  5.646715e-01  6.197407e-01
## [756]  9.538175e-01  1.164959e+00  1.735943e-01  5.472017e-01  3.919030e-01
## [761]  1.105688e-01  1.083085e-01  1.191690e-01  1.544395e-01  1.133729e-02
## [766]  2.822098e-01  1.815091e+00  1.459881e-01  1.715598e-01  1.332407e-01
## [771]  8.222740e-02  3.910887e-02  5.825034e-01  7.831993e-01  5.272204e-01
## [776]  6.425943e-01  5.024852e-01  5.826121e-01  3.556990e-01  2.423059e-01
## [781]  3.098149e-01  4.440138e-02  3.056184e-02  8.259035e-02  3.195598e-02
## [786]  3.041561e+00  3.139838e-01  1.266345e-01  2.666736e-02  1.711050e-02
## [791]  3.409183e-02  3.542893e-02  3.757550e-02  2.835149e-03  1.219387e-03
## [796]  1.529981e-02  7.054413e-01  1.344741e-01  6.547947e-02  2.168382e-01
## [801]  2.914476e-01  4.653470e-02  1.344021e-01  7.789083e-01  1.063975e+00
## [806]  4.910684e-01  6.408393e-02  1.048250e-01  4.956776e-02  4.239714e-02
## [811]  8.921075e-02  2.555805e-01  3.792194e+00  1.311718e+00  2.857217e-01
## [816]  1.456255e+00  1.647623e+00  1.245731e+00  6.526076e-01  5.199156e-01
## [821]  3.644952e-01  6.518362e-01  6.761343e-01  1.461421e-01  1.284438e-01
## [826]  1.152113e-02  1.169167e-01  2.256926e-01  7.834941e-02  3.681936e-01
## [831]  1.007911e+00  2.224192e-02  7.797490e-02  2.544410e-01  2.090423e-01
## [836]  1.447406e-01  4.862494e-03  5.486036e-03  6.718512e-03  2.174000e-02
## [841]  4.645801e-02  6.841183e-02  1.167185e-01  2.243670e-02  2.941122e-02
```

```
## [846]   5.693077e-02   1.235589e-01   4.031513e+00   2.692059e+00   2.240320e+00
## [851]   3.288128e+00   1.385990e+02   6.894575e+01   6.975841e+01   5.862667e+00
## [856]   3.577660e-03   3.144035e-02   2.036328e-02   1.341688e-02   2.080237e-02
## [861]   2.562168e-04   5.164959e-03   2.532705e-02   1.061067e-01   2.536400e-02
## [866]   4.958092e-02   3.747966e-01   6.561378e-02   1.169664e-01
```

```r
### mydata$R5, mydata$R6, mydata$R7, mydata$R8, mydata$R9, mydata$R10, mydata$R11, mydata$R12, mydata$R
data_R1 <- subset(mydata, is.na(mydata$R1))
data_R2 <- subset(mydata, is.na(mydata$R2))
data_R3 <- subset(mydata, is.na(mydata$R3))
data_R4 <- subset(mydata, is.na(mydata$R4))
data_R5 <- subset(mydata, is.na(mydata$R5))
data_R6 <- subset(mydata, is.na(mydata$R6))
data_R7 <- subset(mydata, is.na(mydata$R7))
data_R8 <- subset(mydata, is.na(mydata$R8))
data_R9 <- subset(mydata, is.na(mydata$R9))
data_R10 <- subset(mydata, is.na(mydata$R10))
data_R11 <- subset(mydata, is.na(mydata$R11))

library(VIM)
aggr_plot <- aggr(mydata, col= c('green', 'purple'),
                  numbers= TRUE,
                  sortVars= TRUE,
                  labels= names(mydata),
                  cex.axis = 0.7,
                  gap=3 ,
                  ylab= c('Histogram of Missing Value', 'Pattern'))
```

```
## Warning in plot.aggr(res, ...): not enough horizontal space to display
## frequencies
```
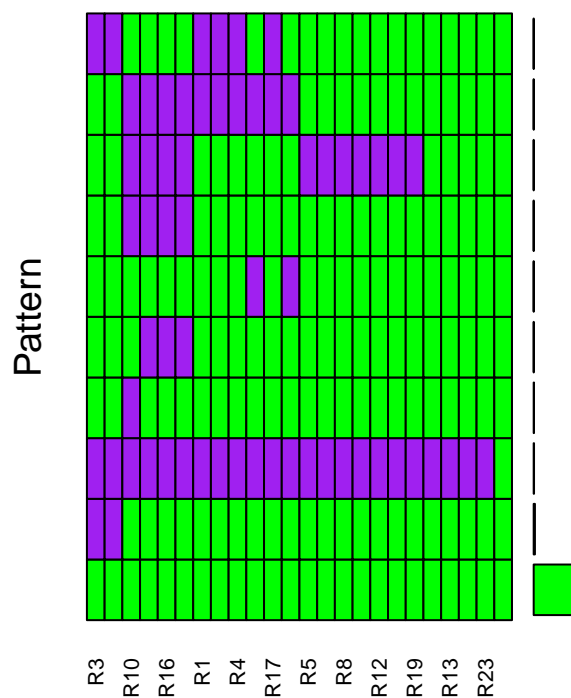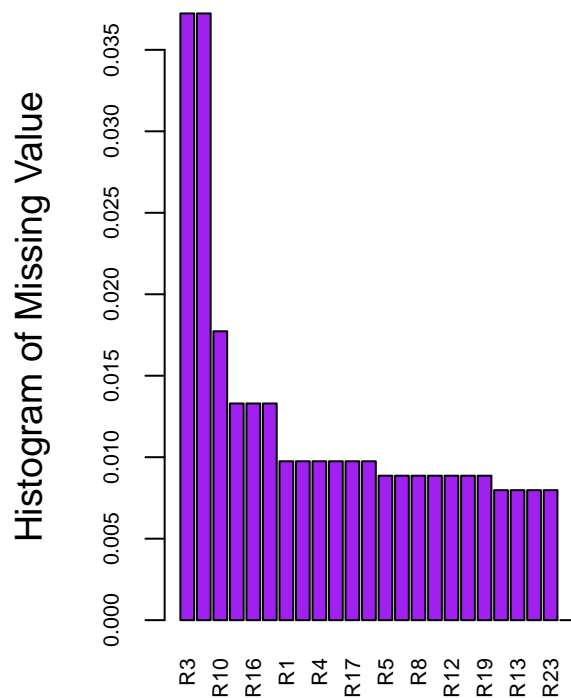
```
##
##  Variables sorted by number of missings:
##  Variable      Count
##       R3 0.037234043
##      R18 0.037234043
##      R10 0.017730496
##       R6 0.013297872
##      R16 0.013297872
##      R22 0.013297872
##       R1 0.009751773
##       R2 0.009751773
##       R4 0.009751773
##      R14 0.009751773
##      R17 0.009751773
##      R20 0.009751773
##       R5 0.008865248
##       R7 0.008865248
##       R8 0.008865248
##      R11 0.008865248
##      R12 0.008865248
##      R15 0.008865248
##      R19 0.008865248
##       R9 0.007978723
##      R13 0.007978723
##      R21 0.007978723
##      R23 0.007978723
```

```
##            Y 0.000000000
```
```
library(mice)
methods(mice)
```
```
## Warning in .S3methods(generic.function, class, envir): function 'mice' appears
## not to be S3 generic; found functions that look like S3 methods

##  [1] mice.impute.2l.bin       mice.impute.2l.lmer       mice.impute.2l.norm
##  [4] mice.impute.2l.pan       mice.impute.2lonly.mean   mice.impute.2lonly.norm
##  [7] mice.impute.2lonly.pmm   mice.impute.cart          mice.impute.jomoImpute
## [10] mice.impute.lda          mice.impute.logreg        mice.impute.logreg.boot
## [13] mice.impute.mean         mice.impute.midastouch    mice.impute.mnar.logreg
## [16] mice.impute.mnar.norm    mice.impute.norm          mice.impute.norm.boot
## [19] mice.impute.norm.nob     mice.impute.norm.predict  mice.impute.panImpute
## [22] mice.impute.passive      mice.impute.pmm           mice.impute.polr
## [25] mice.impute.polyreg      mice.impute.quadratic     mice.impute.rf
## [28] mice.impute.ri           mice.impute.sample        mice.mids
## [31] mice.theme
## see '?methods' for accessing help and source code
```
```
imputed_data <- mice(mydata, m=5, method = 'mean')
```
```
##
##  iter imp variable
##    1   1  R1  R2  R3  R4  R5  R6  R7  R8  R9  R10  R11  R12  R13  R14  R15  R16  R17  R18  R19  R20  R
##    1   2  R1  R2  R3  R4  R5  R6  R7  R8  R9  R10  R11  R12  R13  R14  R15  R16  R17  R18  R19  R20  R
##    1   3  R1  R2  R3  R4  R5  R6  R7  R8  R9  R10  R11  R12  R13  R14  R15  R16  R17  R18  R19  R20  R
##    1   4  R1  R2  R3  R4  R5  R6  R7  R8  R9  R10  R11  R12  R13  R14  R15  R16  R17  R18  R19  R20  R
##    1   5  R1  R2  R3  R4  R5  R6  R7  R8  R9  R10  R11  R12  R13  R14  R15  R16  R17  R18  R19  R20  R
##    2   1  R1  R2  R3  R4  R5  R6  R7  R8  R9  R10  R11  R12  R13  R14  R15  R16  R17  R18  R19  R20  R
##    2   2  R1  R2  R3  R4  R5  R6  R7  R8  R9  R10  R11  R12  R13  R14  R15  R16  R17  R18  R19  R20  R
##    2   3  R1  R2  R3  R4  R5  R6  R7  R8  R9  R10  R11  R12  R13  R14  R15  R16  R17  R18  R19  R20  R
##    2   4  R1  R2  R3  R4  R5  R6  R7  R8  R9  R10  R11  R12  R13  R14  R15  R16  R17  R18  R19  R20  R
##    2   5  R1  R2  R3  R4  R5  R6  R7  R8  R9  R10  R11  R12  R13  R14  R15  R16  R17  R18  R19  R20  R
##    3   1  R1  R2  R3  R4  R5  R6  R7  R8  R9  R10  R11  R12  R13  R14  R15  R16  R17  R18  R19  R20  R
##    3   2  R1  R2  R3  R4  R5  R6  R7  R8  R9  R10  R11  R12  R13  R14  R15  R16  R17  R18  R19  R20  R
##    3   3  R1  R2  R3  R4  R5  R6  R7  R8  R9  R10  R11  R12  R13  R14  R15  R16  R17  R18  R19  R20  R
##    3   4  R1  R2  R3  R4  R5  R6  R7  R8  R9  R10  R11  R12  R13  R14  R15  R16  R17  R18  R19  R20  R
##    3   5  R1  R2  R3  R4  R5  R6  R7  R8  R9  R10  R11  R12  R13  R14  R15  R16  R17  R18  R19  R20  R
##    4   1  R1  R2  R3  R4  R5  R6  R7  R8  R9  R10  R11  R12  R13  R14  R15  R16  R17  R18  R19  R20  R
##    4   2  R1  R2  R3  R4  R5  R6  R7  R8  R9  R10  R11  R12  R13  R14  R15  R16  R17  R18  R19  R20  R
##    4   3  R1  R2  R3  R4  R5  R6  R7  R8  R9  R10  R11  R12  R13  R14  R15  R16  R17  R18  R19  R20  R
##    4   4  R1  R2  R3  R4  R5  R6  R7  R8  R9  R10  R11  R12  R13  R14  R15  R16  R17  R18  R19  R20  R
##    4   5  R1  R2  R3  R4  R5  R6  R7  R8  R9  R10  R11  R12  R13  R14  R15  R16  R17  R18  R19  R20  R
##    5   1  R1  R2  R3  R4  R5  R6  R7  R8  R9  R10  R11  R12  R13  R14  R15  R16  R17  R18  R19  R20  R
##    5   2  R1  R2  R3  R4  R5  R6  R7  R8  R9  R10  R11  R12  R13  R14  R15  R16  R17  R18  R19  R20  R
##    5   3  R1  R2  R3  R4  R5  R6  R7  R8  R9  R10  R11  R12  R13  R14  R15  R16  R17  R18  R19  R20  R
##    5   4  R1  R2  R3  R4  R5  R6  R7  R8  R9  R10  R11  R12  R13  R14  R15  R16  R17  R18  R19  R20  R
##    5   5  R1  R2  R3  R4  R5  R6  R7  R8  R9  R10  R11  R12  R13  R14  R15  R16  R17  R18  R19  R20  R
```
```
## Warning: Number of logged events: 500
```
```
summary(imputed_data)
```
```
## Class: mids
## Number of multiple imputations:  5
```

```
## Imputation methods:
##      Y      R1      R2      R3      R4      R5      R6      R7      R8      R9     R10
##     ""  "mean"  "mean"  "mean"  "mean"  "mean"  "mean"  "mean"  "mean"  "mean"  "mean"
##    R11     R12     R13     R14     R15     R16     R17     R18     R19     R20     R21
## "mean"  "mean"  "mean"  "mean"  "mean"  "mean"  "mean"  "mean"  "mean"  "mean"  "mean"
##    R22     R23
## "mean"  "mean"
## PredictorMatrix:
##     Y R1 R2 R3 R4 R5 R6 R7 R8 R9 R10 R11 R12 R13 R14 R15 R16 R17 R18 R19 R20 R21
## Y   0  1  1  1  1  1  1  1  1  1   1   1   1   1   1   1   1   1   1   1   1   1
## R1  1  0  1  1  1  1  1  1  1  1   1   1   1   1   1   1   1   1   1   1   1   1
## R2  1  1  0  1  1  1  1  1  1  1   1   1   1   1   1   1   1   1   1   1   1   1
## R3  1  1  1  0  1  1  1  1  1  1   1   1   1   1   1   1   1   1   1   1   1   1
## R4  1  1  1  1  0  1  1  1  1  1   1   1   1   1   1   1   1   1   1   1   1   1
## R5  1  1  1  1  1  0  1  1  1  1   1   1   1   1   1   1   1   1   1   1   1   1
##     R22 R23
## Y     1   1
## R1    1   1
## R2    1   1
## R3    1   1
## R4    1   1
## R5    1   1
## Number of logged events:  500
##   it im dep meth     out
## 1  1  1  R1 mean R2, R11
## 2  1  1  R2 mean R1, R11
## 3  1  1  R3 mean     R11
## 4  1  1  R4 mean     R11
## 5  1  1  R5 mean     R11
## 6  1  1  R6 mean     R11
```

```r
finished_imputed <- complete(imputed_data,1)

View(finished_imputed)
dim(finished_imputed)
```

```
## [1] 1128   24
```

```r
# Check for Missing Value ???

sapply(finished_imputed, function(x) sum(is.na(x)))
```

```
##   Y  R1  R2  R3  R4  R5  R6  R7  R8  R9 R10 R11 R12 R13 R14 R15 R16 R17 R18 R19
##   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
## R20 R21 R22 R23
##   0   0   0   0
```

```r
############################################################

###############################################################

## New data without missing value #######################

Hmisc::contents(finished_imputed)
```

```
##
## Data frame:finished_imputed   1128 observations and 24 variables    Maximum # NAs:0
```

```
##
##
##      Storage
## Y    double
## R1   double
## R2   double
## R3   double
## R4   double
## R5   double
## R6   double
## R7   double
## R8   double
## R9   double
## R10  double
## R11  double
## R12  double
## R13  double
## R14  double
## R15  double
## R16  double
## R17  double
## R18  double
## R19  double
## R20  double
## R21  double
## R22  double
## R23  double
```

```
glimpse(finished_imputed)
```

```
## Rows: 1,128
## Columns: 24
## $ Y   <dbl> 1, 1, 1, 1, 1, 1, 0, 0, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, ~
## $ R1  <dbl> 4.6758486, 4.8488081, 4.4497371, 8.1243342, 5.3014441, 5.8234514, ~
## $ R2  <dbl> 6.0344649, 5.8235977, 5.3875043, 9.2762822, 6.7191415, 6.3286277, ~
## $ R3  <dbl> 0.869801621, 0.967639213, 0.755264612, 0.971035829, 1.292495564, 2~
## $ R4  <dbl> 3.31726254, 3.86150870, 3.64862031, 6.54057108, 3.90493649, 5.3665~
## $ R5  <dbl> 0.6276279, 0.6673903, 0.6505275, 0.8163018, 0.7983859, 0.9150584, ~
## $ R6  <dbl> 1.6166626, 1.7175572, 2.0071667, 4.0829302, 2.6078339, 4.2990669, ~
## $ R7  <dbl> 0.60200010, 0.57127620, 0.70144957, 0.75002690, 0.52577611, 0.3651~
## $ R8  <dbl> 0.95916725, 0.85598520, 1.07827811, 0.91881078, 0.65854885, 0.3990~
## $ R9  <dbl> 1.14968744, 1.03344303, 1.32403926, 1.02982812, 0.77369705, 0.4739~
## $ R10 <dbl> 1.74483058, 1.29092378, 1.59217115, 1.30311987, 1.13315104, 0.4706~
## $ R11 <dbl> 64.29239, 61.68977, 64.99840, 31.30277, 25.27144, 23.58608, 24.348~
## $ R12 <dbl> 1.000000, 1.000000, 1.053633, 1.000000, 1.000000, 1.000000, 1.0000~
## $ R13 <dbl> 0.35707612, 0.38310226, 0.38310226, 0.68697231, 0.74728562, 0.7641~
## $ R14 <dbl> 2.800523, 2.610269, 2.610269, 1.455663, 1.338176, 1.308662, 1.3218~
## $ R15 <dbl> 0.35707612, 0.38310226, 0.40364932, 0.68697231, 0.74728562, 0.7641~
## $ R16 <dbl> 0.95892278, 1.15180716, 1.15502458, 3.73967921, 3.70651449, 8.9960~
## $ R17 <dbl> 3.43318614, 3.34292165, 3.34292165, 7.80660902, 6.28908638, 5.2848~
## $ R18 <dbl> 11.3608678, 15.1654582, 9.9223423, 10.5216536, 8.3229603, 13.03817~
## $ R19 <dbl> 6.8392435, 8.6636653, 6.9600227, 7.8915233, 4.3760136, 4.7611436, ~
## $ R20 <dbl> 19.153461, 22.614498, 17.242746, 11.487396, 5.855878, 6.230728, -5~
## $ R21 <dbl> 0.068392435, 0.086636653, 0.066057349, 0.078915233, 0.043760136, 0~
## $ R22 <dbl> 0.183666903, 0.260475411, 0.199157953, 0.429591776, 0.217048976, 0~
```

```
## $ R23 <dbl> 0.13061447, 0.15672637, 0.13137571, 0.10835495, 0.06439450, 0.0617~
str(finished_imputed)
```

```
## 'data.frame':    1128 obs. of  24 variables:
##  $ Y  : num  1 1 1 1 1 1 0 0 1 1 ...
##  $ R1 : num  4.68 4.85 4.45 8.12 5.3 ...
##  $ R2 : num  6.03 5.82 5.39 9.28 6.72 ...
##  $ R3 : num  0.87 0.968 0.755 0.971 1.292 ...
##  $ R4 : num  3.32 3.86 3.65 6.54 3.9 ...
##  $ R5 : num  0.628 0.667 0.651 0.816 0.798 ...
##  $ R6 : num  1.62 1.72 2.01 4.08 2.61 ...
##  $ R7 : num  0.602 0.571 0.701 0.75 0.526 ...
##  $ R8 : num  0.959 0.856 1.078 0.919 0.659 ...
##  $ R9 : num  1.15 1.033 1.324 1.03 0.774 ...
##  $ R10: num  1.74 1.29 1.59 1.3 1.13 ...
##  $ R11: num  64.3 61.7 65 31.3 25.3 ...
##  $ R12: num  1 1 1.05 1 1 ...
##  $ R13: num  0.357 0.383 0.383 0.687 0.747 ...
##  $ R14: num  2.8 2.61 2.61 1.46 1.34 ...
##  $ R15: num  0.357 0.383 0.404 0.687 0.747 ...
##  $ R16: num  0.959 1.152 1.155 3.74 3.707 ...
##  $ R17: num  3.43 3.34 3.34 7.81 6.29 ...
##  $ R18: num  11.36 15.17 9.92 10.52 8.32 ...
##  $ R19: num  6.84 8.66 6.96 7.89 4.38 ...
##  $ R20: num  19.15 22.61 17.24 11.49 5.86 ...
##  $ R21: num  0.0684 0.0866 0.0661 0.0789 0.0438 ...
##  $ R22: num  0.184 0.26 0.199 0.43 0.217 ...
##  $ R23: num  0.1306 0.1567 0.1314 0.1084 0.0644 ...
names(finished_imputed)               ## colnames(finished_imputed)
```

```
##  [1] "Y"   "R1"  "R2"  "R3"  "R4"  "R5"  "R6"  "R7"  "R8"  "R9"  "R10" "R11"
## [13] "R12" "R13" "R14" "R15" "R16" "R17" "R18" "R19" "R20" "R21" "R22" "R23"
car::brief(finished_imputed)
```

```
## 1128 x 24 data.frame (1123 rows and 17 columns omitted)
##          Y       R1       R2        R3       R4 . . .        R22       R23
##        [n]      [n]      [n]       [n]      [n]              [n]       [n]
## 1       1 4.675849 6.034465 0.8698016 3.317263       0.1836669 0.1306145
## 2       1 4.848808 5.823598 0.9676392 3.861509       0.2604754 0.1567264
## 3       1 4.449737 5.387504 0.7552646 3.648620       0.1991580 0.1313757
## . . .
## 1127    0 4.174735 5.326521 1.1293830 1.205675       0.1155299 2.7658256
## 1128    0 4.174735 5.326521 1.1293830 1.205675       0.1155299 2.7658256
typeof(finished_imputed)              # Or we can use mode(df)
```

```
## [1] "list"
summary(finished_imputed)
```

```
##        Y                 R1               R2                R3
##  Min.   :0.0000   Min.   : -11.1631   Min.   : -0.8772   Min.   :-3145.5472
##  1st Qu.:0.0000   1st Qu.:   0.5448   1st Qu.:  0.7942   1st Qu.:   -0.1133
##  Median :1.0000   Median :   1.0043   Median :  1.3646   Median :    0.2906
##  Mean   :0.6826   Mean   :   4.1747   Mean   :  5.3265   Mean   :    1.1294
```

```
##   3rd Qu.:1.0000   3rd Qu.:   1.8683   3rd Qu.:   2.3752   3rd Qu.:   0.9462
##   Max.   :1.0000   Max.   :1602.4773   Max.   :2443.9012   Max.   : 1371.1929
##        R4                 R5                 R6                 R7
##   Min.   : -0.35276   Min.   : 0.00008   Min.   : -0.4768   Min.   : -0.3717
##   1st Qu.:  0.04467   1st Qu.: 0.34808   1st Qu.:  0.3511   1st Qu.:  0.1744
##   Median :  0.16183   Median : 0.60953   Median :  1.1772   Median :  0.4102
##   Mean   :  1.20567   Mean   : 0.64260   Mean   :  6.5001   Mean   :  0.9205
##   3rd Qu.:  0.63790   3rd Qu.: 0.79762   3rd Qu.:  4.1112   3rd Qu.:  0.8422
##   Max.   :304.13968   Max.   :41.40030   Max.   :1063.4291   Max.   :228.7970
##        R8                 R9                 R10                R11
##   Min.   : -1.6867   Min.   :-2520.4948   Min.   :  -2.733   Min.   :-3699.74
##   1st Qu.:  0.3878   1st Qu.:  -0.1055   1st Qu.:   1.950   1st Qu.:   59.79
##   Median :  0.7520   Median :   0.8577   Median :   5.947   Median :   85.42
##   Mean   :  2.6077   Mean   :   0.0671   Mean   :  48.233   Mean   :   85.33
##   3rd Qu.:  1.4694   3rd Qu.:   2.8868   3rd Qu.:  15.607   3rd Qu.:   96.05
##   Max.   :601.2176   Max.   : 423.6621   Max.   :12711.205   Max.   :19744.76
##        R12               R13               R14               R15
##   Min.   : -1.00   Min.   :-1.35008   Min.   : -621.611   Min.   :-97.44756
##   1st Qu.:  1.00   1st Qu.: 0.04388   1st Qu.:    2.609   1st Qu.:  0.03863
##   Median :  1.00   Median : 0.13609   Median :    7.160   Median :  0.13882
##   Mean   :  1.26   Mean   : 0.30828   Mean   :   78.444   Mean   :  0.40833
##   3rd Qu.:  1.00   3rd Qu.: 0.36655   3rd Qu.:   21.584   3rd Qu.:  0.37061
##   Max.   :100.00   Max.   :37.99738   Max.   :13596.645   Max.   :103.02589
##        R16               R17               R18
##   Min.   :-278.4193   Min.   :  -0.5745   Min.   :-161986.63
##   1st Qu.:   0.1177   1st Qu.:   0.0913   1st Qu.:   -11.70
##   Median :   0.4160   Median :   0.3515   Median :     3.98
##   Mean   :   2.7293   Mean   :   5.4655   Mean   :  -323.92
##   3rd Qu.:   0.9979   3rd Qu.:   1.2123   3rd Qu.:    13.19
##   Max.   : 843.3735   Max.   :1227.8955   Max.   :  6787.08
##        R19               R20               R21               R22
##   Min.   :-967.873   Min.   :-15349.69   Min.   :-1.89482   Min.   :-63.32486
##   1st Qu.:  -1.498   1st Qu.:   -2.78   1st Qu.:-0.01225   1st Qu.: -0.02424
##   Median :   1.878   Median :   13.94   Median : 0.02122   Median :  0.06496
##   Mean   :   6.525   Mean   :  647.40   Mean   : 0.07150   Mean   :  0.11553
##   3rd Qu.:   6.901   3rd Qu.:   73.88   3rd Qu.: 0.07189   3rd Qu.:  0.23493
##   Max.   :2446.082   Max.   :172456.97   Max.   :20.70064   Max.   : 28.62023
##        R23
##   Min.   :-269.4676
##   1st Qu.:  -0.0032
##   Median :   0.1039
##   Mean   :   2.7658
##   3rd Qu.:   0.3499
##   Max.   :3094.3749
```

```r
psych::describe(finished_imputed, skew = TRUE, IQR = TRUE)
```

```
##       vars    n   mean     sd median trimmed  mad      min      max
## Y        1 1128   0.68   0.47   1.00    0.73 0.00     0.00     1.00
## R1       2 1128   4.17  49.46   1.00    1.26 0.82   -11.16  1602.48
## R2       3 1128   5.33  73.89   1.36    1.65 1.01    -0.88  2443.90
## R3       4 1128   1.13 159.80   0.29    0.31 0.77 -3145.55  1371.19
## R4       5 1128   1.21  10.56   0.16    0.34 0.22    -0.35   304.14
## R5       6 1128   0.64   1.74   0.61    0.58 0.33     0.00    41.40
## R6       7 1128   6.50  35.37   1.18    2.15 1.58    -0.48  1063.43
```

```
## R7     8 1128    0.92    7.68   0.41    0.50  0.44    -0.37     228.80
## R8     9 1128    2.61   24.10   0.75    0.92  0.70    -1.69     601.22
## R9    10 1128    0.07   81.01   0.86    1.30  1.92 -2520.49     423.66
## R10   11 1128   48.23  434.10   5.95    9.98  7.21    -2.73  12711.20
## R11   12 1128   85.33  608.75  85.42   78.56 19.48 -3699.74  19744.76
## R12   13 1128    1.26    5.12   1.00    1.00  0.00    -1.00     100.00
## R13   14 1128    0.31    1.61   0.14    0.20  0.18    -1.35      38.00
## R14   15 1128   78.44  570.48   7.16   14.26  8.22  -621.61  13596.65
## R15   16 1128    0.41    5.46   0.14    0.20  0.19   -97.45     103.03
## R16   17 1128    2.73   28.18   0.42    0.58  0.52  -278.42     843.37
## R17   18 1128    5.47   48.66   0.35    0.71  0.48    -0.57    1227.90
## R18   19 1128 -323.92 6898.93   3.98   -0.97 16.45 -161986.63  6787.08
## R19   20 1128    6.52  109.55   1.88    2.50  6.67  -967.87    2446.08
## R20   21 1128  647.40 6050.30  13.94   50.83 43.66 -15349.69 172456.97
## R21   22 1128    0.07    0.74   0.02    0.03  0.06    -1.89      20.70
## R22   23 1128    0.12    3.96   0.06    0.11  0.18   -63.32      28.62
## R23   24 1128    2.77   92.54   0.10    0.15  0.26  -269.47    3094.37
##           range    skew kurtosis      se    IQR
## Y          1.00   -0.78   -1.39    0.01   1.00
## R1      1613.64   30.18  964.98    1.47   1.32
## R2      2444.78   31.94 1048.94    2.20   1.58
## R3      4516.74  -11.75  279.91    4.76   1.06
## R4       304.49   23.48  626.58    0.31   0.59
## R5        41.40   22.77  530.22    0.05   0.45
## R6      1063.91   24.57  711.08    1.05   3.76
## R7       229.17   26.36  733.86    0.23   0.67
## R8       602.90   18.91  400.53    0.72   1.08
## R9      2944.16  -26.40  830.14    2.41   2.99
## R10    12713.94   23.89  657.67   12.93  13.66
## R11    23444.49   29.43  963.97   18.13  36.25
## R12      101.00   19.11  365.77    0.15   0.00
## R13       39.35   22.57  524.12    0.05   0.32
## R14    14218.26   16.17  319.99   16.99  18.97
## R15      200.47    7.24  313.54    0.16   0.33
## R16     1121.79   23.00  708.90    0.84   0.88
## R17     1228.47   18.14  394.62    1.45   1.12
## R18   168773.70  -22.85  531.71  205.41  24.89
## R19     3413.95   14.86  339.66    3.26   8.40
## R20   187806.66   21.57  581.28  180.15  76.66
## R21       22.60   21.39  555.34    0.02   0.08
## R22       91.95   -7.23  111.53    0.12   0.26
## R23     3363.84   33.03 1101.40    2.76   0.35
```

```r
bannerCommenter::banner("Data Normalization")
```

```
##
## ###################################################################
## ##                     Data Normalization                       ##
## ###################################################################
```

```r
### Scaled Normalization ###  MAX-MIN NORMALIZATION ###

# Scaled Normalization #
scaleddata<-scale(finished_imputed)
```

```r
# MAX-MIN NORMALIZATION #
normalize <- function(x) {
  return ((x - min(x)) / (max(x) - min(x)))
}
maxmindf <- as.data.frame(lapply(finished_imputed, normalize))
```

correlation

```r
bannerCommenter::banner("correlation ")
```

```
## 
## ######################################################################
## ##                          correlation                            ##
## ######################################################################
######
```

```r
library(corrplot)
```

```
## corrplot 0.90 loaded
```

```r
#type 1
```

```r
corr<-cor(maxmindf)
corr
```

```
##                   Y            R1            R2            R3            R4
## Y     1.000000000 -0.023365979 -0.0291211108  3.206049e-02 -0.0169927701
## R1   -0.023365979  1.000000000  0.9957772654  1.702729e-02  0.8812208354
## R2   -0.029121111  0.995777265  1.0000000000  1.135566e-02  0.8795863327
## R3    0.032060488  0.017027293  0.0113556571  1.000000e+00  0.0058688529
## R4   -0.016992770  0.881220835  0.8795863327  5.868853e-03  1.0000000000
## R5    0.068643036  0.180520525  0.1203217591  1.489755e-02 -0.0136960820
## R6   -0.011987730 -0.008015376 -0.0068735793 -9.078631e-04 -0.0105527300
## R7    0.015067132 -0.004945082 -0.0043440540 -9.097169e-04  0.0012763942
## R8   -0.020806466 -0.006531395 -0.0055678887 -4.616300e-03 -0.0046494932
## R9   -0.016719194  0.000509769  0.0005978748  6.862272e-05 -0.0061189151
## R10  -0.066294042 -0.005769107 -0.0049458083 -8.153476e-04 -0.0117536637
## R11  -0.034998592 -0.056241934 -0.0393406913 -6.273986e-03 -0.0084172839
## R12  -0.067102130 -0.010464127 -0.0095420743 -3.240129e-03 -0.0103312053
## R13   0.003591462  0.200518398  0.1389342770  2.144666e-02  0.0187248486
## R14   0.001840969 -0.008055626 -0.0067159698  1.380578e-03 -0.0094412579
## R15  -0.024197912  0.052872321  0.0348980873  3.953820e-03 -0.0003305304
## R16  -0.026558853  0.015058719  0.0095346064  1.677839e-03 -0.0036826487
## R17  -0.068167288  0.479153916  0.4586923570  3.285403e-02  0.5951554767
## R18   0.087673902  0.003122809  0.0026627460  7.718589e-01  0.0029404707
## R19   0.135387908 -0.001441154 -0.0019754015  4.677349e-03  0.0082828735
## R20   0.094882755 -0.005802192 -0.0050307240  1.799562e-04 -0.0032308228
## R21   0.140918302 -0.016624520 -0.0174842099  5.332179e-03 -0.0074409357
## R22   0.236730953  0.002018711  0.0015172288  5.504000e-03  0.0059919172
## R23   0.019717421 -0.001683625 -0.0015823509 -2.110375e-04 -0.0002733150
##                  R5            R6            R7            R8            R9
## Y     0.0686430356 -0.0119877298  0.0150671321 -0.020806466 -1.671919e-02
## R1    0.1805205252 -0.0080153764 -0.0049450818 -0.006531395  5.097690e-04
## R2    0.1203217591 -0.0068735793 -0.0043440540 -0.005567889  5.978748e-04
## R3    0.0148975540 -0.0009078631 -0.0009097169 -0.004616300  6.862272e-05
```

```
## R4   -0.0136960820 -0.0105527300  0.0012763942 -0.004649493 -6.118915e-03
## R5    1.0000000000  0.0263890119  0.0112744162 -0.017862511 -5.779370e-03
## R6    0.0263890119  1.0000000000  0.2023620279  0.076369314 -5.194696e-02
## R7    0.0112744162  0.2023620279  1.0000000000  0.350312351 -8.185725e-01
## R8   -0.0178625114  0.0763693145  0.3503123510  1.000000000 -2.601106e-01
## R9   -0.0057793703 -0.0519469610 -0.8185724664 -0.260110627  1.000000e+00
## R10  -0.0006028850  0.0144432176  0.0206087693  0.008491002 -5.340095e-03
## R11  -0.2541434463  0.2704019254  0.4506217886  0.218675360 -1.131591e-02
## R12  -0.0090210576  0.1590174340  0.2849916457  0.171839755 -1.412504e-02
## R13   0.9648950934 -0.0078482493 -0.0163094463 -0.015791752  1.754608e-03
## R14   0.0015826658  0.0357308120  0.0001325015 -0.003584882  1.100145e-01
## R15   0.2748953892 -0.1524545759 -0.2353067277 -0.082776455 -6.107141e-04
## R16   0.1063173492  0.7560765173 -0.1353204738 -0.064270174 -5.416793e-04
## R17   0.1505933398 -0.0154944471 -0.0096863952 -0.009567658  6.572898e-04
## R18   0.0120914567  0.0086064908  0.0056791440  0.004857490  3.855643e-05
## R19   0.0052075030  0.0436570877  0.5776160760  0.160966300 -6.136964e-01
## R20  -0.0038155106 -0.0012330921  0.0353984019  0.010136265 -3.593433e-02
## R21  -0.0057108825  0.0156161439  0.2424021745  0.070377255 -2.544766e-01
## R22  -0.0007588723 -0.3001408576  0.0664478568  0.013251784 -7.700173e-02
## R23  -0.0113820803 -0.0129983988 -0.0802196778 -0.027448637  8.719032e-02
##               R10          R11          R12          R13          R14
## Y    -0.0662940420 -0.034998592 -0.0671021304  0.003591462  0.0018409693
## R1   -0.0057691071 -0.056241934 -0.0104641272  0.200518398 -0.0080556257
## R2   -0.0049458083 -0.039340691 -0.0095420743  0.138934277 -0.0067159698
## R3   -0.0008153476 -0.006273986 -0.0032401289  0.021446664  0.0013805783
## R4   -0.0117536637 -0.008417284 -0.0103312053  0.018724849 -0.0094412579
## R5   -0.0006028850 -0.254143446 -0.0090210576  0.964895093  0.0015826658
## R6    0.0144432176  0.270401925  0.1590174340 -0.007848249  0.0357308120
## R7    0.0206087693  0.450621789  0.2849916457 -0.016309446  0.0001325015
## R8    0.0084910019  0.218675360  0.1718397553 -0.015791752 -0.0035848820
## R9   -0.0053400950 -0.011315907 -0.0141250404  0.001754608  0.1100144882
## R10   1.0000000000  0.019524488  0.0276520580 -0.009332224 -0.0042970277
## R11   0.0195244878  1.000000000  0.5364747602 -0.287696583  0.0030105277
## R12   0.0276520580  0.536474760  1.0000000000  0.002350513 -0.0068244069
## R13  -0.0093322244 -0.287696583  0.0023505127  1.000000000 -0.0249998704
## R14  -0.0042970277  0.003010528 -0.0068244069 -0.024999870  1.0000000000
## R15   0.0041563208 -0.612091257  0.3389831306  0.322903956 -0.0097886805
## R16  -0.0087200308 -0.318513367 -0.0361266983  0.117184093 -0.0125312723
## R17  -0.0107379865 -0.058754962 -0.0056246335  0.209088348 -0.0149611530
## R18   0.0050739677  0.001739399  0.0006311958 -0.001658650  0.0066316885
## R19  -0.0123004534  0.007407511 -0.3002659079 -0.005661636  0.0020532485
## R20  -0.0095022590  0.002561375 -0.0051782507 -0.019548362  0.4155765365
## R21  -0.0082737945 -0.001310289 -0.0065446852  0.003665932  0.0017137513
## R22  -0.0029813885 -0.006664274 -0.0966657641  0.008473720  0.0119736290
## R23  -0.0034044183 -0.003090954 -0.0026738089  0.005011823 -0.0039055258
##               R15          R16          R17          R18          R19
## Y    -0.0241979123 -0.0265588534 -0.0681672879  8.767390e-02  0.135387908
## R1    0.0528723209  0.0150587187  0.4791539165  3.122809e-03 -0.001441154
## R2    0.0348980873  0.0095346064  0.4586923570  2.662746e-03 -0.001975402
## R3    0.0039538205  0.0016778390  0.0328540255  7.718589e-01  0.004677349
## R4   -0.0003305304 -0.0036826487  0.5951554767  2.940471e-03  0.008282873
## R5    0.2748953892  0.1063173492  0.1505933398  1.209146e-02  0.005207503
## R6   -0.1524545759  0.7560765173 -0.0154944471  8.606491e-03  0.043657088
## R7   -0.2353067277 -0.1353204738 -0.0096863952  5.679144e-03  0.577616076
```

```
## R8  -0.0827764546 -0.0642701743 -0.0095676580  4.857490e-03  0.160966300
## R9  -0.0006107141 -0.0005416793  0.0006572898  3.855643e-05 -0.613696447
## R10  0.0041563208 -0.0087200308 -0.0107379865  5.073968e-03 -0.012300453
## R11 -0.6120912571 -0.3185133672 -0.0587549621  1.739399e-03  0.007407511
## R12  0.3389831306 -0.0361266983 -0.0056246335  6.311958e-04 -0.300265908
## R13  0.3229039561  0.1171840927  0.2090883480 -1.658650e-03 -0.005661636
## R14 -0.0097886805 -0.0125312723 -0.0149611530  6.631689e-03  0.002053249
## R15  1.0000000000  0.3212089693  0.0601976144 -1.334613e-03 -0.289658540
## R16  0.3212089693  1.0000000000  0.0135442416  3.562976e-03 -0.062590498
## R17  0.0601976144  0.0135442416  1.0000000000 -6.751599e-03  0.005229101
## R18 -0.0013346126  0.0035629763 -0.0067515988  1.000000e+00  0.011294731
## R19 -0.2896585403 -0.0625904976  0.0052291014  1.129473e-02  1.000000000
## R20 -0.0077411327 -0.0102086520 -0.0115646279  6.409491e-03  0.061310167
## R21 -0.0047223532 -0.0052368439  0.0025692159  1.591504e-02  0.807278834
## R22 -0.0831806132 -0.3413608771  0.0036041976  1.178883e-02  0.275627676
## R23  0.0009310727 -0.0028597032  0.0129332233 -6.574065e-05  0.505584426
##                R20          R21          R22          R23
## Y    0.0948827550  0.140918302  0.2367309531  1.971742e-02
## R1  -0.0058021922 -0.016624520  0.0020187108 -1.683625e-03
## R2  -0.0050307240 -0.017484210  0.0015172288 -1.582351e-03
## R3   0.0001799562  0.005332179  0.0055040000 -2.110375e-04
## R4  -0.0032308228 -0.007440936  0.0059919172 -2.733150e-04
## R5  -0.0038155106 -0.005710883 -0.0007588723 -1.138208e-02
## R6  -0.0012330921  0.015616144 -0.3001408576 -1.299840e-02
## R7   0.0353984019  0.242402174  0.0664478568 -8.021968e-02
## R8   0.0101362649  0.070377255  0.0132517841 -2.744864e-02
## R9  -0.0359343269 -0.254476622 -0.0770017262  8.719032e-02
## R10 -0.0095022590 -0.008273794 -0.0029813885 -3.404418e-03
## R11  0.0025613753 -0.001310289 -0.0066642743 -3.090954e-03
## R12 -0.0051782507 -0.006544685 -0.0966657641 -2.673809e-03
## R13 -0.0195483624  0.003665932  0.0084737202  5.011823e-03
## R14  0.4155765365  0.001713751  0.0119736290 -3.905526e-03
## R15 -0.0077411327 -0.004722353 -0.0831806132  9.310727e-04
## R16 -0.0102086520 -0.005236844 -0.3413608771 -2.859703e-03
## R17 -0.0115646279  0.002569216  0.0036041976  1.293322e-02
## R18  0.0064094914  0.015915045  0.0117888293 -6.574065e-05
## R19  0.0613101674  0.807278834  0.2756276761  5.055844e-01
## R20  1.0000000000  0.062164252  0.0479459163  1.166684e-02
## R21  0.0621642520  1.000000000  0.2949408354  8.121186e-01
## R22  0.0479459163  0.294940835  1.0000000000  1.530771e-01
## R23  0.0116668373  0.812118560  0.1530770639  1.000000e+00
```

```r
corrplot(corr, type = "upper", order = "hclust",
         tl.col = "deeppink4", tl.srt = 30)
```
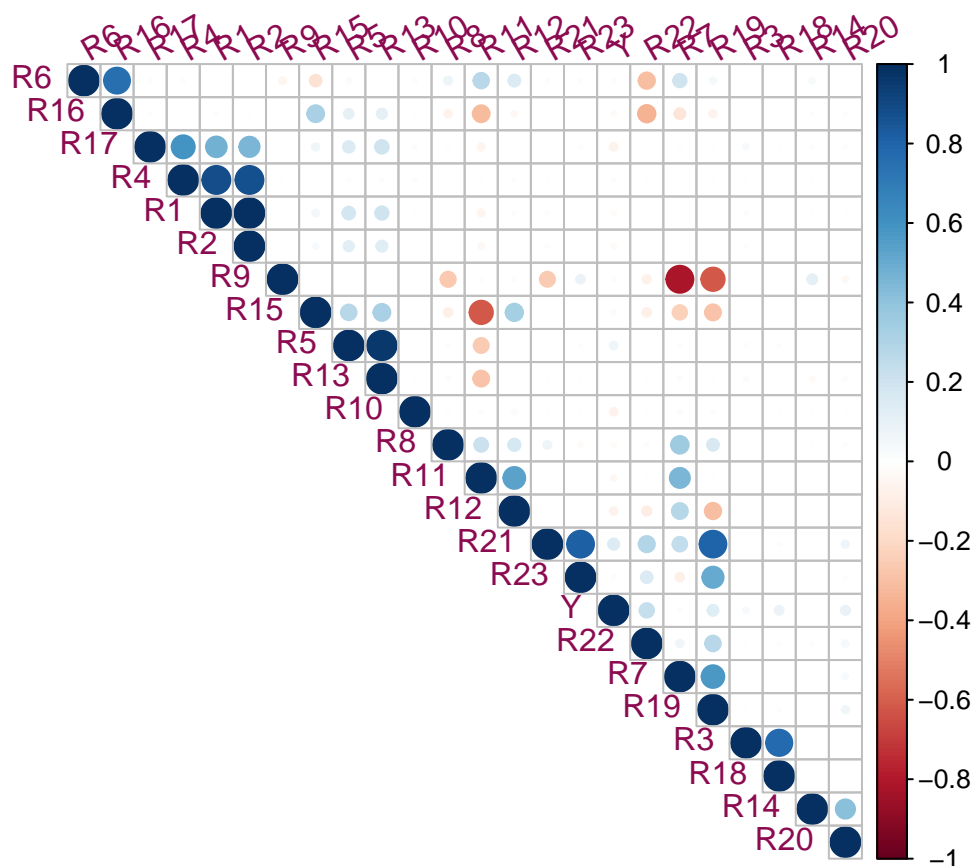
```
#type 2
corrn<-round(cor(maxmindf),digits = 2)   #round two decimals
corrn
```

```
##         Y     R1    R2    R3    R4    R5    R6    R7    R8    R9   R10   R11
## Y    1.00 -0.02 -0.03  0.03 -0.02  0.07 -0.01  0.02 -0.02 -0.02 -0.07 -0.03
## R1  -0.02  1.00  1.00  0.02  0.88  0.18 -0.01  0.00 -0.01  0.00 -0.01 -0.06
## R2  -0.03  1.00  1.00  0.01  0.88  0.12 -0.01  0.00 -0.01  0.00  0.00 -0.04
## R3   0.03  0.02  0.01  1.00  0.01  0.01  0.00  0.00  0.00  0.00  0.00 -0.01
## R4  -0.02  0.88  0.88  0.01  1.00 -0.01 -0.01  0.00  0.00 -0.01 -0.01 -0.01
## R5   0.07  0.18  0.12  0.01 -0.01  1.00  0.03  0.01 -0.02 -0.01  0.00 -0.25
## R6  -0.01 -0.01 -0.01  0.00 -0.01  0.03  1.00  0.20  0.08 -0.05  0.01  0.27
## R7   0.02  0.00  0.00  0.00  0.00  0.01  0.20  1.00  0.35 -0.82  0.02  0.45
## R8  -0.02 -0.01 -0.01  0.00  0.00 -0.02  0.08  0.35  1.00 -0.26  0.01  0.22
## R9  -0.02  0.00  0.00  0.00 -0.01 -0.01 -0.05 -0.82 -0.26  1.00 -0.01 -0.01
## R10 -0.07 -0.01  0.00  0.00 -0.01  0.00  0.01  0.02  0.01 -0.01  1.00  0.02
## R11 -0.03 -0.06 -0.04 -0.01 -0.01 -0.25  0.27  0.45  0.22 -0.01  0.02  1.00
## R12 -0.07 -0.01 -0.01  0.00 -0.01 -0.01  0.16  0.28  0.17 -0.01  0.03  0.54
## R13  0.00  0.20  0.14  0.02  0.02  0.96 -0.01 -0.02 -0.02  0.00 -0.01 -0.29
## R14  0.00 -0.01 -0.01  0.00 -0.01  0.00  0.04  0.00  0.00  0.11  0.00  0.00
## R15 -0.02  0.05  0.03  0.00  0.00  0.27 -0.15 -0.24 -0.08  0.00  0.00 -0.61
## R16 -0.03  0.02  0.01  0.00  0.00  0.11  0.76 -0.14 -0.06  0.00 -0.01 -0.32
## R17 -0.07  0.48  0.46  0.03  0.60  0.15 -0.02 -0.01 -0.01  0.00 -0.01 -0.06
## R18  0.09  0.00  0.00  0.77  0.00  0.01  0.01  0.01  0.00  0.00  0.01  0.00
## R19  0.14  0.00  0.00  0.00  0.01  0.01  0.04  0.58  0.16 -0.61 -0.01  0.01
## R20  0.09 -0.01 -0.01  0.00  0.00  0.00  0.00  0.04  0.01 -0.04 -0.01  0.00
## R21  0.14 -0.02 -0.02  0.01 -0.01 -0.01  0.02  0.24  0.07 -0.25 -0.01  0.00
```

```
## R22  0.24  0.00  0.00  0.01  0.01  0.00 -0.30  0.07  0.01 -0.08  0.00 -0.01
## R23  0.02  0.00  0.00  0.00  0.00 -0.01 -0.01 -0.08 -0.03  0.09  0.00  0.00
##         R12   R13   R14   R15   R16   R17   R18   R19   R20   R21   R22   R23
## Y    -0.07  0.00  0.00 -0.02 -0.03 -0.07  0.09  0.14  0.09  0.14  0.24  0.02
## R1   -0.01  0.20 -0.01  0.05  0.02  0.48  0.00  0.00 -0.01 -0.02  0.00  0.00
## R2   -0.01  0.14 -0.01  0.03  0.01  0.46  0.00  0.00 -0.01 -0.02  0.00  0.00
## R3    0.00  0.02  0.00  0.00  0.00  0.03  0.77  0.00  0.00  0.01  0.01  0.00
## R4   -0.01  0.02 -0.01  0.00  0.00  0.60  0.00  0.01  0.00 -0.01  0.01  0.00
## R5   -0.01  0.96  0.00  0.27  0.11  0.15  0.01  0.01  0.00 -0.01  0.00 -0.01
## R6    0.16 -0.01  0.04 -0.15  0.76 -0.02  0.01  0.04  0.00  0.02 -0.30 -0.01
## R7    0.28 -0.02  0.00 -0.24 -0.14 -0.01  0.01  0.58  0.04  0.24  0.07 -0.08
## R8    0.17 -0.02  0.00 -0.08 -0.06 -0.01  0.00  0.16  0.01  0.07  0.01 -0.03
## R9   -0.01  0.00  0.11  0.00  0.00  0.00  0.00 -0.61 -0.04 -0.25 -0.08  0.09
## R10   0.03 -0.01  0.00  0.00 -0.01 -0.01  0.01 -0.01 -0.01 -0.01  0.00  0.00
## R11   0.54 -0.29  0.00 -0.61 -0.32 -0.06  0.00  0.01  0.00  0.00 -0.01  0.00
## R12   1.00  0.00 -0.01  0.34 -0.04 -0.01  0.00 -0.30 -0.01 -0.01 -0.10  0.00
## R13   0.00  1.00 -0.02  0.32  0.12  0.21  0.00 -0.01 -0.02  0.00  0.01  0.01
## R14  -0.01 -0.02  1.00 -0.01 -0.01 -0.01  0.01  0.00  0.42  0.00  0.01  0.00
## R15   0.34  0.32 -0.01  1.00  0.32  0.06  0.00 -0.29 -0.01  0.00 -0.08  0.00
## R16  -0.04  0.12 -0.01  0.32  1.00  0.01  0.00 -0.06 -0.01 -0.01 -0.34  0.00
## R17  -0.01  0.21 -0.01  0.06  0.01  1.00 -0.01  0.01 -0.01  0.00  0.00  0.01
## R18   0.00  0.00  0.01  0.00  0.00 -0.01  1.00  0.01  0.01  0.02  0.01  0.00
## R19  -0.30 -0.01  0.00 -0.29 -0.06  0.01  0.01  1.00  0.06  0.81  0.28  0.51
## R20  -0.01 -0.02  0.42 -0.01 -0.01 -0.01  0.01  0.06  1.00  0.06  0.05  0.01
## R21  -0.01  0.00  0.00  0.00 -0.01  0.00  0.02  0.81  0.06  1.00  0.29  0.81
## R22  -0.10  0.01  0.01 -0.08 -0.34  0.00  0.01  0.28  0.05  0.29  1.00  0.15
## R23   0.00  0.01  0.00  0.00  0.00  0.01  0.00  0.51  0.01  0.81  0.15  1.00
```

```r
corrplot(corrn, type = "upper", order = "hclust",
         tl.col = "mediumblue", tl.srt = 30)
```
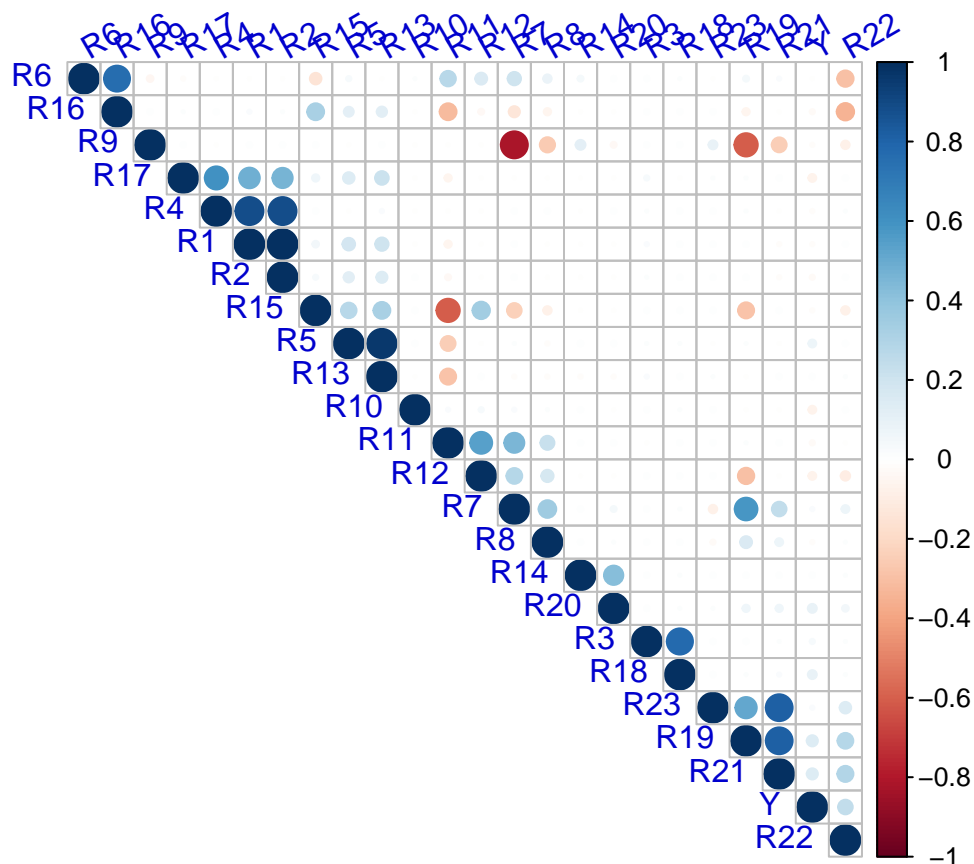
```r
bannerCommenter::banner("Spliting of Dataset")
```

```
##
## ######################################################################
## ##                      Spliting of Dataset                        ##
## ######################################################################
```

```r
#### Training and Test Dataset  ####

set.seed(123)

ind <-  sample.split(maxmindf$Y, SplitRatio = 0.7)

train_data <- maxmindf[ind,]
test_data <- maxmindf[-ind,]

print(dim(train_data)); print(dim(test_data))
```

```
## [1] 790   24
```

```
## [1] 1127    24
```

```
################################################################################
```

```r
# Fit the model
lm.fit <- glm(Y~., data = train_data)
summary(lm.fit)
```

```
##
```

```
## Call:
## glm(formula = Y ~ ., data = train_data)
##
## Deviance Residuals:
##     Min       1Q   Median       3Q      Max
## -1.5775  -0.3993   0.1895   0.2907   0.6736
##
## Coefficients:
##               Estimate Std. Error t value Pr(>|t|)
## (Intercept)  6.923e+02  1.323e+02   5.234 2.14e-07 ***
## R1           1.324e+01  6.850e+00   1.932  0.05370 .
## R2          -1.447e+01  6.605e+00  -2.191  0.02876 *
## R3          -9.218e-01  6.132e-01  -1.503  0.13321
## R4           1.331e+00  9.985e-01   1.333  0.18309
## R5           1.089e+01  1.451e+00   7.505 1.70e-13 ***
## R6           4.241e-01  1.443e+00   0.294  0.76894
## R7          -5.091e+00  2.888e+00  -1.762  0.07839 .
## R8          -1.012e+00  5.456e-01  -1.854  0.06411 .
## R9           2.264e+00  1.280e+00   1.769  0.07733 .
## R10         -1.038e+00  3.938e-01  -2.636  0.00856 **
## R11         -1.227e+03  2.324e+02  -5.278 1.70e-07 ***
## R12          5.308e+02  1.001e+02   5.302 1.50e-07 ***
## R13         -1.129e+01  1.517e+00  -7.439 2.72e-13 ***
## R14         -1.078e+00  3.906e-01  -2.760  0.00593 **
## R15         -1.048e+03  1.987e+02  -5.274 1.74e-07 ***
## R16          1.144e-01  1.933e+00   0.059  0.95284
## R17         -7.134e-01  4.198e-01  -1.699  0.08964 .
## R18          1.351e+00  5.102e-01   2.647  0.00828 **
## R19          9.502e+00  5.334e+00   1.781  0.07523 .
## R20          1.109e+00  4.607e-01   2.407  0.01632 *
## R21         -1.664e-02  3.731e+00  -0.004  0.99644
## R22          2.110e+00  3.602e-01   5.857 6.98e-09 ***
## R23         -6.209e+00  1.201e+00  -5.171 2.97e-07 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## (Dispersion parameter for gaussian family taken to be 0.1707952)
##
##     Null deviance: 171.25  on 789  degrees of freedom
## Residual deviance: 130.83  on 766  degrees of freedom
## AIC: 871.39
##
## Number of Fisher Scoring iterations: 2
```

```
pr.lm <- predict(lm.fit, test_data)
pr.lm
```

```
##           2          3          4          5          6          7
##  0.72043469 0.70666293 0.68814101 0.63769476 0.69105529 0.62891339
##           8          9         10         11         12         13
##  0.69373044 0.73354701 0.72736516 0.72447738 0.72500848 0.75126536
##          14         15         16         17         18         19
##  0.75932693 0.67886050 0.66527117 0.75676554 0.73302103 0.71863165
##          20         21         22         23         24         25
##  0.72708155 0.72419966 0.71495937 0.73403095 0.74607065 0.70818864
```

```
##          26         27         28         29         30         31
## 0.76785035 0.74669889 0.73045820 0.75473735 0.80024495 0.73468552
##          32         33         34         35         36         37
## 0.78907358 0.78478243 0.80131218 0.78487405 0.78560782 0.77128725
##          38         39         40         41         42         43
## 0.77639134 0.81225285 0.78007860 0.91283337 0.87901068 0.89318407
##          44         45         46         47         48         49
## 0.89237445 0.88446547 0.88089190 0.83488930 0.73175768 0.73641455
##          50         51         52         53         54         55
## 0.59882583 0.70799280 0.71479800 0.66405942 0.71366120 0.74731312
##          56         57         58         59         60         61
## 0.69026257 0.69141495 0.67614997 0.64326653 0.64650203 0.64294378
##          62         63         64         65         66         67
## 0.67981289 2.57745481 0.58288159 0.46543402 0.45193611 0.46200214
##          68         69         70         71         72         73
## 0.45560061 0.44663001 0.43432493 0.55953404 0.85583671 0.71550453
##          74         75         76         77         78         79
## 0.72355165 0.71432421 0.80460538 0.76377875 0.41613222 0.82707447
##          80         81         82         83         84         85
## 0.82439348 0.77549314 0.80881167 0.84983934 1.04608895 1.07438773
##          86         87         88         89         90         91
## 1.04553051 1.04280846 0.85330292 0.34813877 0.35757103 0.39305149
##          92         93         94         95         96         97
## 0.55871228 0.68913843 0.74980153 0.71013923 0.71956306 0.79914207
##          98         99        100        101        102        103
## 0.77506063 0.78451722 0.77845320 0.80211551 0.85757848 0.82112131
##         104        105        106        107        108        109
## 0.84629252 0.57500378 0.63325463 0.62195768 0.65882274 0.65482439
##         110        111        112        113        114        115
## 0.65546373 0.63778711 0.71764364 0.75057700 0.67160578 0.78894248
##         116        117        118        119        120        121
## 0.88208136 0.78094708 0.76045485 0.77831652 0.73805651 0.46497855
##         122        123        124        125        126        127
## 0.69170075 0.82317498 0.58767997 0.43729460 0.70267332 0.63218775
##         128        129        130        131        132        133
## 0.65721329 0.58643184 0.74664350 0.67526486 0.73300853 0.82454565
##         134        135        136        137        138        139
## 0.78267240 0.84893229 0.85150495 0.44463780 0.49143000 0.69205955
##         140        141        142        143        144        145
## 0.61456786 0.46098233 -0.38584967 0.49442765 0.55996931 0.62754674
##         146        147        148        149        150        151
## 0.63918912 0.57413788 0.54227220 0.65449123 0.51528041 0.56122781
##         152        153        154        155        156        157
## 0.32821327 0.69011464 0.69375625 0.68910986 0.68510324 0.68134219
##         158        159        160        161        162        163
## 0.72969098 0.73139676 0.68150197 0.60340738 0.69867668 0.64231243
##         164        165        166        167        168        169
## 0.52675955 0.49906718 0.12842394 0.47347282 0.48630819 0.69730231
##         170        171        172        173        174        175
## 0.67330778 0.69811864 0.67318999 0.54586250 0.66311687 0.68445368
##         176        177        178        179        180        181
## 0.69909398 0.77478487 0.77485941 0.76496329 0.75980291 0.77981439
##         182        183        184        185        186        187
## 0.78222570 0.79584147 0.79225864 0.56624137 0.63086303 0.61429618
```

```
##       188        189        190        191        192        193
## 0.68911107 0.56260971 0.47641114 0.67437777 0.99751982 0.61127584
##       194        195        196        197        198        199
## 0.59184538 0.53883500 0.55949288 0.53697110 0.57135450 0.52559205
##       200        201        202        203        204        205
## 0.47497490 0.65998810 0.72272436 0.69276437 0.73859454 0.74392206
##       206        207        208        209        210        211
## 0.75584672 0.81970211 0.65230884 0.50465812 0.67146593 0.12975468
##       212        213        214        215        216        217
## 0.56087258 0.56770645 0.71902438 0.86914581 0.77141915 0.48711851
##       218        219        220        221        222        223
## 0.48724120 0.47162836 0.47354429 0.48625110 0.48707917 0.49218679
##       224        225        226        227        228        229
## 0.57246349 1.06747189 0.67949217 0.66408089 0.64951241 0.67631225
##       230        231        232        233        234        235
## 0.82904154 0.52085314 0.50564008 0.81069150 0.70374995 0.70674595
##       236        237        238        239        240        241
## 0.52442219 0.35182296 0.49519518 0.50397286 0.49085120 0.72007891
##       242        243        244        245        246        247
## 1.56136555 1.12650906 0.98460346 0.82817108 0.70841169 0.99761952
##       248        249        250        251        252        253
## 0.77606663 0.63428405 0.64587493 0.74971264 0.53884647 0.65928606
##       254        255        256        257        258        259
## 0.64936665 0.57748258 0.62373316 0.77163837 0.72575288 0.87609185
##       260        261        262        263        264        265
## 0.90227139 0.87368815 0.85274805 0.84819533 0.67946217 0.83532917
##       266        267        268        269        270        271
## 0.80988386 0.83458845 0.82331069 0.85025583 0.94686019 1.02604529
##       272        273        274        275        276        277
## 1.09784048 0.79448703 0.77516880 0.78514591 0.81463851 0.80906892
##       278        279        280        281        282        283
## 0.77892788 0.75507515 0.75059327 0.60671905 0.58837006 0.57608221
##       284        285        286        287        288        289
## -0.07102828 0.57089731 0.61571562 0.56765663 0.62758828 0.76489797
##       290        291        292        293        294        295
## 0.76549987 0.76738203 0.77256331 0.77558198 0.77431300 0.77090778
##       296        297        298        299        300        301
## 0.76748382 0.73974430 0.73079346 0.71432323 0.70884524 0.71299823
##       302        303        304        305        306        307
## 0.74124471 0.75161362 0.74248349 0.82085832 0.80537478 0.07459389
##       308        309        310        311        312        313
## 0.65963564 0.45813723 0.72064564 0.69031724 0.73194413 0.63226072
##       314        315        316        317        318        319
## 0.62271156 0.61096514 0.61414788 0.66118593 0.67864121 0.72151136
##       320        321        322        323        324        325
## 0.71223821 0.33598486 0.33660140 0.33054884 0.32176087 0.37262951
##       326        327        328        329        330        331
## 0.63715175 0.63138855 0.58700196 0.72577525 0.83957127 0.84884395
##       332        333        334        335        336        337
## 0.86206647 0.91939810 0.86295711 0.84570089 0.86237139 0.86280116
##       338        339        340        341        342        343
## 0.75659935 0.76230382 0.75234212 0.73629077 0.78651405 0.78561322
##       344        345        346        347        348        349
## 0.70888421 0.83849217 0.85465155 0.87431113 0.78193608 0.88401926
```

```
##          350          351          352          353          354          355
##   0.88855648   0.92713087   0.90336055   0.68270519   0.52763729   0.57274141
##          356          357          358          359          360          361
##   0.56284151   0.51916113   0.54106074   0.81468430   0.79889035   0.75478773
##          362          363          364          365          366          367
##   0.73998483   0.71716470   0.69218240   0.71498622   0.72912829   0.71591477
##          368          369          370          371          372          373
##   0.69854564   0.70057511   0.75160415   0.74028276   0.72425261   0.73315256
##          374          375          376          377          378          379
##   0.83936272   0.95428094   0.94509895   0.63159547   0.84563752   0.68883079
##          380          381          382          383          384          385
##   0.66805999   2.07792062   0.60505672   0.58905061   0.64192665   0.70945087
##          386          387          388          389          390          391
##   0.74404696   0.74443655   0.79680143   0.79216636   0.78413770   0.82809431
##          392          393          394          395          396          397
##   0.77353547   0.52113725   0.38245359   0.33835679   0.30830093   0.04097157
##          398          399          400          401          402          403
##   0.28833384   0.41018732   0.43770856   0.94157275   1.02211609   0.98464553
##          404          405          406          407          408          409
##   0.87986306   0.87464024   0.85081828   0.86657180   0.85707441   0.82862762
##          410          411          412          413          414          415
##   0.16095996   0.28504134   0.73192439   0.78646159   0.94490552   0.88048388
##          416          417          418          419          420          421
##   0.78082366   0.57875136   0.56471466   0.56114971   0.58601693   0.59079088
##          422          423          424          425          426          427
##   0.62937573   0.54547069   0.52080158  -0.01996747   0.32825432   0.38904167
##          428          429          430          431          432          433
##   0.40145625   0.44747770   0.47425066   0.59888988   0.68555198   0.07753138
##          434          435          436          437          438          439
##   0.11344150   0.11344681   0.29932538   0.11814911  -0.22952630   0.15462509
##          440          441          442          443          444          445
##   0.50012154   0.70563714   0.80383955   0.83207539   0.82919567   0.85723685
##          446          447          448          449          450          451
##   0.87625010   0.83173494   0.78832460   0.80711351   0.82114471   0.80837108
##          452          453          454          455          456          457
##   0.77412050   0.74752466   0.84348448   0.81352096   0.86546921   0.61315500
##          458          459          460          461          462          463
##   0.60645638   0.59897656   0.61256833   0.59582433   0.63968211   0.39344652
##          464          465          466          467          468          469
##   0.39187198   0.54685588   0.54089364   0.58397708   0.55208341   0.63017105
##          470          471          472          473          474          475
##   0.62184787   0.58153969   0.59522534   0.80657253   0.78597340   0.78957199
##          476          477          478          479          480          481
##   0.77247045   0.76632952   0.74940960   0.73685409   0.73631261   0.60671905
##          482          483          484          485          486          487
##   0.58837006   0.57608221  -0.07102828   0.57089731   0.61571562   0.56765663
##          488          489          490          491          492          493
##   0.62758828   0.63424998   0.63345308   0.64121890   0.64747751   0.64489974
##          494          495          496          497          498          499
##   0.65366506   0.65688963   0.66151677   0.63536610   0.68978354   0.99082541
##          500          501          502          503          504          505
##   0.74239130   0.74205096   0.75937743   0.77793338   0.76320271   0.72602725
##          506          507          508          509          510          511
##   0.75231027   0.76464602   0.79757203   0.71592556   0.71844302   0.68126405
```

```
##        512         513         514         515         516         517
## 0.73088364  0.79881143  0.77694555  0.76284921  0.77772534  0.75185395
##        518         519         520         521         522         523
## 0.72846583  0.74921070  0.77633697  0.69616688  0.69338481  0.66521634
##        524         525         526         527         528         529
## 0.66893724  0.98978097  1.13742238  0.62840481  0.59700748  0.68593922
##        530         531         532         533         534         535
## 0.69995305  0.72846157  0.68555198  0.68555198  0.02303835  0.72369535
##        536         537         538         539         540         541
## 0.71848018  0.64529444  0.69764388  0.69010596  0.70057227  0.69794017
##        542         543         544         545         546         547
## 0.68286863  0.64597357  0.70205952  0.75478773  0.73998483  0.71716470
##        548         549         550         551         552         553
## 0.69218240  0.71498622  0.72912829  0.71591477  0.69854564  0.64197880
##        554         555         556         557         558         559
## 0.62851890  0.65500161  0.65708894 -0.11618747  0.57818211  0.02195175
##        560         561         562         563         564         565
## 0.26052083  0.86655526  0.88425695  0.84969940  0.72693624  0.75085794
##        566         567         568         569         570         571
## 0.70713546  0.59866128  0.72228579  0.94836183  1.02179876  0.98464553
##        572         573         574         575         576         577
## 0.87986306  0.87464024  0.85295579  0.86953842  0.96765568  0.82862762
##        578         579         580         581         582         583
## 0.16095996  0.28504134  0.73192439  0.78646159  0.94490552  0.88048388
##        584         585         586         587         588         589
## 0.78082366  1.05572788  0.13083641  0.83635306  0.68698117  0.54399922
##        590         591         592         593         594         595
## 0.51887200  0.41102658  0.49571469  0.66430164  0.51880535  0.53304915
##        596         597         598         599         600         601
## 0.53069996  0.49945236  0.54908602  0.73587539  0.64736692  1.17835154
##        602         603         604         605         606         607
## 1.01200902  1.05433440  1.06474702  1.21686363  1.14757239  1.45089083
##        608         609         610         611         612         613
## 1.26071066 -0.01996747  0.32825432  0.38904167  0.40145625  0.44747770
##        614         615         616         617         618         619
## 0.47425066  0.59888988  0.68555198  0.83996471  0.82468949  0.88229739
##        620         621         622         623         624         625
## 0.83668436  0.81426699  0.81045912  0.79823529  0.76391839  0.66586271
##        626         627         628         629         630         631
## 0.68894177  0.67058037  0.67171106  0.68972604  0.69400816  0.70566770
##        632         633         634         635         636         637
## 0.71671503  0.68270519  0.56745939  0.57274141  0.56284151  0.51916113
##        638         639         640         641         642         643
## 0.60835532  0.73390053  0.79934648  0.75478773  0.73998483  0.71716470
##        644         645         646         647         648         649
## 0.69218240  0.71498622  0.72912829  0.71591477  0.69854564  0.07753138
##        650         651         652         653         654         655
## 0.11344150  0.11344681  0.29932538  0.11814911 -0.22952630  0.15462509
##        656         657         658         659         660         661
## 0.50012154  0.83698586  0.85859010  0.79901386  0.66022355  0.68744985
##        662         663         664         665         666         667
## 0.88955734  0.84272828  0.88200519  0.79807362  0.78292913  0.76347562
##        668         669         670         671         672         673
## 0.74583889  0.71484334  1.13734207  0.85065566  0.68575869  0.65082352
```

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```
##          674          675          676          677          678          679
##   0.66160588   0.71027596   0.71411580   0.73697504   0.67780931   0.66535904
##          680          681          682          683          684          685
##   0.94115405  -0.01996747   0.32825432   0.38904167   0.40145625   0.44747770
##          686          687          688          689          690          691
##   0.47444919   0.59888988   0.68555198   0.79881143   0.77694555   0.76284921
##          692          693          694          695          696          697
##   0.77772534   0.75185395   0.72846583   0.74921070   0.77633697   0.77897699
##          698          699          700          701          702          703
##   0.72461875   0.67153054   0.78364443   0.47867038   0.57117253   0.54376938
##          704          705          706          707          708          709
##   0.53524435   0.56032495   0.54805874   0.55102962   0.56360110   0.60852336
##          710          711          712          713          714          715
##   0.64204665   0.61548275   0.63483059   0.66586271   0.68894177   0.67529758
##          716          717          718          719          720          721
##   0.67171106   0.68972604   0.69400816   0.70566770   0.71671503   0.72602725
##          722          723          724          725          726          727
##   0.75231027   0.76464602   0.79757203   0.71592556   0.71844302   0.68126405
##          728          729          730          731          732          733
##   0.73088364   0.83996471   0.82468949   0.88229739   0.83668436   0.81426699
##          734          735          736          737          738          739
##   0.81045912   0.79823529   0.76391839   0.79807362   0.78292913   0.76347562
##          740          741          742          743          744          745
##   0.74583889   0.71484334   0.05209358   0.85065566   0.68575869   0.54685588
##          746          747          748          749          750          751
##   0.54089364   0.58397708   0.55208341   0.63017105   0.62184787   0.58153969
##          752          753          754          755          756          757
##   0.59522534   0.70926015   0.60837598   0.60591745   0.64591223   0.64655159
##          758          759          760          761          762          763
##   0.63098013   0.65304646   0.61648106   0.68593922   0.69995305   0.72846157
##          764          765          766          767          768          769
##   0.68555198   0.68555198   0.02303835   0.72369535   0.71848018   0.73354701
##          770          771          772          773          774          775
##   0.72736516   0.72447738   0.72500848   0.75126536   0.75932693   0.67886050
##          776          777          778          779          780          781
##   0.66527117   0.76850783   0.74926404   0.73032945   0.71085425   0.85620819
##          782          783          784          785          786          787
##   0.79815355   0.81966573   0.79161507   0.79273448   0.77079992   0.74246974
##          788          789          790          791          792          793
##   0.74860598   0.79237531   0.78149881   0.78588773   0.78495403  -0.17886404
##          794          795          796          797          798          799
##  -0.67357211   0.55626493  -0.23080575   0.43317196   0.76900848   0.85234694
##          800          801          802          803          804          805
##   0.89292930   0.72597310   0.72630303   0.74282282   0.75233624   0.84222206
##          806          807          808          809          810          811
##   0.83363603   0.85035681   0.83520598   0.37725609   0.37423255   0.39303041
##          812          813          814          815          816          817
##   0.41359545   0.52773711   0.45238983   0.61930305   0.02084924   0.69141495
##          818          819          820          821          822          823
##   0.67614997   0.64326653   0.64650203   0.64294378   0.67981289   2.57745481
##          824          825          826          827          828          829
##   0.58288159   0.46543402   0.45193611   0.46200214   0.45560061   0.44663001
##          830          831          832          833          834          835
##   0.43432493   0.55953404   0.85583671   0.79914207   0.77506063   0.78451722
```

```
##          836          837          838          839          840          841
## 0.77845320   0.80211551   0.85757848   0.82112131   0.84629252   0.66557124
##          842          843          844          845          846          847
## 0.73070186   0.82776859   0.83808309   0.58905772   0.83377578   0.80286137
##          848          849          850          851          852          853
## 0.80739509   1.09391975   1.04255883   0.96969861   0.97606764   0.97754894
##          854          855          856          857          858          859
## 0.95027997   0.95119732   0.94682873   0.83849217   0.85465155   0.87431113
##          860          861          862          863          864          865
## 0.78193608   0.88401926   0.88855648   0.92713087   0.90336055   0.48627499
##          866          867          868          869          870          871
## 0.48295353   0.47121973   0.49774979   0.54791299   0.55850277   0.55387996
##          872          873          874          875          876          877
## 0.61684698   0.59565609   0.44157419   0.44439491   0.62177363   0.75387533
##          878          879          880          881          882          883
## 0.97901150   0.84727790   0.93434132   0.81043312   0.79830494   0.77820140
##          884          885          886          887          888          889
## 0.80762495   0.76656751   0.78702596   0.77464674   0.76811482   0.55679177
##          890          891          892          893          894          895
## 0.46850724   0.42205068   0.62633050   0.63662891   0.68250983   0.67819066
##          896          897          898          899          900          901
## 0.73534167   0.82541598   0.66500497   0.67424817   0.68862052   0.59367705
##          902          903          904          905          906          907
## 0.78551656   1.38228290   0.70741071   0.68270519   0.56745939   0.57274141
##          908          909          910          911          912          913
## 0.56284151   0.51916113   0.58194967   0.73390053   0.79934648   0.74563360
##          914          915          916          917          918          919
## 0.89507325   0.52736405   0.76294986   0.75023257   0.82040271   0.87234676
##          920          921          922          923          924          925
## 0.75531220   0.66020708   0.64289593   0.59135150   0.58519705   0.53937272
##          926          927          928          929          930          931
## 0.51603326   0.54071486   0.59291963   0.66755751   0.69825430   0.71023908
##          932          933          934          935          936          937
## 0.72881955   0.78121029   0.79492345   0.79610703   0.81341614   0.40885244
##          938          939          940          941          942          943
## 0.44173324   0.43489491   0.53254980   0.55489825   0.55861484   0.59720912
##          944          945          946          947          948          949
## 0.61084869   0.80816465   0.91633492   0.84985619   0.77710102   0.74546792
##          950          951          952          953          954          955
## 0.74122098   0.68459346   0.84387052   0.69616688   0.69338481   0.66521634
##          956          957          958          959          960          961
## 0.66893724   0.98978097   1.13742238   0.62840481   0.59700748   0.73503235
##          962          963          964          965          966          967
## 0.64717570   0.59936567   0.59142681   0.61568549   0.64478780   0.63370292
##          968          969          970          971          972          973
## 0.52355919   0.70995514   0.70296549   0.72554878   0.73262488   0.71829836
##          974          975          976          977          978          979
## 0.70791527   0.66492251   0.66860789   0.80327635   0.96727527   0.98635134
##          980          981          982          983          984          985
## 0.96039863   1.12655591   0.98277200   0.97682755   0.78169728   0.52113725
##          986          987          988          989          990          991
## 0.38245359   0.33835679   0.30830093   0.04097157   0.28833384   0.41018732
##          992          993          994          995          996          997
## 0.43770856   0.75836348   0.76515504   0.77536081   0.78439682   0.78919988
```

```
##          998         999        1000        1001        1002        1003
##   0.76321826  0.78156973  0.76900311  0.92400110  0.87877443  0.83945294
##         1004        1005        1006        1007        1008        1009
##   0.97586140  0.94240424  0.92264696  0.95938134  0.98921690  0.86655526
##         1010        1011        1012        1013        1014        1015
##   0.88425695  0.84969940  0.72693624  0.75085794  0.71786632  0.60361199
##         1016        1017        1018        1019        1020        1021
##   0.67952574  0.68750186  0.68548986  0.65681601  0.66021594  0.50857719
##         1022        1023        1024        1025        1026        1027
##   0.99824225  0.41844311  0.38806241  0.88069087  0.89097553  0.81064337
##         1028        1029        1030        1031        1032        1033
##   0.81883900  0.77601311  0.74455294  0.76673032  0.80194910  0.81919199
##         1034        1035        1036        1037        1038        1039
##   0.81866077  0.81118149  0.83938099  0.87479749  0.65606054  0.77607846
##         1040        1041        1042        1043        1044        1045
##   0.68392174  0.57875136  0.56471466  0.56114971  0.58601693  0.59079088
##         1046        1047        1048        1049        1050        1051
##   0.62937573  0.54547069  0.52080158  0.66068021  0.51776413  0.52273553
##         1052        1053        1054        1055        1056        1057
##   0.50343555  0.53575436  0.62165117 -0.40516558  0.62811280  0.61528891
##         1058        1059        1060        1061        1062        1063
##   0.60432539  0.60319466  0.62452024  0.59461890  0.61010423  0.63183559
##         1064        1065        1066        1067        1068        1069
##   0.65236983  0.82968992  0.81864876  0.81560038  0.87619513  1.31044736
##         1070        1071        1072        1073        1074        1075
##   0.73928959  0.65480570  0.13975524  0.62546913  0.63461696  0.59321757
##         1076        1077        1078        1079        1080        1081
##   0.76445461  0.75886097  0.68997367  0.75002134  0.73990875  0.46497855
##         1082        1083        1084        1085        1086        1087
##   0.69170075  0.82317498  0.58767997  0.43729460  0.70267332  0.63218775
##         1088        1089        1090        1091        1092        1093
##   0.65721329  0.68270519  0.56745939  0.57274141  0.56284151  0.51916113
##         1094        1095        1096        1097        1098        1099
##   0.60835532  0.73390053  0.79934648  0.75478773  0.73998483  0.71716470
##         1100        1101        1102        1103        1104        1105
##   0.69218240  0.71498622  0.72912829  0.71591477  0.69854564  0.86655526
##         1106        1107        1108        1109        1110        1111
##   0.88425695  0.84969940  0.72693624  0.75085794  0.71786632  0.60361199
##         1112        1113        1114        1115        1116        1117
##   0.67952574  0.63159547  0.84563752  0.68883079  0.66805999  2.07792062
##         1118        1119        1120        1121        1122        1123
##   0.60505672  0.58905061  0.64192665  0.48546269  0.52426383  0.48887071
##         1124        1125        1126        1127        1128
##   0.58294870  0.53005536  0.61765009  0.68555198  0.68555198
```

```r
MSE.lm <- sum((pr.lm - test_data$Y)^2) / nrow(test_data)
MSE.lm
```

```
## [1] 0.1729789
```

```r
bannerCommenter::banner("Training a Neural Network Model using neuralnet")
```

```
##
## #####################################################################
## ##        Training a Neural Network Model using neuralnet         ##
## #####################################################################
```

```
#### Training a Neural Network Model using neuralnet ###

library(neuralnet)

rnn <- neuralnet(Y~.,data = train_data, hidden=c(2,2),threshold=0.01, act.fct = "tanh",linear.output = 
rnn
```

```
## $call
## neuralnet(formula = Y ~ ., data = train_data, hidden = c(2, 2),
##      threshold = 0.01, stepmax = 1e+07, act.fct = "tanh", linear.output = TRUE)
##
## $response
##      Y
## 1    1
## 3    1
## 6    1
## 9    1
## 11   1
## 12   1
## 14   1
## 15   1
## 16   1
## 17   1
## 19   1
## 20   1
## 21   1
## 24   1
## 25   1
## 27   1
## 29   1
## 30   1
## 31   1
## 32   1
## 35   1
## 37   1
## 38   1
## 40   1
## 41   1
## 42   1
## 43   1
## 44   1
## 45   1
## 46   1
## 47   1
## 48   1
## 49   0
## 51   0
## 52   1
## 53   1
## 54   1
## 56   0
## 57   1
## 58   1
## 60   1
```

```
## 61    1
## 62    1
## 63    1
## 66    1
## 67    1
## 68    1
## 69    1
## 70    1
## 72    1
## 76    1
## 77    0
## 79    1
## 81    1
## 82    1
## 83    1
## 84    1
## 85    1
## 86    1
## 87    1
## 88    1
## 89    0
## 90    0
## 92    0
## 94    0
## 95    0
## 97    1
## 98    1
## 100   1
## 101   1
## 105   0
## 106   1
## 107   1
## 108   1
## 109   1
## 110   1
## 111   1
## 112   1
## 113   0
## 114   0
## 115   0
## 117   1
## 118   1
## 119   1
## 120   1
## 123   1
## 124   0
## 125   0
## 126   0
## 128   0
## 129   0
## 130   0
## 131   0
## 132   0
## 133   1
```

```
## 135  1
## 137  0
## 138  0
## 139  0
## 140  0
## 142  0
## 144  0
## 145  1
## 146  1
## 147  1
## 149  1
## 150  1
## 153  1
## 154  1
## 156  1
## 157  0
## 159  0
## 160  0
## 161  1
## 162  1
## 163  1
## 164  1
## 166  0
## 169  1
## 170  1
## 172  1
## 173  1
## 174  1
## 175  1
## 176  0
## 177  1
## 179  1
## 181  1
## 182  1
## 186  1
## 187  1
## 188  1
## 189  1
## 190  1
## 192  1
## 193  1
## 194  1
## 195  1
## 198  1
## 199  1
## 200  1
## 201  1
## 202  1
## 203  1
## 204  1
## 205  1
## 206  1
## 207  0
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## 1110 1
## 1111 1
## 1112 1
## 1113 1
## 1114 1
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## 1116 1
## 1117 1
## 1118 1
## 1119 1
## 1120 1
## 1121 0
## 1122 0
## 1124 0
## 1125 0
## 1126 0
## 1128 0
##
## $covariate
##               R1           R2        R3          R4           R5          R6
## 1    0.009815688 2.827118e-03 0.6966124 0.0120529210 1.515818e-02 0.0019677113
## 3    0.009675563 2.562488e-03 0.6965870 0.0131411509 1.571130e-02 0.0023347589
## 6    0.010526876 2.947441e-03 0.6968869 0.0187831041 2.210091e-02 0.0044889908
## 9    0.007198572 6.707263e-04 0.6963912 0.0015235205 1.624508e-02 0.0050972820
```

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## 11      0.007337611 7.471295e-04 0.6964155 0.0012512377 1.938111e-02 0.0109748729
## 12      0.007361334 7.418607e-04 0.6964149 0.0018847360 1.880177e-02 0.0105307916
## 14      0.007346249 7.422432e-04 0.6964126 0.0014870444 1.911958e-02 0.0077635547
## 15      0.007413847 7.598531e-04 0.6964179 0.0012069216 1.930130e-02 0.0093031701
## 16      0.007445853 7.634539e-04 0.6964185 0.0014902994 1.902566e-02 0.0066981245
## 17      0.007811056 1.018103e-03 0.6966159 0.0014488876 1.744195e-02 0.0014953653
## 19      0.007888978 1.052920e-03 0.6966037 0.0015715695 1.588460e-02 0.0013410839
## 20      0.008016370 1.183479e-03 0.6966325 0.0016441334 1.686378e-02 0.0015890883
## 21      0.008094674 1.271088e-03 0.6966895 0.0019908333 1.672949e-02 0.0014075322
## 24      0.008622142 1.589726e-03 0.6966605 0.0020028333 1.618280e-02 0.0010357180
## 25      0.007273263 8.467486e-04 0.6964601 0.0015500431 1.833407e-02 0.0030817590
## 27      0.007323149 8.281230e-04 0.6964483 0.0016161314 1.755346e-02 0.0029451570
## 29      0.007295786 8.396180e-04 0.6964652 0.0018851427 1.824561e-02 0.0025621775
## 30      0.007271394 8.610255e-04 0.6964885 0.0016849179 1.838105e-02 0.0022373472
## 31      0.007225982 8.605882e-04 0.6964869 0.0013489972 1.710803e-02 0.0018396637
## 32      0.007445456 9.167886e-04 0.6965491 0.0016605688 2.081737e-02 0.0020748294
## 35      0.007847589 1.418580e-03 0.6964833 0.0023865612 1.917436e-02 0.0082011013
## 37      0.007597902 1.061414e-03 0.6964675 0.0021658821 1.930704e-02 0.0077156608
## 38      0.007652619 1.150903e-03 0.6964662 0.0021300417 1.825890e-02 0.0071603652
## 40      0.007868073 1.171038e-03 0.6964589 0.0030919480 1.777554e-02 0.0078105554
## 41      0.014352689 5.620434e-03 0.6968075 0.0136735250 1.912465e-02 0.0023312939
## 42      0.012997134 4.707781e-03 0.6968199 0.0028821175 1.876656e-02 0.0020901329
## 43      0.016760216 7.344018e-03 0.6968222 0.0041423807 1.893992e-02 0.0013652944
## 44      0.016125601 6.960993e-03 0.6968132 0.0046248838 1.822658e-02 0.0019742859
## 45      0.015320049 6.450667e-03 0.6967839 0.0024503969 1.792344e-02 0.0019822556
## 46      0.013840865 5.417180e-03 0.6967573 0.0040780899 1.741993e-02 0.0019148291
## 47      0.013817132 5.665667e-03 0.6966598 0.0111004540 1.473203e-02 0.0016998378
## 48      0.014155638 5.553050e-03 0.6966056 0.0144828495 8.994010e-03 0.0010606022
## 49      0.007477055 7.710468e-04 0.6964251 0.0012513172 1.665549e-02 0.0011188212
## 51      0.007516548 7.792787e-04 0.6964314 0.0011990056 1.644708e-02 0.0014876471
## 52      0.007569455 8.138624e-04 0.6964678 0.0014903909 1.664767e-02 0.0014198616
## 53      0.007600069 8.346971e-04 0.6964666 0.0013567808 1.412041e-02 0.0013277752
## 54      0.007621006 8.427756e-04 0.6964882 0.0012992313 1.602684e-02 0.0013767845
## 56      0.007626852 8.416549e-04 0.6964997 0.0012388188 1.599385e-02 0.0012287767
## 57      0.008213044 1.262009e-03 0.6965658 0.0017798972 1.328089e-02 0.0014008556
## 58      0.008167577 1.203894e-03 0.6965580 0.0016513522 1.262385e-02 0.0012988350
## 60      0.007799735 9.570133e-04 0.6964632 0.0019713180 7.912424e-03 0.0011877830
## 61      0.007750702 9.221206e-04 0.6964507 0.0026202470 7.328283e-03 0.0012512032
## 62      0.008212028 1.242309e-03 0.6965229 0.0043165568 1.105372e-02 0.0013631749
## 63      0.009990161 2.489202e-03 0.6966827 0.0057626531 1.342179e-02 0.0012483016
## 66      0.009185740 1.855640e-03 0.7030166 0.0054983784 8.167345e-03 0.0004598729
## 67      0.008835152 1.624237e-03 0.7038069 0.0071028789 8.458686e-03 0.0004584349
## 68      0.008501936 1.404335e-03 0.6997240 0.0038952793 7.623883e-03 0.0004658461
## 69      0.008776397 1.585473e-03 0.6997073 0.0052413308 7.265027e-03 0.0004663131
## 70      0.008645344 1.498970e-03 0.7003881 0.0060855616 6.324074e-03 0.0004600889
## 72      0.011000305 3.058704e-03 0.6966714 0.0173634938 1.772710e-02 0.0023843549
## 76      0.007555282 1.032080e-03 0.6966764 0.0011761749 1.950873e-02 0.0017853911
## 77      0.007941212 1.297806e-03 0.6967474 0.0011862719 2.121632e-02 0.0030384507
## 79      0.007836385 1.355680e-03 0.6966190 0.0013902129 2.092929e-02 0.0044481392
## 81      0.007255113 1.072925e-03 0.6983048 0.0014083213 2.285415e-02 0.0012783525
## 82      0.007361248 1.027752e-03 0.6966502 0.0025339786 2.337519e-02 0.0110012091
## 83      0.007109062 9.171660e-04 0.6975302 0.0018168756 2.328920e-02 0.0018001160
## 84      0.007036230 9.031069e-04 0.6968954 0.0012763884 2.408745e-02 0.0406373940
## 85      0.007043377 8.661211e-04 0.6971528 0.0012195855 2.408880e-02 0.0212065887
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## 86     0.007126956 1.011981e-03 0.6972210 0.0012819500 2.408164e-02 0.0333854439
## 87     0.007105862 1.012355e-03 0.6971902 0.0012755349 2.408063e-02 0.0392587255
## 88     0.007188192 1.254281e-03 0.6980199 0.0012755078 2.407441e-02 0.0221958603
## 89     0.007162341 5.368099e-04 0.6952002 0.0011688192 4.309690e-03 0.0004962783
## 90     0.007187612 5.624074e-04 0.6953890 0.0012660651 4.479289e-03 0.0004945575
## 92     0.007115567 4.974804e-04 0.6945169 0.0015087181 6.235026e-03 0.0005223740
## 94     0.007318535 6.758255e-04 0.6962728 0.0016375965 1.701578e-02 0.0014283447
## 95     0.007307666 6.804212e-04 0.6963525 0.0012198239 1.521251e-02 0.0018784194
## 97     0.008624655 1.683639e-03 0.6967096 0.0021949816 1.706638e-02 0.0016438464
## 98     0.008773058 1.850262e-03 0.6968119 0.0022620237 1.562905e-02 0.0011544561
## 100    0.008686327 1.759605e-03 0.6968799 0.0036851570 1.537943e-02 0.0010096244
## 101    0.009178472 2.058039e-03 0.6969773 0.0029434661 1.707390e-02 0.0011318210
## 105    0.009658815 3.183835e-03 0.6965664 0.0030644296 2.351369e-02 0.0451297043
## 106    0.009182087 2.634962e-03 0.6965455 0.0035242295 2.347783e-02 0.0477092170
## 107    0.011850607 4.702184e-03 0.6965352 0.0069107415 2.340312e-02 0.0514632863
## 108    0.011092073 4.356266e-03 0.6965166 0.0067490526 2.339396e-02 0.0599660933
## 109    0.010791645 4.068550e-03 0.6965204 0.0063466765 2.339396e-02 0.0571949817
## 110    0.009737799 3.054697e-03 0.6965408 0.0044093197 2.335069e-02 0.0429136230
## 111    0.011161554 4.566149e-03 0.6965363 0.0049009519 2.333150e-02 0.0462673659
## 112    0.008549189 1.838210e-03 0.6965177 0.0037089339 2.323980e-02 0.0395968084
## 113    0.007667909 8.688863e-04 0.6964649 0.0021917782 1.688050e-02 0.0025717507
## 114    0.007580590 7.961525e-04 0.6964326 0.0016686837 1.680944e-02 0.0028589416
## 115    0.007694372 8.712528e-04 0.6964559 0.0018171593 1.851080e-02 0.0042625278
## 117    0.007913327 1.015771e-03 0.6965151 0.0023502607 1.917824e-02 0.0036250142
## 118    0.007950860 1.040544e-03 0.6965210 0.0012825603 1.876645e-02 0.0033130331
## 119    0.007895809 1.004208e-03 0.6965074 0.0015083221 1.904734e-02 0.0036929828
## 120    0.007858546 9.796133e-04 0.6964732 0.0015914585 1.822833e-02 0.0045395067
## 123    0.007666663 8.971043e-04 0.6965137 0.0012516382 2.126852e-02 0.0043728951
## 124    0.007649682 8.852602e-04 0.6964682 0.0012491844 1.944313e-02 0.0044096497
## 125    0.007367382 6.805689e-04 0.6963426 0.0015327082 1.907280e-02 0.0031946749
## 126    0.008453668 1.408925e-03 0.6971671 0.0018275698 2.083195e-02 0.0015146893
## 128    0.007639055 8.727151e-04 0.6964656 0.0011952524 1.894597e-02 0.0038218015
## 129    0.007152131 5.359419e-04 0.6916324 0.0011634067 1.511431e-02 0.0005433355
## 130    0.007176309 5.629966e-04 0.6909512 0.0011647418 1.326110e-02 0.0004946463
## 131    0.007192978 5.744461e-04 0.6941437 0.0011719418 1.261807e-02 0.0005378718
## 132    0.007372919 6.934217e-04 0.6961724 0.0011615199 2.081896e-02 0.0016167778
## 133    0.007421398 7.497587e-04 0.6963777 0.0011909515 2.089588e-02 0.0019172986
## 135    0.007467504 7.904909e-04 0.6964555 0.0011880160 2.238975e-02 0.0043341367
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## 139    0.007129325 5.399411e-04 0.6963724 0.0012255143 1.274852e-02 0.0066244177
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## 146    0.007475346 1.395757e-03 0.6965396 0.0013843559 1.748113e-02 0.0032048993
## 147    0.007648248 1.267806e-03 0.6965107 0.0014358344 1.400813e-02 0.0021878255
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## 156    0.007475427 1.130681e-03 0.6967180 0.0019600584 9.990259e-03 0.0006796324
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## 175    0.007817101 1.296581e-03 0.6967048 0.0025191502 1.697649e-02 0.0014222451
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## 396   0.007066399 4.599939e-04 0.6943805 0.0013590478 2.520329e-03 0.0004843568
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## 399   0.007176815 5.367182e-04 0.6957967 0.0013962143 1.696550e-03 0.0004815921
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## 936  0.007361093 8.029851e-04 0.6964447 0.0012154175 1.865616e-02 0.0026947590
## 938  0.007724739 1.123796e-03 0.6965416 0.0035727145 4.618081e-03 0.0006361724
## 939  0.007728951 1.159027e-03 0.6965429 0.0031207149 4.245454e-03 0.0006245352
## 940  0.009309195 2.139812e-03 0.6967970 0.0027647535 8.868465e-03 0.0006948296
## 942  0.009016186 1.901131e-03 0.6967518 0.0031938445 9.218455e-03 0.0007325340
## 943  0.009587529 2.329786e-03 0.6967748 0.0042910040 1.061660e-02 0.0008125439
## 947  0.007483118 9.387983e-04 0.6964676 0.0024455902 1.759021e-02 0.0038851108
## 948  0.007483648 8.299250e-04 0.6964316 0.0015216455 1.202920e-02 0.0027550466
## 951  0.008077518 1.124142e-03 0.6966695 0.0016657238 5.861234e-03 0.0005725335
## 952  0.008756003 1.571967e-03 0.6970298 0.0011957540 8.729264e-03 0.0005761643
## 953  0.007178273 9.877257e-04 0.6964816 0.0013120303 1.360009e-02 0.0019655818
## 955  0.007382596 1.024676e-03 0.6964842 0.0014160144 1.235798e-02 0.0017549177
## 956  0.007540498 1.098823e-03 0.6964821 0.0019291626 1.214486e-02 0.0019590363
## 957  0.116403681 7.301929e-02 0.7119746 0.0012975762 1.025816e-02 0.0014304958
## 960  0.008177883 1.849778e-03 0.6965364 0.0026834032 1.006049e-02 0.0013729588
## 961  0.032306761 1.711679e-02 0.7479024 0.0020853409 5.940939e-03 0.0004494440
## 965  0.009777259 2.246158e-03 0.7531767 0.0015961037 4.333389e-03 0.0004487854
## 966  0.010368199 2.636394e-03 0.7594074 0.0014285680 5.358567e-03 0.0004489303
## 967  0.011990934 3.707545e-03 0.7772079 0.0012869602 6.213442e-03 0.0004489406
## 970  0.007925614 1.043613e-03 0.6964703 0.0028899937 1.199921e-02 0.0020859781
## 972  0.007752536 9.212669e-04 0.6964504 0.0028087594 1.261771e-02 0.0024789525
## 973  0.007751744 9.224020e-04 0.6964470 0.0030719084 1.176165e-02 0.0024414699
## 975  0.007450825 7.225408e-04 0.6964034 0.0019542904 1.041901e-02 0.0016493971
## 976  0.007413289 6.959546e-04 0.6963929 0.0021760005 9.901368e-03 0.0015940614
## 977  0.007219170 5.576028e-04 0.6963265 0.0013043416 2.415262e-02 0.0008270435
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## 990  0.007121057 4.999969e-04 0.6951462 0.0012851000 1.829506e-03 0.0004735867
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## 993  0.007342491 6.552575e-04 0.6958802 0.0012147141 1.727947e-02 0.0008164630
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## 997  0.007455006 7.362183e-04 0.6963691 0.0011678317 1.798742e-02 0.0014516461
## 998  0.007460798 7.378403e-04 0.6963712 0.0011625253 1.756848e-02 0.0013525386
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## 1011 0.007557057 8.605000e-04 0.6964366 0.0021055024 1.643672e-02 0.0053119127
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## 1013 0.007356888 6.505660e-04 0.6963930 0.0020486212 1.252908e-02 0.0026065552
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## 1019 0.007387071 1.026413e-03 0.6964848 0.0014515024 1.232257e-02 0.0017395035
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## 1022 0.007730880 8.953491e-04 0.6966698 0.0054664045 6.781274e-04 0.0004481572
## 1023 0.009505139 2.537544e-03 0.6966698 0.0051181415 3.794100e-04 0.0004481572
## 1025 0.008519506 1.415870e-03 0.6965206 0.0059410855 2.233769e-02 0.0160279059
## 1026 0.008947542 1.698389e-03 0.6965423 0.0065695675 2.150293e-02 0.0100255407
## 1027 0.009045707 1.763182e-03 0.6965202 0.0052496922 1.989578e-02 0.0073114699
## 1028 0.008349236 1.303486e-03 0.6964948 0.0033017844 1.831879e-02 0.0053904880
## 1029 0.007980812 1.060313e-03 0.6964775 0.0028660034 1.762182e-02 0.0045045822
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## 1065 0.010532940 2.864038e-03 0.6968834 0.0143986303 1.606564e-02 0.0011944140
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## 1072 0.010784176 2.928097e-03 0.6966698 0.0204124192 3.622787e-04 0.0004481572
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## 1084 0.007649682 8.852602e-04 0.6964682 0.0012491844 1.944313e-02 0.0044096497
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## 1088 0.007639055 8.727151e-04 0.6964656 0.0011952524 1.894597e-02 0.0038218015
## 1089 0.007117372 5.290788e-04 0.6962686 0.0013289294 5.278864e-03 0.0009882321
## 1090 0.007184737 5.871351e-04 0.6963358 0.0013506622 6.474343e-03 0.0011664679
## 1091 0.006433443 0.000000e+00 0.6967730 0.0008361640 9.235064e-03 0.0012288584
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## 1094 0.007225452 5.925854e-04 0.6965182 0.0023170412 5.321371e-03 0.0000000000
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## 1099 0.008258057 1.291908e-03 0.6967235 0.0028418592 1.162039e-02 0.0008050202
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## 1102 0.007693256 9.109790e-04 0.6964825 0.0021016592 1.206112e-02 0.0013064112
## 1103 0.007697231 9.210473e-04 0.6965176 0.0016049502 1.241908e-02 0.0010616322
## 1104 0.007798479 1.007738e-03 0.6965325 0.0016897593 1.084572e-02 0.0010045769
## 1105 0.007925637 1.055909e-03 0.6964550 0.0027712649 1.817632e-02 0.0078872116
## 1106 0.007905354 1.076997e-03 0.6964537 0.0025163668 1.811182e-02 0.0083730749
## 1107 0.007557057 8.605000e-04 0.6964366 0.0021055024 1.643672e-02 0.0053119127
## 1109 0.007356888 6.505660e-04 0.6963930 0.0020486212 1.252908e-02 0.0026065552
## 1110 0.007366725 6.694541e-04 0.6963968 0.0013689821 1.501467e-02 0.0037277534
## 1111 0.008207521 1.244793e-03 0.6964837 0.0016847178 1.552500e-02 0.0036043265
## 1112 0.007761657 9.384595e-04 0.6964632 0.0015027821 1.552500e-02 0.0029906140
## 1113 0.007262555 1.001221e-03 0.6964494 0.0019668186 9.393195e-03 0.0020724525
## 1114 0.007261760 7.715415e-04 0.6964206 0.0022826371 9.148210e-03 0.0019308610
## 1115 0.007702681 1.210301e-03 0.6964668 0.0039029452 1.201090e-02 0.0027231733
## 1116 0.007659988 1.193122e-03 0.6964685 0.0038002001 1.240026e-02 0.0027441799
## 1117 0.007315494 1.062133e-03 0.6964451 0.0014441600 9.387625e-03 0.0026340140
## 1118 0.007274225 1.001846e-03 0.6964448 0.0017257064 9.532794e-03 0.0024233144
## 1119 0.007379072 1.095738e-03 0.6964600 0.0021293069 9.627990e-03 0.0019756903
## 1120 0.007229390 8.847628e-04 0.6964352 0.0016531241 9.003957e-03 0.0022384806
## 1121 0.007554229 9.716333e-04 0.6965944 0.0015069912 5.801590e-03 0.0005735235
## 1122 0.007540297 9.129086e-04 0.6965960 0.0012418199 7.589362e-03 0.0005898817
## 1124 0.007878311 1.350369e-03 0.6967539 0.0023894103 7.987735e-03 0.0006290104
## 1125 0.007492082 1.117350e-03 0.6966501 0.0013740064 6.222020e-03 0.0005926880
## 1126 0.007458440 9.795727e-04 0.6966019 0.0015426563 7.481789e-03 0.0006231226
## 1128 0.009505139 2.537544e-03 0.6966698 0.0051181415 1.551986e-02 0.0065578065
##              R7           R8        R9          R10        R11          R12
## 1    0.004248921 4.388545e-03 0.8564912 0.0003521772 0.1605507 0.01980198
## 3    0.004682879 4.586107e-03 0.8565504 0.0003401700 0.1605808 0.02033300
## 6    0.003215488 3.459542e-03 0.8562617 0.0002519548 0.1588144 0.01980198
## 9    0.008687870 6.790612e-03 0.8534746 0.0015141305 0.1618748 0.01980198
## 11   0.011275870 7.370457e-03 0.8385475 0.0075069053 0.1619586 0.01980198
## 12   0.011991298 7.860670e-03 0.8408168 0.0012317328 0.1619016 0.01980198
## 14   0.008698551 6.195481e-03 0.8456799 0.0017248718 0.1619494 0.01980198
## 15   0.009878620 6.724779e-03 0.8157472 0.0126041732 0.1619927 0.01980198
## 16   0.007780732 5.769379e-03 0.8000276 0.0015949002 0.1619749 0.01980198
## 17   0.002972707 3.508542e-03 0.8564842 0.0008295156 0.1613018 0.01980198
## 19   0.003040988 3.617695e-03 0.8565096 0.0007396306 0.1609446 0.01980198
## 20   0.003220374 3.667738e-03 0.8564542 0.0007775293 0.1609283 0.01980198
## 21   0.002990791 3.548738e-03 0.8563795 0.0005283920 0.1608676 0.01980198
## 24   0.003418009 3.816463e-03 0.8564132 0.0007804720 0.1611671 0.01980198
## 25   0.004567239 4.272380e-03 0.8579683 0.0009147116 0.1605227 0.01980198
## 27   0.004789107 4.453991e-03 0.8587416 0.0008617115 0.1612409 0.01980198
## 29   0.004022128 4.005254e-03 0.8577574 0.0005191852 0.1611787 0.01980198
## 30   0.003606764 3.788904e-03 0.8571948 0.0005750198 0.1619418 0.01980198
## 31   0.003506083 3.808630e-03 0.8572208 0.0012289691 0.1610873 0.01980198
## 32   0.003340379 3.555426e-03 0.8566821 0.0005356058 0.1612595 0.01980198
## 35   0.009040173 6.349337e-03 0.8572852 0.0013819287 0.1614689 0.01980198
## 37   0.008390374 6.015955e-03 0.8576780 0.0010695844 0.1615082 0.01980198
## 38   0.009225399 6.620524e-03 0.8577195 0.0014016548 0.1614511 0.01980198
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## 40    0.010645883 7.458088e-03 0.8580233 0.0009603737 0.1613822 0.01980198
## 41    0.003441842 3.671197e-03 0.8562947 0.0003547741 0.1619484 0.01980198
## 42    0.003321800 3.629141e-03 0.8562887 0.0010137579 0.1619533 0.01980198
## 43    0.003394305 3.656675e-03 0.8562876 0.0009806178 0.1619631 0.01980198
## 44    0.003360263 3.673146e-03 0.8562918 0.0008498419 0.1619776 0.01980198
## 45    0.003458722 3.738383e-03 0.8563072 0.0019039556 0.1619975 0.01980198
## 46    0.003519932 3.797829e-03 0.8563236 0.0008747326 0.1620177 0.01980198
## 47    0.003888361 4.209879e-03 0.8564141 0.0005019567 0.1619672 0.01980198
## 48    0.003406373 4.618757e-03 0.8565055 0.0004852404 0.1615752 0.01980198
## 49    0.002588421 3.330293e-03 0.8701467 0.0011158776 0.1607490 0.01980198
## 51    0.003161516 3.656927e-03 0.8625720 0.0036128463 0.1608480 0.01980198
## 52    0.003023663 3.570556e-03 0.8576659 0.0006184545 0.1608544 0.01980198
## 53    0.003318096 3.900295e-03 0.8577081 0.0012226628 0.1605118 0.01980198
## 54    0.003072333 3.628372e-03 0.8571995 0.0013028225 0.1608846 0.01980198
## 56    0.002846130 3.500247e-03 0.8570420 0.0018235446 0.1607107 0.01869680
## 57    0.003612730 4.173645e-03 0.8566157 0.0009764597 0.1608786 0.01980198
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## 61    0.004218778 6.050170e-03 0.8585327 0.0006921775 0.1609398 0.01980198
## 62    0.003925677 4.710738e-03 0.8568302 0.0004187182 0.1609615 0.01980198
## 63    0.003272296 3.926356e-03 0.8563868 0.0004137916 0.1607015 0.01980198
## 66    0.001658030 2.838088e-03 0.8561121 0.0002202520 0.1582224 0.01980198
## 67    0.001653036 2.831276e-03 0.8561109 0.0002176664 0.1583084 0.01980198
## 68    0.001678229 2.865291e-03 0.8561235 0.0002247807 0.1583630 0.01980198
## 69    0.001680965 2.872089e-03 0.8561236 0.0002234567 0.1582643 0.01980198
## 70    0.001662920 2.856974e-03 0.8561197 0.0002201679 0.1582370 0.01980198
## 72    0.004013197 4.035948e-03 0.8563996 0.0002934921 0.1616674 0.01980198
## 76    0.002815584 3.359295e-03 0.8563938 0.0083703052 0.1618166 0.01980198
## 77    0.003083876 3.430187e-03 0.8563302 0.0083640064 0.1615464 0.01907175
## 79    0.004100109 3.884625e-03 0.8564782 0.0019956127 0.1619193 0.01987599
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## 84    0.002125448 2.989503e-03 0.8562588 0.0005522865 0.1615237 0.01980198
## 85    0.001876685 2.894685e-03 0.8562033 0.0005219222 0.1617328 0.01980198
## 86    0.002071416 2.968951e-03 0.8561946 0.0005601144 0.1609992 0.01980198
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## 359   0.002919982 3.673219e-03 0.8564927 0.0002605327 0.1619531 0.01980198
## 363   0.002481604 3.476674e-03 0.8563483 0.0003582515 0.1599387 0.01520456
## 365   0.003442611 4.335727e-03 0.8583166 0.0006304971 0.1616222 0.01980198
## 366   0.003616593 4.315723e-03 0.8573000 0.0005533352 0.1616363 0.01980198
## 367   0.003005526 3.820284e-03 0.8568693 0.0007053105 0.1615874 0.01980198
## 368   0.003045117 4.002121e-03 0.8567679 0.0007751353 0.1615680 0.01980198
## 369   0.004933387 4.784203e-03 0.8578580 0.0007333247 0.1609119 0.01980198
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## 380   0.006808267 6.637014e-03 0.8576431 0.0006766188 0.1609939 0.01980198
## 382   0.007172055 8.141984e-03 0.8591082 0.0025218783 0.1605847 0.01980198
## 383   0.005886322 6.863304e-03 0.8579719 0.0013900124 0.1603186 0.01980198
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## 410   0.001716037 2.834455e-03 0.8560936 0.0003287156 0.1615584 0.01980198
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## 423   0.002140136 4.675673e-03 0.8560170 0.0006728733 0.1609486 0.01980198
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## 430   0.001622035 2.797634e-03 0.8561007 0.0002149396 0.1588988 0.01980198
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## 653   0.005294939 4.491420e-03 0.8504986 0.0019866218 0.1617196 0.01980198
## 654   0.006181742 4.851325e-03 0.8586974 0.0018686093 0.1618421 0.01980198
## 655   0.009515816 6.665077e-03 0.8699224 0.0298205718 0.1619374 0.01980198
## 656   0.005417005 4.402976e-03 0.8577530 0.0061477882 0.1620108 0.01980198
## 657   0.004214442 3.999910e-03 0.8564198 0.0011687279 0.1618785 0.01980198
## 659   0.005040224 4.211947e-03 0.8565199 0.0003586776 0.1620727 0.01980198
## 660   0.007840014 5.432118e-03 0.8567825 0.0005078990 0.1586071 0.01980198
## 661   0.007037593 5.095509e-03 0.8568325 0.0029717593 0.1591723 0.01980198
## 662   0.006994760 4.973760e-03 0.8568427 0.0011992616 0.1620655 0.01980198
## 663   0.005592381 4.666527e-03 0.8566640 0.0011066219 0.1620005 0.01980198
## 664   0.006340275 4.800271e-03 0.8567202 0.0012010707 0.1619828 0.01980198
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## 670   0.006785749 5.817291e-03 0.8567385 0.0004578922 0.1578926 0.01000000
## 671   0.004154890 3.954716e-03 0.8557786 0.0002866108 0.1639679 0.01980198
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## 940  0.002346659 3.547664e-03 0.8563001 0.0005315794 0.1594559 0.01980198
## 942  0.002438290 3.610437e-03 0.8563272 0.0004494476 0.1596871 0.01980198
## 943  0.002570026 3.617320e-03 0.8563125 0.0004113079 0.1599402 0.01980198
## 947  0.005957022 5.060067e-03 0.8576725 0.0006031112 0.1620652 0.01980198
## 948  0.006997336 6.899714e-03 0.8624756 0.0022412497 0.1620589 0.01980198
## 951  0.002059290 3.482355e-03 0.8564019 0.0006083202 0.1617768 0.01980198
## 952  0.002001493 3.196658e-03 0.8562240 0.0051650424 0.1610001 0.01732695
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## 955  0.004584352 4.998146e-03 0.8572690 0.0023815212 0.1610083 0.01980198
## 956  0.005108957 5.433287e-03 0.8573075 0.0011785596 0.1608670 0.01980198
## 957  0.001648268 2.821109e-03 0.8561056 0.0048853169 0.1578371 0.01000000
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## 961  0.001626539 2.804593e-03 0.8561022 0.0002628458 0.1620289 0.01980198
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## 966  0.001624827 2.802417e-03 0.8561019 0.0002302987 0.1619223 0.01980198
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## 975  0.004792808 5.591249e-03 0.8515078 0.0007011115 0.1613719 0.01980198
## 976  0.004760751 5.707550e-03 0.8533062 0.0005820542 0.1613823 0.01980198
## 977  0.012574562 6.960776e-03 0.8552946 0.0023758278 0.1665849 0.08145242
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## 979  0.010241330 6.073896e-03 0.8549548 0.0014014210 0.1794688 0.06184839
## 980  0.011106699 6.402830e-03 0.8545302 0.0038540939 0.1763278 0.05542716
## 981  1.000000000 3.822890e-01 0.0000000 0.0056391772 0.1716384 0.04495328
## 982  0.010084637 6.014336e-03 0.8629842 0.0007521658 0.1673175 0.03463133
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## 989  0.013738665 5.328157e-02 0.8560712 0.0208204319 0.1449018 1.00000000
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## 1116 0.006808267 6.637014e-03 0.8576431 0.0006766188 0.1609939 0.01980198
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## 1118 0.007172055 8.141984e-03 0.8591082 0.0025218783 0.1605847 0.01980198
## 1119 0.005886322 6.863304e-03 0.8579719 0.0013900124 0.1603186 0.01980198
## 1120 0.006834660 8.111844e-03 0.8609962 0.0023665283 0.1609181 0.01980198
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##                 R13         R14        R15        R16          R17        R18
## 1       0.043386695 0.04391618 0.4878683 0.2490462 3.262325e-03 0.9598533
## 3       0.044048139 0.04390280 0.4881006 0.2492210 3.188848e-03 0.9598447
## 6       0.053732041 0.04381125 0.4898988 0.2562107 4.769623e-03 0.9598632
## 9       0.035497282 0.04522694 0.4863198 0.2483184 5.106903e-04 0.9597870
## 11      0.034997908 0.04632424 0.4862218 0.2483132 4.936413e-04 0.9597885
## 12      0.035337830 0.04546124 0.4862885 0.2483538 5.071761e-04 0.9597891
## 14      0.035052637 0.04613181 0.4862325 0.2483161 4.957410e-04 0.9597916
## 15      0.034794990 0.04741811 0.4861820 0.2482758 4.866303e-04 0.9597904
## 16      0.034900702 0.04675419 0.4862027 0.2482887 4.913305e-04 0.9597929
## 17      0.038911775 0.04410779 0.4869900 0.2487721 7.964823e-04 0.9598231
## 19      0.041039969 0.04398488 0.4874077 0.2488808 1.023661e-03 0.9598347
## 20      0.041136822 0.04398111 0.4874267 0.2489847 1.098851e-03 0.9598283
## 21      0.041498710 0.04396792 0.4874977 0.2490116 1.208833e-03 0.9598418
## 24      0.039714173 0.04405008 0.4871475 0.2484792 1.244787e-03 0.9598730
## 25      0.043553588 0.04391262 0.4879010 0.2495371 9.328086e-04 0.9598089
## 27      0.039274281 0.04407940 0.4870611 0.2488285 7.185671e-04 0.9598036
## 29      0.039644805 0.04405438 0.4871339 0.2489563 7.334282e-04 0.9598157
## 30      0.035098141 0.04599220 0.4862415 0.2483068 5.082761e-04 0.9598044
## 31      0.040189809 0.04402330 0.4872408 0.2488983 7.936935e-04 0.9598245
## 32      0.039163425 0.04408763 0.4870394 0.2489392 7.135834e-04 0.9598227
## 35      0.037915798 0.04421517 0.4867945 0.2488047 8.443695e-04 0.9598207
## 37      0.037681746 0.04424962 0.4867486 0.2487806 6.995787e-04 0.9598005
## 38      0.038021829 0.04420100 0.4868153 0.2487247 7.720303e-04 0.9598237
## 40      0.038432706 0.04415296 0.4868960 0.2487389 8.237612e-04 0.9598313
## 41      0.035058560 0.04611267 0.4862337 0.2483172 8.562245e-04 0.9600306
## 42      0.035029892 0.04620822 0.4862281 0.2483043 7.823863e-04 0.9600106
## 43      0.034971388 0.04642897 0.4862166 0.2482470 9.277438e-04 0.9600265
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## 46      0.034645962 0.04906748 0.4861527 0.2482334 6.511811e-04 0.9600320
## 47      0.034946789 0.04653393 0.4862118 0.2482485 9.002656e-04 0.9599556
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## 51      0.041615588 0.04396394 0.4875207 0.2489944 8.207720e-04 0.9597185
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## 53      0.043618509 0.04391127 0.4879138 0.2489773 1.060822e-03 0.9597994
## 54      0.041397309 0.04397148 0.4874778 0.2489301 8.722908e-04 0.9598205
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## 62    0.040939232 0.04398892 0.4873879 0.2486200 1.469399e-03 0.9598622
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## 66    0.057259471 0.04379711 0.4905911 0.2494076 8.420481e-03 0.9598047
## 67    0.056747293 0.04379888 0.4904906 0.2494025 6.814595e-03 0.9597876
## 68    0.056421601 0.04380006 0.4904267 0.2493247 6.201250e-03 0.9598513
## 69    0.057009832 0.04379796 0.4905421 0.2493301 7.714610e-03 0.9598200
## 70    0.057172718 0.04379740 0.4905741 0.2492777 8.261022e-03 0.9598386
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## 89    0.060235935 0.04378816 0.4911753 0.2492982 2.491973e-03 0.9588300
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## 94    0.034443227 0.05731427 0.4861129 0.2482070 4.722733e-04 0.9596723
## 95    0.034579104 0.05040491 0.4861396 0.2482167 4.783302e-04 0.9596749
## 97    0.035274410 0.04557601 0.4862761 0.2483065 6.089707e-04 0.9598461
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## 105   0.056143909 0.04380109 0.4903722 0.2771410 5.428458e-03 0.9597693
## 106   0.055286818 0.04380443 0.4902040 0.2745262 4.313573e-03 0.9597890
## 107   0.057407209 0.04379661 0.4906201 0.2742981 8.574171e-03 0.9597925
## 108   0.057207509 0.04379728 0.4905809 0.2737599 7.866927e-03 0.9598043
## 109   0.056857366 0.04379849 0.4902735 0.2720105 6.864540e-03 0.9598028
## 110   0.055909117 0.04380198 0.4902270 0.2704755 5.073256e-03 0.9598030
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## 112   0.053621981 0.04381178 0.4902850 0.2680427 3.042670e-03 0.9598186
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## 114   0.043182909 0.04392070 0.4878283 0.2492149 9.041466e-04 0.9597232
## 115   0.034742804 0.04786592 0.4861717 0.2482561 4.902090e-04 0.9597770
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## 133   0.034593258 0.05006878 0.4861424 0.2482646 4.776017e-04 0.9597872
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## 391   0.034609070 0.04973110 0.4861455 0.2482532 4.869732e-04 0.9598634
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## 393   0.045228128 0.04388295 0.4882297 0.2486717 7.452057e-04 0.9581826
## 394   0.056086265 0.04380130 0.4903609 0.2490471 1.348937e-03 0.9586412
## 396   0.061149290 0.04378582 0.4913546 0.2492425 2.504062e-03 0.9579150
## 398   0.054143919 0.04380934 0.4899796 0.2489441 3.359535e-03 0.9512509
## 399   0.053119396 0.04381425 0.4897786 0.2489143 4.193971e-03 0.9591522
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## 983   0.036133535  0.04470037  0.4870089  0.2482958  6.304294e-04  0.9598968
## 985   0.045228128  0.04388295  0.4882297  0.2486717  7.452057e-04  0.9581826
## 986   0.056086265  0.04380130  0.4903609  0.2490471  1.348937e-03  0.9586412
## 987   0.059701741  0.04378961  0.4910705  0.2491912  1.898571e-03  0.9581342
## 988   0.061149290  0.04378582  0.4913546  0.2492425  2.504062e-03  0.9579150
## 989   0.060495366  0.04378748  1.0000000  0.3492514  3.085523e-03  0.9577207
```

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## 990  0.054143919 0.04380934 0.4899796 0.2489441 3.359535e-03 0.9512509
## 991  0.053119396 0.04381425 0.4897786 0.2489143 4.193971e-03 0.9591522
## 993  0.034498174 0.05330726 0.4861237 0.2482143 4.736895e-04 0.9594111
## 994  0.034479265 0.05438959 0.4861200 0.2482133 4.734741e-04 0.9596034
## 995  0.034936752 0.04657914 0.4862148 0.2482765 4.911860e-04 0.9596760
## 997  0.034612670 0.04965917 0.4861463 0.2482328 4.796004e-04 0.9598081
## 998  0.034575337 0.05050046 0.4861372 0.2482242 4.780420e-04 0.9597712
## 999  0.034774909 0.04757848 0.4861778 0.2482461 4.862617e-04 0.9597889
## 1000 0.037291314 0.04431912 0.4866719 0.2485257 8.584135e-04 0.9598272
## 1006 0.047173239 0.04385819 0.4886115 0.2559056 1.301659e-03 0.9599185
## 1007 0.055329331 0.04380426 0.4902123 0.2577795 4.358629e-03 0.9600015
## 1008 0.057623325 0.04379589 0.4906625 0.2575226 9.490887e-03 0.9600380
## 1009 0.034948296 0.04652727 0.4862121 0.2482816 5.138112e-04 0.9598622
## 1010 0.034893306 0.04679279 0.4862013 0.2482729 5.112534e-04 0.9598728
## 1011 0.034804406 0.04734741 0.4861838 0.2482455 4.960792e-04 0.9598752
## 1012 0.035171634 0.04579793 0.4862559 0.2482606 5.134950e-04 0.9598352
## 1013 0.035462045 0.04527313 0.4863129 0.2482452 5.182972e-04 0.9598484
## 1014 0.036035705 0.04475605 0.4864255 0.2483025 5.350949e-04 0.9597981
## 1015 0.049463899 0.04383718 0.4890611 0.2496793 2.102971e-03 0.9598023
## 1016 0.042272228 0.04394375 0.4873207 0.2488085 9.114269e-04 0.9597972
## 1017 0.039944662 0.04403654 0.4871927 0.2486411 9.618443e-04 0.9598126
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## 1069 0.051166191 0.04382527 0.4893952 0.2490807 2.237511e-01 0.9598761
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## 1072 0.059309966 0.04379072 0.4909936 0.2490816 3.341015e-01 0.9578667
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## 1112 0.042272228 0.04394375 0.4873207 0.2488085 9.114269e-04 0.9597972
## 1113 0.041266203 0.04397624 0.4874521 0.2485906 1.367069e-03 0.9598194
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##              R19        R20        R21        R22        R23
## 1     0.2855081 0.08183332 0.08688517 0.6907223 0.08014592
## 3     0.2855435 0.08182314 0.08678182 0.6908908 0.08014614
## 6     0.2848994 0.08176451 0.08596547 0.6948210 0.08012546
## 9     0.2835860 0.08176299 0.08398110 0.6888169 0.08010315
## 11    0.2837826 0.08191834 0.08427800 0.6892468 0.08004124
## 12    0.2838779 0.08189933 0.08442210 0.6893502 0.08003538
## 14    0.2839575 0.08201363 0.08454235 0.6895315 0.08002017
```

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## 15    0.2839190 0.08212733 0.08448419 0.6894905 0.07984313
## 16    0.2839891 0.08211120 0.08459001 0.6895719 0.07953222
## 17    0.2840731 0.08178840 0.08471694 0.6894842 0.08012813
## 19    0.2842893 0.08178520 0.08504360 0.6895757 0.08013656
## 20    0.2842712 0.08178321 0.08501623 0.6896677 0.08012919
## 21    0.2843717 0.08178706 0.08516820 0.6897722 0.08013011
## 24    0.2852765 0.08188284 0.08653525 0.6897239 0.08014728
## 25    0.2842718 0.08176968 0.08501723 0.6899070 0.08017050
## 27    0.2841376 0.08179024 0.08481437 0.6895847 0.08017588
## 29    0.2843142 0.08180145 0.08508125 0.6899537 0.08017993
## 30    0.2839209 0.08197579 0.08448706 0.6893714 0.08013700
## 31    0.2843281 0.08179604 0.08510234 0.6897730 0.08017091
## 32    0.2842197 0.08179941 0.08493853 0.6898914 0.08013863
## 35    0.2864273 0.08210596 0.08827396 0.6939898 0.08016793
## 37    0.2846237 0.08188472 0.08554893 0.6907958 0.08014109
## 38    0.2867591 0.08213656 0.08877521 0.6936769 0.08019743
## 40    0.2881421 0.08225121 0.09086487 0.6952466 0.08023591
## 41    0.2885491 0.08485177 0.09147972 0.6977224 0.08017719
## 42    0.2878313 0.08451460 0.09039526 0.6959291 0.08016947
## 43    0.2883346 0.08511397 0.09115576 0.6930331 0.08017348
## 44    0.2884190 0.08569442 0.09128318 0.6961620 0.08017754
## 45    0.2885879 0.08689514 0.09153837 0.6960432 0.08018161
## 46    0.2887959 0.08904534 0.09185274 0.6957731 0.08018809
## 47    0.2878610 0.08490044 0.09044014 0.6928720 0.08018562
## 48    0.2858796 0.08210066 0.08744648 0.6901298 0.08017734
## 49    0.2834416 0.08172763 0.08376285 0.6886492 0.07998732
## 51    0.2823278 0.08165688 0.08208000 0.6873548 0.07946199
## 52    0.2835652 0.08173517 0.08394960 0.6887969 0.08011588
## 53    0.2837626 0.08174413 0.08424793 0.6889553 0.08013895
## 54    0.2840725 0.08176835 0.08471605 0.6893513 0.08016316
## 56    0.2811451 0.08152506 0.07984511 0.6861308 0.07987051
## 57    0.2850148 0.08182929 0.08613983 0.6899704 0.08015802
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## 61    0.2864750 0.08193442 0.08834608 0.6903081 0.08046979
## 62    0.2854946 0.08187004 0.08686476 0.6900872 0.08018925
## 63    0.4527220 0.09129233 0.33952909 0.8301534 0.08393166
## 66    0.2835125 0.08173149 0.08386992 0.6887291 0.08010740
## 67    0.2835054 0.08173134 0.08385924 0.6887251 0.08010711
## 68    0.2835464 0.08173220 0.08392123 0.6887473 0.08010929
## 69    0.2835275 0.08173180 0.08389270 0.6887368 0.08010824
## 70    0.2835292 0.08173183 0.08389521 0.6887370 0.08010856
## 72    0.2875296 0.08249922 0.08993944 0.6943425 0.08017268
## 76    0.2842179 0.08194636 0.08493579 0.6901020 0.08012992
## 77    0.2804537 0.08061980 0.07888138 0.6794055 0.08004463
## 79    0.2842745 0.08205156 0.08501271 0.6908665 0.08012238
## 81    0.2840755 0.08176208 0.08472066 0.6926668 0.08012142
## 82    0.2843002 0.08178041 0.08506016 0.6979010 0.08012856
## 83    0.2847064 0.08185065 0.08567389 0.7012065 0.08015438
## 84    0.2841459 0.08182169 0.08482691 0.7769419 0.08013334
## 85    0.2842082 0.08189128 0.08492106 0.7875590 0.08014404
## 86    0.2843236 0.08179041 0.08509542 0.7921700 0.08012939
## 87    0.2842176 0.08178132 0.08493536 0.7906702 0.08012648
## 88    0.2838689 0.08174615 0.08440842 0.7304718 0.08011391
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## 89    0.2815172 0.08169591 0.08085521 0.6878264 0.08019416
## 90    0.2812411 0.08168974 0.08043816 0.6876928 0.08022981
## 92    0.2803079 0.08154883 0.07902819 0.6871246 0.08017154
## 94    0.2817738 0.07564887 0.08124292 0.6865494 0.08019299
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## 135   0.2835691 0.08181495 0.08395555 0.6890521 0.08012052
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## 138   0.2814685 0.08163485 0.08078171 0.6876160 0.08017637
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## 147   0.2869943 0.08181717 0.08913064 0.6918098 0.08021810
## 149   0.2909462 0.08192935 0.09510164 0.6941199 0.08054876
## 150   0.2850258 0.08176938 0.08615635 0.6896688 0.08022716
## 153   0.2837934 0.08184620 0.08429441 0.6888912 0.08013164
## 154   0.2837398 0.08179718 0.08421335 0.6888682 0.08012111
## 156   0.2837071 0.08176133 0.08416399 0.6888529 0.08011765
## 157   0.2832635 0.08169686 0.08347319 0.6885395 0.08009760
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## 163   0.2859326 0.08197849 0.08752645 0.6900900 0.07995395
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## 176   0.2831829 0.08171481 0.08337191 0.6882898 0.08009769
## 177   0.2844622 0.08194122 0.08530488 0.6898623 0.08015206
## 179   0.2855044 0.08209587 0.08687960 0.6907284 0.08019367
## 181   0.2847229 0.08200485 0.08569881 0.6902278 0.08017586
## 182   0.2849003 0.08194724 0.08596688 0.6906864 0.08018973
## 186   0.2865696 0.08184087 0.08848896 0.6904611 0.08020902
## 187   0.2868548 0.08186314 0.08891981 0.6906309 0.08035682
## 188   0.2895343 0.08198288 0.09296834 0.6926902 0.08027627
## 189   0.2846464 0.08176824 0.08558322 0.6893479 0.08016264
## 190   0.2854309 0.08179398 0.08820620 0.6897372 0.08021382
## 192   0.2857553 0.08255805 0.08742167 0.6898185 0.08020559
## 193   0.2885441 0.08192243 0.09147220 0.6912480 0.08036176
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## 198   0.2867206 0.08182455 0.08871717 0.6903106 0.08025501
## 199   0.2854466 0.08178386 0.08679226 0.6896514 0.08020935
## 200   0.2849868 0.08176815 0.08609755 0.6893862 0.08021850
## 201   0.2837137 0.08174431 0.08417393 0.6888801 0.08012148
## 202   0.2870315 0.08189042 0.08918685 0.6929653 0.08017463
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## 205   0.2840300 0.08176233 0.08465182 0.6900519 0.08011998
## 206   0.2874411 0.08198536 0.08980576 0.7001186 0.08017900
## 207   0.2830981 0.08164597 0.08324388 0.6856645 0.08007572
## 208   0.2782257 0.08144829 0.07588216 0.6743904 0.08000639
## 209   0.2846025 0.08177258 0.08551688 0.6951585 0.08008249
## 210   0.2865989 0.11084294 0.08853318 0.7010814 0.08003571
## 211   0.2826791 0.00000000 0.08261083 0.6866264 0.08012410
## 212   0.2854137 0.08182277 0.08674252 0.6942582 0.08006774
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## 219   0.2830294 0.08171301 0.08314004 0.6886325 0.08014523
## 220   0.2821376 0.08167689 0.08179270 0.6881906 0.08021853
## 223   0.2830940 0.08171274 0.08323768 0.6653101 0.07926487
## 224   0.2832287 0.08169626 0.08344116 0.6886142 0.08011730
## 225   0.2881237 0.08207919 0.09083712 0.8428161 0.05555350
## 226   0.3118862 0.08230142 0.12673986 0.7068775 0.08549686
## 227   0.2841369 0.08175446 0.08481306 0.6896963 0.08012162
## 228   0.2836599 0.08173696 0.08409262 0.6889067 0.08011178
## 229   0.2916340 0.08205538 0.09614079 0.6938198 0.08131182
## 232   0.2924977 0.08189958 0.09744569 0.6936315 0.08042059
## 233   0.2847308 0.08889055 0.08571068 0.6902463 0.08090269
## 234   0.2805911 0.06530904 0.07945604 0.6854455 0.08030571
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## 237   0.2691091 0.08151755 0.07187348 0.6813335 0.08031269
## 239   0.2813566 0.08167887 0.08045899 0.6870978 0.08004301
## 241   0.2813420 0.08159169 0.08059054 0.6846094 0.07985306
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## 243   0.2775446 0.08181158 0.07485303 0.6720700 0.08014788
## 245   0.2688148 0.08209195 0.06166320 0.6582997 0.08026918
## 246   0.2801500 0.08074952 0.07420320 0.6499254 0.08002093
## 247   0.2876360 0.08330731 0.09010017 0.7365030 0.08218121
## 248   0.2811344 0.08077098 0.08027684 0.6792233 0.08020626
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## 252   0.2833110 0.08170211 0.08356548 0.6886038 0.08009927
## 254   0.2835327 0.08173597 0.08390054 0.6887406 0.08010812
## 256   0.2836352 0.08175827 0.08405539 0.6887953 0.08011190
## 258   0.2846013 0.08180575 0.08551508 0.6905239 0.08037493
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## 264   0.2831191 0.08172130 0.08327557 0.6899813 0.08010149
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## 268   0.2840782 0.08187875 0.08472463 0.6904155 0.08012628
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## 280   0.2839949 0.08180095 0.08459889 0.6893066 0.08012016
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## 307   0.2280027 0.08517849 0.00000000 0.6899813 0.07954380
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## 313   0.2837547 0.08174502 0.08423591 0.6888894 0.08012668
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## 314    0.2837337 0.08174363 0.08420420 0.6888706 0.08012518
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## 350    0.2848226 0.08357060 0.08584944 0.7055875 0.08021676
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## 354    0.2762954 0.08374815 0.09475103 0.6850673 0.08000933
## 355    0.2773532 0.08386477 0.09315276 0.6850264 0.08003080
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## 383    0.2845706 0.08177842 0.08546870 0.6893829 0.08016807
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## 389    0.2837544  0.08176098  0.08423541  0.6892613  0.08011287
## 390    0.2845884  0.08186009  0.08549555  0.6898463  0.08013317
## 391    0.2841932  0.08280100  0.08489846  0.6902414  0.08012771
## 392    0.2846352  0.08355385  0.08556632  0.6894763  0.08020297
## 393    0.2806746  0.08161156  0.07958222  0.6874065  0.08013427
## 394    0.2815709  0.08169030  0.08093635  0.6879202  0.08013579
## 396    0.2803145  0.08167641  0.07903815  0.6874021  0.08020900
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## 407    0.2906239  0.10565070  0.09461457  0.6960385  0.08029048
## 410    0.2651850  0.07897536  0.05617892  0.4588939  0.08028784
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## 416    0.2830662  0.08169975  0.08319561  0.6832493  0.08009867
## 419    0.2817400  0.08148550  0.08119188  0.6880295  0.08169279
## 420    0.2822537  0.08154153  0.08196809  0.6882232  0.08012220
## 421    0.2826574  0.08159151  0.08257795  0.6883887  0.08011761
## 422    0.2818984  0.08162317  0.08289713  0.6880584  0.08011502
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## 425    0.2830705  0.08172218  0.08320218  0.6885391  0.08006946
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## 431    0.2835048  0.08173133  0.08385834  0.6887248  0.08010709
## 434    0.2816406  0.08152819  0.08104170  0.6856002  0.08018042
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## 536   0.2810190 0.08082565 0.08010252 0.6863637 0.08012871
## 537   0.2813148 0.08160060 0.08054948 0.6872246 0.08025196
## 538   0.2836719 0.08174702 0.08411087 0.6888471 0.08010142
## 539   0.2834433 0.08172545 0.08376548 0.6886794 0.08010912
## 540   0.2835161 0.08173241 0.08387540 0.6887328 0.08010669
## 541   0.2832780 0.08170967 0.08351571 0.6885658 0.08011531
## 542   0.2819685 0.08159131 0.08153717 0.6876777 0.08016806
## 543   0.2800080 0.08146911 0.07857508 0.6863436 0.08027422
## 544   0.2813139 0.07669794 0.08054813 0.6871910 0.08024311
## 546   0.2869492 0.08208066 0.08704000 0.6911211 0.07986733
## 547   0.2838843 0.08192182 0.08492877 0.6889963 0.08012134
```

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## 549   0.2849486 0.08197924 0.08603985 0.6896993 0.08033622
## 550   0.2850865 0.08201169 0.08624819 0.6898980 0.08023109
## 551   0.2836501 0.08175450 0.08407789 0.6888358 0.08011761
## 552   0.2838025 0.08177698 0.08430821 0.6889254 0.08012529
## 554   0.2833439 0.08169257 0.08361523 0.6886638 0.08001278
## 555   0.2833697 0.08169843 0.08365415 0.6886732 0.08005059
## 557   0.2835048 0.08173133 0.08385834 0.6887248 0.08010709
## 558   0.2827256 0.08170227 0.08268100 0.6882077 0.08008235
## 559   0.2821399 0.08152171 0.06664105 0.6878344 0.08007492
## 560   0.2832190 0.08172599 0.08342655 0.6886117 0.08005732
## 561   0.2908895 0.08709091 0.09501586 0.6998069 0.08034808
## 562   0.2925556 0.08892122 0.09753316 0.7021622 0.08039164
## 564   0.2888795 0.08461899 0.09197902 0.6933085 0.07859243
## 565   0.2888208 0.08386635 0.09189024 0.6913588 0.07984838
## 568   0.2839588 0.08175768 0.08454434 0.6895748 0.08012738
## 569   0.2911499 0.15918942 0.09402403 0.7024339 0.08029289
## 571   0.2919276 0.21881512 0.09658444 0.6965887 0.08029289
## 573   0.2884013 0.15864835 0.09125653 0.6952915 0.08024967
## 575   0.2898727 0.10736052 0.09347960 0.6960335 0.08034559
## 577   0.2831979 0.08168506 0.08339469 0.6824707 0.08011013
## 578   0.2651850 0.07897536 0.05617892 0.4588939 0.08028784
## 579   0.2668163 0.07876130 0.05864358 0.5076019 0.08062214
## 580   0.2822848 0.08080890 0.08201509 0.6608651 0.08128801
## 582   0.2850427 0.08335736 0.08618190 0.7198100 0.08024215
## 583   0.2845785 0.08180040 0.08548063 0.7197901 0.08013532
## 584   0.2830662 0.08169975 0.08319561 0.6832493 0.08009867
## 585   0.2834944 0.08172643 0.08384269 0.6885923 0.08009584
## 586   0.2834998 0.08048592 0.08385073 0.6886682 0.08009800
## 587   0.2835340 0.08182248 0.08390249 0.6891907 0.08010548
## 589   0.2806351 0.08134174 0.07952257 0.6864672 0.08014808
## 591   0.2814766 0.08163962 0.08079399 0.6873207 0.08020836
## 593   0.2845649 0.08177035 0.08545999 0.6899195 0.08017249
## 595   0.2841914 0.08176407 0.08489571 0.6890040 0.08009398
## 598   0.2835614 0.08173445 0.08394393 0.6887483 0.08010607
## 599   0.2847202 0.08210536 0.08569465 0.6896738 0.08007747
## 600   0.2831999 0.08143011 0.08339774 0.6885191 0.08011290
## 601   0.2973029 0.08219863 0.10470592 0.8498375 0.08038441
## 602   0.2964776 0.08218022 0.10345902 0.7800043 0.08038569
## 603   0.2928102 0.08192059 0.09791788 0.8429896 0.08021547
## 606   0.2926759 0.08192799 0.09771497 0.8766676 0.08021928
## 608   0.2993213 0.08212062 0.10775549 0.9018165 0.08033286
## 609   0.2830705 0.08172218 0.08320218 0.6885391 0.08006946
## 610   0.2827252 0.08171644 0.08277160 0.6883915 0.08000334
## 612   0.2830051 0.08172118 0.08310335 0.6884935 0.08007427
## 613   0.2829829 0.08172056 0.08306977 0.6884599 0.08008422
## 614   0.2832173 0.08172431 0.08342392 0.6885805 0.08009063
## 615   0.2835048 0.08173133 0.08385834 0.6887248 0.08010709
## 617   0.2837688 0.08192478 0.08425721 0.6899399 0.08011848
## 618   0.2839677 0.08346802 0.08455767 0.6902196 0.08012671
## 620   0.2839542 0.08129877 0.08453731 0.6899475 0.08012972
## 621   0.2838788 0.08183917 0.08442348 0.6900513 0.08012566
## 622   0.2853403 0.08201088 0.08663156 0.6940705 0.08017973
## 623   0.2840716 0.08184076 0.08471465 0.6902615 0.08014112
## 626   0.2856333 0.08236203 0.08707433 0.6898143 0.07990108
```

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## 627   0.2858513 0.08232923 0.08740370 0.6898454 0.07993491
## 628   0.2849923 0.08207490 0.08610574 0.6894546 0.07994860
## 629   0.2855658 0.08223326 0.08697228 0.6897823 0.07975919
## 631   0.2857509 0.08415723 0.08725198 0.6898606 0.07974953
## 632   0.2853725 0.08332792 0.08668031 0.6897489 0.07952488
## 633   0.2877822 0.08274298 0.09032104 0.6907573 0.07996549
## 634   0.2762954 0.07971451 0.07296566 0.6850673 0.08045189
## 637   0.2763611 0.08404824 0.09465183 0.6853001 0.08001486
## 638   0.2774792 0.07862574 0.07475421 0.6858550 0.08047723
## 639   0.2883192 0.08201380 0.09113248 0.6928198 0.08029667
## 640   0.2893703 0.08564489 0.09272056 0.6929300 0.08059477
## 641   0.2853392 0.08218813 0.08662989 0.6902278 0.08028579
## 642   0.2869492 0.08208066 0.08704000 0.6911211 0.07986733
## 644   0.2840371 0.08193067 0.08510161 0.6890477 0.08015670
## 645   0.2849486 0.08197924 0.08603985 0.6896993 0.08033622
## 646   0.2850865 0.08201169 0.08624819 0.6898980 0.08023109
## 647   0.2836501 0.08175450 0.08407789 0.6888358 0.08011761
## 649   0.2825331 0.08163251 0.08239013 0.6871295 0.08014014
## 650   0.2816406 0.08152819 0.08104170 0.6856002 0.08018042
## 651   0.2807888 0.08143350 0.07975472 0.6843827 0.08024140
## 653   0.2807249 0.08147164 0.07965813 0.6828517 0.08065994
## 654   0.2824302 0.08164953 0.08223474 0.6861681 0.08002730
## 655   0.2796416 0.08121279 0.07802136 0.6823258 0.07922512
## 656   0.2839229 0.08183296 0.08449005 0.6902552 0.08013082
## 657   0.2856383 0.08257856 0.08708189 0.6931162 0.08014133
## 659   0.2859999 0.25946895 0.08762814 0.7001151 0.08014698
## 660   0.2868481 0.08180611 0.08890970 0.7007934 0.08015489
## 661   0.2870187 0.08182524 0.08916753 0.7012493 0.08016900
## 662   0.2862726 0.10772595 0.08804025 0.7052245 0.08015693
## 663   0.2865903 0.08499555 0.08852026 0.6946767 0.08016416
## 664   0.2871447 0.08483261 0.08935782 0.7016626 0.08016940
## 665   0.2855412 0.08231081 0.08693510 0.6925423 0.08019095
## 666   0.2849803 0.08208935 0.08608770 0.6912434 0.08017499
## 668   0.2828201 0.08156270 0.08282385 0.6878022 0.08006301
## 670   0.2834022 0.08192279 0.06835106 0.6886159 0.08010544
## 671   0.2765173 0.08201737 0.07330089 0.6732761 0.08022296
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## 677   0.2836408 0.08176932 0.08406389 0.6888422 0.08010063
## 678   0.2835237 0.08173432 0.08388693 0.6887371 0.08010615
## 679   0.2835063 0.08173152 0.08386059 0.6887257 0.08010694
## 680   0.2839874 0.08182970 0.08458743 0.6890909 0.08197469
## 681   0.2830705 0.08172218 0.08320218 0.6885391 0.08006946
## 682   0.2827252 0.08171644 0.08277160 0.6883915 0.08000334
## 683   0.2832285 0.08172604 0.08344089 0.6886017 0.08008739
## 684   0.2830051 0.08172118 0.08310335 0.6884935 0.08007427
## 687   0.2835048 0.08173133 0.08385834 0.6887248 0.08010709
## 689   0.2853390 0.08245099 0.08662962 0.6909609 0.08013964
## 690   0.2852231 0.08222792 0.08645445 0.6906753 0.08013916
## 691   0.2847354 0.08205168 0.08571772 0.6899108 0.08013045
## 692   0.2836849 0.08178684 0.08413046 0.6889579 0.08011099
## 696   0.2875796 0.08253208 0.09001504 0.6934790 0.08021521
## 697   0.2778588 0.08196553 0.07532780 0.6853156 0.08016150
## 698   0.2790018 0.08210258 0.07705481 0.6860980 0.08016041
## 699   0.2793529 0.08302726 0.07758516 0.6864800 0.08016365
```

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## 700   0.2815497 0.08125913 0.08090433 0.6846514 0.08029982
## 701   0.2838317 0.08174041 0.08435225 0.6889020 0.07999666
## 703   0.2845106 0.08177121 0.08537795 0.6893013 0.08005315
## 704   0.2795927 0.08155062 0.07794761 0.6863289 0.08029370
## 705   0.2844531 0.08176878 0.08529119 0.6891708 0.08016695
## 706   0.2845445 0.08176569 0.08542927 0.6892363 0.08016090
## 707   0.2843111 0.08175966 0.08507655 0.6891269 0.08015061
## 708   0.2854141 0.08179938 0.08674312 0.6896872 0.08021332
## 709   0.2857074 0.08182784 0.08718623 0.6899380 0.08021042
## 710   0.2844271 0.08177575 0.08525180 0.6894175 0.08013971
## 711   0.2855382 0.08183589 0.08693054 0.6898180 0.08028301
## 713   0.2853845 0.08215143 0.08669831 0.6896307 0.07998081
## 715   0.2858513 0.08232923 0.08740370 0.6898454 0.07993491
## 717   0.2855658 0.08223326 0.08697228 0.6897823 0.07975919
## 718   0.2853949 0.08364992 0.08671415 0.6896576 0.07991209
## 719   0.2857509 0.08415723 0.08725198 0.6898606 0.07974953
## 720   0.2853725 0.08332792 0.08668031 0.6897489 0.07952488
## 721   0.2841049 0.08177594 0.08476499 0.6895712 0.08012594
## 723   0.2840990 0.08183304 0.08475611 0.6894982 0.08013342
## 725   0.2865627 0.08185533 0.08847855 0.6945220 0.08023003
## 726   0.2903027 0.08198663 0.09412932 0.6982895 0.08042048
## 728   0.2885080 0.08187500 0.09141765 0.6981851 0.08022337
## 729   0.2837688 0.08192478 0.08425721 0.6899399 0.08011848
## 730   0.2839677 0.08346802 0.08455767 0.6902196 0.08012671
## 731   0.2840517 0.07555112 0.08468471 0.6905623 0.08013486
## 734   0.2853403 0.08201088 0.08663156 0.6940705 0.08017973
## 735   0.2840716 0.08184076 0.08471465 0.6902615 0.08014112
## 737   0.2855412 0.08231081 0.08693510 0.6925423 0.08019095
## 739   0.2837299 0.08179147 0.08419849 0.6890794 0.08012205
## 740   0.2828201 0.08156270 0.08282385 0.6878022 0.08006301
## 741   0.2778680 0.08011440 0.07534169 0.6775344 0.07983690
## 742   0.2732412 0.08173325 0.08370327 0.6778365 0.08010762
## 744   0.2776837 0.08233836 0.07506315 0.6852447 0.08018136
## 745   0.2801019 0.08161025 0.07871681 0.6864183 0.08042335
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## 747   0.2833411 0.08172535 0.08361107 0.6886229 0.07998763
## 748   0.2809182 0.08164800 0.07995031 0.6868494 0.07979893
## 750   0.2810936 0.08163619 0.08021527 0.6865873 0.07874911
## 751   0.2812129 0.08164995 0.08039550 0.6868885 0.07990673
## 753   0.2852307 0.08184181 0.08646607 0.6903096 0.08022299
## 754   0.2841611 0.08175669 0.08484992 0.6891590 0.08012781
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## 762   0.2822066 0.07929796 0.08189690 0.6878720 0.08013749
## 763   0.2828046 0.08092022 0.08280042 0.6882020 0.08012188
## 764   0.2854161 0.08517849 0.08702270 0.6899813 0.08092931
## 765   0.2854161 0.08517849 0.08702270 0.6899813 0.08092931
## 766   0.2807978 0.08035940 0.07976835 0.6859806 0.08012796
## 767   0.2795600 0.08022288 0.07789810 0.6839857 0.08019928
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## 769   0.2835860 0.08176299 0.08398110 0.6888169 0.08010315
## 770   0.2837354 0.08179382 0.08420676 0.6889531 0.08009695
## 771   0.2837826 0.08191834 0.08427800 0.6892468 0.08004124
## 772   0.2838779 0.08189933 0.08442210 0.6893502 0.08003538
## 774   0.2839575 0.08201363 0.08454235 0.6895315 0.08002017
## 775   0.2839190 0.08212733 0.08448419 0.6894905 0.07984313
## 776   0.2839891 0.08211120 0.08459001 0.6895719 0.07953222
## 778   0.2871298 0.08234463 0.08933542 0.6913572 0.08038607
## 780   0.2868730 0.08228441 0.08894737 0.6906596 0.08122138
## 781   0.2864724 0.08225612 0.09871055 0.6902174 0.08013944
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## 794   0.2776502 0.08135320 0.07501261 0.0000000 0.07989358
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## 797   0.2805513 0.07998470 0.07939585 0.4919415 0.07987975
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## 803   0.2841554 0.08176367 0.08484138 0.6905547 0.08011908
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## 812   0.2829861 0.08172185 0.08307462 0.6884430 0.08008758
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## 845   0.2835144 0.08202431 0.08530939 0.6909701 0.08012674
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## 847   0.2855249 0.15371282 0.08691050 0.6937225 0.08014476
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## 860   0.2842971 0.08639865 0.08505546 0.6996813 0.08025653
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## 872   0.2829690 0.08163531 0.08304883 0.6884856 0.08015054
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## 889   0.2848668 0.08177517 0.08591626 0.6895336 0.08046080
## 890   0.2823320 0.08169971 0.08208635 0.6881639 0.07929802
## 891   0.2825143 0.08170753 0.08236182 0.6882694 0.08001679
## 892   0.2829293 0.08162759 0.08298886 0.6884615 0.08011349
## 894   0.2834526 0.08171795 0.08377948 0.6886949 0.08010771
## 895   0.2827893 0.08166084 0.08277731 0.6882043 0.08013166
## 896   0.2837432 0.08174777 0.08421857 0.6890812 0.08012548
## 898   0.2861192 0.09471829 0.08780841 0.6958268 0.08006600
## 899   0.2862566 0.09927603 0.08801607 0.6961070 0.08006526
## 900   0.2892839 0.08221933 0.09259004 0.6967985 0.07989556
## 901   0.2898223 0.08195127 0.09340355 0.7097273 0.07993198
## 902   0.2933340 0.08601602 0.09870929 0.7256581 0.07989905
## 903   0.2927617 1.00000000 0.09784456 0.7181996 0.07992786
## 905   0.2877822 0.08274298 0.09032104 0.6907573 0.07996549
## 907   0.2773532 0.08386477 0.09315276 0.6850264 0.08003080
## 912   0.2893703 0.08564489 0.09272056 0.6929300 0.08059477
## 913   0.2846025 0.08177258 0.08551688 0.6951585 0.08013358
## 914   0.2865989 0.11084294 0.08853318 0.7010814 0.08019103
## 915   0.2843305 0.16346267 0.08510585 0.6908231 0.08014600
## 916   0.2854137 0.08182277 0.08674252 0.6942582 0.08018414
## 918   0.2854407 0.09403742 0.08678333 0.6908656 0.08025061
## 923   0.2844389 0.08176075 0.08526962 0.6894383 0.08014655
## 927   0.2835337 0.08173218 0.08390205 0.6887424 0.08010856
## 928   0.2835349 0.08173250 0.08390382 0.6887443 0.08011069
## 929   0.2835748 0.08173498 0.08396416 0.6887910 0.08011159
## 930   0.2837901 0.08174908 0.08428935 0.6890285 0.08012466
## 932   0.2845693 0.08182200 0.08546675 0.6898837 0.08016576
## 933   0.2848194 0.08192419 0.08584462 0.6905928 0.08020863
## 936   0.2850020 0.08231825 0.08612043 0.6911677 0.08035574
```

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## 938   0.2824212 0.08170463 0.08222111 0.6882273 0.07998352
## 939   0.2825691 0.08170856 0.08244458 0.6883032 0.07999661
## 940   0.2829735 0.08171560 0.08305552 0.6884130 0.08008803
## 942   0.2835443 0.08173262 0.08391806 0.6887485 0.08010852
## 943   0.2839505 0.08174753 0.08453168 0.6890200 0.08012007
## 947   0.2880033 0.12229594 0.09065514 0.6948727 0.08031976
## 948   0.2879018 0.10466589 0.09050184 0.6919776 0.08078700
## 951   0.2857557 0.08231902 0.08725925 0.6898284 0.08030925
## 952   0.2912407 0.16275024 0.09944213 0.6932232 0.08043477
## 953   0.2844355 0.08181925 0.08526448 0.6895157 0.08015506
## 955   0.2840103 0.08176812 0.08462215 0.6891092 0.08013308
## 956   0.2854344 0.08185531 0.08677384 0.6901660 0.08019416
## 957   0.2835141 0.08178275 0.08525736 0.6893224 0.08010731
## 960   0.2857221 0.08181718 0.08720854 0.6901359 0.08018153
## 961   0.2839768 0.08254566 0.08457144 0.6889572 0.08012704
## 965   0.2835843 0.08189662 0.08397849 0.6887607 0.08011283
## 966   0.2840310 0.08200061 0.08465333 0.6889759 0.08013642
## 967   0.2839416 0.08187273 0.08451835 0.6889432 0.08012672
## 970   0.2842183 0.08182891 0.08493641 0.6892513 0.08014328
## 972   0.2866518 0.08214535 0.08861319 0.6911716 0.08033121
## 973   0.2869623 0.08211577 0.08908227 0.6912273 0.08036983
## 975   0.2842491 0.08181356 0.08498296 0.6892108 0.07996651
## 976   0.2846422 0.08185888 0.08557688 0.6894406 0.07997505
## 977   0.2860830 0.08174040 0.08439738 0.6888785 0.08008235
## 978   0.2870245 0.08285515 0.08473030 0.6889811 0.08007024
## 979   0.2902030 0.08245384 0.08578724 0.6893104 0.07999098
## 980   0.2905144 0.08222835 0.08616162 0.6894481 0.07995576
## 981   1.0000000 0.12545137 0.38964053 0.7934523 0.00000000
## 982   0.2968079 0.08263234 0.09190544 0.6920227 0.08151795
## 983   0.2952073 0.08288246 0.09071681 0.6914783 0.08167172
## 985   0.2806746 0.08161156 0.07958222 0.6874065 0.08013427
## 986   0.2815709 0.08169030 0.08093635 0.6879202 0.08013579
## 987   0.2812762 0.08169078 0.08049121 0.6877957 0.08015636
## 988   0.2803145 0.08167641 0.07903815 0.6874021 0.08020900
## 989   0.0000000 0.08168131 0.07957486 0.5728909 0.08019716
## 990   0.2729548 0.08148557 0.06791828 0.6844861 0.08085149
## 991   0.2824879 0.08170635 0.08232188 0.6883109 0.08022007
## 993   0.2814387 0.07661123 0.08073664 0.6860287 0.08018426
## 994   0.2818593 0.07719324 0.08137214 0.6864448 0.08019603
## 995   0.2821756 0.08078753 0.08192919 0.6868831 0.08019523
## 997   0.2838032 0.08218868 0.08430844 0.6891588 0.08005857
## 998   0.2833139 0.08138541 0.08356014 0.6884648 0.08014073
## 999   0.2835521 0.08177865 0.08393001 0.6887841 0.08010182
## 1000  0.2848376 0.08193799 0.08587212 0.6903080 0.08013761
## 1006  0.2932386 0.08208097 0.09856514 0.7505278 0.08032780
## 1007  0.3014277 0.08212529 0.11093803 0.7752783 0.08034959
## 1008  0.3054118 0.08216548 0.11695766 0.7815517 0.08037508
## 1009  0.2908895 0.08709091 0.09501586 0.6998069 0.08034808
## 1010  0.2925556 0.08892122 0.09753316 0.7021622 0.08039164
## 1011  0.2907984 0.08857087 0.09487828 0.6972025 0.08069602
## 1012  0.2888795 0.08461899 0.09197902 0.6933085 0.07859243
## 1013  0.2888208 0.08386635 0.09189024 0.6913588 0.07984838
## 1014  0.2846427 0.08203627 0.08557763 0.6895015 0.08004844
## 1015  0.2844730 0.08176085 0.08532127 0.6897313 0.08013549
```

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## 1016 0.2840442 0.08177098 0.08489064 0.6892855 0.08013602
## 1017 0.2844288 0.08180712 0.08525444 0.6895058 0.08015502
## 1018 0.2841245 0.08178082 0.08479462 0.6892506 0.08014063
## 1019 0.2841374 0.08177174 0.08481418 0.6892044 0.08013958
## 1020 0.2855496 0.08184775 0.08694789 0.6902515 0.08019843
## 1022 0.8898585 0.10113293 1.00000000 0.9203876 1.00000000
## 1023 0.2856885 0.08179448 0.08781144 0.6895486 0.08151123
## 1025 0.2855962 0.08287411 0.08701820 0.6990594 0.08014452
## 1026 0.2870699 0.08340291 0.08924481 0.7007917 0.08016559
## 1027 0.2840002 0.08191666 0.08460683 0.6897685 0.08011570
## 1028 0.2863054 0.08289072 0.08808983 0.6930303 0.08017318
## 1029 0.2835391 0.08174555 0.08391011 0.6887718 0.08010823
## 1030 0.2835562 0.08174979 0.08393595 0.6887761 0.08010888
## 1031 0.2854102 0.08248471 0.08673724 0.6905326 0.08018719
## 1032 0.2877517 0.08320152 0.09027500 0.6933165 0.08024841
## 1033 0.2835158 0.08173256 0.08387498 0.6888318 0.08010798
## 1035 0.2836584 0.08175146 0.08409035 0.6894591 0.08013262
## 1036 0.2845814 0.08186836 0.08548502 0.6956384 0.08023563
## 1037 0.2844078 0.08187254 0.08522263 0.6917936 0.08141778
## 1038 0.2838262 0.08175122 0.08434388 0.6889757 0.08008913
## 1040 0.2860058 0.08179507 0.08763706 0.7022240 0.08014647
## 1042 0.2819599 0.08152532 0.08152416 0.6881184 0.08072517
## 1043 0.2817400 0.08148550 0.08119188 0.6880295 0.08169279
## 1044 0.2822537 0.08154153 0.08196809 0.6882232 0.08012220
## 1048 0.2783962 0.08135984 0.07613977 0.6865723 0.08016460
## 1049 0.2836704 0.08174235 0.08410856 0.6888373 0.08007470
## 1053 0.2837057 0.08174073 0.08416193 0.6888083 0.08009726
## 1056 0.2835218 0.08174226 0.08388399 0.6887316 0.08010687
## 1058 0.2838190 0.08181942 0.08433311 0.6888484 0.08010254
## 1059 0.2834176 0.08170699 0.08372665 0.6886902 0.08010835
## 1060 0.2836317 0.08176984 0.08405002 0.6887784 0.08010506
## 1062 0.2847047 0.08219549 0.08567126 0.6891901 0.08008896
## 1064 0.2847769 0.08242764 0.08578037 0.6892797 0.08008637
## 1065 0.2858064 0.08287347 0.08733585 0.6912773 0.08014906
## 1068 0.2861592 0.08296938 0.08786888 0.6942973 0.08014688
## 1069 0.2897273 0.08190189 0.09325990 0.6922004 0.08029683
## 1071 0.2871768 0.08180891 0.08940644 0.6903073 0.08038012
## 1072 0.2833532 0.08172853 0.08362931 0.6886676 0.07998571
## 1075 0.2803991 0.08142510 0.07916597 0.6871919 0.08019135
## 1078 0.2833597 0.08164619 0.08363913 0.6885920 0.08011345
## 1079 0.2834371 0.08169308 0.08375598 0.6886655 0.08010997
## 1082 0.2820697 0.08167243 0.08169002 0.6835734 0.08004025
## 1083 0.2895233 0.08200974 0.09295172 0.7074404 0.08039595
## 1084 0.2817772 0.08168701 0.08124813 0.6854348 0.08000944
## 1086 0.2811412 0.08161627 0.08028718 0.6823411 0.08006153
## 1087 0.2767530 0.08139311 0.07365704 0.6745292 0.07989958
## 1088 0.2804100 0.08157912 0.07918240 0.6833939 0.07991088
## 1089 0.2877822 0.08274298 0.09032104 0.6907573 0.07996549
## 1090 0.2762954 0.07971451 0.07296566 0.6850673 0.08045189
## 1091 0.2773532 0.08386477 0.09315276 0.6850264 0.08003080
## 1093 0.2763611 0.08404824 0.09465183 0.6853001 0.08001486
## 1094 0.2774792 0.07862574 0.07475421 0.6858550 0.08047723
## 1095 0.2883192 0.08201380 0.09113248 0.6928198 0.08029667
## 1096 0.2893703 0.08564489 0.09272056 0.6929300 0.08059477
```

```
## 1098 0.2869492 0.08208066 0.08704000 0.6911211 0.07986733
## 1099 0.2838843 0.08192182 0.08492877 0.6889963 0.08012134
## 1101 0.2849486 0.08197924 0.08603985 0.6896993 0.08033622
## 1102 0.2850865 0.08201169 0.08624819 0.6898980 0.08023109
## 1103 0.2836501 0.08175450 0.08407789 0.6888358 0.08011761
## 1104 0.2838025 0.08177698 0.08430821 0.6889254 0.08012529
## 1105 0.2908895 0.08709091 0.09501586 0.6998069 0.08034808
## 1106 0.2925556 0.08892122 0.09753316 0.7021622 0.08039164
## 1107 0.2907984 0.08857087 0.09487828 0.6972025 0.08069602
## 1109 0.2888208 0.08386635 0.09189024 0.6913588 0.07984838
## 1110 0.2846427 0.08203627 0.08557763 0.6895015 0.08004844
## 1111 0.2844730 0.08176085 0.08532127 0.6897313 0.08013549
## 1112 0.2840442 0.08177098 0.08489064 0.6892855 0.08013602
## 1113 0.2852522 0.08184741 0.08649844 0.6897866 0.08023259
## 1114 0.2857487 0.08197053 0.08724869 0.6900660 0.08682029
## 1115 0.2867594 0.08198004 0.08877568 0.6911288 0.08023490
## 1116 0.2848273 0.08182629 0.08585653 0.6897340 0.08015837
## 1117 0.4266331 0.08950849 0.30011138 0.7756646 0.08903782
## 1118 0.2851533 0.08181717 0.08634902 0.6897360 0.08022356
## 1119 0.2845706 0.08177842 0.08546870 0.6893829 0.08016807
## 1120 0.2865233 0.08193385 0.08841899 0.6905118 0.08047671
## 1121 0.2828504 0.08171287 0.08286963 0.6884049 0.08002396
## 1122 0.2824405 0.08169693 0.08225029 0.6881485 0.07997581
## 1124 0.2818049 0.08164124 0.08128989 0.6877816 0.08001830
## 1125 0.2816305 0.08165467 0.08102645 0.6877873 0.07994687
## 1126 0.2817551 0.08157189 0.08121474 0.6877835 0.07993905
## 1128 0.2854161 0.08517849 0.08702270 0.6899813 0.08092931
##
## $model.list
## $model.list$response
## [1] "Y"
##
## $model.list$variables
##  [1] "R1"  "R2"  "R3"  "R4"  "R5"  "R6"  "R7"  "R8"  "R9"  "R10" "R11" "R12"
## [13] "R13" "R14" "R15" "R16" "R17" "R18" "R19" "R20" "R21" "R22" "R23"
##
##
## $err.fct
## function (x, y)
## {
##     1/2 * (y - x)^2
## }
## <bytecode: 0x0000000012feb138>
## <environment: 0x000000001f57e810>
## attr(,"type")
## [1] "sse"
##
## $act.fct
## function (x)
## {
##     tanh(x)
## }
## <bytecode: 0x000000001f2e5d28>
## <environment: 0x000000001f7db3d0>
```

```
## attr(,"type")
## [1] "tanh"
##
## $linear.output
## [1] TRUE
##
## $data
##       Y           R1           R2          R3            R4           R5
## 1     1 0.009815688 2.827118e-03 0.6966124 0.0120529210 1.515818e-02
## 3     1 0.009675563 2.562488e-03 0.6965870 0.0131411509 1.571130e-02
## 6     1 0.010526876 2.947441e-03 0.6968869 0.0187831041 2.210091e-02
## 9     1 0.007198572 6.707263e-04 0.6963912 0.0015235205 1.624508e-02
## 11    1 0.007337611 7.471295e-04 0.6964155 0.0012512377 1.938111e-02
## 12    1 0.007361334 7.418607e-04 0.6964149 0.0018847360 1.880177e-02
## 14    1 0.007346249 7.422432e-04 0.6964126 0.0014870444 1.911958e-02
## 15    1 0.007413847 7.598531e-04 0.6964179 0.0012069216 1.930130e-02
## 16    1 0.007445853 7.634539e-04 0.6964185 0.0014902994 1.902566e-02
## 17    1 0.007811056 1.018103e-03 0.6966159 0.0014488876 1.744195e-02
## 19    1 0.007888978 1.052920e-03 0.6966037 0.0015715695 1.588460e-02
## 20    1 0.008016370 1.183479e-03 0.6966325 0.0016441334 1.686378e-02
## 21    1 0.008094674 1.271088e-03 0.6966895 0.0019908333 1.672949e-02
## 24    1 0.008622142 1.589726e-03 0.6966605 0.0020028333 1.618280e-02
## 25    1 0.007273263 8.467486e-04 0.6964601 0.0015500431 1.833407e-02
## 27    1 0.007323149 8.281230e-04 0.6964483 0.0016161314 1.755346e-02
## 29    1 0.007295786 8.396180e-04 0.6964652 0.0018851427 1.824561e-02
## 30    1 0.007271394 8.610255e-04 0.6964885 0.0016849179 1.838105e-02
## 31    1 0.007225982 8.605882e-04 0.6964869 0.0013489972 1.710803e-02
## 32    1 0.007445456 9.167886e-04 0.6965491 0.0016605688 2.081737e-02
## 35    1 0.007847589 1.418580e-03 0.6964833 0.0023865612 1.917436e-02
## 37    1 0.007597902 1.061414e-03 0.6964675 0.0021658821 1.930704e-02
## 38    1 0.007652619 1.150903e-03 0.6964662 0.0021300417 1.825890e-02
## 40    1 0.007868073 1.171038e-03 0.6964589 0.0030919480 1.777554e-02
## 41    1 0.014352689 5.620434e-03 0.6968075 0.0136735250 1.912465e-02
## 42    1 0.012997134 4.707781e-03 0.6968199 0.0028821175 1.876656e-02
## 43    1 0.016760216 7.344018e-03 0.6968222 0.0041423807 1.893992e-02
## 44    1 0.016125601 6.960993e-03 0.6968132 0.0046248838 1.822658e-02
## 45    1 0.015320049 6.450667e-03 0.6967839 0.0024503969 1.792344e-02
## 46    1 0.013840865 5.417180e-03 0.6967573 0.0040780899 1.741993e-02
## 47    1 0.013817132 5.665667e-03 0.6966598 0.0111004540 1.473203e-02
## 48    1 0.014155638 5.553050e-03 0.6966056 0.0144828495 8.994010e-03
## 49    0 0.007477055 7.710468e-04 0.6964251 0.0012513172 1.665549e-02
## 51    0 0.007516548 7.792787e-04 0.6964314 0.0011990056 1.644708e-02
## 52    1 0.007569455 8.138624e-04 0.6964678 0.0014903909 1.664767e-02
## 53    1 0.007600069 8.346971e-04 0.6964666 0.0013567808 1.412041e-02
## 54    1 0.007621006 8.427756e-04 0.6964882 0.0012992313 1.602684e-02
## 56    0 0.007626852 8.416549e-04 0.6964997 0.0012388188 1.599385e-02
## 57    1 0.008213044 1.262009e-03 0.6965658 0.0017798972 1.328089e-02
## 58    1 0.008167577 1.203894e-03 0.6965580 0.0016513522 1.262385e-02
## 60    1 0.007799735 9.570133e-04 0.6964632 0.0019713180 7.912424e-03
## 61    1 0.007750702 9.221206e-04 0.6964507 0.0026202470 7.328283e-03
## 62    1 0.008212028 1.242309e-03 0.6965229 0.0043165568 1.105372e-02
## 63    1 0.009990161 2.489202e-03 0.6966827 0.0057626531 1.342179e-02
## 66    1 0.009185740 1.855640e-03 0.7030166 0.0054983784 8.167345e-03
## 67    1 0.008835152 1.624237e-03 0.7038069 0.0071028789 8.458686e-03
```

```
## 68    1 0.008501936 1.404335e-03 0.6997240 0.0038952793 7.623883e-03
## 69    1 0.008776397 1.585473e-03 0.6997073 0.0052413308 7.265027e-03
## 70    1 0.008645344 1.498970e-03 0.7003881 0.0060855616 6.324074e-03
## 72    1 0.011000305 3.058704e-03 0.6966714 0.0173634938 1.772710e-02
## 76    1 0.007555282 1.032080e-03 0.6966764 0.0011761749 1.950873e-02
## 77    0 0.007941212 1.297806e-03 0.6967474 0.0011862719 2.121632e-02
## 79    1 0.007836385 1.355680e-03 0.6966190 0.0013902129 2.092929e-02
## 81    1 0.007255113 1.072925e-03 0.6983048 0.0014083213 2.285415e-02
## 82    1 0.007361248 1.027752e-03 0.6966502 0.0025339786 2.337519e-02
## 83    1 0.007109062 9.171660e-04 0.6975302 0.0018168756 2.328920e-02
## 84    1 0.007036230 9.031069e-04 0.6968954 0.0012763884 2.408745e-02
## 85    1 0.007043377 8.661211e-04 0.6971528 0.0012195855 2.408880e-02
## 86    1 0.007126956 1.011981e-03 0.6972210 0.0012819500 2.408164e-02
## 87    1 0.007105862 1.012355e-03 0.6971902 0.0012755349 2.408063e-02
## 88    1 0.007188192 1.254281e-03 0.6980199 0.0012755078 2.407441e-02
## 89    0 0.007162341 5.368099e-04 0.6952002 0.0011688192 4.309690e-03
## 90    0 0.007187612 5.624074e-04 0.6953890 0.0012660651 4.479289e-03
## 92    0 0.007115567 4.974804e-04 0.6945169 0.0015087181 6.235026e-03
## 94    0 0.007318535 6.758255e-04 0.6962728 0.0016375965 1.701578e-02
## 95    0 0.007307666 6.804212e-04 0.6963525 0.0012198239 1.521251e-02
## 97    1 0.008624655 1.683639e-03 0.6967096 0.0021949816 1.706638e-02
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## 101   1 0.009178472 2.058039e-03 0.6969773 0.0029434661 1.707390e-02
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## 1012 1 0.007462568 7.433204e-04 0.6964162 0.0020389431 1.363638e-02
## 1013 1 0.007356888 6.505660e-04 0.6963930 0.0020486212 1.252908e-02
## 1014 1 0.007366725 6.694541e-04 0.6963968 0.0013689821 1.501467e-02
## 1015 1 0.008207521 1.244793e-03 0.6964837 0.0016847178 1.552500e-02
## 1016 1 0.007761657 9.384595e-04 0.6964632 0.0015027821 1.552500e-02
## 1017 1 0.007178889 9.870549e-04 0.6964816 0.0013213088 1.354210e-02
## 1018 1 0.007239738 9.723841e-04 0.6964861 0.0012977594 1.358441e-02
## 1019 1 0.007387071 1.026413e-03 0.6964848 0.0014515024 1.232257e-02
## 1020 1 0.007551868 1.105224e-03 0.6964835 0.0019978864 1.214026e-02
## 1022 1 0.007730880 8.953491e-04 0.6966698 0.0054664045 6.781274e-04
## 1023 1 0.009505139 2.537544e-03 0.6966698 0.0051181415 3.794100e-04
## 1025 1 0.008519506 1.415870e-03 0.6965206 0.0059410855 2.233769e-02
## 1026 1 0.008947542 1.698389e-03 0.6965423 0.0065695675 2.150293e-02
## 1027 1 0.009045707 1.763182e-03 0.6965202 0.0052496922 1.989578e-02
## 1028 1 0.008349236 1.303486e-03 0.6964948 0.0033017844 1.831879e-02
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## 1031 1 0.007945084 1.036732e-03 0.6964677 0.0032992509 1.470000e-02
## 1032 1 0.008075260 1.122653e-03 0.6964708 0.0033790497 1.585754e-02
## 1033 1 0.007302072 8.290905e-04 0.6965036 0.0016384737 2.323037e-02
## 1035 1 0.007292893 7.968274e-04 0.6964408 0.0011963578 2.227736e-02
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## 1056 1 0.006968966 3.960441e-04 0.6922202 0.0011805852 1.922564e-03
## 1058 1 0.006964093 3.892429e-04 0.6956742 0.0013110959 1.360469e-03
## 1059 0 0.006969538 3.928363e-04 0.6956473 0.0013831956 1.535901e-03
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## 1069 1 0.092832284 5.707632e-02 0.6964726 0.4563388239 8.095906e-03
## 1071 1 0.050241888 2.896115e-02 0.6966698 0.2302558668 3.342902e-03
## 1072 0 0.010784176 2.928097e-03 0.6966698 0.0204124192 3.622787e-04
## 1075 0 0.007103877 5.217612e-04 0.6946671 0.0012253968 5.981107e-03
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## 1078 0 0.007317241 6.531206e-04 0.6961198 0.0011593621 1.435166e-02
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## 1082 0 0.007630829 8.991749e-04 0.6965042 0.0012416986 2.165406e-02
## 1083 1 0.007666663 8.971043e-04 0.6965137 0.0012516382 2.126852e-02
## 1084 0 0.007649682 8.852602e-04 0.6964682 0.0012491844 1.944313e-02
## 1086 0 0.008453668 1.408925e-03 0.6971671 0.0018275698 2.083195e-02
## 1087 0 0.007904980 1.041736e-03 0.6966610 0.0013274794 1.988689e-02
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## 1089 1 0.007117372 5.290788e-04 0.6962686 0.0013289294 5.278864e-03
## 1090 0 0.007184737 5.871351e-04 0.6963358 0.0013506622 6.474343e-03
## 1091 0 0.006433443 0.000000e+00 0.6967730 0.0008361640 9.235064e-03
## 1093 0 0.006734779 1.942972e-04 0.6967089 0.0005290285 5.444438e-03
## 1094 0 0.007225452 5.925854e-04 0.6965182 0.0023170412 5.321371e-03
## 1095 1 0.008000449 1.112668e-03 0.6966116 0.0066706540 1.360831e-02
## 1096 1 0.007696130 9.065243e-04 0.6964944 0.0051558006 1.164295e-02
## 1098 1 0.007359924 6.704144e-04 0.6963761 0.0014126110 1.126148e-02
## 1099 1 0.008258057 1.291908e-03 0.6967235 0.0028418592 1.162039e-02
## 1101 1 0.007574194 8.356195e-04 0.6964537 0.0018304557 1.086568e-02
## 1102 1 0.007693256 9.109790e-04 0.6964825 0.0021016592 1.206112e-02
## 1103 1 0.007697231 9.210473e-04 0.6965176 0.0016049502 1.241908e-02
## 1104 1 0.007798479 1.007738e-03 0.6965325 0.0016897593 1.084572e-02
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## 1106 1 0.007905354 1.076997e-03 0.6964537 0.0025163668 1.811182e-02
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## 1109 1 0.007356888 6.505660e-04 0.6963930 0.0020486212 1.252908e-02
## 1110 1 0.007366725 6.694541e-04 0.6963968 0.0013689821 1.501467e-02
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## 1114 1 0.007261760 7.715415e-04 0.6964206 0.0022826371 9.148210e-03
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## 1116 1 0.007659988 1.193122e-03 0.6964685 0.0038002001 1.240026e-02
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##              R6          R7          R8        R9         R10       R11
## 1    0.0019677113 0.004248921 4.388545e-03 0.8564912 0.0003521772 0.1605507
## 3    0.0023347589 0.004682879 4.586107e-03 0.8565504 0.0003401700 0.1605808
## 6    0.0044889908 0.003215488 3.459542e-03 0.8562617 0.0002519548 0.1588144
## 9    0.0050972820 0.008687870 6.790612e-03 0.8534746 0.0015141305 0.1618748
## 11   0.0109748729 0.011275870 7.370457e-03 0.8385475 0.0075069053 0.1619586
## 12   0.0105307916 0.011991298 7.860670e-03 0.8408168 0.0012317328 0.1619016
## 14   0.0077635547 0.008698551 6.195481e-03 0.8456799 0.0017248718 0.1619494
## 15   0.0093031701 0.009878620 6.724779e-03 0.8157472 0.0126041732 0.1619927
## 16   0.0066981245 0.007780732 5.769379e-03 0.8000276 0.0015949002 0.1619749
## 17   0.0014953653 0.002972707 3.508542e-03 0.8564842 0.0008295156 0.1613018
## 19   0.0013410839 0.003040988 3.617695e-03 0.8565096 0.0007396306 0.1609446
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## 20     0.0015890883 0.003220374 3.667738e-03 0.8564542 0.0007775293 0.1609283
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## 24     0.0010357180 0.003418009 3.816463e-03 0.8564132 0.0007804720 0.1611671
## 25     0.0030817590 0.004567239 4.272380e-03 0.8579683 0.0009147116 0.1605227
## 27     0.0029451570 0.004789107 4.453991e-03 0.8587416 0.0008617115 0.1612409
## 29     0.0025621775 0.004022128 4.005254e-03 0.8577574 0.0005191852 0.1611787
## 30     0.0022373472 0.003606764 3.788904e-03 0.8571948 0.0005750198 0.1619418
## 31     0.0018396637 0.003506083 3.808630e-03 0.8572208 0.0012289691 0.1610873
## 32     0.0020748294 0.003340379 3.555426e-03 0.8566821 0.0005356058 0.1612595
## 35     0.0082011013 0.009040173 6.349337e-03 0.8572852 0.0013819287 0.1614689
## 37     0.0077156608 0.008390374 6.015955e-03 0.8576780 0.0010695844 0.1615082
## 38     0.0071603652 0.009225399 6.620524e-03 0.8577195 0.0014016548 0.1614511
## 40     0.0078105554 0.010645883 7.458088e-03 0.8580233 0.0009603737 0.1613822
## 41     0.0023312939 0.003441842 3.671197e-03 0.8562947 0.0003547741 0.1619484
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## 46     0.0019148291 0.003519932 3.797829e-03 0.8563236 0.0008747326 0.1620177
## 47     0.0016998378 0.003888361 4.209879e-03 0.8564141 0.0005019567 0.1619672
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## 51     0.0014876471 0.003161516 3.656927e-03 0.8625720 0.0036128463 0.1608480
## 52     0.0014198616 0.003023663 3.570556e-03 0.8576659 0.0006184545 0.1608544
## 53     0.0013277752 0.003318096 3.900295e-03 0.8577081 0.0012226628 0.1605118
## 54     0.0013767845 0.003072333 3.628372e-03 0.8571995 0.0013028225 0.1608846
## 56     0.0012287767 0.002846130 3.500247e-03 0.8570420 0.0018235446 0.1607107
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## 62     0.0013631749 0.003925677 4.710738e-03 0.8568302 0.0004187182 0.1609615
## 63     0.0012483016 0.003272296 3.926356e-03 0.8563868 0.0004137916 0.1607015
## 66     0.0004598729 0.001658030 2.838088e-03 0.8561121 0.0002202520 0.1582224
## 67     0.0004584349 0.001653036 2.831276e-03 0.8561109 0.0002176664 0.1583084
## 68     0.0004658461 0.001678229 2.865291e-03 0.8561235 0.0002247807 0.1583630
## 69     0.0004663131 0.001680965 2.872089e-03 0.8561236 0.0002234567 0.1582643
## 70     0.0004600889 0.001662920 2.856974e-03 0.8561197 0.0002201679 0.1582370
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## 76     0.0017853911 0.002815584 3.359295e-03 0.8563938 0.0083703052 0.1618166
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## 109   0.0571949817 0.009896543 6.044831e-03 0.8568481 0.0010989764 0.1582639
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## 111   0.0462673659 0.008853151 5.642964e-03 0.8567461 0.0014328565 0.1582090
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## 128   0.0038218015 0.004998083 4.433524e-03 0.8577423 0.0089291071 0.1604973
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## 145   0.0038960012 0.005513846 4.780292e-03 0.8566982 0.0006996642 0.1588285
## 146   0.0032048993 0.005156874 4.653979e-03 0.8567285 0.0034602386 0.1590262
## 147   0.0021878255 0.005013970 5.020507e-03 0.8569283 0.0029891292 0.1589217
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## 465   0.0006238809 0.002068944 3.175758e-03 0.8557822 0.0002499441 0.1598946
## 467   0.0007615093 0.002490012 3.626404e-03 0.8609599 0.0003192178 0.1599545
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## 476   0.0020679152 0.003358853 3.656090e-03 0.8556687 0.0011100036 0.1620463
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## 491   0.0005663309 0.002003481 3.273463e-03 0.8560352 0.0005769671 0.1610399
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## 1032 0.0040739265 0.007402618 6.144127e-03 0.8575760 0.0006532364 0.1618498
## 1033 0.0085920069 0.003065587 3.368122e-03 0.8569978 0.0004277709 0.1613767
## 1035 0.0082383209 0.004429794 3.954717e-03 0.8596818 0.0053149162 0.1614823
## 1036 0.0161927777 0.005848378 4.502688e-03 0.8599708 0.0009750802 0.1614646
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## 1038 0.0016944113 0.004372574 4.790601e-03 0.8549220 0.0011109495 0.1608207
## 1040 0.0295121006 0.010903801 6.586333e-03 0.8572218 0.0007938130 0.1590315
## 1042 0.0004539617 0.001647528 2.977181e-03 0.8560225 0.0003131108 0.1614923
## 1043 0.0004641758 0.001692125 3.261103e-03 0.8556177 0.0004074725 0.1615172
## 1044 0.0005239501 0.001947946 4.477121e-03 0.8560705 0.0004865742 0.1615627
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## 1072 0.0004481572 0.001622035 2.797634e-03 0.8561007 0.0002149396 0.1578783
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## 1093 0.0011788371 0.004249333 7.226720e-03 0.8563609 0.0006556526 0.1537821
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## 1103 0.0010616322 0.003005526 3.820284e-03 0.8568693 0.0007053105 0.1615874
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## 1105 0.0078872116 0.010166821 7.113378e-03 0.8582394 0.0009251970 0.1619670
## 1106 0.0083730749 0.010823139 7.461414e-03 0.8583194 0.0011541353 0.1619762
## 1107 0.0053119127 0.008834923 6.826193e-03 0.8605676 0.0010275352 0.1619911
## 1109 0.0026065552 0.009130712 8.299180e-03 0.8532981 0.0009015274 0.1618807
## 1110 0.0037277534 0.009903757 7.861193e-03 0.8528269 0.0030605608 0.1617845
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## 1112 0.0029906140 0.005837983 5.290600e-03 0.8578351 0.0018131146 0.1601212
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## 1115 0.0027231733 0.006931069 6.855316e-03 0.8576998 0.0006942731 0.1610592
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## 1119 0.0019756903 0.005886322 6.863304e-03 0.8579719 0.0013900124 0.1603186
## 1120 0.0022384806 0.006834660 8.111844e-03 0.8609962 0.0023665283 0.1609181
## 1121 0.0005735235 0.002064208 3.497173e-03 0.8565315 0.0006833340 0.1593249
## 1122 0.0005898817 0.002073206 3.343310e-03 0.8565275 0.0015969519 0.1596748
## 1124 0.0006290104 0.002183923 3.443333e-03 0.8563258 0.0004129833 0.1606108
## 1125 0.0005926880 0.002120123 3.532402e-03 0.8564273 0.0011997246 0.1601782
## 1126 0.0006231226 0.002182644 3.485418e-03 0.8565137 0.0006381187 0.1612229
## 1128 0.0065578065 0.005638949 7.122883e-03 0.8561235 0.0040086222 0.1614480
##              R12         R13         R14         R15         R16          R17
## 1    0.01980198 0.043386695 0.04391618 0.4878683 0.2490462 3.262325e-03
## 3    0.02033300 0.044048139 0.04390280 0.4881006 0.2492210 3.188848e-03
## 6    0.01980198 0.053732041 0.04381125 0.4898988 0.2562107 4.769623e-03
## 9    0.01980198 0.035497282 0.04522694 0.4863198 0.2483184 5.106903e-04
## 11   0.01980198 0.034997908 0.04632424 0.4862218 0.2483132 4.936413e-04
## 12   0.01980198 0.035337830 0.04546124 0.4862885 0.2483538 5.071761e-04
## 14   0.01980198 0.035052637 0.04613181 0.4862325 0.2483161 4.957410e-04
## 15   0.01980198 0.034794990 0.04741811 0.4861820 0.2482758 4.866303e-04
## 16   0.01980198 0.034900702 0.04675419 0.4862027 0.2482887 4.913305e-04
## 17   0.01980198 0.038911775 0.04410779 0.4869900 0.2487721 7.964823e-04
## 19   0.01980198 0.041039969 0.04398488 0.4874077 0.2488808 1.023661e-03
## 20   0.01980198 0.041136822 0.04398111 0.4874267 0.2489847 1.098851e-03
## 21   0.01980198 0.041498710 0.04396792 0.4874977 0.2490116 1.208833e-03
## 24   0.01980198 0.039714173 0.04405008 0.4871475 0.2484792 1.244787e-03
## 25   0.01980198 0.043553588 0.04391262 0.4879010 0.2495371 9.328086e-04
## 27   0.01980198 0.039274281 0.04407940 0.4870611 0.2488285 7.185671e-04
## 29   0.01980198 0.039644805 0.04405438 0.4871339 0.2489563 7.334282e-04
## 30   0.01980198 0.035098141 0.04599220 0.4862415 0.2483068 5.082761e-04
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## 37   0.01980198 0.037681746 0.04424962 0.4867486 0.2487806 6.995787e-04
## 38   0.01980198 0.038021829 0.04420100 0.4868153 0.2487247 7.720303e-04
## 40   0.01980198 0.038432706 0.04415296 0.4868960 0.2487389 8.237612e-04
## 41   0.01980198 0.035058560 0.04611267 0.4862337 0.2483172 8.562245e-04
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## 47    0.01980198 0.034946789 0.04653393 0.4862118 0.2482485 9.002656e-04
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## 53    0.01980198 0.043618509 0.04391127 0.4879138 0.2489773 1.060822e-03
## 54    0.01980198 0.041397309 0.04397148 0.4874778 0.2489301 8.722908e-04
## 56    0.01869680 0.040260825 0.04401967 0.4871244 0.2487402 7.693858e-04
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## 61    0.01980198 0.041068384 0.04398376 0.4874133 0.2485316 1.449741e-03
## 62    0.01980198 0.040939232 0.04398892 0.4873879 0.2486200 1.469399e-03
## 63    0.01980198 0.042488322 0.04393782 0.4876920 0.2488369 2.922068e-03
## 66    0.01980198 0.057259471 0.04379711 0.4905911 0.2494076 8.420481e-03
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## 68    0.01980198 0.056421601 0.04380006 0.4904267 0.2493247 6.201250e-03
## 69    0.01980198 0.057009832 0.04379796 0.4905421 0.2493301 7.714610e-03
## 70    0.01980198 0.057172718 0.04379740 0.4905741 0.2492777 8.261022e-03
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## 77    0.01907175 0.035680846 0.04502479 0.4863360 0.2485573 5.737873e-04
## 79    0.01987599 0.035413982 0.04534089 0.4863051 0.2484832 5.676736e-04
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## 82    0.01980198 0.041799606 0.04395793 0.4875568 0.2563515 8.729116e-04
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## 193   0.01980198 0.046494466 0.04386593 0.4884783 0.2487676 7.237323e-03
## 194   0.01980198 0.047234148 0.04385754 0.4886234 0.2488197 4.966135e-03
## 195   0.01895145 0.050253697 0.04383134 0.4889473 0.2488577 1.985132e-02
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## 199   0.01980198 0.051389902 0.04382388 0.4894391 0.2489613 1.918866e-02
## 200   0.01980198 0.052907732 0.04381533 0.4897370 0.2489754 1.966205e-02
## 201   0.01980198 0.041746241 0.04395964 0.4875463 0.2487138 1.141142e-03
## 202   0.01980198 0.044552938 0.04389375 0.4880972 0.2493546 2.502018e-03
## 203   0.01980198 0.044534213 0.04389407 0.4880935 0.2494771 1.622924e-03
## 204   0.01980198 0.042563394 0.04393583 0.4877067 0.2496490 1.103794e-03
## 205   0.01980198 0.042139833 0.04394755 0.4876236 0.2500601 1.037846e-03
## 206   0.01980198 0.041470701 0.04396889 0.4874922 0.2501489 1.192811e-03
## 207   0.01980198 0.036512716 0.04453134 0.4865191 0.2497559 5.537089e-04
## 208   0.01980198 0.042928330 0.04392666 0.4877783 0.2504015 1.300967e-03
## 209   0.01980198 0.046608078 0.04386458 0.4885006 0.2549995 1.230658e-03
## 210   0.01980198 0.034360850 0.08012272 0.4860968 0.2482099 4.705918e-04
## 211   0.01980198 0.034316415 0.42670981 0.4860880 0.2481925 4.678748e-04
## 212   0.01980198 0.043957059 0.04390453 0.4879802 0.2508325 9.655377e-04
## 213   0.01556614 0.043077423 0.04392313 0.4870715 0.2492738 8.962233e-04
## 214   0.01980201 0.034384425 0.06831380 0.4861014 0.2481990 4.713873e-04
## 215   0.01980198 0.034398768 0.06426018 0.4861042 0.2481960 4.728834e-04
## 217   0.01980198 0.046541185 0.04386537 0.4884874 0.2486554 2.425903e-03
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## 220   0.01980198 0.045912943 0.04387329 0.4883641 0.2486196 2.600476e-03
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## 224   0.01980198 0.037948476 0.04421072 0.4868009 0.2483289 8.035877e-04
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## 235   0.01980198 0.034371291 0.07373886 0.4860988 0.2481965 4.703898e-04
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## 239   0.01935471 0.054124070 0.04380943 0.4898001 0.2495448 4.042167e-03
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## 486  0.01980198 0.035322676 0.04548735 0.4862855 0.2482364 5.371885e-04
## 487  0.01980198 0.034678011 0.04859949 0.4861590 0.2482074 4.965393e-04
## 490  0.01980198 0.041445066 0.04396979 0.4874872 0.2485579 7.852699e-04
## 491  0.01980198 0.040472047 0.04400937 0.4872962 0.2485021 7.280817e-04
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## 497  0.01980198 0.042653500 0.04393349 0.4877244 0.2486971 1.268458e-03
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## 500  0.01980198 0.036824322 0.04443062 0.4865803 0.2484029 6.195806e-04
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## 506  0.01980198 0.038296355 0.04416780 0.4868692 0.2487115 7.322804e-04
## 507  0.01980198 0.037010822 0.04438146 0.4866169 0.2485233 6.456149e-04
## 509  0.01980198 0.045704593 0.04387611 0.4883232 0.2502317 1.129042e-03
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## 510  0.01980198 0.046613398 0.04386452 0.4885016 0.2498264 1.231298e-03
## 511  0.01980198 0.051788762 0.04382149 0.4895174 0.2506017 2.259955e-03
## 512  0.01980198 0.050400502 0.04383031 0.4892449 0.2510652 1.871972e-03
## 513  0.01980198 0.035489220 0.04523726 0.4863182 0.2483270 7.728582e-04
## 514  0.01980198 0.035910285 0.04483740 0.4864009 0.2483628 8.638173e-04
## 516  0.01980198 0.035810803 0.04491161 0.4863813 0.2483747 6.635889e-04
## 517  0.02017078 0.036644767 0.04448537 0.4865621 0.2484875 1.007943e-03
## 518  0.01980198 0.037203706 0.04433729 0.4866547 0.2484730 1.054079e-03
## 519  0.01980198 0.037026140 0.04437773 0.4866199 0.2484876 7.277315e-04
## 521  0.01980198 0.039202385 0.04408470 0.4870470 0.2485840 8.953475e-04
## 522  0.01980198 0.039334042 0.04407512 0.4870729 0.2485961 8.949976e-04
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## 532  0.02237598 0.042146444 0.04923633 0.4881239 0.2506243 4.916676e-03
## 533  0.02237598 0.042146444 0.04923633 0.4881239 0.2506243 4.916676e-03
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## 535  0.01980198 0.035519913 0.04519870 0.4863243 0.2483285 5.020328e-04
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## 569  0.02115123 0.034351878 0.08826159 0.4860961 0.2481991 4.715319e-04
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## 584   0.01980198 0.040728198 0.04399779 0.4873465 0.2557578 9.333632e-04
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## 591   0.01980198 0.044528526 0.04389417 0.4880924 0.2488595 9.583079e-04
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## 609   0.01980198 0.056239531 0.04380073 0.4903909 0.2490770 4.938864e-02
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## 687   0.01980198 0.049171749 0.04383950 0.4890037 0.2493672 1.689516e-03
## 689   0.01980198 0.035489220 0.04523726 0.4863182 0.2483270 7.728582e-04
## 690   0.01980198 0.035910285 0.04483740 0.4864009 0.2483628 8.638173e-04
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## 1065 0.01980198 0.035242732 0.04563918 0.4862698 0.2482889 7.421964e-04
## 1068 0.01980198 0.035302259 0.04552380 0.4862815 0.2483878 6.847306e-04
## 1069 0.01980198 0.051166191 0.04382527 0.4893952 0.2490807 2.237511e-01
## 1071 0.01980198 0.056179288 0.04380095 0.4903791 0.2490817 3.541620e-01
## 1072 0.01980198 0.059309966 0.04379072 0.4909936 0.2490816 3.341015e-01
## 1075 0.01980198 0.038997073 0.04410072 0.4870067 0.2484098 7.090035e-04
## 1078 0.01980198 0.035098994 0.04598974 0.4862416 0.2482594 4.981721e-04
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## 1082 0.01980198 0.045567810 0.04387801 0.4882964 0.2520082 9.988748e-04
## 1083 0.01980198 0.044298760 0.04389819 0.4880473 0.2511251 9.456862e-04
## 1084 0.01980198 0.052318707 0.04381848 0.4896214 0.2514308 1.389743e-03
## 1086 0.01980198 0.043801684 0.04390757 0.4879497 0.2506126 1.372374e-03
## 1087 0.01980198 0.043534168 0.04391303 0.4878972 0.2500231 1.066604e-03
## 1088 0.01980198 0.043705009 0.04390950 0.4879308 0.2497198 9.495097e-04
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## 1101 0.01980198 0.037002375 0.04438354 0.4866152 0.2483629 6.909241e-04
## 1102 0.01980198 0.036918188 0.04440500 0.4865987 0.2483740 6.933008e-04
## 1103 0.01980198 0.037209783 0.04433600 0.4866559 0.2484006 7.157587e-04
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## 1106 0.01980198 0.034893306 0.04679279 0.4862013 0.2482729 5.112534e-04
## 1107 0.01980198 0.034804406 0.04734741 0.4861838 0.2482455 4.960792e-04
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## 1121 0.01980198 0.050690319 0.04382835 0.4893018 0.2489475 3.738903e-03
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## 1124 0.01980198 0.043028529 0.04392427 0.4877980 0.2486482 2.513803e-03
## 1125 0.01980198 0.045606396 0.04387747 0.4883040 0.2487250 3.071277e-03
## 1126 0.01980198 0.039381501 0.04407179 0.4870822 0.2484490 1.263047e-03
## 1128 0.02237598 0.042146444 0.04923633 0.4881239 0.2506243 4.916676e-03
##              R18       R19        R20        R21       R22        R23
## 1     0.9598533 0.2855081 0.08183332 0.08688517 0.6907223 0.08014592
## 3     0.9598447 0.2855435 0.08182314 0.08678182 0.6908908 0.08014614
## 6     0.9598632 0.2848994 0.08176451 0.08596547 0.6948210 0.08012546
## 9     0.9597870 0.2835860 0.08176299 0.08398110 0.6888169 0.08010315
## 11    0.9597885 0.2837826 0.08191834 0.08427800 0.6892468 0.08004124
## 12    0.9597891 0.2838779 0.08189933 0.08442210 0.6893502 0.08003538
## 14    0.9597916 0.2839575 0.08201363 0.08454235 0.6895315 0.08002017
## 15    0.9597904 0.2839190 0.08212733 0.08448419 0.6894905 0.07984313
## 16    0.9597929 0.2839891 0.08211120 0.08459001 0.6895719 0.07953222
## 17    0.9598231 0.2840731 0.08178840 0.08471694 0.6894842 0.08012813
## 19    0.9598347 0.2842893 0.08178520 0.08504360 0.6895757 0.08013656
## 20    0.9598283 0.2842712 0.08178321 0.08501623 0.6896677 0.08012919
## 21    0.9598418 0.2843717 0.08178706 0.08516820 0.6897722 0.08013011
## 24    0.9598730 0.2852765 0.08188284 0.08653525 0.6897239 0.08014728
## 25    0.9598089 0.2842718 0.08176968 0.08501723 0.6899070 0.08017050
## 27    0.9598036 0.2841376 0.08179024 0.08481437 0.6895847 0.08017588
## 29    0.9598157 0.2843142 0.08180145 0.08508125 0.6899537 0.08017993
## 30    0.9598044 0.2839209 0.08197579 0.08448706 0.6893714 0.08013700
## 31    0.9598245 0.2843281 0.08179604 0.08510234 0.6897730 0.08017091
## 32    0.9598227 0.2842197 0.08179941 0.08493853 0.6898914 0.08013863
## 35    0.9598207 0.2864273 0.08210596 0.08827396 0.6939898 0.08016793
## 37    0.9598005 0.2846237 0.08188472 0.08554893 0.6907958 0.08014109
## 38    0.9598237 0.2867591 0.08213656 0.08877521 0.6936769 0.08019743
## 40    0.9598313 0.2881421 0.08225121 0.09086487 0.6952466 0.08023591
## 41    0.9600306 0.2885491 0.08485177 0.09147972 0.6977224 0.08017719
## 42    0.9600106 0.2878313 0.08451460 0.09039526 0.6959291 0.08016947
## 43    0.9600265 0.2883346 0.08511397 0.09115576 0.6930331 0.08017348
## 44    0.9600355 0.2884190 0.08569442 0.09128318 0.6961620 0.08017754
## 45    0.9600302 0.2885879 0.08689514 0.09153837 0.6960432 0.08018161
## 46    0.9600320 0.2887959 0.08904534 0.09185274 0.6957731 0.08018809
## 47    0.9599556 0.2878610 0.08490044 0.09044014 0.6928720 0.08018562
## 48    0.9599034 0.2858796 0.08210066 0.08744648 0.6901298 0.08017734
## 49    0.9597802 0.2834416 0.08172763 0.08376285 0.6886492 0.07998732
## 51    0.9597185 0.2823278 0.08165688 0.08208000 0.6873548 0.07946199
## 52    0.9597897 0.2835652 0.08173517 0.08394960 0.6887969 0.08011588
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## 56    0.9596158 0.2811451 0.08152506 0.07984511 0.6861308 0.07987051
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## 58    0.9598710 0.2853207 0.08183394 0.08660196 0.6901374 0.08017542
## 60    0.9599026 0.2865563 0.08193039 0.08846880 0.6904099 0.08040598
## 61    0.9598869 0.2864750 0.08193442 0.08834608 0.6903081 0.08046979
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## 63    0.9688368 0.4527220 0.09129233 0.33952909 0.8301534 0.08393166
## 66    0.9598047 0.2835125 0.08173149 0.08386992 0.6887291 0.08010740
## 67    0.9597876 0.2835054 0.08173134 0.08385924 0.6887251 0.08010711
## 68    0.9598513 0.2835464 0.08173220 0.08392123 0.6887473 0.08010929
## 69    0.9598200 0.2835275 0.08173180 0.08389270 0.6887368 0.08010824
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## 72    0.9599345 0.2875296 0.08249922 0.08993944 0.6943425 0.08017268
## 76    0.9598387 0.2842179 0.08194636 0.08493579 0.6901020 0.08012992
## 77    0.9596017 0.2804537 0.08061980 0.07888138 0.6794055 0.08004463
## 79    0.9598134 0.2842745 0.08205156 0.08501271 0.6908665 0.08012238
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## 84    0.9598983 0.2841459 0.08182169 0.08482691 0.7769419 0.08013334
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## 88    0.9598842 0.2838689 0.08174615 0.08440842 0.7304718 0.08011391
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## 146   0.9599171 0.2887559 0.08186493 0.09179231 0.6957840 0.08022868
## 147   0.9598767 0.2869943 0.08181717 0.08913064 0.6918098 0.08021810
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## 206   0.9598094 0.2874411 0.08198536 0.08980576 0.7001186 0.08017900
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## 219   0.9596976 0.2830294 0.08171301 0.08314004 0.6886325 0.08014523
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## 235   0.02283101
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## 847   0.95817536
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## 938  0.02283101
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## 1007 0.66666841
## 1008 0.66666841
## 1009 0.95817536
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## 1011 0.95817536
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## 1013 0.95817536
## 1014 0.95817536
## 1015 0.95817536
## 1016 0.95817536
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## 1096 0.95817536
## 1098 0.95817536
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## 1107 0.95817536
## 1109 0.95817536
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## 1112 0.95817536
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## 1114 0.95817536
## 1115 0.95817536
## 1116 0.95817536
## 1117 0.66666841
## 1118 0.95817536
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## 1120 0.95817536
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## 1122 0.02283101
## 1124 0.02283101
## 1125 0.02283101
## 1126 0.02283101
## 1128 0.95817536
##
##
## $weights
## $weights[[1]]
## $weights[[1]][[1]]
##                 [,1]        [,2]
##  [1,] -1.29881590 -3.8697136
##  [2,]  1.25057080 -3.7046190
##  [3,]  2.14942128 -3.5228997
##  [4,]  0.25079480 -2.3757096
##  [5,] -0.69682417  0.5274148
##  [6,] -0.08398928 -2.3804378
##  [7,]  0.51022773 -3.2406529
##  [8,] -0.17389375 -1.9559165
##  [9,]  0.16326385 -5.0586719
## [10,]  0.21224581 -6.3942234
## [11,]  0.06544113 -5.6188191
## [12,]  0.92566133 -3.3824508
## [13,] -5.31811283 -5.3943877
## [14,]  0.05243777 -5.0670847
## [15,] -0.09516946 -4.4860353
## [16,] -0.02653944 -5.9687726
## [17,] -0.37007761 -3.6623197
## [18,] -0.02224874 -6.6791342
## [19,] -0.90624322 -3.4974205
## [20,]  1.01072777 -5.3027034
## [21,]  1.08786175 -1.8344766
## [22,]  8.80503577 -3.4408313
```

```
## [23,]   1.18728139 -3.7235504
## [24,] -0.81024321 -5.6703050
##
## $weights[[1]][[2]]
##                [,1]       [,2]
## [1,]      12.649295 -120.1258
## [2,] 209855.706502 1443.7424
## [3,]      -9.886761  116.8486
##
## $weights[[1]][[3]]
##              [,1]
## [1,]  0.3447497
## [2,]  0.4676722
## [3,] -0.1457535
##
##
##
## $generalized.weights
## $generalized.weights[[1]]
##                [,1]         [,2]         [,3]         [,4]         [,5]
## 1     0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00
## 3     0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00
## 6     0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00
## 9     0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00
## 11    0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00
## 12    0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00
## 14    0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00
## 15    0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00
## 16    1.271234e+01 2.184936e+01 2.549386e+00 -7.083377e+00 -8.537702e-01
## 17    0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00
## 19    0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00
## 20    0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00
## 21    0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00
## 24    0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00
## 25    0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00
## 27    0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00
## 29    0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00
## 30    0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00
## 31    0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00
## 32    0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00
## 35    0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00
## 37    0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00
## 38    0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00
## 40    0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00
## 41    0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00
## 42    0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00
## 43    0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00
## 44    0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00
## 45    0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00
## 46    0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00
## 47    0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00
## 48    0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00
## 49    0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00
## 51    0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00
```

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## 52    0.000000e+00   0.000000e+00   0.000000e+00    0.000000e+00    0.000000e+00
## 53    0.000000e+00   0.000000e+00   0.000000e+00    0.000000e+00    0.000000e+00
## 54    0.000000e+00   0.000000e+00   0.000000e+00    0.000000e+00    0.000000e+00
## 56    0.000000e+00   0.000000e+00   0.000000e+00    0.000000e+00    0.000000e+00
## 57    0.000000e+00   0.000000e+00   0.000000e+00    0.000000e+00    0.000000e+00
## 58    0.000000e+00   0.000000e+00   0.000000e+00    0.000000e+00    0.000000e+00
## 60    0.000000e+00   0.000000e+00   0.000000e+00    0.000000e+00    0.000000e+00
## 61    0.000000e+00   0.000000e+00   0.000000e+00    0.000000e+00    0.000000e+00
## 62    0.000000e+00   0.000000e+00   0.000000e+00    0.000000e+00    0.000000e+00
## 63    0.000000e+00   0.000000e+00   0.000000e+00    0.000000e+00    0.000000e+00
## 66    0.000000e+00   0.000000e+00   0.000000e+00    0.000000e+00    0.000000e+00
## 67    0.000000e+00   0.000000e+00   0.000000e+00    0.000000e+00    0.000000e+00
## 68    0.000000e+00   0.000000e+00   0.000000e+00    0.000000e+00    0.000000e+00
## 69    0.000000e+00   0.000000e+00   0.000000e+00    0.000000e+00    0.000000e+00
## 70    6.606010e+00   1.135409e+01   1.324797e+00   -3.680901e+00   -4.436646e-01
## 72    0.000000e+00   0.000000e+00   0.000000e+00    0.000000e+00    0.000000e+00
## 76    0.000000e+00   0.000000e+00   0.000000e+00    0.000000e+00    0.000000e+00
## 77    0.000000e+00   0.000000e+00   0.000000e+00    0.000000e+00    0.000000e+00
## 79    0.000000e+00   0.000000e+00   0.000000e+00    0.000000e+00    0.000000e+00
## 81    0.000000e+00   0.000000e+00   0.000000e+00    0.000000e+00    0.000000e+00
## 82    0.000000e+00   0.000000e+00   0.000000e+00    0.000000e+00    0.000000e+00
## 83    0.000000e+00   0.000000e+00   0.000000e+00    0.000000e+00    0.000000e+00
## 84    0.000000e+00   0.000000e+00   0.000000e+00    0.000000e+00    0.000000e+00
## 85    0.000000e+00   0.000000e+00   0.000000e+00    0.000000e+00    0.000000e+00
## 86    0.000000e+00   0.000000e+00   0.000000e+00    0.000000e+00    0.000000e+00
## 87    0.000000e+00   0.000000e+00   0.000000e+00    0.000000e+00    0.000000e+00
## 88    0.000000e+00   0.000000e+00   0.000000e+00    0.000000e+00    0.000000e+00
## 89    0.000000e+00   0.000000e+00   0.000000e+00    0.000000e+00    0.000000e+00
## 90    0.000000e+00   0.000000e+00   0.000000e+00    0.000000e+00    0.000000e+00
## 92    0.000000e+00   0.000000e+00   0.000000e+00    0.000000e+00    0.000000e+00
## 94    0.000000e+00   0.000000e+00   0.000000e+00    0.000000e+00    0.000000e+00
## 95    0.000000e+00   0.000000e+00   0.000000e+00    0.000000e+00    0.000000e+00
## 97    0.000000e+00   0.000000e+00   0.000000e+00    0.000000e+00    0.000000e+00
## 98    0.000000e+00   0.000000e+00   0.000000e+00    0.000000e+00    0.000000e+00
## 100   0.000000e+00   0.000000e+00   0.000000e+00    0.000000e+00    0.000000e+00
## 101   0.000000e+00   0.000000e+00   0.000000e+00    0.000000e+00    0.000000e+00
## 105   0.000000e+00   0.000000e+00   0.000000e+00    0.000000e+00    0.000000e+00
## 106   0.000000e+00   0.000000e+00   0.000000e+00    0.000000e+00    0.000000e+00
## 107   0.000000e+00   0.000000e+00   0.000000e+00    0.000000e+00    0.000000e+00
## 108   0.000000e+00   0.000000e+00   0.000000e+00    0.000000e+00    0.000000e+00
## 109   0.000000e+00   0.000000e+00   0.000000e+00    0.000000e+00    0.000000e+00
## 110   0.000000e+00   0.000000e+00   0.000000e+00    0.000000e+00    0.000000e+00
## 111   0.000000e+00   0.000000e+00   0.000000e+00    0.000000e+00    0.000000e+00
## 112   0.000000e+00   0.000000e+00   0.000000e+00    0.000000e+00    0.000000e+00
## 113   0.000000e+00   0.000000e+00   0.000000e+00    0.000000e+00    0.000000e+00
## 114   0.000000e+00   0.000000e+00   0.000000e+00    0.000000e+00    0.000000e+00
## 115   0.000000e+00   0.000000e+00   0.000000e+00    0.000000e+00    0.000000e+00
## 117   0.000000e+00   0.000000e+00   0.000000e+00    0.000000e+00    0.000000e+00
## 118   0.000000e+00   0.000000e+00   0.000000e+00    0.000000e+00    0.000000e+00
## 119   0.000000e+00   0.000000e+00   0.000000e+00    0.000000e+00    0.000000e+00
## 120   0.000000e+00   0.000000e+00   0.000000e+00   -3.680901e+00    0.000000e+00
## 123   0.000000e+00   0.000000e+00   0.000000e+00    0.000000e+00    0.000000e+00
## 124   0.000000e+00   0.000000e+00   0.000000e+00    0.000000e+00    0.000000e+00
## 125   0.000000e+00   0.000000e+00   0.000000e+00    0.000000e+00    0.000000e+00
```

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## 126   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 128   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 129   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 130   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 131   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 132   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 133   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 135   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 137   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 138   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 139   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 140   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 142   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 144   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 145   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 146   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 147   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 149   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 150   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 153   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 154   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 156   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 157   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 159   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 160   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 161   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 162   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 163   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 164   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 166   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 169   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 170   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 172   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 173   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 174   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 175   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 176   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 177   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 179   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 181   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 182   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 186   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 187   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 188   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 189   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 190   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 192   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 193   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 194   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 195   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 198   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 199   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 200   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 201   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
```

```
## 202   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 203   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 204   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 205   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 206   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 207   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 208   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 209   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 210   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 211   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 212   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 213   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 214   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 215   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 217   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 219   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 220   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 223   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 224   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 225   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 226   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 227   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 228   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 229   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 232   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 233   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 234   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 235   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 237   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 239   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 241   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 242   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 243   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 245   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 246   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 247   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 248   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 251   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 252   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 254   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 256   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 258   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 259   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 260   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 261   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 262   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 263   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 264   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 267   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 268   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 270   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 272   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 273   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 274   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
```

```
## 275  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 276  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 277  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 279  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 280  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 282  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 283  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 284  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 285  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 289  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 291  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 292  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 293  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 294  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 295  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 296  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 297  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 298  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 299  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 301  8.160465e-09  1.402582e-08  1.636534e-09  -4.547051e-09  -5.480630e-10
## 302  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 305  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 306  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 307  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 309  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 311  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 313  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 314  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 315  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 316  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 317  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 320  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 322  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 323  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 324  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 325  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 326  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 327  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 328  5.032287e-08  8.649254e-08  1.009196e-08  -2.804015e-08  -3.379722e-09
## 329  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 330  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 331  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 332  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 334  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 336  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 337  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 338  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 339  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 340  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 342  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 346  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 347  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 348  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 349  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
```

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## 350    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 352    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 353    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 354    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 355   -1.073803e-03  -1.845601e-03  -2.153450e-04   5.983282e-04   7.211741e-05
## 356    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 357    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 358   -6.728387e-06  -1.156443e-05  -1.349339e-06   3.749090e-06   4.518836e-07
## 359    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 363    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 365    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 366    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 367    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 368    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 369    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 370    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 372    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 373    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 374    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 378    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 379    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 380    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 382    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 383    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 384    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 385    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 386    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 387    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 388    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 389    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 390    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 391    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 392    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 393    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 394    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 396    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 398    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 399    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 401    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 406    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 407    0.000000e+00   0.000000e+00   0.000000e+00   5.000000e-02   7.000000e-02
## 410    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 411    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 413    0.000000e+00   0.000000e+00   0.000000e+00   3.000000e+00   4.518836e-07
## 415    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 416    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 419    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 420    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 421    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 422    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 423    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 425   -1.069708e-01  -1.838563e-01  -2.145238e-02   5.960466e-02   7.184241e-03
## 426    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 429    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
```

```
## 430   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 431   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 434   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 437   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 438   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 439   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 441   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 442   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 443   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 444   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 445   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 446   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 447   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 448   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 450   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 451   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 454   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 455   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 460   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 461   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 462   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 464   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 465   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 467   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 468   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 469   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 470   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 472   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 473   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 476   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 477   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 478   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 479   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 482   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 484   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 486   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 487   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 490   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 491   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 493   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 494   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 496   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 497   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 499   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 500   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 503   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 504   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 506   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 507   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 509   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 510   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 511   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 512   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 513   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
```

```
## 514    0.000000e+00  0.000000e+00   0.000000e+00  0.000000e+00  0.000000e+00
## 516    0.000000e+00  0.000000e+00   0.000000e+00  0.000000e+00  0.000000e+00
## 517    0.000000e+00  0.000000e+00   0.000000e+00  0.000000e+00  0.000000e+00
## 518    0.000000e+00  0.000000e+00   0.000000e+00  0.000000e+00  0.000000e+00
## 519    0.000000e+00  0.000000e+00   0.000000e+00  0.000000e+00  0.000000e+00
## 521    0.000000e+00  0.000000e+00   0.000000e+00  0.000000e+00  0.000000e+00
## 522    0.000000e+00  0.000000e+00   0.000000e+00  0.000000e+00  0.000000e+00
## 523    0.000000e+00  0.000000e+00   0.000000e+00  0.000000e+00  0.000000e+00
## 525    0.000000e+00  0.000000e+00   0.000000e+00  0.000000e+00  0.000000e+00
## 526    0.000000e+00  0.000000e+00   0.000000e+00  0.000000e+00  0.000000e+00
## 527    0.000000e+00  0.000000e+00   0.000000e+00  0.000000e+00  0.000000e+00
## 530    0.000000e+00  0.000000e+00   0.000000e+00  0.000000e+00  0.000000e+00
## 532    0.000000e+00  0.000000e+00   0.000000e+00  0.000000e+00  0.000000e+00
## 533    0.000000e+00  0.000000e+00   0.000000e+00  0.000000e+00  0.000000e+00
## 534    0.000000e+00  0.000000e+00   0.000000e+00  0.000000e+00  0.000000e+00
## 535    0.000000e+00  0.000000e+00   0.000000e+00  0.000000e+00  0.000000e+00
## 536    0.000000e+00  0.000000e+00   0.000000e+00  0.000000e+00  0.000000e+00
## 537    0.000000e+00  0.000000e+00   0.000000e+00  0.000000e+00  0.000000e+00
## 538    0.000000e+00  0.000000e+00   0.000000e+00  0.000000e+00  0.000000e+00
## 539    0.000000e+00  0.000000e+00   0.000000e+00  0.000000e+00  0.000000e+00
## 540    1.774667e+01  3.050213e+01   3.558993e+00 -9.888531e+00 -1.191880e+00
## 541    0.000000e+00  0.000000e+00   0.000000e+00  0.000000e+00  0.000000e+00
## 542    0.000000e+00  0.000000e+00   0.000000e+00  0.000000e+00  0.000000e+00
## 543    0.000000e+00  0.000000e+00   0.000000e+00  0.000000e+00  0.000000e+00
## 544    0.000000e+00  0.000000e+00   0.000000e+00  0.000000e+00  0.000000e+00
## 546    0.000000e+00  0.000000e+00   0.000000e+00  0.000000e+00  0.000000e+00
## 547    0.000000e+00  0.000000e+00   0.000000e+00  0.000000e+00  0.000000e+00
## 549    0.000000e+00  0.000000e+00   0.000000e+00  0.000000e+00  0.000000e+00
## 550    0.000000e+00  0.000000e+00   0.000000e+00  0.000000e+00  0.000000e+00
## 551    0.000000e+00  0.000000e+00   0.000000e+00  0.000000e+00  0.000000e+00
## 552    0.000000e+00  0.000000e+00   0.000000e+00  0.000000e+00  0.000000e+00
## 554    0.000000e+00  0.000000e+00   0.000000e+00  0.000000e+00  0.000000e+00
## 555    0.000000e+00  0.000000e+00   0.000000e+00  0.000000e+00  0.000000e+00
## 557    0.000000e+00  0.000000e+00   0.000000e+00  0.000000e+00  0.000000e+00
## 558    0.000000e+00  0.000000e+00   0.000000e+00  0.000000e+00  0.000000e+00
## 559    0.000000e+00  0.000000e+00   0.000000e+00  0.000000e+00  0.000000e+00
## 560    3.361742e-06  5.778002e-06   6.741781e-07 -1.873179e-06 -2.257771e-07
## 561    0.000000e+00  0.000000e+00   0.000000e+00  0.000000e+00  0.000000e+00
## 562   -5.188483e-06 -8.917716e-06  -1.040520e-06  2.891048e-06  3.484624e-07
## 564    0.000000e+00  0.000000e+00   0.000000e+00  0.000000e+00  0.000000e+00
## 565    0.000000e+00  0.000000e+00   0.000000e+00  0.000000e+00  0.000000e+00
## 568    0.000000e+00  0.000000e+00   0.000000e+00  0.000000e+00  0.000000e+00
## 569    0.000000e+00  0.000000e+00   0.000000e+00  0.000000e+00  0.000000e+00
## 571    0.000000e+00  0.000000e+00   0.000000e+00  0.000000e+00  0.000000e+00
## 573   -1.423412e-07 -2.446493e-07  -2.854572e-08  7.931323e-08  9.559745e-09
## 575    0.000000e+00  0.000000e+00   0.000000e+00  0.000000e+00  0.000000e+00
## 577    0.000000e+00  0.000000e+00   0.000000e+00  0.000000e+00  0.000000e+00
## 578    0.000000e+00  0.000000e+00   0.000000e+00  0.000000e+00  0.000000e+00
## 579    0.000000e+00  0.000000e+00   0.000000e+00  0.000000e+00  0.000000e+00
## 580    0.000000e+00  0.000000e+00   0.000000e+00  0.000000e+00  0.000000e+00
## 582    0.000000e+00  0.000000e+00   0.000000e+00  0.000000e+00  0.000000e+00
## 583    0.000000e+00  0.000000e+00   0.000000e+00  0.000000e+00  0.000000e+00
## 584    0.000000e+00  0.000000e+00   0.000000e+00  0.000000e+00  0.000000e+00
## 585    0.000000e+00  0.000000e+00   0.000000e+00  0.000000e+00  0.000000e+00
```

```
## 586    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 587    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 589    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 591    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 593    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 595    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 598    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 599    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 600    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 601    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 602    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 603    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 606    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 608    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 609   -1.069708e-01 -1.838563e-01 -2.145238e-02  5.960466e-02  7.184241e-03
## 610    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 612    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 613    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 614    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 615    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 617    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 618    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 620    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 621    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 622    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 623    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 626    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 627    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 628    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 629    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 631    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 632    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 633    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 634    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 637    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 638    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 639    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 640    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 641    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 642    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 644    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 645    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 646    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 647    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 649    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 650    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 651    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 653    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 654    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 655    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 656    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 657    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 659    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 660    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
```

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## 661   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 662   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 663   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 664   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 665   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 666   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 668   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 670   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 671   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 673   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 677   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 678   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 679   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 680   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 681  -1.069708e-01 -1.838563e-01 -2.145238e-02  5.960466e-02  7.184241e-03
## 682   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 683   1.618773e+02  2.782269e+02  3.246356e+01 -9.019881e+01 -1.087180e+01
## 684   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 687   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 689   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 690   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 691   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 692   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 696   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 697   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 698   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 699   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 700   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 701   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 703   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 704   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 705   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 706   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 707   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 708   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 709   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 710   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 711   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 713   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 715   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 717   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 718   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 719   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 720   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 721   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 723   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 725   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 726   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 728   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 729   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 730   0.000000e+00  0.000000e+00  0.000000e+00  5.000000e+00  7.000000e+00
## 731   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 734   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 735   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
```

```
## 730   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
```

```
## 737    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 739    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 740    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 741    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 742    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 744    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 745    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 746    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 747    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 748    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 750    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 751    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 753    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 754    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 756    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 757    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 758    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 759    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 760    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 761    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 762    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 763    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 764    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 765    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 766    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 767    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 768    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 769    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 770    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 771    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 772    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 774    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 775    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 776    1.271234e+01   2.184936e+01   2.549386e+00  -7.083377e+00  -8.537702e-01
## 778    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 780    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 781   -5.937857e-07  -1.020570e-06  -1.190803e-07   3.308603e-07   3.987910e-08
## 783    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 785    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 786    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 787    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 788    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 789    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 790    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 792    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 793    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 794    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 795    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 796    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 797    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 799    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 800    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 802    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 803    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
```

```
## 805   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 807   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 811   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 812   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 813   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 814   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 815   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 816   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 817   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 818   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 820   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 822   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 825   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 828   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 829   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 830   6.606010e+00   1.135409e+01   1.324797e+00  -3.680901e+00  -4.436646e-01
## 831   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 833   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 834   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 835   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 836   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 837   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 838   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 839   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 844   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 845   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 846   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 847   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 849   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 851   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 853   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 854  -2.942865e+01  -5.058055e+01  -5.901746e+00   1.639779e+01   1.976450e+00
## 857   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 858   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 859   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 860   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 864   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 868   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 869   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 870   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 871   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 872   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 873   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 876   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 878   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 879   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 880   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 882   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 883   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 884   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 886   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 887   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 889   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 890   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
```

```
## 891   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 892   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 894   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 895   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 896   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 898   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 899   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 900   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 901   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 902   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 903   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 905   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 907  -1.073803e-03  -1.845601e-03  -2.153450e-04   5.983282e-04   7.211741e-05
## 912   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 913   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 914   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 915   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 916   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 918   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 923   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 927   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 928   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 929   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 930   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 932   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 933   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 936   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 938   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 939   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 940   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 942   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 943   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 947   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 948   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 951   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 952   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 953   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 955   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 956   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 957   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 960   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 961   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 965   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 966   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 967   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 970   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 972   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 973   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 975   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 976   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 977   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 978   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 979   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 980   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
```

```
## 981    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 982    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 983    1.706038e+00    2.932256e+00    3.421361e-01   -9.506127e-01   -1.145788e-01
## 985    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 986    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 987    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 988    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 989    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 990    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 991    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 993    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 994    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 995    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 997    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 998    5.064772e+00    8.705088e+00    1.015711e+00   -2.822116e+00   -3.401539e-01
## 999    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 1000   0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 1006   0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 1007   0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 1008   0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 1009   0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 1010  -5.188483e-06   -8.917716e-06   -1.040520e-06    2.891048e-06    3.484624e-07
## 1011   0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 1012   0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 1013   0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 1014   0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 1015   0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 1016   0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 1017   0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 1018   0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 1019   0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 1020   0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 1022   0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 1023   0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 1025   0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 1026   0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 1027   0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 1028   0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 1029   0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 1030   0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 1031   0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 1032   0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 1033   0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 1035   0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 1036   0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 1037   0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 1038   0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 1040   0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 1042   0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 1043   0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 1044   0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 1048   0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 1049   0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 1053   0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
```

```
## 1056   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1058   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1059   3.043995e+01   5.231873e+01   6.104557e+00  -1.696129e+01  -2.044370e+00
## 1060   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1062   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1064   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1065   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1068   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1069   5.074331e-01   8.721517e-01   1.017628e-01  -2.827442e-01  -3.407959e-02
## 1071   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1072   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1075   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1078   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1079   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1082   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1083   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1084   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1086   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1087   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1088   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1089   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1090   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1091  -1.073803e-03  -1.845601e-03  -2.153450e-04   5.983282e-04   7.211741e-05
## 1093   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1094   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1095   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1096   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1098   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1099   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1101   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1102   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1103   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1104   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1105   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1106  -5.188483e-06  -8.917716e-06  -1.040520e-06   2.891048e-06   3.484624e-07
## 1107   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1109   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1110   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1111   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1112   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1113   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1114   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1115   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1116   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1117   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1118   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1119   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1120   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1121   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1122   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1124   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1125   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1126   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1128   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
```

```
##              [,6]          [,7]          [,8]          [,9]         [,10]
## 1   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 3   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 6   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 9   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 11  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 12  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 14  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 15  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 16  5.186581e+00 -1.767670e+00  1.659614e+00  2.157527e+00  6.652240e-01
## 17  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 19  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 20  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 21  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 24  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 25  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 27  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 29  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 30  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 31  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 32  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 35  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 37  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 38  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 40  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 41  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 42  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 43  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 44  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 45  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 46  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 47  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 48  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 49  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 51  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 52  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 53  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 54  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 56  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 57  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 58  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 60  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 61  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 62  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 63  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 66  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 67  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 68  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 69  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 70  2.695225e+00 -9.185756e-01  8.624243e-01  1.121166e+00  3.456859e-01
## 72  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 76  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 77  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 79  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
```

```
## 81   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 82   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 83   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 84   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 85   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 86   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 87   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 88   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 89   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 90   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 92   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 94   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 95   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 97   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 98   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 100  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 101  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 105  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 106  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 107  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 108  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 109  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 110  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 111  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 112  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 113  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 114  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 115  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 117  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 118  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 119  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 120  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 123  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 124  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 125  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 126  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 128  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 129  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 130  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 131  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 132  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 133  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 135  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 137  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 138  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 139  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 140  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 142  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 144  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 145  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 146  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 147  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 149  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 150  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
```

```
## 153   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 154   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 156   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 157   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 159   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 160   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 161   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 162   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 163   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 164   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 166   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 169   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 170   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 172   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 173   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 174   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 175   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 176   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 177   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 179   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 181   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 182   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 186   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 187   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 188   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 189   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 190   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 192   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 193   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 194   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 195   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 198   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 199   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 200   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 201   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 202   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 203   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 204   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 205   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 206   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 207   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 208   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 209   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 210   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 211   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 212   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 213   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 214   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 215   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 217   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 219   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 220   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 223   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 224   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
```

```
## 225    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 226    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 227    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 228    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 229    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 232    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 233    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 234    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 235    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 237    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 239    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 241    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 242    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 243    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 245    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 246    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 247    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 248    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 251    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 252    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 254    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 256    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 258    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 259    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 260    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 261    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 262    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 263    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 264    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 267    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 268    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 270    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 272    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 273    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 274    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 275    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 276    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 277    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 279    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 280    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 282    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 283    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 284    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 285    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 289    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 291    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 292    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 293    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 294    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 295    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 296    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 297    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 298    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 299    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
```

```
## 301    3.329436e-09 -1.134725e-09  1.065361e-09  1.384987e-09  4.270290e-10
## 302    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 305    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 306    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 307    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 309    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 311    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 313    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 314    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 315    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 316    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 317    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 320    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 322    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 323    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 324    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 325    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 326    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 327    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 328    2.053152e-08 -6.997470e-09  6.569724e-09  8.540754e-09  2.633346e-09
## 329    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 330    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 331    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 332    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 334    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 336    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 337    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 338    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 339    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 340    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 342    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 346    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 347    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 348    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 349    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 350    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 352    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 353    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 354    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 355   -4.381071e-04  1.493139e-04 -1.401865e-04 -1.822449e-04 -5.619104e-05
## 356    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 357    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 358   -2.745154e-06  9.355924e-07 -8.784008e-07 -1.141936e-06 -3.520898e-07
## 359    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 363    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 365    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 366    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 367    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 368    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 369    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 370    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 372    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 373    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 374    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
```

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## 378   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 379   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 380   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 382   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 383   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 384   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 385   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 386   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 387   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 388   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 389   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 390   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 391   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 392   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 393   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 394   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 396   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 398   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 399   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 401   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 406   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 407   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 410   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 411   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 413   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 415   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 416   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 419   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 420   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 421   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 422   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 423   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 425  -4.364365e-02   1.487445e-02  -1.396520e-02  -1.815499e-02  -5.597676e-03
## 426   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 429   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 430   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 431   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 434   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 437   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 438   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 439   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 441   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 442   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 443   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 444   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 445   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 446   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 447   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 448   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 450   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 451   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 454   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 455   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 460   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
```

```
## 461    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 462    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 464    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 465    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 467    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 468    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 469    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 470    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 472    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 473    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 476    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 477    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 478    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 479    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 482    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 484    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 486    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 487    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 490    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 491    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 493    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 494    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 496    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 497    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 499    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 500    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 503    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 504    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 506    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 507    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 509    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 510    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 511    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 512    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 513    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 514    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 516    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 517    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 518    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 519    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 521    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 522    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 523    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 525    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 526    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 527    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 530    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 532    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 533    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 534    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 535    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 536    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 537    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 538    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
```

```
## 539    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 540    7.240568e+00 -2.467701e+00  2.316854e+00  3.011950e+00  9.286656e-01
## 541    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 542    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 543    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 544    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 546    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 547    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 549    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 550    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 551    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 552    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 554    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 555    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 557    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 558    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 559    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 560    1.371577e-06 -4.674553e-07  4.388804e-07  5.705520e-07  1.759166e-07
## 561    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 562   -2.116880e-06  7.214663e-07 -6.773640e-07 -8.805848e-07 -2.715081e-07
## 564    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 565    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 568    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 569    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 571    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 573   -5.807464e-08  1.979276e-08 -1.858286e-08 -2.415803e-08 -7.448575e-09
## 575    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 577    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 578    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 579    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 580    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 582    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 583    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 584    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 585    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 586    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 587    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 589    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  9.000000e+00
## 591    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 593    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 595    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 598    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 599    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 600    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 601    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 602    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 603    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 606    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 608    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 609   -4.364365e-02  1.487445e-02 -1.396520e-02 -1.815499e-02 -5.597676e-03
## 610    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 612    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 613    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 614    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
```

```
## 615    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 617    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 618    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 620    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 621    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 622    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 623    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 626    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 627    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 628    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 629    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 631    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 632    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 633    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 634    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 637    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 638    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 639    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 640    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 641    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 642    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 644    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 645    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 646    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 647    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 649    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 650    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 651    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 653    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 654    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 655    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 656    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 657    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 659    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 660    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 661    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 662    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 663    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 664    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 665    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 666    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 668    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 670    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 671    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 673    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 677    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 678    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 679    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 680    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 681   -4.364365e-02    1.487445e-02   -1.396520e-02   -1.815499e-02   -5.597676e-03
## 682    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 683    6.604526e+01   -2.250928e+01    2.113331e+01    2.747367e+01    8.470877e+00
## 684    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 687    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
```

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## 689   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 690   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 691   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 692   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 696   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 697   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 698   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 699   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 700   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 701   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 703   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 704   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 705   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 706   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 707   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 708   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 709   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 710   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 711   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 713   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 715   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 717   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 718   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 719   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 720   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 721   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 723   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 725   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 726   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 728   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 729   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 730   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 731   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 734   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 735   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 737   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 739   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 740   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 741   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 742   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 744   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 745   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 746   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 747   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 748   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 750   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 751   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 753   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 754   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 756   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 757   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 758   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 759   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 760   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
```

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## 761    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 762    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 763    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 764    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 765    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 766    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 767    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 768    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 769    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 770    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 771    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 772    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 774    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 775    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 776    5.186581e+00 -1.767670e+00  1.659614e+00  2.157527e+00  6.652240e-01
## 778    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 780    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 781   -2.422621e-07  8.256679e-08 -7.751959e-08 -1.007768e-07 -3.107222e-08
## 783    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 785    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 786    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 787    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 788    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 789    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 790    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 792    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 793    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 794    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 795    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 796    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 797    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 799    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 800    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 802    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 803    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 805    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 807    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 811    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 812    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 813    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 814    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 815    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 816    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 817    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 818    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 820    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 822    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 825    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 828    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 829    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 830    2.695225e+00 -9.185756e-01  8.624243e-01  1.121166e+00  3.456859e-01
## 831    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 833    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 834    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
```

```
## 835    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 836    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 837    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 838    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 839    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 844    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 845    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 846    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 847    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 849    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 851    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 853    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 854   -1.200677e+01    4.092097e+00   -3.841953e+00   -4.994605e+00   -1.539972e+00
## 857    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 858    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 859    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 860    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 864    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 868    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 869    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 870    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 871    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 872    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 873    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 876    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 878    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 879    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 880    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 882    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 883    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 884    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 886    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 887    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 889    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 890    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 891    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 892    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 894    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 895    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 896    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 898    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 899    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 900    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 901    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 902    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 903    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 905    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 907   -4.381071e-04    1.493139e-04   -1.401865e-04   -1.822449e-04   -5.619104e-05
## 912    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 913    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 914    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 915    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 916    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 918    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
```

```
## 923    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 927    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 928    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 929    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 930    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 932    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 933    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 936    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 938    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 939    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 940    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 942    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 943    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 947    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 948    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 951    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 952    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 953    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 955    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 956    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 957    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 960    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 961    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 965    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 966    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 967    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 970    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 972    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 973    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 975    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 976    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 977    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 978    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 979    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 980    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 981    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 982    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 983    6.960565e-01  -2.372272e-01   2.227258e-01   2.895473e-01   8.927527e-02
## 985    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 986    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 987    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 988    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 989    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 990    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 991    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 993    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 994    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 995    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 997    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 998    2.066406e+00  -7.042642e-01   6.612134e-01   8.595888e-01   2.650345e-01
## 999    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1000   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1006   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1007   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
```

```
## 1008  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1009  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1010 -2.116880e-06   7.214663e-07  -6.773640e-07  -8.805848e-07  -2.715081e-07
## 1011  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1012  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1013  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1014  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1015  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1016  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1017  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1018  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1019  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1020  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1022  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1023  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1025  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1026  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1027  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1028  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1029  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1030  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1031  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1032  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1033  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1035  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1036  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1037  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1038  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1040  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1042  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1043  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1044  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1048  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1049  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1053  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1056  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1058  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1059  1.241937e+01  -4.232721e+00   3.973980e+00   5.166242e+00   1.592892e+00
## 1060  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1062  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1064  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1065  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1068  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1069  2.070306e-01  -7.055933e-02   6.624613e-02   8.612111e-02   2.655347e-02
## 1071  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1072  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1075  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1078  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1079  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1082  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1083  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1084  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1086  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1087  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
```

```
## 1088  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 1089  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 1090  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 1091 -4.381071e-04  1.493139e-04 -1.401865e-04 -1.822449e-04 -5.619104e-05
## 1093  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 1094  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 1095  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 1096  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 1098  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 1099  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 1101  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 1102  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 1103  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 1104  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 1105  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 1106 -2.116880e-06  7.214663e-07 -6.773640e-07 -8.805848e-07 -2.715081e-07
## 1107  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 1109  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 1110  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 1111  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 1112  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 1113  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 1114  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 1115  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 1116  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 1117  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 1118  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 1119  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 1120  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 1121  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 1122  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 1124  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 1125  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 1126  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 1128  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
##              [,11]         [,12]         [,13]         [,14]         [,15]
## 1    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 3    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 6    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 9    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 11   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 12   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 14   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 15   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 16   9.409559e+00 -5.405983e+01  5.330418e-01 -9.674193e-01 -2.697795e-01
## 17   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 19   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 20   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 21   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 24   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 25   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 27   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 29   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 30   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
```

220

```
## 31    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 32    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 35    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 37    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 38    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 40    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 41    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 42    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 43    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 44    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 45    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 46    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 47    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 48    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 49    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 51    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 52    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 53    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 54    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 56    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 57    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 58    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 60    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 61    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 62    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 63    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 66    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 67    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 68    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 69    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 70    4.889710e+00 -2.809238e+01  2.769970e-01 -5.027228e-01 -1.401919e-01
## 72    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 76    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 77    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 79    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 81    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 82    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 83    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 84    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 85    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 86    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 87    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 88    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 89    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 90    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 92    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 94    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 95    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 97    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 98    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 100   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 101   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 105   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 106   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
```

```
## 107    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 108    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 109    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 110    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 111    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 112    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 113    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 114    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 115    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 117    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 118    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 119    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 120    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 123    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 124    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 125    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 126    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 128    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 129    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 130    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 131    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 132    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 133    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 135    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 137    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 138    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 139    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 140    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 142    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 144    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 145    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 146    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 147    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 149    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 150    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 153    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 154    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 156    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 157    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 159    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 160    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 161    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 162    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 163    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 164    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 166    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 169    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 170    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 172    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 173    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 174    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 175    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 176    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 177    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
```

```
## 179   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 181   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 182   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 186   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 187   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 188   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 189   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 190   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 192   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 193   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 194   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 195   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 198   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 199   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 200   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 201   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 202   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 203   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 204   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 205   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 206   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 207   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 208   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 209   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 210   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 211   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 212   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 213   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 214   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 215   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 217   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 219   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 220   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 223   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 224   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 225   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 226   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 227   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 228   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 229   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 232   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 233   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 234   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 235   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 237   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 239   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 241   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 242   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 243   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 245   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 246   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 247   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 248   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 251   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
```

```
## 252  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 254  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 256  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 258  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 259  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 260  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 261  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 262  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 263  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 264  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 267  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 268  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 270  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 272  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 273  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 274  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 275  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 276  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 277  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 279  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 280  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 282  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 283  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 284  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 285  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 289  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 291  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 292  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 293  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 294  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 295  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 296  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 297  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 298  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 299  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 301  6.040303e-09 -3.470277e-08  3.421770e-10 -6.210181e-10 -1.731803e-10
## 302  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 305  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 306  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 307  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 309  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 311  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 313  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 314  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 315  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 316  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 317  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 320  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 322  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 323  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 324  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 325  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 326  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 327  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
```

```
## 328     3.724854e-08 -2.140004e-07  2.110091e-09 -3.829611e-09 -1.067945e-09
## 329     0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 330     0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 331     0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 332     0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 334     0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 336     0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 337     0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 338     0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 339     0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 340     0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 342     0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 346     0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 347     0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 348     0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 349     0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 350     0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 352     0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 353     0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 354     0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 355    -7.948193e-04  4.566399e-03 -4.502570e-05  8.171727e-05  2.278810e-05
## 356     0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 357     0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 358    -4.980292e-06  2.861279e-05 -2.821284e-07  5.120358e-07  1.427889e-07
## 359     0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 363     0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 365     0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 366     0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 367     0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 368     0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 369     0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 370     0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 372     0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 373     0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 374     0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 378     0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 379     0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 380     0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 382     0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 383     0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 384     0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 385     0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 386     0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 387     0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 388     0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 389     0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 390     0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 391     0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 392     0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 393     0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 394     0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 396     0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 398     0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 399     0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
```

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## 401    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 406    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 407    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 410    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 411    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 413    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 415    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 416    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 419    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 420    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 421    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 422    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 423    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 425   -7.917884e-02   4.548985e-01  -4.485400e-03   8.140566e-03   2.270120e-03
## 426    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 429    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 430    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 431    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 434    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 437    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 438    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 439    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 441    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 442    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 443    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 444    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 445    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 446    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 447    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 448    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 450    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 451    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 454    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 455    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 460    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 461    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 462    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 464    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 465    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 467    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 468    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 469    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 470    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 472    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 473    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 476    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 477    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 478    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 479    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 482    0.000000e+00   0.000000e+00   0.000000e+00   8.000000e+00   0.000000e+00
## 484    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 486    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 487    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 490    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
```

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## 491   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 493   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 494   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 496   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 497   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 499   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 500   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 503   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 504   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 506   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 507   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 509   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 510   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 511   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 512   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 513   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 514   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 516   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 517   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 518   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 519   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 521   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 522   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 523   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 525   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 526   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 527   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 530   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 532   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 533   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 534   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 535   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 536   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 537   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 538   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 539   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 540   1.313593e+01  -7.546857e+01   7.441367e-01  -1.350536e+00  -3.766174e-01
## 541   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 542   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 543   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 544   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 546   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 547   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 549   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 550   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 551   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 552   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 554   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 555   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 557   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 558   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 559   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 560   2.488331e-06  -1.429597e-05   1.409614e-07  -2.558313e-07  -7.134244e-08
## 561   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
```

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## 562  -3.840468e-06   2.206427e-05  -2.175586e-07   3.948478e-07   1.101093e-07
## 564   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 565   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 568   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 569   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 571   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 573  -1.053597e-07   6.053130e-07  -5.968520e-09   1.083228e-08   3.020746e-09
## 575   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 577   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 578   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 579   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 580   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 582   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 583   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 584   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 585   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 586   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 587   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 589   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 591   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 593   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 595   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 598   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 599   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 600   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 601   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 602   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 603   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 606   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 608   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 609  -7.917884e-02   4.548985e-01  -4.485400e-03   8.140566e-03   2.270120e-03
## 610   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 612   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 613   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 614   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 615   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 617   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 618   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 620   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 621   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 622   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 623   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 626   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 627   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 628   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 629   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 631   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 632   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 633   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 634   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 637   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 638   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 639   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 640   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
```

```
## 641    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 642    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 644    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 645    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 646    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 647    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 649    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 650    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 651    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 653    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 654    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 655    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 656    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 657    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 659    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 660    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 661    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 662    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 663    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 664    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 665    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 666    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 668    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 670    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 671    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 673    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 677    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 678    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 679    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 680    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 681   -7.917884e-02    4.548985e-01   -4.485400e-03    8.140566e-03    2.270120e-03
## 682    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 683    1.198201e+02   -6.883909e+02    6.787686e+00   -1.231899e+01   -3.435337e+00
## 684    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 687    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 689    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 690    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 691    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 692    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 696    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 697    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 698    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 699    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 700    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 701    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 703    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 704    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 705    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 706    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 707    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 708    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 709    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 710    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 711    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
```

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## 713   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 715   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 717   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 718   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 719   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 720   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 721   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 723   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 725   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 726   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 728   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 729   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 730   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 731   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 734   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 735   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 737   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 739   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 740   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 741   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 742   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 744   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 745   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 746   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 747   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 748   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 750   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 751   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 753   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 754   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 756   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 757   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 758   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 759   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 760   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 761   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 762   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 763   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 764   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 765   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 766   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 767   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 768   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 769   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 770   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 771   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 772   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 774   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 775   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 776   9.409559e+00  -5.405983e+01   5.330418e-01  -9.674193e-01  -2.697795e-01
## 778   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 780   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 781  -4.395149e-07   2.525102e-06  -2.489807e-08   4.518758e-08   1.260124e-08
## 783   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
```

```
## 785   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 786   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 787   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 788   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 789   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 790   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 792   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 793   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 794   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 795   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 796   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 797   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 799   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 800   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 802   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 803   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 805   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 807   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 811   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 812   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 813   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 814   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 815   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 816   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 817   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 818   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 820   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 822   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 825   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 828   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 829   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 830   4.889710e+00 -2.809238e+01  2.769970e-01 -5.027228e-01 -1.401919e-01
## 831   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 833   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 834   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 835   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 836   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 837   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 838   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 839   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 844   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 845   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 846   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 847   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 849   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 851   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 853   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 854  -2.178282e+01  1.251467e+02 -1.233974e+00  2.239544e+00  6.245307e-01
## 857   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 858   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 859   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 860   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 864   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 868   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
```

```
## 869   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 870   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 871   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 872   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 873   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 876   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 878   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 879   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 880   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 882   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 883   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 884   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 886   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 887   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 889   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 890   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 891   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 892   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 894   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 895   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 896   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 898   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 899   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 900   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 901   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 902   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 903   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 905   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 907  -7.948193e-04   4.566399e-03  -4.502570e-05   8.171727e-05   2.278810e-05
## 912   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 913   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 914   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 915   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 916   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 918   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 923   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 927   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 928   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 929   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 930   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 932   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 933   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 936   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 938   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 939   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 940   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 942   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 943   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 947   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 948   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 951   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 952   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 953   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 955   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
```

```
## 956   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 957   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 960   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 961   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 965   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 966   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 967   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 970   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 972   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 973   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 975   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 976   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 977   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 978   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 979   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 980   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 981   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 982   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 983   1.262794e+00  -7.255009e+00   7.153599e-02  -1.298309e-01  -3.620531e-02
## 985   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 986   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 987   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 988   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 989   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 990   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 991   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 993   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 994   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 995   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 997   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 998   3.748899e+00  -2.153819e+01   2.123713e-01  -3.854333e-01  -1.074839e-01
## 999   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1000  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1006  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1007  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1008  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1009  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1010 -3.840468e-06   2.206427e-05  -2.175586e-07   3.948478e-07   1.101093e-07
## 1011  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1012  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1013  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1014  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1015  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1016  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1017  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1018  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1019  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1020  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1022  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1023  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1025  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1026  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1027  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1028  0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
```

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## 1029   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1030   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1031   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1032   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1033   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1035   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1036   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1037   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1038   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1040   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1042   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1043   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1044   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1048   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1049   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1053   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1056   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1058   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1059   2.253138e+01  -1.294474e+02   1.276379e+00  -2.316505e+00  -6.459925e-01
## 1060   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1062   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1064   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1065   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1068   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1069   3.755974e-01  -2.157884e+00   2.127721e-02  -3.861607e-02  -1.076868e-02
## 1071   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1072   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1075   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1078   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1079   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1082   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1083   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1084   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1086   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1087   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1088   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1089   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1090   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1091  -7.948193e-04   4.566399e-03  -4.502570e-05   8.171727e-05   2.278810e-05
## 1093   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1094   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1095   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1096   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1098   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1099   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1101   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1102   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1103   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1104   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1105   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1106  -3.840468e-06   2.206427e-05  -2.175586e-07   3.948478e-07   1.101093e-07
## 1107   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1109   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1110   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
```

```
## 1111  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 1112  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 1113  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 1114  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 1115  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 1116  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 1117  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 1118  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 1119  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 1120  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 1121  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 1122  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 1124  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 1125  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 1126  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 1128  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
##              [,16]         [,17]         [,18]         [,19]         [,20]
## 1    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 3    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 6    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 9    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 11   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 12   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 14   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 15   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 16  -3.761923e+00 -2.261636e-01 -9.212169e+00  1.027428e+01  1.105836e+01
## 17   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 19   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 20   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 21   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 24   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 25   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 27   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 29   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 30   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 31   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 32   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 35   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 37   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 38   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 40   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 41   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 42   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 43   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 44   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 45   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 46   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 47   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 48   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 49   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 51   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 52   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 53   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 54   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
```

```
## 56    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 57    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 58    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 60    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 61    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 62    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 63    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 66    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 67    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 68    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 69    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 70   -1.954896e+00 -1.175267e-01 -4.787135e+00  5.339064e+00  5.746516e+00
## 72    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 76    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 77    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 79    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 81    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 82    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 83    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 84    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 85    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 86    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 87    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 88    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 89    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 90    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 92    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 94    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 95    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 97    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 98    0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 100   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 101   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 105   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 106   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 107   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 108   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 109   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 110   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 111   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 112   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 113   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 114   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 115   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 117   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 118   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 119   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 120   0.000000e+00  0.000000e+00  0.000000e+00  5.339064e+00  0.000000e+00
## 123   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 124   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 125   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 126   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 128   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
## 129   0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00  0.000000e+00
```

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## 130   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 131   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 132   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 133   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 135   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 137   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 138   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 139   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 140   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 142   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 144   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 145   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 146   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 147   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 149   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 150   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 153   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 154   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 156   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 157   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 159   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 160   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 161   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 162   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 163   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 164   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 166   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 169   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 170   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 172   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 173   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 174   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 175   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 176   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 177   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 179   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 181   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 182   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 186   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 187   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 188   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 189   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 190   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 192   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 193   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 194   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 195   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 198   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 199   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 200   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 201   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 202   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 203   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 204   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
```

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## 205   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 206   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 207   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 208   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 209   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 210   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 211   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 212   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 213   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 214   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 215   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 217   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 219   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 220   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 223   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 224   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 225   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 226   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 227   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 228   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 229   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 232   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 233   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 234   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 235   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 237   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 239   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 241   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 242   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 243   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 245   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 246   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 247   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 248   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 251   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 252   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 254   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 256   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 258   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 259   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 260   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 261   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 262   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 263   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 264   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 267   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 268   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 270   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 272   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 273   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 274   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 275   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 276   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 277   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
```

```
## 279    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 280    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 282    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 283    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 284    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 285    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 289    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 291    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 292    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 293    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 294    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 295    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 296    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 297    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 298    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 299    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 301   -2.414902e-09  -1.451818e-10  -5.913592e-09   6.595395e-09   7.098725e-09
## 302    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 305    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 306    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 307    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 309    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 311    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 313    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 314    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 315    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 316    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 317    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 320    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 322    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 323    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 324    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 325    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 326    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 327    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 328   -1.489189e-08  -8.952877e-10  -3.646715e-08   4.067160e-08   4.377547e-08
## 329    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 330    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 331    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 332    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 334    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 336    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 337    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 338    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 339    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 340    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 342    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 346    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 347    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 348    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 349    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 350    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 352    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 353    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
```

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## 354    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 355    3.177672e-04    1.910389e-05    7.781459e-04   -8.678616e-04   -9.340927e-04
## 356    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 357    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 358    1.991111e-06    1.197039e-07    4.875818e-06   -5.437971e-06   -5.852971e-06
## 359    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 363    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 365    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 366    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 367    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 368    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 369    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 370    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 372    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 373    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 374    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 378    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 379    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 380    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 382    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 383    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 384    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 385    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 386    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 387    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 388    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 389    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 390    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 391    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 392    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 393    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 394    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 396    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 398    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 399    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 401    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 406    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 407    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 410    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 411    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 413    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 415    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 416    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 419    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 420    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 421    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 422    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 423    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 425    3.165555e-02    1.903104e-03    7.751786e-02   -8.645521e-02   -9.305307e-02
## 426    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 429    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 430    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 431    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
## 434    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00    0.000000e+00
```

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## 437   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 438   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 439   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 441   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 442   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 443   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 444   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 445   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 446   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 447   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 448   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 450   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 451   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 454   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 455   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 460   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 461   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 462   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 464   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 465   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 467   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 468   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 469   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 470   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 472   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 473   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 476   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 477   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 478   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 479   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 482   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 484   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 486   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 487   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 490   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 491   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 493   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 494   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 496   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 497   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 499   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 500   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 503   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 504   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 506   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 507   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 509   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 510   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 511   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 512   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 513   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 514   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 516   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 517   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
```

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## 518   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 519   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 521   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 522   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 523   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 525   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 526   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 527   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 530   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 532   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 533   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 534   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 535   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 536   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 537   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 538   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 539   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 540  -5.251718e+00  -3.157287e-01  -1.286037e+01   1.434309e+01   1.543769e+01
## 541   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 542   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 543   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 544   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 546   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 547   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 549   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 550   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 551   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 552   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 554   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 555   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 557   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 558   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 559   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 560  -9.948301e-07  -5.980832e-08  -2.436132e-06   2.717004e-06   2.924353e-06
## 561   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 562   1.535412e-06   9.230763e-08   3.759905e-06  -4.193400e-06  -4.513420e-06
## 564   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 565   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 568   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 569   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 571   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 573   4.212261e-08   2.532375e-09   1.031495e-07  -1.150421e-07  -1.238215e-07
## 575   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 577   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 578   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 579   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 580   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 582   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 583   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 584   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 585   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 586   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 587   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 589   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
```

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## 591   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 593   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 595   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 598   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 599   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 600   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 601   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 602   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 603   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 606   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 608   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 609   3.165555e-02   1.903104e-03   7.751786e-02  -8.645521e-02  -9.305307e-02
## 610   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 612   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 613   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 614   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 615   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 617   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 618   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 620   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 621   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 622   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 623   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 626   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 627   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 628   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 629   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 631   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 632   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 633   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 634   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 637   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 638   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 639   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 640   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 641   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 642   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 644   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 645   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 646   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 647   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 649   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 650   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 651   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 653   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 654   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 655   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 656   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 657   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 659   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 660   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 661   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 662   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 663   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
```

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## 664   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 665   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 666   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 668   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 670   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 671   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 673   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 677   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 678   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 679   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 680   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 681   3.165555e-02   1.903104e-03   7.751786e-02  -8.645521e-02  -9.305307e-02
## 682   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 683  -4.790385e+01  -2.879938e+00  -1.173066e+02   1.308313e+02   1.408158e+02
## 684   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 687   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 689   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 690   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 691   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 692   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 696   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 697   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 698   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 699   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 700   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 701   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 703   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 704   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 705   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 706   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 707   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 708   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 709   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 710   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 711   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 713   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 715   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 717   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 718   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 719   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 720   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 721   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 723   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 725   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 726   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 728   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 729   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 730   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 731   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 734   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 735   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 737   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 739   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 740   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
```

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## 741    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 742    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 744    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 745    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 746    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 747    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 748    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 750    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 751    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 753    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 754    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 756    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 757    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 758    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 759    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 760    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 761    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 762    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 763    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 764    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 765    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 766    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 767    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 768    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 769    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 770    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 771    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 772    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 774    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 775    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 776   -3.761923e+00  -2.261636e-01  -9.212169e+00   1.027428e+01   1.105836e+01
## 778    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 780    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 781    1.757172e-07   1.056397e-08   4.302949e-07  -4.799054e-07  -5.165295e-07
## 783    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 785    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 786    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 787    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 788    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 789    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 790    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 792    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 793    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 794    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 795    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 796    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 797    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 799    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 800    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 802    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 803    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 805    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 807    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 811    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
```

```
## 812   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 813   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 814   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 815   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 816   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 817   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 818   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 820   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 822   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 825   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 828   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 829   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 830  -1.954896e+00  -1.175267e-01  -4.787135e+00   5.339064e+00   5.746516e+00
## 831   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 833   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 834   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 835   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 836   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 837   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 838   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 839   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 844   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 845   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 846   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 847   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 849   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 851   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 853   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 854   8.708729e+00   5.235613e-01   2.132587e+01  -2.378462e+01  -2.559975e+01
## 857   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 858   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 859   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 860   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 864   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 868   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 869   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 870   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 871   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 872   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 873   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 876   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 878   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 879   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 880   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 882   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 883   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 884   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 886   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 887   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 889   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 890   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 891   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 892   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 894   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
```

```
## 895    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 896    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 898    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 899    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 900    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 901    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 902    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 903    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 905    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 907    3.177672e-04   1.910389e-05   7.781459e-04  -8.678616e-04  -9.340927e-04
## 912    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 913    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 914    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 915    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 916    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 918    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 923    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 927    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 928    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 929    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 930    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 932    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 933    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 936    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 938    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 939    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 940    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 942    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 943    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 947    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 948    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 951    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 952    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 953    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 955    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 956    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 957    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 960    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 961    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 965    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 966    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 967    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 970    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 972    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 973    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 975    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 976    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 977    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 978    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 979    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 980    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 981    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 982    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 983   -5.048626e-01  -3.035190e-02  -1.236304e+00   1.378842e+00   1.484069e+00
```

```
## 985    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 986    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 987    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 988    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 989    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 990    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 991    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 993    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 994    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 995    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 997    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 998   -1.498803e+00  -9.010671e-02  -3.670256e+00   4.093415e+00   4.405806e+00
## 999    0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1000   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1006   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1007   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1008   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1009   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1010   1.535412e-06   9.230763e-08   3.759905e-06  -4.193400e-06  -4.513420e-06
## 1011   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1012   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1013   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1014   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1015   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1016   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1017   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1018   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1019   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1020   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1022   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1023   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1025   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1026   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1027   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1028   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1029   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1030   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1031   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1032   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1033   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1035   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1036   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1037   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1038   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1040   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1042   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1043   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1044   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1048   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1049   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1053   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1056   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1058   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1059  -9.008001e+00  -5.415532e-01  -2.205872e+01   2.460197e+01   2.647947e+01
```

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## 1060   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1062   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1064   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1065   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1068   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1069  -1.501631e-01  -9.027677e-03  -3.677183e-01   4.101141e-01   4.414121e-01
## 1071   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1072   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1075   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1078   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1079   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1082   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1083   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1084   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1086   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1087   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1088   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1089   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1090   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1091   3.177672e-04   1.910389e-05   7.781459e-04  -8.678616e-04  -9.340927e-04
## 1093   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1094   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1095   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1096   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1098   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1099   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1101   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1102   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1103   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1104   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1105   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1106   1.535412e-06   9.230763e-08   3.759905e-06  -4.193400e-06  -4.513420e-06
## 1107   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1109   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1110   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1111   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1112   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1113   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1114   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1115   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1116   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1117   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1118   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1119   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1120   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1121   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1122   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1124   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1125   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1126   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
## 1128   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00   0.000000e+00
##                [,21]          [,22]          [,23]
## 1        0.000000e+00   0.000000e+00   0.000000e+00
## 3        0.000000e+00   0.000000e+00   0.000000e+00
```

```
## 6      0.000000e+00   0.000000e+00    0.000000e+00
## 9      0.000000e+00   0.000000e+00    0.000000e+00
## 11     0.000000e+00   0.000000e+00    0.000000e+00
## 12     0.000000e+00   0.000000e+00    0.000000e+00
## 14     0.000000e+00   0.000000e+00    0.000000e+00
## 15     0.000000e+00   0.000000e+00    0.000000e+00
## 16     8.950520e+01   1.206899e+01   -8.236307e+00
## 17     0.000000e+00   0.000000e+00    0.000000e+00
## 19     0.000000e+00   0.000000e+00    0.000000e+00
## 20     0.000000e+00   0.000000e+00    0.000000e+00
## 21     0.000000e+00   0.000000e+00    0.000000e+00
## 24     0.000000e+00   0.000000e+00    0.000000e+00
## 25     0.000000e+00   0.000000e+00    0.000000e+00
## 27     0.000000e+00   0.000000e+00    0.000000e+00
## 29     0.000000e+00   0.000000e+00    0.000000e+00
## 30     0.000000e+00   0.000000e+00    0.000000e+00
## 31     0.000000e+00   0.000000e+00    0.000000e+00
## 32     0.000000e+00   0.000000e+00    0.000000e+00
## 35     0.000000e+00   0.000000e+00    0.000000e+00
## 37     0.000000e+00   0.000000e+00    0.000000e+00
## 38     0.000000e+00   0.000000e+00    0.000000e+00
## 40     0.000000e+00   0.000000e+00    0.000000e+00
## 41     0.000000e+00   0.000000e+00    0.000000e+00
## 42     0.000000e+00   0.000000e+00    0.000000e+00
## 43     0.000000e+00   0.000000e+00    0.000000e+00
## 44     0.000000e+00   0.000000e+00    0.000000e+00
## 45     0.000000e+00   0.000000e+00    0.000000e+00
## 46     0.000000e+00   0.000000e+00    0.000000e+00
## 47     0.000000e+00   0.000000e+00    0.000000e+00
## 48     0.000000e+00   0.000000e+00    0.000000e+00
## 49     0.000000e+00   0.000000e+00    0.000000e+00
## 51     0.000000e+00   0.000000e+00    0.000000e+00
## 52     0.000000e+00   0.000000e+00    0.000000e+00
## 53     0.000000e+00   0.000000e+00    0.000000e+00
## 54     0.000000e+00   0.000000e+00    0.000000e+00
## 56     0.000000e+00   0.000000e+00    0.000000e+00
## 57     0.000000e+00   0.000000e+00    0.000000e+00
## 58     0.000000e+00   0.000000e+00    0.000000e+00
## 60     0.000000e+00   0.000000e+00    0.000000e+00
## 61     0.000000e+00   0.000000e+00    0.000000e+00
## 62     0.000000e+00   0.000000e+00    0.000000e+00
## 63     0.000000e+00   0.000000e+00    0.000000e+00
## 66     0.000000e+00   0.000000e+00    0.000000e+00
## 67     0.000000e+00   0.000000e+00    0.000000e+00
## 68     0.000000e+00   0.000000e+00    0.000000e+00
## 69     0.000000e+00   0.000000e+00    0.000000e+00
## 70     4.651168e+01   6.271690e+00   -4.280025e+00
## 72     0.000000e+00   0.000000e+00    0.000000e+00
## 76     0.000000e+00   0.000000e+00    0.000000e+00
## 77     0.000000e+00   0.000000e+00    0.000000e+00
## 79     0.000000e+00   0.000000e+00    0.000000e+00
## 81     0.000000e+00   0.000000e+00    0.000000e+00
## 82     0.000000e+00   0.000000e+00    0.000000e+00
## 83     0.000000e+00   0.000000e+00    0.000000e+00
```

```
## 84    0.000000e+00   0.000000e+00   0.000000e+00
## 85    0.000000e+00   0.000000e+00   0.000000e+00
## 86    0.000000e+00   0.000000e+00   0.000000e+00
## 87    0.000000e+00   0.000000e+00   0.000000e+00
## 88    0.000000e+00   0.000000e+00   0.000000e+00
## 89    0.000000e+00   0.000000e+00   0.000000e+00
## 90    0.000000e+00   0.000000e+00   0.000000e+00
## 92    0.000000e+00   0.000000e+00   0.000000e+00
## 94    0.000000e+00   0.000000e+00   0.000000e+00
## 95    0.000000e+00   0.000000e+00   0.000000e+00
## 97    0.000000e+00   0.000000e+00   0.000000e+00
## 98    0.000000e+00   0.000000e+00   0.000000e+00
## 100   0.000000e+00   0.000000e+00   0.000000e+00
## 101   0.000000e+00   0.000000e+00   0.000000e+00
## 105   0.000000e+00   0.000000e+00   0.000000e+00
## 106   0.000000e+00   0.000000e+00   0.000000e+00
## 107   0.000000e+00   0.000000e+00   0.000000e+00
## 108   0.000000e+00   0.000000e+00   0.000000e+00
## 109   0.000000e+00   0.000000e+00   0.000000e+00
## 110   0.000000e+00   0.000000e+00   0.000000e+00
## 111   0.000000e+00   0.000000e+00   0.000000e+00
## 112   0.000000e+00   0.000000e+00   0.000000e+00
## 113   0.000000e+00   0.000000e+00   0.000000e+00
## 114   0.000000e+00   0.000000e+00   0.000000e+00
## 115   0.000000e+00   0.000000e+00   0.000000e+00
## 117   0.000000e+00   0.000000e+00   0.000000e+00
## 118   0.000000e+00   0.000000e+00   0.000000e+00
## 119   0.000000e+00   0.000000e+00   0.000000e+00
## 120   0.000000e+00   0.000000e+00   0.000000e+00
## 123   0.000000e+00   0.000000e+00   0.000000e+00
## 124   0.000000e+00   0.000000e+00   0.000000e+00
## 125   0.000000e+00   0.000000e+00   0.000000e+00
## 126   0.000000e+00   0.000000e+00   0.000000e+00
## 128   0.000000e+00   0.000000e+00   0.000000e+00
## 129   0.000000e+00   0.000000e+00   0.000000e+00
## 130   0.000000e+00   0.000000e+00   0.000000e+00
## 131   0.000000e+00   0.000000e+00   0.000000e+00
## 132   0.000000e+00   0.000000e+00   0.000000e+00
## 133   0.000000e+00   0.000000e+00   0.000000e+00
## 135   0.000000e+00   0.000000e+00   0.000000e+00
## 137   0.000000e+00   0.000000e+00   0.000000e+00
## 138   0.000000e+00   0.000000e+00   0.000000e+00
## 139   0.000000e+00   0.000000e+00   0.000000e+00
## 140   0.000000e+00   0.000000e+00   0.000000e+00
## 142   0.000000e+00   0.000000e+00   0.000000e+00
## 144   0.000000e+00   0.000000e+00   0.000000e+00
## 145   0.000000e+00   0.000000e+00   0.000000e+00
## 146   0.000000e+00   0.000000e+00   0.000000e+00
## 147   0.000000e+00   0.000000e+00   0.000000e+00
## 149   0.000000e+00   0.000000e+00   0.000000e+00
## 150   0.000000e+00   0.000000e+00   0.000000e+00
## 153   0.000000e+00   0.000000e+00   0.000000e+00
## 154   0.000000e+00   0.000000e+00   0.000000e+00
## 156   0.000000e+00   0.000000e+00   0.000000e+00
```

```
## 157   0.000000e+00   0.000000e+00   0.000000e+00
## 159   0.000000e+00   0.000000e+00   0.000000e+00
## 160   0.000000e+00   0.000000e+00   0.000000e+00
## 161   0.000000e+00   0.000000e+00   0.000000e+00
## 162   0.000000e+00   0.000000e+00   0.000000e+00
## 163   0.000000e+00   0.000000e+00   0.000000e+00
## 164   0.000000e+00   0.000000e+00   0.000000e+00
## 166   0.000000e+00   0.000000e+00   0.000000e+00
## 169   0.000000e+00   0.000000e+00   0.000000e+00
## 170   0.000000e+00   0.000000e+00   0.000000e+00
## 172   0.000000e+00   0.000000e+00   0.000000e+00
## 173   0.000000e+00   0.000000e+00   0.000000e+00
## 174   0.000000e+00   0.000000e+00   0.000000e+00
## 175   0.000000e+00   0.000000e+00   0.000000e+00
## 176   0.000000e+00   0.000000e+00   0.000000e+00
## 177   0.000000e+00   0.000000e+00   0.000000e+00
## 179   0.000000e+00   0.000000e+00   0.000000e+00
## 181   0.000000e+00   0.000000e+00   0.000000e+00
## 182   0.000000e+00   0.000000e+00   0.000000e+00
## 186   0.000000e+00   0.000000e+00   0.000000e+00
## 187   0.000000e+00   0.000000e+00   0.000000e+00
## 188   0.000000e+00   0.000000e+00   0.000000e+00
## 189   0.000000e+00   0.000000e+00   0.000000e+00
## 190   0.000000e+00   0.000000e+00   0.000000e+00
## 192   0.000000e+00   0.000000e+00   0.000000e+00
## 193   0.000000e+00   0.000000e+00   0.000000e+00
## 194   0.000000e+00   0.000000e+00   0.000000e+00
## 195   0.000000e+00   0.000000e+00   0.000000e+00
## 198   0.000000e+00   0.000000e+00   0.000000e+00
## 199   0.000000e+00   0.000000e+00   0.000000e+00
## 200   0.000000e+00   0.000000e+00   0.000000e+00
## 201   0.000000e+00   0.000000e+00   0.000000e+00
## 202   0.000000e+00   0.000000e+00   0.000000e+00
## 203   0.000000e+00   0.000000e+00   0.000000e+00
## 204   0.000000e+00   0.000000e+00   0.000000e+00
## 205   0.000000e+00   0.000000e+00   0.000000e+00
## 206   0.000000e+00   0.000000e+00   0.000000e+00
## 207   0.000000e+00   0.000000e+00   0.000000e+00
## 208   0.000000e+00   0.000000e+00   0.000000e+00
## 209   0.000000e+00   0.000000e+00   0.000000e+00
## 210   0.000000e+00   0.000000e+00   0.000000e+00
## 211   0.000000e+00   0.000000e+00   0.000000e+00
## 212   0.000000e+00   0.000000e+00   0.000000e+00
## 213   0.000000e+00   0.000000e+00   0.000000e+00
## 214   0.000000e+00   0.000000e+00   0.000000e+00
## 215   0.000000e+00   0.000000e+00   0.000000e+00
## 217   0.000000e+00   0.000000e+00   0.000000e+00
## 219   0.000000e+00   0.000000e+00   0.000000e+00
## 220   0.000000e+00   0.000000e+00   0.000000e+00
## 223   0.000000e+00   0.000000e+00   0.000000e+00
## 224   0.000000e+00   0.000000e+00   0.000000e+00
## 225   0.000000e+00   0.000000e+00   0.000000e+00
## 226   0.000000e+00   0.000000e+00   0.000000e+00
## 227   0.000000e+00   0.000000e+00   0.000000e+00
```

```
## 228  0.000000e+00  0.000000e+00   0.000000e+00
## 229  0.000000e+00  0.000000e+00   0.000000e+00
## 232  0.000000e+00  0.000000e+00   0.000000e+00
## 233  0.000000e+00  0.000000e+00   0.000000e+00
## 234  0.000000e+00  0.000000e+00   0.000000e+00
## 235  0.000000e+00  0.000000e+00   0.000000e+00
## 237  0.000000e+00  0.000000e+00   0.000000e+00
## 239  0.000000e+00  0.000000e+00   0.000000e+00
## 241  0.000000e+00  0.000000e+00   0.000000e+00
## 242  0.000000e+00  0.000000e+00   0.000000e+00
## 243  0.000000e+00  0.000000e+00   0.000000e+00
## 245  0.000000e+00  0.000000e+00   0.000000e+00
## 246  0.000000e+00  0.000000e+00   0.000000e+00
## 247  0.000000e+00  0.000000e+00   0.000000e+00
## 248  0.000000e+00  0.000000e+00   0.000000e+00
## 251  0.000000e+00  0.000000e+00   0.000000e+00
## 252  0.000000e+00  0.000000e+00   0.000000e+00
## 254  0.000000e+00  0.000000e+00   0.000000e+00
## 256  0.000000e+00  0.000000e+00   0.000000e+00
## 258  0.000000e+00  0.000000e+00   0.000000e+00
## 259  0.000000e+00  0.000000e+00   0.000000e+00
## 260  0.000000e+00  0.000000e+00   0.000000e+00
## 261  0.000000e+00  0.000000e+00   0.000000e+00
## 262  0.000000e+00  0.000000e+00   0.000000e+00
## 263  0.000000e+00  0.000000e+00   0.000000e+00
## 264  0.000000e+00  0.000000e+00   0.000000e+00
## 267  0.000000e+00  0.000000e+00   0.000000e+00
## 268  0.000000e+00  0.000000e+00   0.000000e+00
## 270  0.000000e+00  0.000000e+00   0.000000e+00
## 272  0.000000e+00  0.000000e+00   0.000000e+00
## 273  0.000000e+00  0.000000e+00   0.000000e+00
## 274  0.000000e+00  0.000000e+00   0.000000e+00
## 275  0.000000e+00  0.000000e+00   0.000000e+00
## 276  0.000000e+00  0.000000e+00   0.000000e+00
## 277  0.000000e+00  0.000000e+00   0.000000e+00
## 279  0.000000e+00  0.000000e+00   0.000000e+00
## 280  0.000000e+00  0.000000e+00   0.000000e+00
## 282  0.000000e+00  0.000000e+00   0.000000e+00
## 283  0.000000e+00  0.000000e+00   0.000000e+00
## 284  0.000000e+00  0.000000e+00   0.000000e+00
## 285  0.000000e+00  0.000000e+00   0.000000e+00
## 289  0.000000e+00  0.000000e+00   0.000000e+00
## 291  0.000000e+00  0.000000e+00   0.000000e+00
## 292  0.000000e+00  0.000000e+00   0.000000e+00
## 293  0.000000e+00  0.000000e+00   0.000000e+00
## 294  0.000000e+00  0.000000e+00   0.000000e+00
## 295  0.000000e+00  0.000000e+00   0.000000e+00
## 296  0.000000e+00  0.000000e+00   0.000000e+00
## 297  0.000000e+00  0.000000e+00   0.000000e+00
## 298  0.000000e+00  0.000000e+00   0.000000e+00
## 299  0.000000e+00  0.000000e+00   0.000000e+00
## 301  5.745631e-08  7.747477e-09  -5.287155e-09
## 302  0.000000e+00  0.000000e+00   0.000000e+00
## 305  0.000000e+00  0.000000e+00   0.000000e+00
```

```
## 306    0.000000e+00   0.000000e+00   0.000000e+00
## 307    0.000000e+00   0.000000e+00   0.000000e+00
## 309    0.000000e+00   0.000000e+00   0.000000e+00
## 311    0.000000e+00   0.000000e+00   0.000000e+00
## 313    0.000000e+00   0.000000e+00   0.000000e+00
## 314    0.000000e+00   0.000000e+00   0.000000e+00
## 315    0.000000e+00   0.000000e+00   0.000000e+00
## 316    0.000000e+00   0.000000e+00   0.000000e+00
## 317    0.000000e+00   0.000000e+00   0.000000e+00
## 320    0.000000e+00   0.000000e+00   0.000000e+00
## 322    0.000000e+00   0.000000e+00   0.000000e+00
## 323    0.000000e+00   0.000000e+00   0.000000e+00
## 324    0.000000e+00   0.000000e+00   0.000000e+00
## 325    0.000000e+00   0.000000e+00   0.000000e+00
## 326    0.000000e+00   0.000000e+00   0.000000e+00
## 327    0.000000e+00   0.000000e+00   0.000000e+00
## 328    3.543139e-07   4.777611e-08  -3.260412e-08
## 329    0.000000e+00   0.000000e+00   0.000000e+00
## 330    0.000000e+00   0.000000e+00   0.000000e+00
## 331    0.000000e+00   0.000000e+00   0.000000e+00
## 332    0.000000e+00   0.000000e+00   0.000000e+00
## 334    0.000000e+00   0.000000e+00   0.000000e+00
## 336    0.000000e+00   0.000000e+00   0.000000e+00
## 337    0.000000e+00   0.000000e+00   0.000000e+00
## 338    0.000000e+00   0.000000e+00   0.000000e+00
## 339    0.000000e+00   0.000000e+00   0.000000e+00
## 340    0.000000e+00   0.000000e+00   0.000000e+00
## 342    0.000000e+00   0.000000e+00   0.000000e+00
## 346    0.000000e+00   0.000000e+00   0.000000e+00
## 347    0.000000e+00   0.000000e+00   0.000000e+00
## 348    0.000000e+00   0.000000e+00   0.000000e+00
## 349    0.000000e+00   0.000000e+00   0.000000e+00
## 350    0.000000e+00   0.000000e+00   0.000000e+00
## 352    0.000000e+00   0.000000e+00   0.000000e+00
## 353    0.000000e+00   0.000000e+00   0.000000e+00
## 354    0.000000e+00   0.000000e+00   0.000000e+00
## 355   -7.560445e-03  -1.019459e-03   6.957155e-04
## 356    0.000000e+00   0.000000e+00   0.000000e+00
## 357    0.000000e+00   0.000000e+00   0.000000e+00
## 358   -4.737332e-05  -6.387874e-06   4.359313e-06
## 359    0.000000e+00   0.000000e+00   0.000000e+00
## 363    0.000000e+00   0.000000e+00   0.000000e+00
## 365    0.000000e+00   0.000000e+00   0.000000e+00
## 366    0.000000e+00   0.000000e+00   0.000000e+00
## 367    0.000000e+00   0.000000e+00   0.000000e+00
## 368    0.000000e+00   0.000000e+00   0.000000e+00
## 369    0.000000e+00   0.000000e+00   0.000000e+00
## 370    0.000000e+00   0.000000e+00   0.000000e+00
## 372    0.000000e+00   0.000000e+00   0.000000e+00
## 373    0.000000e+00   0.000000e+00   0.000000e+00
## 374    0.000000e+00   0.000000e+00   0.000000e+00
## 378    0.000000e+00   0.000000e+00   0.000000e+00
## 379    0.000000e+00   0.000000e+00   0.000000e+00
## 380    0.000000e+00   0.000000e+00   0.000000e+00
```

```
## 382    0.000000e+00   0.000000e+00   0.000000e+00
## 383    0.000000e+00   0.000000e+00   0.000000e+00
## 384    0.000000e+00   0.000000e+00   0.000000e+00
## 385    0.000000e+00   0.000000e+00   0.000000e+00
## 386    0.000000e+00   0.000000e+00   0.000000e+00
## 387    0.000000e+00   0.000000e+00   0.000000e+00
## 388    0.000000e+00   0.000000e+00   0.000000e+00
## 389    0.000000e+00   0.000000e+00   0.000000e+00
## 390    0.000000e+00   0.000000e+00   0.000000e+00
## 391    0.000000e+00   0.000000e+00   0.000000e+00
## 392    0.000000e+00   0.000000e+00   0.000000e+00
## 393    0.000000e+00   0.000000e+00   0.000000e+00
## 394    0.000000e+00   0.000000e+00   0.000000e+00
## 396    0.000000e+00   0.000000e+00   0.000000e+00
## 398    0.000000e+00   0.000000e+00   0.000000e+00
## 399    0.000000e+00   0.000000e+00   0.000000e+00
## 401    0.000000e+00   0.000000e+00   0.000000e+00
## 406    0.000000e+00   0.000000e+00   0.000000e+00
## 407    0.000000e+00   0.000000e+00   0.000000e+00
## 410    0.000000e+00   0.000000e+00   0.000000e+00
## 411    0.000000e+00   0.000000e+00   0.000000e+00
## 413    0.000000e+00   0.000000e+00   0.000000e+00
## 415    0.000000e+00   0.000000e+00   0.000000e+00
## 416    0.000000e+00   0.000000e+00   0.000000e+00
## 419    0.000000e+00   0.000000e+00   0.000000e+00
## 420    0.000000e+00   0.000000e+00   0.000000e+00
## 421    0.000000e+00   0.000000e+00   0.000000e+00
## 422    0.000000e+00   0.000000e+00   0.000000e+00
## 423    0.000000e+00   0.000000e+00   0.000000e+00
## 425   -7.531615e-01  -1.015572e-01   6.930625e-02
## 426    0.000000e+00   0.000000e+00   0.000000e+00
## 429    0.000000e+00   0.000000e+00   0.000000e+00
## 430    0.000000e+00   0.000000e+00   0.000000e+00
## 431    0.000000e+00   0.000000e+00   0.000000e+00
## 434    0.000000e+00   0.000000e+00   0.000000e+00
## 437    0.000000e+00   0.000000e+00   0.000000e+00
## 438    0.000000e+00   0.000000e+00   0.000000e+00
## 439    0.000000e+00   0.000000e+00   0.000000e+00
## 441    0.000000e+00   0.000000e+00   0.000000e+00
## 442    0.000000e+00   0.000000e+00   0.000000e+00
## 443    0.000000e+00   0.000000e+00   0.000000e+00
## 444    0.000000e+00   0.000000e+00   0.000000e+00
## 445    0.000000e+00   0.000000e+00   0.000000e+00
## 446    0.000000e+00   0.000000e+00   0.000000e+00
## 447    0.000000e+00   0.000000e+00   0.000000e+00
## 448    0.000000e+00   0.000000e+00   0.000000e+00
## 450    0.000000e+00   0.000000e+00   0.000000e+00
## 451    0.000000e+00   0.000000e+00   0.000000e+00
## 454    0.000000e+00   0.000000e+00   0.000000e+00
## 455    0.000000e+00   0.000000e+00   0.000000e+00
## 460    0.000000e+00   0.000000e+00   0.000000e+00
## 461    0.000000e+00   0.000000e+00   0.000000e+00
## 462    0.000000e+00   0.000000e+00   0.000000e+00
## 464    0.000000e+00   0.000000e+00   0.000000e+00
```

```
## 465    0.000000e+00   0.000000e+00   0.000000e+00
## 467    0.000000e+00   0.000000e+00   0.000000e+00
## 468    0.000000e+00   0.000000e+00   0.000000e+00
## 469    0.000000e+00   0.000000e+00   0.000000e+00
## 470    0.000000e+00   0.000000e+00   0.000000e+00
## 472    0.000000e+00   0.000000e+00   0.000000e+00
## 473    0.000000e+00   0.000000e+00   0.000000e+00
## 476    0.000000e+00   0.000000e+00   0.000000e+00
## 477    0.000000e+00   0.000000e+00   0.000000e+00
## 478    0.000000e+00   0.000000e+00   0.000000e+00
## 479    0.000000e+00   0.000000e+00   0.000000e+00
## 482    0.000000e+00   0.000000e+00   0.000000e+00
## 484    0.000000e+00   0.000000e+00   0.000000e+00
## 486    0.000000e+00   0.000000e+00   0.000000e+00
## 487    0.000000e+00   0.000000e+00   0.000000e+00
## 490    0.000000e+00   0.000000e+00   0.000000e+00
## 491    0.000000e+00   0.000000e+00   0.000000e+00
## 493    0.000000e+00   0.000000e+00   0.000000e+00
## 494    0.000000e+00   0.000000e+00   0.000000e+00
## 496    0.000000e+00   0.000000e+00   0.000000e+00
## 497    0.000000e+00   0.000000e+00   0.000000e+00
## 499    0.000000e+00   0.000000e+00   0.000000e+00
## 500    0.000000e+00   0.000000e+00   0.000000e+00
## 503    0.000000e+00   0.000000e+00   0.000000e+00
## 504    0.000000e+00   0.000000e+00   0.000000e+00
## 506    0.000000e+00   0.000000e+00   0.000000e+00
## 507    0.000000e+00   0.000000e+00   0.000000e+00
## 509    0.000000e+00   0.000000e+00   0.000000e+00
## 510    0.000000e+00   0.000000e+00   0.000000e+00
## 511    0.000000e+00   0.000000e+00   0.000000e+00
## 512    0.000000e+00   0.000000e+00   0.000000e+00
## 513    0.000000e+00   0.000000e+00   0.000000e+00
## 514    0.000000e+00   0.000000e+00   0.000000e+00
## 516    0.000000e+00   0.000000e+00   0.000000e+00
## 517    0.000000e+00   0.000000e+00   0.000000e+00
## 518    0.000000e+00   0.000000e+00   0.000000e+00
## 519    0.000000e+00   0.000000e+00   0.000000e+00
## 521    0.000000e+00   0.000000e+00   0.000000e+00
## 522    0.000000e+00   0.000000e+00   0.000000e+00
## 523    0.000000e+00   0.000000e+00   0.000000e+00
## 525    0.000000e+00   0.000000e+00   0.000000e+00
## 526    0.000000e+00   0.000000e+00   0.000000e+00
## 527    0.000000e+00   0.000000e+00   0.000000e+00
## 530    0.000000e+00   0.000000e+00   0.000000e+00
## 532    0.000000e+00   0.000000e+00   0.000000e+00
## 533    0.000000e+00   0.000000e+00   0.000000e+00
## 534    0.000000e+00   0.000000e+00   0.000000e+00
## 535    0.000000e+00   0.000000e+00   0.000000e+00
## 536    0.000000e+00   0.000000e+00   0.000000e+00
## 537    0.000000e+00   0.000000e+00   0.000000e+00
## 538    0.000000e+00   0.000000e+00   0.000000e+00
## 539    0.000000e+00   0.000000e+00   0.000000e+00
## 540    1.249510e+02   1.684854e+01  -1.149804e+01
## 541    0.000000e+00   0.000000e+00   0.000000e+00
```

```
## 542    0.000000e+00    0.000000e+00    0.000000e+00
## 543    0.000000e+00    0.000000e+00    0.000000e+00
## 544    0.000000e+00    0.000000e+00    0.000000e+00
## 546    0.000000e+00    0.000000e+00    0.000000e+00
## 547    0.000000e+00    0.000000e+00    0.000000e+00
## 549    0.000000e+00    0.000000e+00    0.000000e+00
## 550    0.000000e+00    0.000000e+00    0.000000e+00
## 551    0.000000e+00    0.000000e+00    0.000000e+00
## 552    0.000000e+00    0.000000e+00    0.000000e+00
## 554    0.000000e+00    0.000000e+00    0.000000e+00
## 555    0.000000e+00    0.000000e+00    0.000000e+00
## 557    0.000000e+00    0.000000e+00    0.000000e+00
## 558    0.000000e+00    0.000000e+00    0.000000e+00
## 559    0.000000e+00    0.000000e+00    0.000000e+00
## 560    2.366940e-05    3.191610e-06   -2.178068e-06
## 561    0.000000e+00    0.000000e+00    0.000000e+00
## 562   -3.653114e-05   -4.925902e-06    3.361611e-06
## 564    0.000000e+00    0.000000e+00    0.000000e+00
## 565    0.000000e+00    0.000000e+00    0.000000e+00
## 568    0.000000e+00    0.000000e+00    0.000000e+00
## 569    0.000000e+00    0.000000e+00    0.000000e+00
## 571    0.000000e+00    0.000000e+00    0.000000e+00
## 573   -1.002198e-06   -1.351376e-07    9.222270e-08
## 575    0.000000e+00    0.000000e+00    0.000000e+00
## 577    0.000000e+00    0.000000e+00    0.000000e+00
## 578    0.000000e+00    0.000000e+00    0.000000e+00
## 579    0.000000e+00    0.000000e+00    0.000000e+00
## 580    0.000000e+00    0.000000e+00    0.000000e+00
## 582    0.000000e+00    0.000000e+00    0.000000e+00
## 583    0.000000e+00    0.000000e+00    0.000000e+00
## 584    0.000000e+00    0.000000e+00    0.000000e+00
## 585    0.000000e+00    0.000000e+00    0.000000e+00
## 586    0.000000e+00    0.000000e+00    0.000000e+00
## 587    0.000000e+00    0.000000e+00    0.000000e+00
## 589    0.000000e+00    0.000000e+00    0.000000e+00
## 591    0.000000e+00    0.000000e+00    0.000000e+00
## 593    0.000000e+00    0.000000e+00    0.000000e+00
## 595    0.000000e+00    0.000000e+00    0.000000e+00
## 598    0.000000e+00    0.000000e+00    0.000000e+00
## 599    0.000000e+00    0.000000e+00    0.000000e+00
## 600    0.000000e+00    0.000000e+00    0.000000e+00
## 601    0.000000e+00    0.000000e+00    0.000000e+00
## 602    0.000000e+00    0.000000e+00    0.000000e+00
## 603    0.000000e+00    0.000000e+00    0.000000e+00
## 606    0.000000e+00    0.000000e+00    0.000000e+00
## 608    0.000000e+00    0.000000e+00    0.000000e+00
## 609   -7.531615e-01   -1.015572e-01    6.930625e-02
## 610    0.000000e+00    0.000000e+00    0.000000e+00
## 612    0.000000e+00    0.000000e+00    0.000000e+00
## 613    0.000000e+00    0.000000e+00    0.000000e+00
## 614    0.000000e+00    0.000000e+00    0.000000e+00
## 615    0.000000e+00    0.000000e+00    0.000000e+00
## 617    0.000000e+00    0.000000e+00    0.000000e+00
## 618    0.000000e+00    0.000000e+00    0.000000e+00
```

```
## 620   0.000000e+00  0.000000e+00  0.000000e+00
## 621   0.000000e+00  0.000000e+00  0.000000e+00
## 622   0.000000e+00  0.000000e+00  0.000000e+00
## 623   0.000000e+00  0.000000e+00  0.000000e+00
## 626   0.000000e+00  0.000000e+00  0.000000e+00
## 627   0.000000e+00  0.000000e+00  0.000000e+00
## 628   0.000000e+00  0.000000e+00  0.000000e+00
## 629   0.000000e+00  0.000000e+00  0.000000e+00
## 631   0.000000e+00  0.000000e+00  0.000000e+00
## 632   0.000000e+00  0.000000e+00  0.000000e+00
## 633   0.000000e+00  0.000000e+00  0.000000e+00
## 634   0.000000e+00  0.000000e+00  0.000000e+00
## 637   0.000000e+00  0.000000e+00  0.000000e+00
## 638   0.000000e+00  0.000000e+00  0.000000e+00
## 639   0.000000e+00  0.000000e+00  0.000000e+00
## 640   0.000000e+00  0.000000e+00  0.000000e+00
## 641   0.000000e+00  0.000000e+00  0.000000e+00
## 642   0.000000e+00  0.000000e+00  0.000000e+00
## 644   0.000000e+00  0.000000e+00  0.000000e+00
## 645   0.000000e+00  0.000000e+00  0.000000e+00
## 646   0.000000e+00  0.000000e+00  0.000000e+00
## 647   0.000000e+00  0.000000e+00  0.000000e+00
## 649   0.000000e+00  0.000000e+00  0.000000e+00
## 650   0.000000e+00  0.000000e+00  0.000000e+00
## 651   0.000000e+00  0.000000e+00  0.000000e+00
## 653   0.000000e+00  0.000000e+00  0.000000e+00
## 654   0.000000e+00  0.000000e+00  0.000000e+00
## 655   0.000000e+00  0.000000e+00  0.000000e+00
## 656   0.000000e+00  0.000000e+00  0.000000e+00
## 657   0.000000e+00  0.000000e+00  0.000000e+00
## 659   0.000000e+00  0.000000e+00  0.000000e+00
## 660   0.000000e+00  0.000000e+00  0.000000e+00
## 661   0.000000e+00  0.000000e+00  0.000000e+00
## 662   0.000000e+00  0.000000e+00  0.000000e+00
## 663   0.000000e+00  0.000000e+00  0.000000e+00
## 664   0.000000e+00  0.000000e+00  0.000000e+00
## 665   0.000000e+00  0.000000e+00  0.000000e+00
## 666   0.000000e+00  0.000000e+00  0.000000e+00
## 668   0.000000e+00  0.000000e+00  0.000000e+00
## 670   0.000000e+00  0.000000e+00  0.000000e+00
## 671   0.000000e+00  0.000000e+00  0.000000e+00
## 673   0.000000e+00  0.000000e+00  0.000000e+00
## 677   0.000000e+00  0.000000e+00  0.000000e+00
## 678   0.000000e+00  0.000000e+00  0.000000e+00
## 679   0.000000e+00  0.000000e+00  0.000000e+00
## 680   0.000000e+00  0.000000e+00  0.000000e+00
## 681  -7.531615e-01 -1.015572e-01  6.930625e-02
## 682   0.000000e+00  0.000000e+00  0.000000e+00
## 683   1.139748e+03  1.536849e+02 -1.048801e+02
## 684   0.000000e+00  0.000000e+00  0.000000e+00
## 687   0.000000e+00  0.000000e+00  0.000000e+00
## 689   0.000000e+00  0.000000e+00  0.000000e+00
## 690   0.000000e+00  0.000000e+00  0.000000e+00
## 691   0.000000e+00  0.000000e+00  0.000000e+00
```

```
## 692   0.000000e+00   0.000000e+00   0.000000e+00
## 696   0.000000e+00   0.000000e+00   0.000000e+00
## 697   0.000000e+00   0.000000e+00   0.000000e+00
## 698   0.000000e+00   0.000000e+00   0.000000e+00
## 699   0.000000e+00   0.000000e+00   0.000000e+00
## 700   0.000000e+00   0.000000e+00   0.000000e+00
## 701   0.000000e+00   0.000000e+00   0.000000e+00
## 703   0.000000e+00   0.000000e+00   0.000000e+00
## 704   0.000000e+00   0.000000e+00   0.000000e+00
## 705   0.000000e+00   0.000000e+00   0.000000e+00
## 706   0.000000e+00   0.000000e+00   0.000000e+00
## 707   0.000000e+00   0.000000e+00   0.000000e+00
## 708   0.000000e+00   0.000000e+00   0.000000e+00
## 709   0.000000e+00   0.000000e+00   0.000000e+00
## 710   0.000000e+00   0.000000e+00   0.000000e+00
## 711   0.000000e+00   0.000000e+00   0.000000e+00
## 713   0.000000e+00   0.000000e+00   0.000000e+00
## 715   0.000000e+00   0.000000e+00   0.000000e+00
## 717   0.000000e+00   0.000000e+00   0.000000e+00
## 718   0.000000e+00   0.000000e+00   0.000000e+00
## 719   0.000000e+00   0.000000e+00   0.000000e+00
## 720   0.000000e+00   0.000000e+00   0.000000e+00
## 721   0.000000e+00   0.000000e+00   0.000000e+00
## 723   0.000000e+00   0.000000e+00   0.000000e+00
## 725   0.000000e+00   0.000000e+00   0.000000e+00
## 726   0.000000e+00   0.000000e+00   0.000000e+00
## 728   0.000000e+00   0.000000e+00   0.000000e+00
## 729   0.000000e+00   0.000000e+00   0.000000e+00
## 730   0.000000e+00   0.000000e+00   0.000000e+00
## 731   0.000000e+00   0.000000e+00   0.000000e+00
## 734   0.000000e+00   0.000000e+00   0.000000e+00
## 735   0.000000e+00   0.000000e+00   0.000000e+00
## 737   0.000000e+00   0.000000e+00   0.000000e+00
## 739   0.000000e+00   0.000000e+00   0.000000e+00
## 740   0.000000e+00   0.000000e+00   0.000000e+00
## 741   0.000000e+00   0.000000e+00   0.000000e+00
## 742   0.000000e+00   0.000000e+00   0.000000e+00
## 744   0.000000e+00   0.000000e+00   0.000000e+00
## 745   0.000000e+00   0.000000e+00   0.000000e+00
## 746   0.000000e+00   0.000000e+00   0.000000e+00
## 747   0.000000e+00   0.000000e+00   0.000000e+00
## 748   0.000000e+00   0.000000e+00   0.000000e+00
## 750   0.000000e+00   0.000000e+00   0.000000e+00
## 751   0.000000e+00   0.000000e+00   0.000000e+00
## 753   0.000000e+00   0.000000e+00   0.000000e+00
## 754   0.000000e+00   0.000000e+00   0.000000e+00
## 756   0.000000e+00   0.000000e+00   0.000000e+00
## 757   0.000000e+00   0.000000e+00   0.000000e+00
## 758   0.000000e+00   0.000000e+00   0.000000e+00
## 759   0.000000e+00   0.000000e+00   0.000000e+00
## 760   0.000000e+00   0.000000e+00   0.000000e+00
## 761   0.000000e+00   0.000000e+00   0.000000e+00
## 762   0.000000e+00   0.000000e+00   0.000000e+00
## 763   0.000000e+00   0.000000e+00   0.000000e+00
```

```
## 764    0.000000e+00   0.000000e+00   0.000000e+00
## 765    0.000000e+00   0.000000e+00   0.000000e+00
## 766    0.000000e+00   0.000000e+00   0.000000e+00
## 767    0.000000e+00   0.000000e+00   0.000000e+00
## 768    0.000000e+00   0.000000e+00   0.000000e+00
## 769    0.000000e+00   0.000000e+00   0.000000e+00
## 770    0.000000e+00   0.000000e+00   0.000000e+00
## 771    0.000000e+00   0.000000e+00   0.000000e+00
## 772    0.000000e+00   0.000000e+00   0.000000e+00
## 774    0.000000e+00   0.000000e+00   0.000000e+00
## 775    0.000000e+00   0.000000e+00   0.000000e+00
## 776    8.950520e+01   1.206899e+01  -8.236307e+00
## 778    0.000000e+00   0.000000e+00   0.000000e+00
## 780    0.000000e+00   0.000000e+00   0.000000e+00
## 781   -4.180734e-06  -5.637351e-07   3.847130e-07
## 783    0.000000e+00   0.000000e+00   0.000000e+00
## 785    0.000000e+00   0.000000e+00   0.000000e+00
## 786    0.000000e+00   0.000000e+00   0.000000e+00
## 787    0.000000e+00   0.000000e+00   0.000000e+00
## 788    0.000000e+00   0.000000e+00   0.000000e+00
## 789    0.000000e+00   0.000000e+00   0.000000e+00
## 790    0.000000e+00   0.000000e+00   0.000000e+00
## 792    0.000000e+00   0.000000e+00   0.000000e+00
## 793    0.000000e+00   0.000000e+00   0.000000e+00
## 794    0.000000e+00   0.000000e+00   0.000000e+00
## 795    0.000000e+00   0.000000e+00   0.000000e+00
## 796    0.000000e+00   0.000000e+00   0.000000e+00
## 797    0.000000e+00   0.000000e+00   0.000000e+00
## 799    0.000000e+00   0.000000e+00   0.000000e+00
## 800    0.000000e+00   0.000000e+00   0.000000e+00
## 802    0.000000e+00   0.000000e+00   0.000000e+00
## 803    0.000000e+00   0.000000e+00   0.000000e+00
## 805    0.000000e+00   0.000000e+00   0.000000e+00
## 807    0.000000e+00   0.000000e+00   0.000000e+00
## 811    0.000000e+00   0.000000e+00   0.000000e+00
## 812    0.000000e+00   0.000000e+00   0.000000e+00
## 813    0.000000e+00   0.000000e+00   0.000000e+00
## 814    0.000000e+00   0.000000e+00   0.000000e+00
## 815    0.000000e+00   0.000000e+00   0.000000e+00
## 816    0.000000e+00   0.000000e+00   0.000000e+00
## 817    0.000000e+00   0.000000e+00   0.000000e+00
## 818    0.000000e+00   0.000000e+00   0.000000e+00
## 820    0.000000e+00   0.000000e+00   0.000000e+00
## 822    0.000000e+00   0.000000e+00   0.000000e+00
## 825    0.000000e+00   0.000000e+00   0.000000e+00
## 828    0.000000e+00   0.000000e+00   0.000000e+00
## 829    0.000000e+00   0.000000e+00   0.000000e+00
## 830    4.651168e+01   6.271690e+00  -4.280025e+00
## 831    0.000000e+00   0.000000e+00   0.000000e+00
## 833    0.000000e+00   0.000000e+00   0.000000e+00
## 834    0.000000e+00   0.000000e+00   0.000000e+00
## 835    0.000000e+00   0.000000e+00   0.000000e+00
## 836    0.000000e+00   0.000000e+00   0.000000e+00
## 837    0.000000e+00   0.000000e+00   0.000000e+00
```

```
## 838    0.000000e+00    0.000000e+00    0.000000e+00
## 839    0.000000e+00    0.000000e+00    0.000000e+00
## 844    0.000000e+00    0.000000e+00    0.000000e+00
## 845    0.000000e+00    0.000000e+00    0.000000e+00
## 846    0.000000e+00    0.000000e+00    0.000000e+00
## 847    0.000000e+00    0.000000e+00    0.000000e+00
## 849    0.000000e+00    0.000000e+00    0.000000e+00
## 851    0.000000e+00    0.000000e+00    0.000000e+00
## 853    0.000000e+00    0.000000e+00    0.000000e+00
## 854   -2.072016e+02   -2.793931e+01    1.906678e+01
## 857    0.000000e+00    0.000000e+00    0.000000e+00
## 858    0.000000e+00    0.000000e+00    0.000000e+00
## 859    0.000000e+00    0.000000e+00    0.000000e+00
## 860    0.000000e+00    0.000000e+00    0.000000e+00
## 864    0.000000e+00    0.000000e+00    0.000000e+00
## 868    0.000000e+00    0.000000e+00    0.000000e+00
## 869    0.000000e+00    0.000000e+00    0.000000e+00
## 870    0.000000e+00    0.000000e+00    0.000000e+00
## 871    0.000000e+00    0.000000e+00    0.000000e+00
## 872    0.000000e+00    0.000000e+00    0.000000e+00
## 873    0.000000e+00    0.000000e+00    0.000000e+00
## 876    0.000000e+00    0.000000e+00    0.000000e+00
## 878    0.000000e+00    0.000000e+00    0.000000e+00
## 879    0.000000e+00    0.000000e+00    0.000000e+00
## 880    0.000000e+00    0.000000e+00    0.000000e+00
## 882    0.000000e+00    0.000000e+00    0.000000e+00
## 883    0.000000e+00    0.000000e+00    0.000000e+00
## 884    0.000000e+00    0.000000e+00    0.000000e+00
## 886    0.000000e+00    0.000000e+00    0.000000e+00
## 887    0.000000e+00    0.000000e+00    0.000000e+00
## 889    0.000000e+00    0.000000e+00    0.000000e+00
## 890    0.000000e+00    0.000000e+00    0.000000e+00
## 891    0.000000e+00    0.000000e+00    0.000000e+00
## 892    0.000000e+00    0.000000e+00    0.000000e+00
## 894    0.000000e+00    0.000000e+00    0.000000e+00
## 895    0.000000e+00    0.000000e+00    0.000000e+00
## 896    0.000000e+00    0.000000e+00    0.000000e+00
## 898    0.000000e+00    0.000000e+00    0.000000e+00
## 899    0.000000e+00    0.000000e+00    0.000000e+00
## 900    0.000000e+00    0.000000e+00    0.000000e+00
## 901    0.000000e+00    0.000000e+00    0.000000e+00
## 902    0.000000e+00    0.000000e+00    0.000000e+00
## 903    0.000000e+00    0.000000e+00    0.000000e+00
## 905    0.000000e+00    0.000000e+00    0.000000e+00
## 907   -7.560445e-03   -1.019459e-03    6.957155e-04
## 912    0.000000e+00    0.000000e+00    0.000000e+00
## 913    0.000000e+00    0.000000e+00    0.000000e+00
## 914    0.000000e+00    0.000000e+00    0.000000e+00
## 915    0.000000e+00    0.000000e+00    0.000000e+00
## 916    0.000000e+00    0.000000e+00    0.000000e+00
## 918    0.000000e+00    0.000000e+00    0.000000e+00
## 923    0.000000e+00    0.000000e+00    0.000000e+00
## 927    0.000000e+00    0.000000e+00    0.000000e+00
## 928    0.000000e+00    0.000000e+00    0.000000e+00
```

```
## 929   0.000000e+00   0.000000e+00   0.000000e+00
## 930   0.000000e+00   0.000000e+00   0.000000e+00
## 932   0.000000e+00   0.000000e+00   0.000000e+00
## 933   0.000000e+00   0.000000e+00   0.000000e+00
## 936   0.000000e+00   0.000000e+00   0.000000e+00
## 938   0.000000e+00   0.000000e+00   0.000000e+00
## 939   0.000000e+00   0.000000e+00   0.000000e+00
## 940   0.000000e+00   0.000000e+00   0.000000e+00
## 942   0.000000e+00   0.000000e+00   0.000000e+00
## 943   0.000000e+00   0.000000e+00   0.000000e+00
## 947   0.000000e+00   0.000000e+00   0.000000e+00
## 948   0.000000e+00   0.000000e+00   0.000000e+00
## 951   0.000000e+00   0.000000e+00   0.000000e+00
## 952   0.000000e+00   0.000000e+00   0.000000e+00
## 953   0.000000e+00   0.000000e+00   0.000000e+00
## 955   0.000000e+00   0.000000e+00   0.000000e+00
## 956   0.000000e+00   0.000000e+00   0.000000e+00
## 957   0.000000e+00   0.000000e+00   0.000000e+00
## 960   0.000000e+00   0.000000e+00   0.000000e+00
## 961   0.000000e+00   0.000000e+00   0.000000e+00
## 965   0.000000e+00   0.000000e+00   0.000000e+00
## 966   0.000000e+00   0.000000e+00   0.000000e+00
## 967   0.000000e+00   0.000000e+00   0.000000e+00
## 970   0.000000e+00   0.000000e+00   0.000000e+00
## 972   0.000000e+00   0.000000e+00   0.000000e+00
## 973   0.000000e+00   0.000000e+00   0.000000e+00
## 975   0.000000e+00   0.000000e+00   0.000000e+00
## 976   0.000000e+00   0.000000e+00   0.000000e+00
## 977   0.000000e+00   0.000000e+00   0.000000e+00
## 978   0.000000e+00   0.000000e+00   0.000000e+00
## 979   0.000000e+00   0.000000e+00   0.000000e+00
## 980   0.000000e+00   0.000000e+00   0.000000e+00
## 981   0.000000e+00   0.000000e+00   0.000000e+00
## 982   0.000000e+00   0.000000e+00   0.000000e+00
## 983   1.201190e+01   1.619698e+00  -1.105340e+00
## 985   0.000000e+00   0.000000e+00   0.000000e+00
## 986   0.000000e+00   0.000000e+00   0.000000e+00
## 987   0.000000e+00   0.000000e+00   0.000000e+00
## 988   0.000000e+00   0.000000e+00   0.000000e+00
## 989   0.000000e+00   0.000000e+00   0.000000e+00
## 990   0.000000e+00   0.000000e+00   0.000000e+00
## 991   0.000000e+00   0.000000e+00   0.000000e+00
## 993   0.000000e+00   0.000000e+00   0.000000e+00
## 994   0.000000e+00   0.000000e+00   0.000000e+00
## 995   0.000000e+00   0.000000e+00   0.000000e+00
## 997   0.000000e+00   0.000000e+00   0.000000e+00
## 998   3.566012e+01   4.808452e+00  -3.281459e+00
## 999   0.000000e+00   0.000000e+00   0.000000e+00
## 1000  0.000000e+00   0.000000e+00   0.000000e+00
## 1006  0.000000e+00   0.000000e+00   0.000000e+00
## 1007  0.000000e+00   0.000000e+00   0.000000e+00
## 1008  0.000000e+00   0.000000e+00   0.000000e+00
## 1009  0.000000e+00   0.000000e+00   0.000000e+00
## 1010 -3.653114e-05  -4.925902e-06   3.361611e-06
```

```
## 1011   0.000000e+00   0.000000e+00   0.000000e+00
## 1012   0.000000e+00   0.000000e+00   0.000000e+00
## 1013   0.000000e+00   0.000000e+00   0.000000e+00
## 1014   0.000000e+00   0.000000e+00   0.000000e+00
## 1015   0.000000e+00   0.000000e+00   0.000000e+00
## 1016   0.000000e+00   0.000000e+00   0.000000e+00
## 1017   0.000000e+00   0.000000e+00   0.000000e+00
## 1018   0.000000e+00   0.000000e+00   0.000000e+00
## 1019   0.000000e+00   0.000000e+00   0.000000e+00
## 1020   0.000000e+00   0.000000e+00   0.000000e+00
## 1022   0.000000e+00   0.000000e+00   0.000000e+00
## 1023   0.000000e+00   0.000000e+00   0.000000e+00
## 1025   0.000000e+00   0.000000e+00   0.000000e+00
## 1026   0.000000e+00   0.000000e+00   0.000000e+00
## 1027   0.000000e+00   0.000000e+00   0.000000e+00
## 1028   0.000000e+00   0.000000e+00   0.000000e+00
## 1029   0.000000e+00   0.000000e+00   0.000000e+00
## 1030   0.000000e+00   0.000000e+00   0.000000e+00
## 1031   0.000000e+00   0.000000e+00   0.000000e+00
## 1032   0.000000e+00   0.000000e+00   0.000000e+00
## 1033   0.000000e+00   0.000000e+00   0.000000e+00
## 1035   0.000000e+00   0.000000e+00   0.000000e+00
## 1036   0.000000e+00   0.000000e+00   0.000000e+00
## 1037   0.000000e+00   0.000000e+00   0.000000e+00
## 1038   0.000000e+00   0.000000e+00   0.000000e+00
## 1040   0.000000e+00   0.000000e+00   0.000000e+00
## 1042   0.000000e+00   0.000000e+00   0.000000e+00
## 1043   0.000000e+00   0.000000e+00   0.000000e+00
## 1044   0.000000e+00   0.000000e+00   0.000000e+00
## 1048   0.000000e+00   0.000000e+00   0.000000e+00
## 1049   0.000000e+00   0.000000e+00   0.000000e+00
## 1053   0.000000e+00   0.000000e+00   0.000000e+00
## 1056   0.000000e+00   0.000000e+00   0.000000e+00
## 1058   0.000000e+00   0.000000e+00   0.000000e+00
## 1059   2.143220e+02   2.889943e+01  -1.972200e+01
## 1060   0.000000e+00   0.000000e+00   0.000000e+00
## 1062   0.000000e+00   0.000000e+00   0.000000e+00
## 1064   0.000000e+00   0.000000e+00   0.000000e+00
## 1065   0.000000e+00   0.000000e+00   0.000000e+00
## 1068   0.000000e+00   0.000000e+00   0.000000e+00
## 1069   3.572742e+00   4.817527e-01  -3.287652e-01
## 1071   0.000000e+00   0.000000e+00   0.000000e+00
## 1072   0.000000e+00   0.000000e+00   0.000000e+00
## 1075   0.000000e+00   0.000000e+00   0.000000e+00
## 1078   0.000000e+00   0.000000e+00   0.000000e+00
## 1079   0.000000e+00   0.000000e+00   0.000000e+00
## 1082   0.000000e+00   0.000000e+00   0.000000e+00
## 1083   0.000000e+00   0.000000e+00   0.000000e+00
## 1084   0.000000e+00   0.000000e+00   0.000000e+00
## 1086   0.000000e+00   0.000000e+00   0.000000e+00
## 1087   0.000000e+00   0.000000e+00   0.000000e+00
## 1088   0.000000e+00   0.000000e+00   0.000000e+00
## 1089   0.000000e+00   0.000000e+00   0.000000e+00
## 1090   0.000000e+00   0.000000e+00   0.000000e+00
```

```
## 1091 -7.560445e-03 -1.019459e-03  6.957155e-04
## 1093  0.000000e+00  0.000000e+00  0.000000e+00
## 1094  0.000000e+00  0.000000e+00  0.000000e+00
## 1095  0.000000e+00  0.000000e+00  0.000000e+00
## 1096  0.000000e+00  0.000000e+00  0.000000e+00
## 1098  0.000000e+00  0.000000e+00  0.000000e+00
## 1099  0.000000e+00  0.000000e+00  0.000000e+00
## 1101  0.000000e+00  0.000000e+00  0.000000e+00
## 1102  0.000000e+00  0.000000e+00  0.000000e+00
## 1103  0.000000e+00  0.000000e+00  0.000000e+00
## 1104  0.000000e+00  0.000000e+00  0.000000e+00
## 1105  0.000000e+00  0.000000e+00  0.000000e+00
## 1106 -3.653114e-05 -4.925902e-06  3.361611e-06
## 1107  0.000000e+00  0.000000e+00  0.000000e+00
## 1109  0.000000e+00  0.000000e+00  0.000000e+00
## 1110  0.000000e+00  0.000000e+00  0.000000e+00
## 1111  0.000000e+00  0.000000e+00  0.000000e+00
## 1112  0.000000e+00  0.000000e+00  0.000000e+00
## 1113  0.000000e+00  0.000000e+00  0.000000e+00
## 1114  0.000000e+00  0.000000e+00  0.000000e+00
## 1115  0.000000e+00  0.000000e+00  0.000000e+00
## 1116  0.000000e+00  0.000000e+00  0.000000e+00
## 1117  0.000000e+00  0.000000e+00  0.000000e+00
## 1118  0.000000e+00  0.000000e+00  0.000000e+00
## 1119  0.000000e+00  0.000000e+00  0.000000e+00
## 1120  0.000000e+00  0.000000e+00  0.000000e+00
## 1121  0.000000e+00  0.000000e+00  0.000000e+00
## 1122  0.000000e+00  0.000000e+00  0.000000e+00
## 1124  0.000000e+00  0.000000e+00  0.000000e+00
## 1125  0.000000e+00  0.000000e+00  0.000000e+00
## 1126  0.000000e+00  0.000000e+00  0.000000e+00
## 1128  0.000000e+00  0.000000e+00  0.000000e+00
##
##
## $startweights
## $startweights[[1]]
## $startweights[[1]][[1]]
##              [,1]         [,2]
##  [1,] -1.18620659  0.58299141
##  [2,]  0.10107915 -1.31651040
##  [3,]  0.53298929 -2.80977468
##  [4,]  0.58673534  0.46496799
##  [5,] -0.30174666  0.84053983
##  [6,]  0.07950200 -0.28584542
##  [7,]  0.96126415  0.50412625
##  [8,] -1.45646592 -1.15591653
##  [9,] -0.78173971 -0.12714861
## [10,]  0.32040231 -1.94151838
## [11,] -0.44478198  1.18118089
## [12,]  1.37000399  1.85991086
## [13,]  0.67325386  1.07401226
## [14,]  0.07216675 -0.02734697
## [15,] -1.50775732 -0.03333034
## [16,]  0.02610023 -1.51606762
```

```
## [17,] -0.31641587  0.79038534
## [18,] -0.10234651 -0.21073418
## [19,] -1.18155923 -0.65674293
## [20,]  0.49865804 -1.41202579
## [21,] -1.03895644 -0.29976250
## [22,] -0.22622198 -0.84906114
## [23,]  0.38142583 -0.39703052
## [24,] -0.78351579 -1.21759999
##
## $startweights[[1]][[2]]
##              [,1]       [,2]
## [1,]  1.68758948 -2.6016997
## [2,] -0.01600253 -0.4531978
## [3,]  1.07494508 -0.6754823
##
## $startweights[[1]][[3]]
##           [,1]
## [1,] -1.222926
## [2,]  1.546609
## [3,] -1.415282
##
##
##
## $result.matrix
##                              [,1]
## error                  1.798287e+01
## reached.threshold      8.946547e-03
## steps                  2.110347e+06
## Intercept.to.1layhid1 -1.298816e+00
## R1.to.1layhid1         1.250571e+00
## R2.to.1layhid1         2.149421e+00
## R3.to.1layhid1         2.507948e-01
## R4.to.1layhid1        -6.968242e-01
## R5.to.1layhid1        -8.398928e-02
## R6.to.1layhid1         5.102277e-01
## R7.to.1layhid1        -1.738938e-01
## R8.to.1layhid1         1.632639e-01
## R9.to.1layhid1         2.122458e-01
## R10.to.1layhid1        6.544113e-02
## R11.to.1layhid1        9.256613e-01
## R12.to.1layhid1       -5.318113e+00
## R13.to.1layhid1        5.243777e-02
## R14.to.1layhid1       -9.516946e-02
## R15.to.1layhid1       -2.653944e-02
## R16.to.1layhid1       -3.700776e-01
## R17.to.1layhid1       -2.224874e-02
## R18.to.1layhid1       -9.062432e-01
## R19.to.1layhid1        1.010728e+00
## R20.to.1layhid1        1.087862e+00
## R21.to.1layhid1        8.805036e+00
## R22.to.1layhid1        1.187281e+00
## R23.to.1layhid1       -8.102432e-01
## Intercept.to.1layhid2 -3.869714e+00
## R1.to.1layhid2        -3.704619e+00
```

```
## R2.to.1layhid2         -3.522900e+00
## R3.to.1layhid2         -2.375710e+00
## R4.to.1layhid2          5.274148e-01
## R5.to.1layhid2         -2.380438e+00
## R6.to.1layhid2         -3.240653e+00
## R7.to.1layhid2         -1.955917e+00
## R8.to.1layhid2         -5.058672e+00
## R9.to.1layhid2         -6.394223e+00
## R10.to.1layhid2        -5.618819e+00
## R11.to.1layhid2        -3.382451e+00
## R12.to.1layhid2        -5.394388e+00
## R13.to.1layhid2        -5.067085e+00
## R14.to.1layhid2        -4.486035e+00
## R15.to.1layhid2        -5.968773e+00
## R16.to.1layhid2        -3.662320e+00
## R17.to.1layhid2        -6.679134e+00
## R18.to.1layhid2        -3.497421e+00
## R19.to.1layhid2        -5.302703e+00
## R20.to.1layhid2        -1.834477e+00
## R21.to.1layhid2        -3.440831e+00
## R22.to.1layhid2        -3.723550e+00
## R23.to.1layhid2        -5.670305e+00
## Intercept.to.2layhid1   1.264930e+01
## 1layhid1.to.2layhid1    2.098557e+05
## 1layhid2.to.2layhid1   -9.886761e+00
## Intercept.to.2layhid2  -1.201258e+02
## 1layhid1.to.2layhid2    1.443742e+03
## 1layhid2.to.2layhid2    1.168486e+02
## Intercept.to.Y          3.447497e-01
## 2layhid1.to.Y           4.676722e-01
## 2layhid2.to.Y          -1.457535e-01
##
## attr(,"class")
## [1] "nn"
```

rnn$result.matrix

```
##                              [,1]
## error                 1.798287e+01
## reached.threshold     8.946547e-03
## steps                 2.110347e+06
## Intercept.to.1layhid1 -1.298816e+00
## R1.to.1layhid1         1.250571e+00
## R2.to.1layhid1         2.149421e+00
## R3.to.1layhid1         2.507948e-01
## R4.to.1layhid1        -6.968242e-01
## R5.to.1layhid1        -8.398928e-02
## R6.to.1layhid1         5.102277e-01
## R7.to.1layhid1        -1.738938e-01
## R8.to.1layhid1         1.632639e-01
## R9.to.1layhid1         2.122458e-01
## R10.to.1layhid1        6.544113e-02
## R11.to.1layhid1        9.256613e-01
## R12.to.1layhid1       -5.318113e+00
## R13.to.1layhid1        5.243777e-02
```

```
## R14.to.1layhid1     -9.516946e-02
## R15.to.1layhid1     -2.653944e-02
## R16.to.1layhid1     -3.700776e-01
## R17.to.1layhid1     -2.224874e-02
## R18.to.1layhid1     -9.062432e-01
## R19.to.1layhid1      1.010728e+00
## R20.to.1layhid1      1.087862e+00
## R21.to.1layhid1      8.805036e+00
## R22.to.1layhid1      1.187281e+00
## R23.to.1layhid1     -8.102432e-01
## Intercept.to.1layhid2 -3.869714e+00
## R1.to.1layhid2       -3.704619e+00
## R2.to.1layhid2       -3.522900e+00
## R3.to.1layhid2       -2.375710e+00
## R4.to.1layhid2        5.274148e-01
## R5.to.1layhid2       -2.380438e+00
## R6.to.1layhid2       -3.240653e+00
## R7.to.1layhid2       -1.955917e+00
## R8.to.1layhid2       -5.058672e+00
## R9.to.1layhid2       -6.394223e+00
## R10.to.1layhid2      -5.618819e+00
## R11.to.1layhid2      -3.382451e+00
## R12.to.1layhid2      -5.394388e+00
## R13.to.1layhid2      -5.067085e+00
## R14.to.1layhid2      -4.486035e+00
## R15.to.1layhid2      -5.968773e+00
## R16.to.1layhid2      -3.662320e+00
## R17.to.1layhid2      -6.679134e+00
## R18.to.1layhid2      -3.497421e+00
## R19.to.1layhid2      -5.302703e+00
## R20.to.1layhid2      -1.834477e+00
## R21.to.1layhid2      -3.440831e+00
## R22.to.1layhid2      -3.723550e+00
## R23.to.1layhid2      -5.670305e+00
## Intercept.to.2layhid1  1.264930e+01
## 1layhid1.to.2layhid1   2.098557e+05
## 1layhid2.to.2layhid1  -9.886761e+00
## Intercept.to.2layhid2 -1.201258e+02
## 1layhid1.to.2layhid2   1.443742e+03
## 1layhid2.to.2layhid2   1.168486e+02
## Intercept.to.Y         3.447497e-01
## 2layhid1.to.Y          4.676722e-01
## 2layhid2.to.Y         -1.457535e-01
```

```
plot(rnn)
```

```
##################### Test the resulting output #######################
```

```
bannerCommenter::banner("Test the resulting output ")
```

```
##
## #################################################################
## ##                  Test the resulting output                 ##
## #################################################################
```

```
library(neuralnet)

temp_test <- subset(test_data, select = c("R1","R2", "R3", "R4", "R5", "R6", "R7","R8","R9","R10","R11"
head(temp_test)
```

```
##            R1          R2        R3         R4         R5           R6
## 2 0.009922874 0.002740866 0.6966340 0.01384031 0.01611861 0.0020625454
## 3 0.009675563 0.002562488 0.6965870 0.01314115 0.01571130 0.0023347589
## 4 0.011952772 0.004153135 0.6966348 0.02263876 0.01971549 0.0042858369
## 5 0.010203380 0.003107175 0.6967060 0.01398293 0.01928274 0.0028993456
## 6 0.010526876 0.002947441 0.6968869 0.01878310 0.02210091 0.0044889908
## 7 0.009173191 0.002230865 0.7002130 0.01076003 0.02194285 0.0008739369
##            R7          R8        R9         R10       R11        R12
## 2 0.004114854 0.004217404 0.8564517 0.0003164757 0.1604397 0.01980198
## 3 0.004682879 0.004586107 0.8565504 0.0003401700 0.1605808 0.02033300
## 4 0.004894851 0.004321609 0.8564505 0.0003174350 0.1591436 0.01980198
## 5 0.003916310 0.003889928 0.8563635 0.0003040663 0.1588863 0.01980198
## 6 0.003215488 0.003459542 0.8562617 0.0002519548 0.1588144 0.01980198
## 7 0.001802870 0.002873293 0.8561205 0.0002205561 0.1588469 0.01980198
##          R13        R14       R15       R16         R17       R18       R19
## 2 0.04404814 0.04390280 0.4879981 0.2492181 0.003188848 0.9598758 0.2860425
## 3 0.04404814 0.04390280 0.4881006 0.2492210 0.003188848 0.9598447 0.2855435
## 4 0.05177088 0.04382159 0.4895139 0.2515250 0.006822382 0.9598483 0.2858164
## 5 0.05330371 0.04381333 0.4898147 0.2514955 0.005587087 0.9598353 0.2847866
## 6 0.05373204 0.04381125 0.4898988 0.2562107 0.004769623 0.9598632 0.2848994
## 7 0.05353831 0.04381218 0.4898608 0.2555629 0.003569912 0.9592117 0.2823283
##          R20        R21       R22        R23
## 2 0.08185175 0.08769259 0.6915577 0.08015368
## 3 0.08182314 0.08678182 0.6908908 0.08014614
## 4 0.08179250 0.08735087 0.6933970 0.08013930
## 5 0.08176251 0.08579502 0.6910854 0.08012623
## 6 0.08176451 0.08596547 0.6948210 0.08012546
## 7 0.08170306 0.08208077 0.6839498 0.08009027
```

```
rnn.results <- compute(rnn, temp_test)
rnn.results
```

```
## $neurons
## $neurons[[1]]
##                R1           R2        R3           R4           R5
## 2     1 0.009922874 2.740866e-03 0.6966340 0.0138403091 1.611861e-02
## 3     1 0.009675563 2.562488e-03 0.6965870 0.0131411509 1.571130e-02
## 4     1 0.011952772 4.153135e-03 0.6966348 0.0226387621 1.971549e-02
## 5     1 0.010203380 3.107175e-03 0.6967060 0.0139829327 1.928274e-02
## 6     1 0.010526876 2.947441e-03 0.6968869 0.0187831041 2.210091e-02
## 7     1 0.009173191 2.230865e-03 0.7002130 0.0107600272 2.194285e-02
## 8     1 0.007144723 7.941882e-04 0.6964669 0.0013914570 1.807981e-02
## 9     1 0.007198572 6.707263e-04 0.6963912 0.0015235205 1.624508e-02
## 10    1 0.007272912 6.574739e-04 0.6963792 0.0013391540 1.509329e-02
## 11    1 0.007337611 7.471295e-04 0.6964155 0.0012512377 1.938111e-02
## 12    1 0.007361334 7.418607e-04 0.6964149 0.0018847360 1.880177e-02
## 13    1 0.007366474 7.346460e-04 0.6964122 0.0013479806 1.901749e-02
## 14    1 0.007346249 7.422432e-04 0.6964126 0.0014870444 1.911958e-02
## 15    1 0.007413847 7.598531e-04 0.6964179 0.0012069216 1.930130e-02
## 16    1 0.007445853 7.634539e-04 0.6964185 0.0014902994 1.902566e-02
```

```
## 17    1 0.007811056 1.018103e-03 0.6966159 0.0014488876 1.744195e-02
## 18    1 0.007906761 1.095337e-03 0.6966464 0.0017111777 1.665316e-02
## 19    1 0.007888978 1.052920e-03 0.6966037 0.0015715695 1.588460e-02
## 20    1 0.008016370 1.183479e-03 0.6966325 0.0016441334 1.686378e-02
## 21    1 0.008094674 1.271088e-03 0.6966895 0.0019908333 1.672949e-02
## 22    1 0.008247309 1.441107e-03 0.6967925 0.0015199100 1.605085e-02
## 23    1 0.008648252 1.633510e-03 0.6967212 0.0019309713 1.602948e-02
## 24    1 0.008622142 1.589726e-03 0.6966605 0.0020028333 1.618280e-02
## 25    1 0.007273263 8.467486e-04 0.6964601 0.0015500431 1.833407e-02
## 26    1 0.007323575 8.583991e-04 0.6964642 0.0016259241 1.821524e-02
## 27    1 0.007323149 8.281230e-04 0.6964483 0.0016161314 1.755346e-02
## 28    1 0.007235565 8.519284e-04 0.6964586 0.0015779244 1.688969e-02
## 29    1 0.007295786 8.396180e-04 0.6964652 0.0018851427 1.824561e-02
## 30    1 0.007271394 8.610255e-04 0.6964885 0.0016849179 1.838105e-02
## 31    1 0.007225982 8.605882e-04 0.6964869 0.0013489972 1.710803e-02
## 32    1 0.007445456 9.167886e-04 0.6965491 0.0016605688 2.081737e-02
## 33    1 0.007570351 1.118143e-03 0.6964709 0.0019157360 1.984893e-02
## 34    1 0.007664425 1.150078e-03 0.6964748 0.0019525308 1.922354e-02
## 35    1 0.007847589 1.418580e-03 0.6964833 0.0023865612 1.917436e-02
## 36    1 0.007620117 1.183806e-03 0.6964694 0.0016505892 1.863717e-02
## 37    1 0.007597902 1.061414e-03 0.6964675 0.0021658821 1.930704e-02
## 38    1 0.007652619 1.150903e-03 0.6964662 0.0021300417 1.825890e-02
## 39    1 0.007763027 1.226793e-03 0.6964651 0.0029580848 1.839840e-02
## 40    1 0.007868073 1.171038e-03 0.6964589 0.0030919480 1.777554e-02
## 41    1 0.014352689 5.620434e-03 0.6968075 0.0136735250 1.912465e-02
## 42    1 0.012997134 4.707781e-03 0.6968199 0.0028821175 1.876656e-02
## 43    1 0.016760216 7.344018e-03 0.6968222 0.0041423807 1.893992e-02
## 44    1 0.016125601 6.960993e-03 0.6968132 0.0046248838 1.822658e-02
## 45    1 0.015320049 6.450667e-03 0.6967839 0.0024503969 1.792344e-02
## 46    1 0.013840865 5.417180e-03 0.6967573 0.0040780899 1.741993e-02
## 47    1 0.013817132 5.665667e-03 0.6966598 0.0111004540 1.473203e-02
## 48    1 0.014155638 5.553050e-03 0.6966056 0.0144828495 8.994010e-03
## 49    1 0.007477055 7.710468e-04 0.6964251 0.0012513172 1.665549e-02
## 50    1 0.007502690 7.664814e-04 0.6964178 0.0013484914 1.637673e-02
## 51    1 0.007516548 7.792787e-04 0.6964314 0.0011990056 1.644708e-02
## 52    1 0.007569455 8.138624e-04 0.6964678 0.0014903909 1.664767e-02
## 53    1 0.007600069 8.346971e-04 0.6964666 0.0013567808 1.412041e-02
## 54    1 0.007621006 8.427756e-04 0.6964882 0.0012992313 1.602684e-02
## 55    1 0.006996913 8.454094e-04 0.6965081 0.0014113777 1.769065e-02
## 56    1 0.007626852 8.416549e-04 0.6964997 0.0012388188 1.599385e-02
## 57    1 0.008213044 1.262009e-03 0.6965658 0.0017798972 1.328089e-02
## 58    1 0.008167577 1.203894e-03 0.6965580 0.0016513522 1.262385e-02
## 59    1 0.008003379 1.105186e-03 0.6965162 0.0016184802 9.936689e-03
## 60    1 0.007799735 9.570133e-04 0.6964632 0.0019713180 7.912424e-03
## 61    1 0.007750702 9.221206e-04 0.6964507 0.0026202470 7.328283e-03
## 62    1 0.008212028 1.242309e-03 0.6965229 0.0043165568 1.105372e-02
## 63    1 0.009990161 2.489202e-03 0.6966827 0.0057626531 1.342179e-02
## 64    1 0.000000000 2.236289e-03 0.6966949 0.0046058833 1.333003e-02
## 65    1 0.008510005 1.409615e-03 0.7012356 0.0038281018 8.408199e-03
## 66    1 0.009185740 1.855640e-03 0.7030166 0.0054983784 8.167345e-03
## 67    1 0.008835152 1.624237e-03 0.7038069 0.0071028789 8.458686e-03
## 68    1 0.008501936 1.404335e-03 0.6997240 0.0038952793 7.623883e-03
## 69    1 0.008776397 1.585473e-03 0.6997073 0.0052413308 7.265027e-03
## 70    1 0.008645344 1.498970e-03 0.7003881 0.0060855616 6.324074e-03
```

```
## 71   1 0.006933329 3.689378e-04 0.5329469 0.0060725924 4.301175e-03
## 72   1 0.011000305 3.058704e-03 0.6966714 0.0173634938 1.772710e-02
## 73   1 0.007509858 1.069634e-03 0.6966314 0.0011737300 1.852896e-02
## 74   1 0.007596010 1.133515e-03 0.6966843 0.0013195425 1.820976e-02
## 75   1 0.007651127 1.161658e-03 0.6966844 0.0012237965 1.715261e-02
## 76   1 0.007555282 1.032080e-03 0.6966764 0.0011761749 1.950873e-02
## 77   1 0.007941212 1.297806e-03 0.6967474 0.0011862719 2.121632e-02
## 78   1 0.008409490 1.350263e-03 0.6966295 0.0011594889 2.111817e-02
## 79   1 0.007836385 1.355680e-03 0.6966190 0.0013902129 2.092929e-02
## 80   1 0.007841547 1.195135e-03 0.6966169 0.0018166854 2.043390e-02
## 81   1 0.007255113 1.072925e-03 0.6983048 0.0014083213 2.285415e-02
## 82   1 0.007361248 1.027752e-03 0.6966502 0.0025339786 2.337519e-02
## 83   1 0.007109062 9.171660e-04 0.6975302 0.0018168756 2.328920e-02
## 84   1 0.007036230 9.031069e-04 0.6968954 0.0012763884 2.408745e-02
## 85   1 0.007043377 8.661211e-04 0.6971528 0.0012195855 2.408880e-02
## 86   1 0.007126956 1.011981e-03 0.6972210 0.0012819500 2.408164e-02
## 87   1 0.007105862 1.012355e-03 0.6971902 0.0012755349 2.408063e-02
## 88   1 0.007188192 1.254281e-03 0.6980199 0.0012755078 2.407441e-02
## 89   1 0.007162341 5.368099e-04 0.6952002 0.0011688192 4.309690e-03
## 90   1 0.007187612 5.624074e-04 0.6953890 0.0012660651 4.479289e-03
## 91   1 0.007234431 5.852000e-04 0.6951057 0.0016492155 4.927720e-03
## 92   1 0.007115567 4.974804e-04 0.6945169 0.0015087181 6.235026e-03
## 93   1 0.007299783 6.283683e-04 0.6962407 0.0014575337 1.329839e-02
## 94   1 0.007318535 6.758255e-04 0.6962728 0.0016375965 1.701578e-02
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## 322    1 0.007095105 4.757155e-04 0.6944545 0.0011641513 3.465280e-04
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## 3    0.0023347589 0.004682879 4.586107e-03 0.8565504 0.0003401700 0.1605808
## 4    0.0042858369 0.004894851 4.321609e-03 0.8564505 0.0003174350 0.1591436
## 5    0.0028993456 0.003916310 3.889928e-03 0.8563635 0.0003040663 0.1588863
## 6    0.0044889908 0.003215488 3.459542e-03 0.8562617 0.0002519548 0.1588144
## 7    0.0008739369 0.001802870 2.873293e-03 0.8561205 0.0002205561 0.1588469
## 8    0.0012433516 0.002550176 3.268916e-03 0.8576958 0.0005503224 0.1610180
## 9    0.0050972820 0.008687870 6.790612e-03 0.8534746 0.0015141305 0.1618748
## 10   0.0036038997 0.007116791 6.139707e-03 0.8542488 0.0023188696 0.1617876
## 11   0.0109748729 0.011275870 7.370457e-03 0.8385475 0.0075069053 0.1619586
## 12   0.0105307916 0.011991298 7.860670e-03 0.8408168 0.0012317328 0.1619016
## 13   0.0094137103 0.010470726 7.069209e-03 0.8461983 0.0034412014 0.1620107
## 14   0.0077635547 0.008698551 6.195481e-03 0.8456799 0.0017248718 0.1619494
## 15   0.0093031701 0.009878620 6.724779e-03 0.8157472 0.0126041732 0.1619927
## 16   0.0066981245 0.007780732 5.769379e-03 0.8000276 0.0015949002 0.1619749
## 17   0.0014953653 0.002972707 3.508542e-03 0.8564842 0.0008295156 0.1613018
## 18   0.0013549966 0.002929142 3.518195e-03 0.8564326 0.0005805637 0.1610133
## 19   0.0013410839 0.003040988 3.617695e-03 0.8565096 0.0007396306 0.1609446
## 20   0.0015890883 0.003220374 3.667738e-03 0.8564542 0.0007775293 0.1609283
## 21   0.0014075322 0.002990791 3.548738e-03 0.8563795 0.0005283920 0.1608676
## 22   0.0011363683 0.002693683 3.410561e-03 0.8563025 0.0009138330 0.1608763
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## 23      0.0009542051 0.003066865 3.625103e-03 0.8563502 0.0007348398 0.1610999
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## 1019 0.0017395035 0.004558198 4.984986e-03 0.8572572 0.0021126392 0.1608599
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## 2    0.01980198 0.044048139 0.04390280 0.4879981 0.2492181 3.188848e-03
## 3    0.02033300 0.044048139 0.04390280 0.4881006 0.2492210 3.188848e-03
## 4    0.01980198 0.051770876 0.04382159 0.4895139 0.2515250 6.822382e-03
## 5    0.01980198 0.053303714 0.04381333 0.4898147 0.2514955 5.587087e-03
## 6    0.01980198 0.053732041 0.04381125 0.4898988 0.2562107 4.769623e-03
## 7    0.01980198 0.053538310 0.04381218 0.4898608 0.2555629 3.569912e-03
## 8    0.01980198 0.040602199 0.04400337 0.4873218 0.2490690 7.541239e-04
## 9    0.01980198 0.035497282 0.04522694 0.4863198 0.2483184 5.106903e-04
## 10   0.01980198 0.036016799 0.04476755 0.4864218 0.2483508 5.314482e-04
## 11   0.01980198 0.034997908 0.04632424 0.4862218 0.2483132 4.936413e-04
## 12   0.01980198 0.035337830 0.04546124 0.4862885 0.2483538 5.071761e-04
## 13   0.01980198 0.034687407 0.04847742 0.4861609 0.2482533 4.816813e-04
## 14   0.01980198 0.035052637 0.04613181 0.4862325 0.2483161 4.957410e-04
## 15   0.01980198 0.034794990 0.04741811 0.4861820 0.2482758 4.866303e-04
## 16   0.01980198 0.034900702 0.04675419 0.4862027 0.2482887 4.913305e-04
## 17   0.01980198 0.038911775 0.04410779 0.4869900 0.2487721 7.964823e-04
## 18   0.01980198 0.040630661 0.04400209 0.4873274 0.2489052 9.961775e-04
## 19   0.01980198 0.041039969 0.04398488 0.4874077 0.2488808 1.023661e-03
## 20   0.01980198 0.041136822 0.04398111 0.4874267 0.2489847 1.098851e-03
## 21   0.01980198 0.041498710 0.04396792 0.4874977 0.2490116 1.208833e-03
## 22   0.01980198 0.041447016 0.04396972 0.4874876 0.2489375 1.377549e-03
## 23   0.01980198 0.040114740 0.04402724 0.4872261 0.2485223 1.340370e-03
## 24   0.01980198 0.039714173 0.04405008 0.4871475 0.2484792 1.244787e-03
## 25   0.01980198 0.043553588 0.04391262 0.4879010 0.2495371 9.328086e-04
## 26   0.01980198 0.038712765 0.04412536 0.4869509 0.2488194 6.959250e-04
## 27   0.01980198 0.039274281 0.04407940 0.4870611 0.2488285 7.185671e-04
## 28   0.01980198 0.040417185 0.04401198 0.4872855 0.2489036 8.047632e-04
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## 29   0.01980198 0.039644805 0.04405438 0.4871339 0.2489563 7.334282e-04
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## 32   0.01980198 0.039163425 0.04408763 0.4870394 0.2489392 7.135834e-04
## 33   0.01980198 0.037343350 0.04430882 0.4866821 0.2487882 6.869796e-04
## 34   0.01980198 0.036430701 0.04456277 0.4865030 0.2485556 6.325932e-04
## 35   0.01980198 0.037915798 0.04421517 0.4867945 0.2488047 8.443695e-04
## 36   0.01980198 0.037043165 0.04437362 0.4866232 0.2486109 6.963088e-04
## 37   0.01980198 0.037681746 0.04424962 0.4867486 0.2487806 6.995787e-04
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## 39   0.01980198 0.037799693 0.04423168 0.4867717 0.2487049 7.788454e-04
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## 41   0.01980198 0.035058560 0.04611267 0.4862337 0.2483172 8.562245e-04
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## 46   0.01980198 0.034645962 0.04906748 0.4861527 0.2482334 6.511811e-04
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## 51   0.01980198 0.041615588 0.04396394 0.4875207 0.2489944 8.207720e-04
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## 53   0.01980198 0.043618509 0.04391127 0.4879138 0.2489773 1.060822e-03
## 54   0.01980198 0.041397309 0.04397148 0.4874778 0.2489301 8.722908e-04
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## 59   0.01980198 0.042791815 0.04393000 0.4877515 0.2486968 1.672188e-03
## 60   0.01980198 0.041393882 0.04397160 0.4874772 0.2485608 1.480132e-03
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## 63   0.01980198 0.042488322 0.04393782 0.4876920 0.2488369 2.922068e-03
## 64   0.01980198 0.040749531 0.04399686 0.4873507 0.2486953 2.182424e-03
## 65   0.01980198 0.056195189 0.04380089 0.4903822 0.2493689 5.639286e-03
## 66   0.01980198 0.057259471 0.04379711 0.4905911 0.2494076 8.420481e-03
## 67   0.01980198 0.056747293 0.04379888 0.4904906 0.2494025 6.814595e-03
## 68   0.01980198 0.056421601 0.04380006 0.4904267 0.2493247 6.201250e-03
## 69   0.01980198 0.057009832 0.04379796 0.4905421 0.2493301 7.714610e-03
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## 83    0.01980198 0.038964524 0.04410338 0.4870003 0.2527569 6.786119e-04
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## 87    0.01980198 0.040899171 0.04399056 0.4873801 0.3371878 8.057667e-04
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## 105   0.01980198 0.056143909 0.04380109 0.4903722 0.2771410 5.428458e-03
## 106   0.01980198 0.055286818 0.04380443 0.4902040 0.2745262 4.313573e-03
## 107   0.01980198 0.057407209 0.04379661 0.4906201 0.2742981 8.574171e-03
## 108   0.01980198 0.057207509 0.04379728 0.4905809 0.2737599 7.866927e-03
## 109   0.01926779 0.056857366 0.04379849 0.4902735 0.2720105 6.864540e-03
## 110   0.01957060 0.055909117 0.04380198 0.4902270 0.2704755 5.073256e-03
## 111   0.01880735 0.057073000 0.04379774 0.4901057 0.2693171 7.450562e-03
## 112   0.02086743 0.053621981 0.04381178 0.4902850 0.2680427 3.042670e-03
## 113   0.01857726 0.034640110 0.04916278 0.4861436 0.2482249 4.840844e-04
## 114   0.01980198 0.043182909 0.04392070 0.4878283 0.2492149 9.041466e-04
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## 118   0.01980198 0.040511443 0.04400753 0.4873040 0.2491666 8.935813e-04
## 119   0.01980198 0.039669556 0.04405283 0.4871387 0.2490805 8.109832e-04
## 120   0.01980198 0.039830632 0.04404309 0.4871703 0.2489806 8.231110e-04
## 121   0.01980198 0.053474349 0.04381249 0.4898482 0.2537958 1.223403e-03
## 122   0.01980198 0.045567810 0.04387801 0.4882964 0.2520082 9.988748e-04
## 123   0.01980198 0.044298760 0.04389819 0.4880473 0.2511251 9.456862e-04
## 124   0.01980198 0.052318707 0.04381848 0.4896214 0.2514308 1.389743e-03
## 125   0.01980198 0.039792956 0.04404532 0.4871629 0.2491055 6.425202e-04
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## 127   0.01980198 0.043534168 0.04391303 0.4878972 0.2500231 1.066604e-03
## 128   0.01980198 0.043705009 0.04390950 0.4879308 0.2497198 9.495097e-04
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## 134   0.01980198 0.034670363 0.04870357 0.4861575 0.2482921 4.806715e-04
## 135   0.01980198 0.034667188 0.04874809 0.4861569 0.2483622 4.806015e-04
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## 140   0.01980198 0.030789703 0.04321171 0.4853958 0.2480031 3.685616e-04
## 141   0.01980198 0.038478784 0.04414817 0.4869050 0.2483921 6.272851e-04
## 142   0.01980198 0.036715814 0.04446273 0.4865590 0.2483632 5.526870e-04
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## 144   0.02055741 0.035172649 0.04579548 0.4862690 0.2482398 4.951533e-04
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## 147   0.01980198 0.053093167 0.04381438 0.4897734 0.2497599 2.772487e-03
## 148   0.01980198 0.052348675 0.04381831 0.4896273 0.2494835 2.457757e-03
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## 158   0.01980198 0.037697463 0.04424716 0.4867516 0.2484687 1.130808e-03
## 159   0.01980198 0.037625672 0.04425859 0.4867376 0.2484659 1.105617e-03
## 160   0.01980198 0.035272162 0.04558035 0.4862756 0.2482437 4.878477e-04
## 161   0.01980198 0.041383321 0.04397198 0.4874751 0.2485582 9.812973e-04
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## 171   0.01980198 0.042682558 0.04393275 0.4877301 0.2491741 1.179745e-03
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## 187   0.01980198 0.046053180 0.04387145 0.4883916 0.2488225 2.247531e-03
## 188   0.01980198 0.045385354 0.04388063 0.4882606 0.2488793 5.278325e-03
## 189   0.01980198 0.048601165 0.04384430 0.4888917 0.2489281 4.585564e-03
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## 193  0.01980198 0.046494466 0.04386593 0.4884783 0.2487676 7.237323e-03
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## 195  0.01895145 0.050253697 0.04383134 0.4889473 0.2488577 1.985132e-02
## 196  0.01980198 0.049890932 0.04383395 0.4891449 0.2488925 1.955523e-02
## 197  0.01980198 0.050962572 0.04382656 0.4893552 0.2489202 2.827479e-02
## 198  0.01980198 0.050249677 0.04383136 0.4892153 0.2489338 1.980343e-02
## 199  0.01980198 0.051389902 0.04382388 0.4894391 0.2489613 1.918866e-02
## 200  0.01980198 0.052907732 0.04381533 0.4897370 0.2489754 1.966205e-02
## 201  0.01980198 0.041746241 0.04395964 0.4875463 0.2487138 1.141142e-03
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## 295    0.01980198 0.040814089 0.04399411 0.4873634 0.2499630 7.475142e-04
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## 298    0.02015358 0.039824594 0.04404345 0.4872076 0.2486900 1.857258e-03
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## 351  0.01980198 0.034750414 0.04779398 0.4861732 0.2488639 4.839695e-04
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## 513   0.01980198 0.035489220 0.04523726 0.4863182 0.2483270 7.728582e-04
## 514   0.01980198 0.035910285 0.04483740 0.4864009 0.2483628 8.638173e-04
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## 519  0.01980198 0.037026140 0.04437773 0.4866199 0.2484876 7.277315e-04
## 520  0.01980198 0.036662718 0.04447952 0.4865486 0.2484505 7.192482e-04
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## 522  0.01980198 0.039334042 0.04407512 0.4870729 0.2485961 8.949976e-04
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## 525  0.01000000 0.042632245 0.04393404 0.4861035 0.2486987 1.582165e-03
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## 728  0.01980198 0.050400502 0.04383031 0.4892449 0.2510652 1.871972e-03
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## 915  0.01980198 0.034316415 0.42670981 0.4860880 0.2481925 4.678748e-04
## 916  0.01980198 0.043957059 0.04390453 0.4879802 0.2508325 9.655377e-04
## 917  0.01556614 0.043077423 0.04392313 0.4870715 0.2492738 8.962233e-04
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## 926  0.01980198 0.051341735 0.04382417 0.4894296 0.2492039 3.272873e-03
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## 1114 0.01980198 0.038645757 0.04413164 0.4869378 0.2484361 8.374030e-04
## 1115 0.01980198 0.040357162 0.04401489 0.4872737 0.2486132 1.278141e-03
## 1116 0.01980198 0.040746088 0.04399701 0.4873500 0.2486552 1.286343e-03
## 1117 0.01980198 0.042814011 0.04392945 0.4877559 0.2486792 1.672225e-03
## 1118 0.01980198 0.043184235 0.04392067 0.4878285 0.2487055 1.599430e-03
## 1119 0.01980198 0.044769765 0.04389013 0.4881397 0.2488014 1.981358e-03
## 1120 0.01980198 0.041197540 0.04397880 0.4874386 0.2485765 1.228260e-03
## 1121 0.01980198 0.050690319 0.04382835 0.4893018 0.2489475 3.738903e-03
## 1122 0.01980198 0.048605532 0.04384426 0.4888926 0.2489225 2.441029e-03
## 1123 0.01980198 0.047269519 0.04385716 0.4886304 0.2484849 2.503899e-03
## 1124 0.01980198 0.043028529 0.04392427 0.4877980 0.2486482 2.513803e-03
## 1125 0.01980198 0.045606396 0.04387747 0.4883040 0.2487250 3.071277e-03
## 1126 0.01980198 0.039381501 0.04407179 0.4870822 0.2484490 1.263047e-03
## 1127 0.02237598 0.042146444 0.04923633 0.4881239 0.2506243 4.916676e-03
## 1128 0.02237598 0.042146444 0.04923633 0.4881239 0.2506243 4.916676e-03
##           R18        R19        R20        R21        R22        R23
## 2   0.9598758 0.2860425 0.08185175 0.08769259 0.6915577 0.08015368
## 3   0.9598447 0.2855435 0.08182314 0.08678182 0.6908908 0.08014614
## 4   0.9598483 0.2858164 0.08179250 0.08735087 0.6933970 0.08013930
## 5   0.9598353 0.2847866 0.08176251 0.08579502 0.6910854 0.08012623
## 6   0.9598632 0.2848994 0.08176451 0.08596547 0.6948210 0.08012546
## 7   0.9592117 0.2823283 0.08170306 0.08208077 0.6839498 0.08009027
## 8   0.9594178 0.2796337 0.08144703 0.07800951 0.6830077 0.07923969
## 9   0.9597870 0.2835860 0.08176299 0.08398110 0.6888169 0.08010315
## 10  0.9597896 0.2837354 0.08179382 0.08420676 0.6889531 0.08009695
## 11  0.9597885 0.2837826 0.08191834 0.08427800 0.6892468 0.08004124
## 12  0.9597891 0.2838779 0.08189933 0.08442210 0.6893502 0.08003538
## 13  0.9597911 0.2840217 0.08236706 0.08463938 0.6896276 0.08003166
## 14  0.9597916 0.2839575 0.08201363 0.08454235 0.6895315 0.08002017
## 15  0.9597904 0.2839190 0.08212733 0.08448419 0.6894905 0.07984313
## 16  0.9597929 0.2839891 0.08211120 0.08459001 0.6895719 0.07953222
## 17  0.9598231 0.2840731 0.08178840 0.08471694 0.6894842 0.08012813
## 18  0.9598435 0.2843569 0.08179363 0.08514580 0.6897438 0.08013530
## 19  0.9598347 0.2842893 0.08178520 0.08504360 0.6895757 0.08013656
## 20  0.9598283 0.2842712 0.08178321 0.08501623 0.6896677 0.08012919
## 21  0.9598418 0.2843717 0.08178706 0.08516820 0.6897722 0.08013011
## 22  0.9598438 0.2842078 0.08177685 0.08492051 0.6895030 0.08012435
## 23  0.9598519 0.2845853 0.08181736 0.08549093 0.6893771 0.08013142
## 24  0.9598730 0.2852765 0.08188284 0.08653525 0.6897239 0.08014728
## 25  0.9598089 0.2842718 0.08176968 0.08501723 0.6899070 0.08017050
## 26  0.9598257 0.2848444 0.08187196 0.08588237 0.6907483 0.08020654
## 27  0.9598036 0.2841376 0.08179024 0.08481437 0.6895847 0.08017588
## 28  0.9598203 0.2846596 0.08181871 0.08560311 0.6901507 0.08020538
## 29  0.9598157 0.2843142 0.08180145 0.08508125 0.6899537 0.08017993
## 30  0.9598044 0.2839209 0.08197579 0.08448706 0.6893714 0.08013700
## 31  0.9598245 0.2843281 0.08179604 0.08510234 0.6897730 0.08017091
## 32  0.9598227 0.2842197 0.08179941 0.08493853 0.6898914 0.08013863
## 33  0.9598059 0.2851269 0.08197853 0.08630922 0.6921052 0.08015051
## 34  0.9598189 0.2860247 0.08228075 0.08766574 0.6933099 0.08017361
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## 35    0.9598207 0.2864273 0.08210596 0.08827396 0.6939898 0.08016793
## 36    0.9598203 0.2864549 0.08223031 0.08831569 0.6935219 0.08018404
## 37    0.9598005 0.2846237 0.08188472 0.08554893 0.6907958 0.08014109
## 38    0.9598237 0.2867591 0.08213656 0.08877521 0.6936769 0.08019743
## 39    0.9598473 0.2894693 0.08252135 0.09287011 0.6980211 0.08025737
## 40    0.9598313 0.2881421 0.08225121 0.09086487 0.6952466 0.08023591
## 41    0.9600306 0.2885491 0.08485177 0.09147972 0.6977224 0.08017719
## 42    0.9600106 0.2878313 0.08451460 0.09039526 0.6959291 0.08016947
## 43    0.9600265 0.2883346 0.08511397 0.09115576 0.6930331 0.08017348
## 44    0.9600355 0.2884190 0.08569442 0.09128318 0.6961620 0.08017754
## 45    0.9600302 0.2885879 0.08689514 0.09153837 0.6960432 0.08018161
## 46    0.9600320 0.2887959 0.08904534 0.09185274 0.6957731 0.08018809
## 47    0.9599556 0.2878610 0.08490044 0.09044014 0.6928720 0.08018562
## 48    0.9599034 0.2858796 0.08210066 0.08744648 0.6901298 0.08017734
## 49    0.9597802 0.2834416 0.08172763 0.08376285 0.6886492 0.07998732
## 50    0.9597434 0.2829796 0.08169967 0.08306476 0.6881190 0.08245664
## 51    0.9597185 0.2823278 0.08165688 0.08208000 0.6873548 0.07946199
## 52    0.9597897 0.2835652 0.08173517 0.08394960 0.6887969 0.08011588
## 53    0.9597994 0.2837626 0.08174413 0.08424793 0.6889553 0.08013895
## 54    0.9598205 0.2840725 0.08176835 0.08471605 0.6893513 0.08016316
## 55    0.9598015 0.2837297 0.08175334 0.08419820 0.6890370 0.08012664
## 56    0.9596158 0.2811451 0.08152506 0.07984511 0.6861308 0.07987051
## 57    0.9598529 0.2850148 0.08182929 0.08613983 0.6899704 0.08015802
## 58    0.9598710 0.2853207 0.08183394 0.08660196 0.6901374 0.08017542
## 59    0.9598780 0.2854485 0.08183722 0.08679505 0.6899510 0.08021316
## 60    0.9599026 0.2865563 0.08193039 0.08846880 0.6904099 0.08040598
## 61    0.9598869 0.2864750 0.08193442 0.08834608 0.6903081 0.08046979
## 62    0.9598622 0.2854946 0.08187004 0.08686476 0.6900872 0.08018925
## 63    0.9688368 0.4527220 0.09129233 0.33952909 0.8301534 0.08393166
## 64    0.9598752 0.2850384 0.08184139 0.08617550 0.6899957 0.08014314
## 65    0.9598268 0.2835245 0.08173175 0.08388818 0.6887360 0.08010803
## 66    0.9598047 0.2835125 0.08173149 0.08386992 0.6887291 0.08010740
## 67    0.9597876 0.2835054 0.08173134 0.08385924 0.6887251 0.08010711
## 68    0.9598513 0.2835464 0.08173220 0.08392123 0.6887473 0.08010929
## 69    0.9598200 0.2835275 0.08173180 0.08389270 0.6887368 0.08010824
## 70    0.9598386 0.2835292 0.08173183 0.08389521 0.6887370 0.08010856
## 71    0.9598575 0.2835384 0.08173200 0.08390918 0.6887400 0.08010704
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## 80    0.9598045 0.2839516 0.08190020 0.08446931 0.6898061 0.08011758
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## 87    0.9599204 0.2842176 0.08178132 0.08493536 0.7906702 0.08012648
## 88    0.9598842 0.2838689 0.08174615 0.08440842 0.7304718 0.08011391
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## 89   0.9588300 0.2815172 0.08169591 0.08085521 0.6878264 0.08019416
## 90   0.9586471 0.2812411 0.08168974 0.08043816 0.6876928 0.08022981
## 91   0.9577335 0.2806902 0.08167196 0.07960579 0.6874117 0.08028058
## 92   0.9586819 0.2803079 0.08154883 0.07902819 0.6871246 0.08017154
## 93   0.9596945 0.2819126 0.08154640 0.08144648 0.6874091 0.08016381
## 94   0.9596723 0.2817738 0.07564887 0.08124292 0.6865494 0.08019299
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## 97   0.9598461 0.2846152 0.08226420 0.08553598 0.6901301 0.08013016
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## 209   0.9598615 0.2846025 0.08177258 0.08551688 0.6951585 0.08008249
## 210   0.9599557 0.2865989 0.11084294 0.08853318 0.7010814 0.08003571
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## 212   0.9599111 0.2854137 0.08182277 0.08674252 0.6942582 0.08006774
## 213   0.9599830 0.2852038 0.08188783 0.08834467 0.6926064 0.08002587
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## 215   0.9601006 0.2902309 0.11744012 0.09402078 0.6925211 0.08064795
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## 218   0.9597320 0.2831269 0.08171656 0.08328738 0.6885741 0.08013646
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## 254   0.9597877 0.2835327 0.08173597 0.08390054 0.6887406 0.08010812
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## 434   0.9594214 0.2816406 0.08152819 0.08104170 0.6856002 0.08018042
## 435   0.9596211 0.2807888 0.08143350 0.07975472 0.6843827 0.08024140
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## 873  0.9596482 0.2735118 0.08084764 0.06875994 0.6604188 0.08042594
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## 875  0.9593102 0.2622782 0.08022623 0.05178702 0.6308173 0.07976619
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## 899   0.9599004 0.2862566 0.09927603 0.08801607 0.6961070 0.08006526
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## 981   0.9598493 1.0000000 0.12545137 0.38964053 0.7934523 0.00000000
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## 1088 0.9597050 0.2804100 0.08157912 0.07918240 0.6833939 0.07991088
## 1089 0.9599786 0.2877822 0.08274298 0.09032104 0.6907573 0.07996549
## 1090 0.9595252 0.2762954 0.07971451 0.07296566 0.6850673 0.08045189
## 1091 0.9595434 0.2773532 0.08386477 0.09315276 0.6850264 0.08003080
## 1092 0.9595332 0.2766016 0.08385046 0.09428844 0.6845588 0.08003486
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## 1095 0.9601133 0.2883192 0.08201380 0.09113248 0.6928198 0.08029667
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## 1097 0.9599014 0.2853392 0.08218813 0.08662989 0.6902278 0.08028579
## 1098 0.9598802 0.2869492 0.08208066 0.08704000 0.6911211 0.07986733
## 1099 0.9598249 0.2838843 0.08192182 0.08492877 0.6889963 0.08012134
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## 1102 0.9598559 0.2850865 0.08201169 0.08624819 0.6898980 0.08023109
## 1103 0.9597952 0.2836501 0.08175450 0.08407789 0.6888358 0.08011761
## 1104 0.9598044 0.2838025 0.08177698 0.08430821 0.6889254 0.08012529
## 1105 0.9598622 0.2908895 0.08709091 0.09501586 0.6998069 0.08034808
## 1106 0.9598728 0.2925556 0.08892122 0.09753316 0.7021622 0.08039164
## 1107 0.9598752 0.2907984 0.08857087 0.09487828 0.6972025 0.08069602
## 1108 0.9598352 0.2888795 0.08461899 0.09197902 0.6933085 0.07859243
## 1109 0.9598484 0.2888208 0.08386635 0.09189024 0.6913588 0.07984838
## 1110 0.9597981 0.2846427 0.08203627 0.08557763 0.6895015 0.08004844
## 1111 0.9598023 0.2844730 0.08176085 0.08532127 0.6897313 0.08013549
## 1112 0.9597972 0.2840442 0.08177098 0.08489064 0.6892855 0.08013602
## 1113 0.9598194 0.2852522 0.08184741 0.08649844 0.6897866 0.08023259
## 1114 0.9598323 0.2857487 0.08197053 0.08724869 0.6900660 0.08682029
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## 1116 0.9598084 0.2848273 0.08182629 0.08585653 0.6897340 0.08015837
## 1117 0.9618226 0.4266331 0.08950849 0.30011138 0.7756646 0.08903782
## 1118 0.9598122 0.2851533 0.08181717 0.08634902 0.6897360 0.08022356
## 1119 0.9598080 0.2845706 0.08177842 0.08546870 0.6893829 0.08016807
## 1120 0.9598370 0.2865233 0.08193385 0.08841899 0.6905118 0.08047671
## 1121 0.9596553 0.2828504 0.08171287 0.08286963 0.6884049 0.08002396
## 1122 0.9595777 0.2824405 0.08169693 0.08225029 0.6881485 0.07997581
## 1123 0.9595629 0.2821641 0.08168353 0.08183263 0.6884033 0.08090839
## 1124 0.9595189 0.2818049 0.08164124 0.08128989 0.6877816 0.08001830
## 1125 0.9594538 0.2816305 0.08165467 0.08102645 0.6877873 0.07994687
## 1126 0.9595105 0.2817551 0.08157189 0.08121474 0.6877835 0.07993905
## 1127 0.9578667 0.2854161 0.08517849 0.08702270 0.6899813 0.08092931
## 1128 0.9578667 0.2854161 0.08517849 0.08702270 0.6899813 0.08092931
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## 9        1  2.719401e-03   -1
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## 11       1  6.350271e-03   -1
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## 16       1 -7.455988e-05   -1
## 17       1  1.075505e-02   -1
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## 20       1  1.403260e-02   -1
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## 825      1  1.247494e-03    -1
## 826      1  2.000322e-03    -1
## 827      1  1.212394e-04    -1
## 828      1  1.154004e-03    -1
## 829      1  6.222593e-04    -1
## 830      1 -7.300022e-05    -1
## 831      1 -4.616288e-02    -1
## 832      1  6.441967e-02    -1
## 833      1  2.220214e-02    -1
## 834      1  6.202218e-03    -1
## 835      1  5.001507e-03    -1
## 836      1  7.357230e-03    -1
## 837      1  1.428141e-02    -1
## 838      1  7.302475e-02    -1
## 839      1  2.038838e-02    -1
## 840      1  6.735441e-02    -1
## 841      1 -1.563773e-01    -1
## 842      1 -8.194782e-02    -1
## 843      1  3.150327e-03    -1
## 844      1  1.774567e-02    -1
## 845      1  6.853945e-02    -1
## 846      1  2.477431e-02    -1
## 847      1  1.027745e-01    -1
## 848      1  6.558034e-03    -1
```

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## 856      1  2.011185e-01    -1
## 857      1  3.143545e-02    -1
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## 860      1  6.453644e-02    -1
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## 863      1  9.483161e-02    -1
## 864      1  7.488821e-02    -1
## 865      1 -4.001911e-02    -1
## 866      1 -4.053095e-02    -1
## 867      1 -4.423364e-02    -1
## 868      1 -2.374387e-02    -1
## 869      1 -1.924431e-02    -1
## 870      1 -1.219458e-02    -1
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## 872      1 -6.699265e-03    -1
## 873      1 -1.725741e-01    -1
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## 875      1 -3.545976e-01    -1
## 876      1 -5.721051e-02    -1
## 877      1  6.831545e-02    -1
## 878      1  1.488162e-01    -1
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## 880      1  1.107399e-01    -1
## 881      1  5.336178e-02    -1
## 882      1  4.302468e-02    -1
## 883      1  2.815501e-02    -1
## 884      1  3.209795e-02    -1
## 885      1  2.533104e-02    -1
## 886      1  1.707039e-02    -1
## 887      1  5.853533e-02    -1
## 888      1  3.899454e-02    -1
## 889      1  2.292623e-02    -1
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## 896      1  3.287022e-03    -1
## 897      1  2.336176e-01    -1
## 898      1  6.082597e-02    -1
## 899      1  6.632648e-02    -1
## 900      1  9.183760e-02    -1
## 901      1  1.127315e-01    -1
## 902      1  1.898719e-01    -1
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## 905     1  6.575015e-02    -1
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## 907     1  1.694275e-01    -1
## 908     1  1.782816e-01    -1
## 909     1  1.832928e-01    -1
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## 911     1  7.176497e-02    -1
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## 918     1  4.246058e-02    -1
## 919     1  1.379997e-01    -1
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## 922     1  2.217566e-02    -1
## 923     1  1.546431e-02    -1
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## 939     1 -1.382066e-02    -1
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## 941     1  9.085298e-03    -1
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## 943     1  1.073086e-02    -1
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## 945     1  3.155007e-02    -1
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## 955     1  9.524560e-03    -1
## 956     1  3.108859e-02    -1
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## 983     1 -6.977464e-05   -1
## 984     1 -1.032619e-02   -1
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## 991     1 -1.562456e-02   -1
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## 1009    1  1.279968e-01   -1
## 1010    1  1.564090e-01   -1
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## 1107    1  1.240289e-01    -1
## 1108    1  8.440762e-02    -1
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## 1118    1  2.692619e-02    -1
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## 4        1  1.0000000 -1.0000000
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## 14       1  1.0000000 -1.0000000
## 15       1  1.0000000 -1.0000000
## 16       1  0.9999979 -1.0000000
## 17       1  1.0000000 -1.0000000
## 18       1  1.0000000 -1.0000000
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## 736     1 -1.0000000 -1.0000000
## 737     1  1.0000000 -1.0000000
## 738     1  1.0000000 -1.0000000
## 739     1  1.0000000 -1.0000000
## 740     1 -1.0000000 -1.0000000
## 741     1 -1.0000000 -1.0000000
## 742     1 -1.0000000 -1.0000000
## 743     1 -1.0000000 -1.0000000
## 744     1 -1.0000000 -1.0000000
```

```
## 745      1 -1.0000000 -1.0000000
## 746      1 -1.0000000 -1.0000000
## 747      1 -1.0000000 -1.0000000
## 748      1 -1.0000000 -1.0000000
## 749      1 -1.0000000 -1.0000000
## 750      1 -1.0000000 -1.0000000
## 751      1 -1.0000000 -1.0000000
## 752      1 -1.0000000 -1.0000000
## 753      1  1.0000000 -1.0000000
## 754      1  1.0000000 -1.0000000
## 755      1  1.0000000 -1.0000000
## 756      1  1.0000000 -1.0000000
## 757      1  1.0000000 -1.0000000
## 758      1  1.0000000 -1.0000000
## 759      1 -1.0000000 -1.0000000
## 760      1  1.0000000 -1.0000000
## 761      1 -1.0000000 -1.0000000
## 762      1 -1.0000000 -1.0000000
## 763      1 -1.0000000 -1.0000000
## 764      1  1.0000000 -1.0000000
## 765      1  1.0000000 -1.0000000
## 766      1  1.0000000 -1.0000000
## 767      1 -1.0000000 -1.0000000
## 768      1 -1.0000000 -1.0000000
## 769      1  1.0000000 -1.0000000
## 770      1  1.0000000 -1.0000000
## 771      1  1.0000000 -1.0000000
## 772      1  1.0000000 -1.0000000
## 773      1  1.0000000 -1.0000000
## 774      1  1.0000000 -1.0000000
## 775      1  1.0000000 -1.0000000
## 776      1  0.9999979 -1.0000000
## 777      1  1.0000000 -1.0000000
## 778      1  1.0000000 -1.0000000
## 779      1  1.0000000 -1.0000000
## 780      1  1.0000000 -1.0000000
## 781      1  1.0000000  1.0000000
## 782      1  1.0000000 -1.0000000
## 783      1  1.0000000 -1.0000000
## 784      1  1.0000000 -1.0000000
## 785      1  1.0000000 -1.0000000
## 786      1  1.0000000 -1.0000000
## 787      1  1.0000000 -1.0000000
## 788      1  1.0000000 -1.0000000
## 789      1  1.0000000 -1.0000000
## 790      1  1.0000000 -1.0000000
## 791      1  1.0000000 -1.0000000
## 792      1  1.0000000 -1.0000000
## 793      1 -1.0000000 -1.0000000
## 794      1 -1.0000000 -1.0000000
## 795      1 -1.0000000 -1.0000000
## 796      1 -1.0000000 -1.0000000
## 797      1 -1.0000000 -1.0000000
## 798      1 -1.0000000 -1.0000000
```

```
## 799     1 -1.0000000 -1.0000000
## 800     1  1.0000000 -1.0000000
## 801     1  1.0000000 -1.0000000
## 802     1  1.0000000 -1.0000000
## 803     1  1.0000000 -1.0000000
## 804     1  1.0000000 -1.0000000
## 805     1  1.0000000 -1.0000000
## 806     1  1.0000000 -1.0000000
## 807     1  1.0000000 -1.0000000
## 808     1  1.0000000 -1.0000000
## 809     1 -1.0000000 -1.0000000
## 810     1 -1.0000000 -1.0000000
## 811     1 -1.0000000 -1.0000000
## 812     1 -1.0000000 -1.0000000
## 813     1 -1.0000000 -1.0000000
## 814     1 -1.0000000 -1.0000000
## 815     1 -1.0000000 -1.0000000
## 816     1 -1.0000000 -1.0000000
## 817     1  1.0000000 -1.0000000
## 818     1  1.0000000 -1.0000000
## 819     1  1.0000000 -1.0000000
## 820     1  1.0000000 -1.0000000
## 821     1  1.0000000 -1.0000000
## 822     1  1.0000000 -1.0000000
## 823     1  1.0000000  1.0000000
## 824     1  1.0000000 -1.0000000
## 825     1  1.0000000 -1.0000000
## 826     1  1.0000000 -1.0000000
## 827     1  1.0000000 -1.0000000
## 828     1  1.0000000 -1.0000000
## 829     1  1.0000000 -1.0000000
## 830     1  0.9999989 -1.0000000
## 831     1 -1.0000000 -1.0000000
## 832     1  1.0000000 -1.0000000
## 833     1  1.0000000 -1.0000000
## 834     1  1.0000000 -1.0000000
## 835     1  1.0000000 -1.0000000
## 836     1  1.0000000 -1.0000000
## 837     1  1.0000000 -1.0000000
## 838     1  1.0000000 -1.0000000
## 839     1  1.0000000 -1.0000000
## 840     1  1.0000000 -1.0000000
## 841     1 -1.0000000 -1.0000000
## 842     1 -1.0000000 -1.0000000
## 843     1  1.0000000 -1.0000000
## 844     1  1.0000000 -1.0000000
## 845     1  1.0000000 -1.0000000
## 846     1  1.0000000 -1.0000000
## 847     1  1.0000000 -1.0000000
## 848     1  1.0000000 -1.0000000
## 849     1  1.0000000  1.0000000
## 850     1  1.0000000  1.0000000
## 851     1  1.0000000  1.0000000
## 852     1  1.0000000  1.0000000
```

```
## 853    1  1.0000000  1.0000000
## 854    1  1.0000000 -0.9976785
## 855    1  1.0000000 -1.0000000
## 856    1  1.0000000  1.0000000
## 857    1  1.0000000 -1.0000000
## 858    1  1.0000000 -1.0000000
## 859    1  1.0000000 -1.0000000
## 860    1  1.0000000 -1.0000000
## 861    1  1.0000000 -1.0000000
## 862    1  1.0000000 -1.0000000
## 863    1  1.0000000 -1.0000000
## 864    1  1.0000000 -1.0000000
## 865    1 -1.0000000 -1.0000000
## 866    1 -1.0000000 -1.0000000
## 867    1 -1.0000000 -1.0000000
## 868    1 -1.0000000 -1.0000000
## 869    1 -1.0000000 -1.0000000
## 870    1 -1.0000000 -1.0000000
## 871    1 -1.0000000 -1.0000000
## 872    1 -1.0000000 -1.0000000
## 873    1 -1.0000000 -1.0000000
## 874    1 -1.0000000 -1.0000000
## 875    1 -1.0000000 -1.0000000
## 876    1 -1.0000000 -1.0000000
## 877    1  1.0000000 -1.0000000
## 878    1  1.0000000 -1.0000000
## 879    1  1.0000000 -1.0000000
## 880    1  1.0000000 -1.0000000
## 881    1  1.0000000 -1.0000000
## 882    1  1.0000000 -1.0000000
## 883    1  1.0000000 -1.0000000
## 884    1  1.0000000 -1.0000000
## 885    1  1.0000000 -1.0000000
## 886    1  1.0000000 -1.0000000
## 887    1  1.0000000 -1.0000000
## 888    1  1.0000000 -1.0000000
## 889    1  1.0000000 -1.0000000
## 890    1 -1.0000000 -1.0000000
## 891    1 -1.0000000 -1.0000000
## 892    1 -1.0000000 -1.0000000
## 893    1  1.0000000 -1.0000000
## 894    1  1.0000000 -1.0000000
## 895    1 -1.0000000 -1.0000000
## 896    1  1.0000000 -1.0000000
## 897    1  1.0000000  1.0000000
## 898    1  1.0000000 -1.0000000
## 899    1  1.0000000 -1.0000000
## 900    1  1.0000000 -1.0000000
## 901    1  1.0000000 -1.0000000
## 902    1  1.0000000  1.0000000
## 903    1  1.0000000  1.0000000
## 904    1  1.0000000 -1.0000000
## 905    1  1.0000000 -1.0000000
## 906    1 -1.0000000 -1.0000000
```

```
## 907    1  1.0000000   0.9999995
## 908    1  1.0000000   1.0000000
## 909    1  1.0000000   1.0000000
## 910    1 -1.0000000  -1.0000000
## 911    1  1.0000000  -1.0000000
## 912    1  1.0000000  -1.0000000
## 913    1  1.0000000  -1.0000000
## 914    1  1.0000000  -1.0000000
## 915    1  1.0000000  -1.0000000
## 916    1  1.0000000  -1.0000000
## 917    1  1.0000000  -1.0000000
## 918    1  1.0000000  -1.0000000
## 919    1  1.0000000  -1.0000000
## 920    1  1.0000000  -1.0000000
## 921    1  1.0000000  -1.0000000
## 922    1  1.0000000  -1.0000000
## 923    1  1.0000000  -1.0000000
## 924    1  1.0000000  -1.0000000
## 925    1  1.0000000  -1.0000000
## 926    1  1.0000000  -1.0000000
## 927    1  1.0000000  -1.0000000
## 928    1  1.0000000  -1.0000000
## 929    1  1.0000000  -1.0000000
## 930    1  1.0000000  -1.0000000
## 931    1  1.0000000  -1.0000000
## 932    1  1.0000000  -1.0000000
## 933    1  1.0000000  -1.0000000
## 934    1  1.0000000  -1.0000000
## 935    1  1.0000000  -1.0000000
## 936    1  1.0000000  -1.0000000
## 937    1 -1.0000000  -1.0000000
## 938    1 -1.0000000  -1.0000000
## 939    1 -1.0000000  -1.0000000
## 940    1 -1.0000000  -1.0000000
## 941    1  1.0000000  -1.0000000
## 942    1  1.0000000  -1.0000000
## 943    1  1.0000000  -1.0000000
## 944    1  1.0000000  -1.0000000
## 945    1  1.0000000  -1.0000000
## 946    1  1.0000000  -1.0000000
## 947    1  1.0000000  -1.0000000
## 948    1  1.0000000  -1.0000000
## 949    1  1.0000000  -1.0000000
## 950    1  1.0000000  -1.0000000
## 951    1  1.0000000  -1.0000000
## 952    1  1.0000000   1.0000000
## 953    1  1.0000000  -1.0000000
## 954    1  1.0000000  -1.0000000
## 955    1  1.0000000  -1.0000000
## 956    1  1.0000000  -1.0000000
## 957    1  1.0000000   1.0000000
## 958    1  1.0000000   1.0000000
## 959    1  1.0000000  -1.0000000
## 960    1  1.0000000  -1.0000000
```

```
## 961     1   1.0000000 -1.0000000
## 962     1   1.0000000 -1.0000000
## 963     1   1.0000000 -1.0000000
## 964     1   1.0000000 -1.0000000
## 965     1   1.0000000 -1.0000000
## 966     1   1.0000000 -1.0000000
## 967     1   1.0000000 -1.0000000
## 968     1   1.0000000 -1.0000000
## 969     1   1.0000000 -1.0000000
## 970     1   1.0000000 -1.0000000
## 971     1   1.0000000 -1.0000000
## 972     1   1.0000000 -1.0000000
## 973     1   1.0000000 -1.0000000
## 974     1   1.0000000 -1.0000000
## 975     1   1.0000000 -1.0000000
## 976     1   1.0000000 -1.0000000
## 977     1  -1.0000000 -1.0000000
## 978     1  -1.0000000 -1.0000000
## 979     1  -1.0000000 -1.0000000
## 980     1  -1.0000000 -1.0000000
## 981     1   1.0000000  1.0000000
## 982     1   1.0000000 -1.0000000
## 983     1   0.9999997 -1.0000000
## 984     1  -1.0000000 -1.0000000
## 985     1  -1.0000000 -1.0000000
## 986     1  -1.0000000 -1.0000000
## 987     1  -1.0000000 -1.0000000
## 988     1  -1.0000000 -1.0000000
## 989     1  -1.0000000 -1.0000000
## 990     1  -1.0000000 -1.0000000
## 991     1  -1.0000000 -1.0000000
## 992     1  -1.0000000 -1.0000000
## 993     1  -1.0000000 -1.0000000
## 994     1  -1.0000000 -1.0000000
## 995     1  -1.0000000 -1.0000000
## 996     1  -1.0000000 -1.0000000
## 997     1   1.0000000 -1.0000000
## 998     1  -0.9999995 -1.0000000
## 999     1   1.0000000 -1.0000000
## 1000    1   1.0000000 -1.0000000
## 1001    1   1.0000000 -1.0000000
## 1002    1   1.0000000 -1.0000000
## 1003    1   1.0000000 -1.0000000
## 1004    1   1.0000000  1.0000000
## 1005    1   1.0000000 -1.0000000
## 1006    1   1.0000000  1.0000000
## 1007    1   1.0000000  1.0000000
## 1008    1   1.0000000  1.0000000
## 1009    1   1.0000000 -1.0000000
## 1010    1   1.0000000 -1.0000000
## 1011    1   1.0000000 -1.0000000
## 1012    1   1.0000000 -1.0000000
## 1013    1   1.0000000 -1.0000000
## 1014    1   1.0000000 -1.0000000
```

```
## 1015     1   1.0000000 -1.0000000
## 1016     1   1.0000000 -1.0000000
## 1017     1   1.0000000 -1.0000000
## 1018     1   1.0000000 -1.0000000
## 1019     1   1.0000000 -1.0000000
## 1020     1   1.0000000 -1.0000000
## 1021     1   1.0000000 -1.0000000
## 1022     1   1.0000000  1.0000000
## 1023     1   1.0000000 -1.0000000
## 1024     1  -1.0000000 -1.0000000
## 1025     1   1.0000000 -1.0000000
## 1026     1   1.0000000 -1.0000000
## 1027     1   1.0000000 -1.0000000
## 1028     1   1.0000000 -1.0000000
## 1029     1   1.0000000 -1.0000000
## 1030     1   1.0000000 -1.0000000
## 1031     1   1.0000000 -1.0000000
## 1032     1   1.0000000 -1.0000000
## 1033     1   1.0000000 -1.0000000
## 1034     1   1.0000000 -1.0000000
## 1035     1   1.0000000 -1.0000000
## 1036     1   1.0000000 -1.0000000
## 1037     1   1.0000000 -1.0000000
## 1038     1   1.0000000 -1.0000000
## 1039     1   1.0000000 -1.0000000
## 1040     1   1.0000000 -1.0000000
## 1041     1  -1.0000000 -1.0000000
## 1042     1  -1.0000000 -1.0000000
## 1043     1  -1.0000000 -1.0000000
## 1044     1  -1.0000000 -1.0000000
## 1045     1  -1.0000000 -1.0000000
## 1046     1  -1.0000000 -1.0000000
## 1047     1  -1.0000000 -1.0000000
## 1048     1  -1.0000000 -1.0000000
## 1049     1   1.0000000 -1.0000000
## 1050     1   1.0000000 -1.0000000
## 1051     1   1.0000000 -1.0000000
## 1052     1   1.0000000 -1.0000000
## 1053     1   1.0000000 -1.0000000
## 1054     1   1.0000000 -1.0000000
## 1055     1   1.0000000 -0.9136802
## 1056     1   1.0000000 -1.0000000
## 1057     1   1.0000000 -1.0000000
## 1058     1   1.0000000 -1.0000000
## 1059     1  -0.9999972 -1.0000000
## 1060     1   1.0000000 -1.0000000
## 1061     1   1.0000000 -1.0000000
## 1062     1   1.0000000 -1.0000000
## 1063     1   1.0000000 -1.0000000
## 1064     1   1.0000000 -1.0000000
## 1065     1   1.0000000 -1.0000000
## 1066     1   1.0000000 -1.0000000
## 1067     1   1.0000000 -1.0000000
## 1068     1   1.0000000 -1.0000000
```

```
## 1069    1   0.9999999 -1.0000000
## 1070    1  -1.0000000 -1.0000000
## 1071    1   1.0000000 -1.0000000
## 1072    1  -1.0000000 -1.0000000
## 1073    1  -1.0000000 -1.0000000
## 1074    1  -1.0000000 -1.0000000
## 1075    1  -1.0000000 -1.0000000
## 1076    1  -1.0000000 -1.0000000
## 1077    1  -1.0000000 -1.0000000
## 1078    1   1.0000000 -1.0000000
## 1079    1  -1.0000000 -1.0000000
## 1080    1  -1.0000000 -1.0000000
## 1081    1  -1.0000000 -1.0000000
## 1082    1  -1.0000000 -1.0000000
## 1083    1   1.0000000 -1.0000000
## 1084    1  -1.0000000 -1.0000000
## 1085    1  -1.0000000 -1.0000000
## 1086    1  -1.0000000 -1.0000000
## 1087    1  -1.0000000 -1.0000000
## 1088    1  -1.0000000 -1.0000000
## 1089    1   1.0000000 -1.0000000
## 1090    1  -1.0000000 -1.0000000
## 1091    1   1.0000000  0.9999995
## 1092    1   1.0000000  1.0000000
## 1093    1   1.0000000  1.0000000
## 1094    1  -1.0000000 -1.0000000
## 1095    1   1.0000000 -1.0000000
## 1096    1   1.0000000 -1.0000000
## 1097    1   1.0000000 -1.0000000
## 1098    1   1.0000000 -1.0000000
## 1099    1   1.0000000 -1.0000000
## 1100    1   1.0000000 -1.0000000
## 1101    1   1.0000000 -1.0000000
## 1102    1   1.0000000 -1.0000000
## 1103    1   1.0000000 -1.0000000
## 1104    1   1.0000000 -1.0000000
## 1105    1   1.0000000 -1.0000000
## 1106    1   1.0000000 -1.0000000
## 1107    1   1.0000000 -1.0000000
## 1108    1   1.0000000 -1.0000000
## 1109    1   1.0000000 -1.0000000
## 1110    1   1.0000000 -1.0000000
## 1111    1   1.0000000 -1.0000000
## 1112    1   1.0000000 -1.0000000
## 1113    1   1.0000000 -1.0000000
## 1114    1   1.0000000 -1.0000000
## 1115    1   1.0000000 -1.0000000
## 1116    1   1.0000000 -1.0000000
## 1117    1   1.0000000  1.0000000
## 1118    1   1.0000000 -1.0000000
## 1119    1   1.0000000 -1.0000000
## 1120    1   1.0000000 -1.0000000
## 1121    1  -1.0000000 -1.0000000
## 1122    1  -1.0000000 -1.0000000
```

```
## 1123    1 -1.0000000 -1.0000000
## 1124    1 -1.0000000 -1.0000000
## 1125    1 -1.0000000 -1.0000000
## 1126    1 -1.0000000 -1.0000000
## 1127    1  1.0000000 -1.0000000
## 1128    1  1.0000000 -1.0000000
##
##
## $net.result
##            [,1]
## 2    0.95817536
## 3    0.95817536
## 4    0.95817536
## 5    0.95817536
## 6    0.95817536
## 7    0.02283101
## 8    0.02283101
## 9    0.95817536
## 10   0.95817536
## 11   0.95817536
## 12   0.95817536
## 13   0.95817536
## 14   0.95817536
## 15   0.95817536
## 16   0.95817439
## 17   0.95817536
## 18   0.95817536
## 19   0.95817536
## 20   0.95817536
## 21   0.95817536
## 22   0.95817536
## 23   0.95817536
## 24   0.95817536
## 25   0.95817536
## 26   0.95817536
## 27   0.95817536
## 28   0.95817536
## 29   0.95817536
## 30   0.95817536
## 31   0.95817536
## 32   0.95817536
## 33   0.95817536
## 34   0.95817536
## 35   0.95817536
## 36   0.95817536
## 37   0.95817536
## 38   0.95817536
## 39   0.95817536
## 40   0.95817536
## 41   0.95817536
## 42   0.95817536
## 43   0.95817536
## 44   0.95817536
## 45   0.95817536
```

```
## 46   0.95817536
## 47   0.95817536
## 48   0.95817536
## 49   0.95817536
## 50   0.02283101
## 51   0.02283101
## 52   0.95817536
## 53   0.95817536
## 54   0.95817536
## 55   0.95817536
## 56   0.02283101
## 57   0.95817536
## 58   0.95817536
## 59   0.95817536
## 60   0.95817536
## 61   0.95817536
## 62   0.95817536
## 63   0.66666841
## 64   0.95817536
## 65   0.95817536
## 66   0.95817536
## 67   0.95817536
## 68   0.95817536
## 69   0.95817536
## 70   0.95817486
## 71   0.02283101
## 72   0.95817536
## 73   0.95817536
## 74   0.95817536
## 75   0.95817536
## 76   0.95817536
## 77   0.02283101
## 78   0.95817536
## 79   0.95817536
## 80   0.95817536
## 81   0.95817536
## 82   0.95817536
## 83   0.95817536
## 84   0.95817536
## 85   0.95817536
## 86   0.95817536
## 87   0.95817536
## 88   0.95817536
## 89   0.02283101
## 90   0.02283101
## 91   0.02283101
## 92   0.02283101
## 93   0.02283101
## 94   0.02283101
## 95   0.02283101
## 96   0.02283101
## 97   0.95817536
## 98   0.95817536
## 99   0.95817536
```

```
## 100   0.95817536
## 101   0.95817536
## 102   0.95817536
## 103   0.95817536
## 104   0.95817536
## 105   0.02283101
## 106   0.95817536
## 107   0.95817536
## 108   0.95817536
## 109   0.95817536
## 110   0.95817536
## 111   0.95817536
## 112   0.95817536
## 113   0.02283101
## 114   0.02283101
## 115   0.02283101
## 116   0.95817536
## 117   0.95817536
## 118   0.95817536
## 119   0.95817536
## 120   0.95817536
## 121   0.02283101
## 122   0.02283101
## 123   0.95817536
## 124   0.02283101
## 125   0.02283101
## 126   0.02283101
## 127   0.02283101
## 128   0.02283101
## 129   0.02283101
## 130   0.02283101
## 131   0.02283101
## 132   0.02283101
## 133   0.95817536
## 134   0.95817536
## 135   0.95817536
## 136   0.95817536
## 137   0.02283101
## 138   0.02283101
## 139   0.02283101
## 140   0.02283101
## 141   0.95817536
## 142   0.95817536
## 143   0.95817536
## 144   0.02283101
## 145   0.95817536
## 146   0.95817536
## 147   0.95817536
## 148   0.95817536
## 149   0.95817536
## 150   0.95817536
## 151   0.95817536
## 152   0.95817536
## 153   0.95817536
```

```
## 154  0.95817536
## 155  0.95817536
## 156  0.95817536
## 157  0.02283101
## 158  0.02283101
## 159  0.02283101
## 160  0.02283101
## 161  0.95817536
## 162  0.95817536
## 163  0.95817536
## 164  0.95817536
## 165  0.02283101
## 166  0.02283101
## 167  0.02283101
## 168  0.02283101
## 169  0.95817536
## 170  0.95817536
## 171  0.95817536
## 172  0.95817536
## 173  0.95817536
## 174  0.95817536
## 175  0.95817536
## 176  0.02283101
## 177  0.95817536
## 178  0.95817536
## 179  0.95817536
## 180  0.95817536
## 181  0.95817536
## 182  0.95817536
## 183  0.95817536
## 184  0.95817536
## 185  0.95817536
## 186  0.95817536
## 187  0.95817536
## 188  0.95817536
## 189  0.95817536
## 190  0.95817536
## 191  0.95817536
## 192  0.95817536
## 193  0.95817536
## 194  0.95817536
## 195  0.95817536
## 196  0.95817536
## 197  0.95817536
## 198  0.95817536
## 199  0.95817536
## 200  0.95817536
## 201  0.95817536
## 202  0.95817536
## 203  0.95817536
## 204  0.95817536
## 205  0.95817536
## 206  0.95817536
## 207  0.02283101
```

```
## 208   0.02283101
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## 963   0.95817536
```

```
## 964  0.95817536
## 965  0.95817536
## 966  0.95817536
## 967  0.95817536
## 968  0.95817536
## 969  0.95817536
## 970  0.95817536
## 971  0.95817536
## 972  0.95817536
## 973  0.95817536
## 974  0.95817536
## 975  0.95817536
## 976  0.95817536
## 977  0.02283101
## 978  0.02283101
## 979  0.02283101
## 980  0.02283101
## 981  0.66666841
## 982  0.95817536
## 983  0.95817523
## 984  0.02283101
## 985  0.02283101
## 986  0.02283101
## 987  0.02283101
## 988  0.02283101
## 989  0.02283101
## 990  0.02283101
## 991  0.02283101
## 992  0.02283101
## 993  0.02283101
## 994  0.02283101
## 995  0.02283101
## 996  0.02283101
## 997  0.95817536
## 998  0.02283123
## 999  0.95817536
## 1000 0.95817536
## 1001 0.95817536
## 1002 0.95817536
## 1003 0.95817536
## 1004 0.66666841
## 1005 0.95817536
## 1006 0.66666841
## 1007 0.66666841
## 1008 0.66666841
## 1009 0.95817536
## 1010 0.95817536
## 1011 0.95817536
## 1012 0.95817536
## 1013 0.95817536
## 1014 0.95817536
## 1015 0.95817536
## 1016 0.95817536
## 1017 0.95817536
```

```
## 1018 0.95817536
## 1019 0.95817536
## 1020 0.95817536
## 1021 0.95817536
## 1022 0.66666841
## 1023 0.95817536
## 1024 0.02283101
## 1025 0.95817536
## 1026 0.95817536
## 1027 0.95817536
## 1028 0.95817536
## 1029 0.95817536
## 1030 0.95817536
## 1031 0.95817536
## 1032 0.95817536
## 1033 0.95817536
## 1034 0.95817536
## 1035 0.95817536
## 1036 0.95817536
## 1037 0.95817536
## 1038 0.95817536
## 1039 0.95817536
## 1040 0.95817536
## 1041 0.02283101
## 1042 0.02283101
## 1043 0.02283101
## 1044 0.02283101
## 1045 0.02283101
## 1046 0.02283101
## 1047 0.02283101
## 1048 0.02283101
## 1049 0.95817536
## 1050 0.95817536
## 1051 0.95817536
## 1052 0.95817536
## 1053 0.95817536
## 1054 0.95817536
## 1055 0.94559395
## 1056 0.95817536
## 1057 0.95817536
## 1058 0.95817536
## 1059 0.02283231
## 1060 0.95817536
## 1061 0.95817536
## 1062 0.95817536
## 1063 0.95817536
## 1064 0.95817536
## 1065 0.95817536
## 1066 0.95817536
## 1067 0.95817536
## 1068 0.95817536
## 1069 0.95817533
## 1070 0.02283101
## 1071 0.95817536
```

```
## 1072 0.02283101
## 1073 0.02283101
## 1074 0.02283101
## 1075 0.02283101
## 1076 0.02283101
## 1077 0.02283101
## 1078 0.95817536
## 1079 0.02283101
## 1080 0.02283101
## 1081 0.02283101
## 1082 0.02283101
## 1083 0.95817536
## 1084 0.02283101
## 1085 0.02283101
## 1086 0.02283101
## 1087 0.02283101
## 1088 0.02283101
## 1089 0.95817536
## 1090 0.02283101
## 1091 0.66666847
## 1092 0.66666841
## 1093 0.66666841
## 1094 0.02283101
## 1095 0.95817536
## 1096 0.95817536
## 1097 0.95817536
## 1098 0.95817536
## 1099 0.95817536
## 1100 0.95817536
## 1101 0.95817536
## 1102 0.95817536
## 1103 0.95817536
## 1104 0.95817536
## 1105 0.95817536
## 1106 0.95817536
## 1107 0.95817536
## 1108 0.95817536
## 1109 0.95817536
## 1110 0.95817536
## 1111 0.95817536
## 1112 0.95817536
## 1113 0.95817536
## 1114 0.95817536
## 1115 0.95817536
## 1116 0.95817536
## 1117 0.66666841
## 1118 0.95817536
## 1119 0.95817536
## 1120 0.95817536
## 1121 0.02283101
## 1122 0.02283101
## 1123 0.02283101
## 1124 0.02283101
## 1125 0.02283101
```

```
## 1126 0.02283101
## 1127 0.95817536
## 1128 0.95817536
```

```
results <- data.frame(actual = test_data$Y, prediction = rnn.results$net.result)
results
```

```
##      actual prediction
## 2         1 0.95817536
## 3         1 0.95817536
## 4         1 0.95817536
## 5         1 0.95817536
## 6         1 0.95817536
## 7         0 0.02283101
## 8         0 0.02283101
## 9         1 0.95817536
## 10        1 0.95817536
## 11        1 0.95817536
## 12        1 0.95817536
## 13        1 0.95817536
## 14        1 0.95817536
## 15        1 0.95817536
## 16        1 0.95817439
## 17        1 0.95817536
## 18        1 0.95817536
## 19        1 0.95817536
## 20        1 0.95817536
## 21        1 0.95817536
## 22        1 0.95817536
## 23        1 0.95817536
## 24        1 0.95817536
## 25        1 0.95817536
## 26        1 0.95817536
## 27        1 0.95817536
## 28        1 0.95817536
## 29        1 0.95817536
## 30        1 0.95817536
## 31        1 0.95817536
## 32        1 0.95817536
## 33        1 0.95817536
## 34        1 0.95817536
## 35        1 0.95817536
## 36        1 0.95817536
## 37        1 0.95817536
## 38        1 0.95817536
## 39        1 0.95817536
## 40        1 0.95817536
## 41        1 0.95817536
## 42        1 0.95817536
## 43        1 0.95817536
## 44        1 0.95817536
## 45        1 0.95817536
## 46        1 0.95817536
## 47        1 0.95817536
## 48        1 0.95817536
```

```
## 49        0 0.95817536
## 50        0 0.02283101
## 51        0 0.02283101
## 52        1 0.95817536
## 53        1 0.95817536
## 54        1 0.95817536
## 55        1 0.95817536
## 56        0 0.02283101
## 57        1 0.95817536
## 58        1 0.95817536
## 59        1 0.95817536
## 60        1 0.95817536
## 61        1 0.95817536
## 62        1 0.95817536
## 63        1 0.66666841
## 64        1 0.95817536
## 65        1 0.95817536
## 66        1 0.95817536
## 67        1 0.95817536
## 68        1 0.95817536
## 69        1 0.95817536
## 70        1 0.95817486
## 71        1 0.02283101
## 72        1 0.95817536
## 73        1 0.95817536
## 74        1 0.95817536
## 75        1 0.95817536
## 76        1 0.95817536
## 77        0 0.02283101
## 78        1 0.95817536
## 79        1 0.95817536
## 80        1 0.95817536
## 81        1 0.95817536
## 82        1 0.95817536
## 83        1 0.95817536
## 84        1 0.95817536
## 85        1 0.95817536
## 86        1 0.95817536
## 87        1 0.95817536
## 88        1 0.95817536
## 89        0 0.02283101
## 90        0 0.02283101
## 91        0 0.02283101
## 92        0 0.02283101
## 93        0 0.02283101
## 94        0 0.02283101
## 95        0 0.02283101
## 96        0 0.02283101
## 97        1 0.95817536
## 98        1 0.95817536
## 99        1 0.95817536
## 100       1 0.95817536
## 101       1 0.95817536
## 102       1 0.95817536
```

```
## 103        1 0.95817536
## 104        1 0.95817536
## 105        0 0.02283101
## 106        1 0.95817536
## 107        1 0.95817536
## 108        1 0.95817536
## 109        1 0.95817536
## 110        1 0.95817536
## 111        1 0.95817536
## 112        1 0.95817536
## 113        0 0.02283101
## 114        0 0.02283101
## 115        0 0.02283101
## 116        1 0.95817536
## 117        1 0.95817536
## 118        1 0.95817536
## 119        1 0.95817536
## 120        1 0.95817536
## 121        0 0.02283101
## 122        0 0.02283101
## 123        1 0.95817536
## 124        0 0.02283101
## 125        0 0.02283101
## 126        0 0.02283101
## 127        0 0.02283101
## 128        0 0.02283101
## 129        0 0.02283101
## 130        0 0.02283101
## 131        0 0.02283101
## 132        0 0.02283101
## 133        1 0.95817536
## 134        1 0.95817536
## 135        1 0.95817536
## 136        1 0.95817536
## 137        0 0.02283101
## 138        0 0.02283101
## 139        0 0.02283101
## 140        0 0.02283101
## 141        1 0.95817536
## 142        0 0.95817536
## 143        0 0.95817536
## 144        0 0.02283101
## 145        1 0.95817536
## 146        1 0.95817536
## 147        1 0.95817536
## 148        1 0.95817536
## 149        1 0.95817536
## 150        1 0.95817536
## 151        1 0.95817536
## 152        1 0.95817536
## 153        1 0.95817536
## 154        1 0.95817536
## 155        1 0.95817536
## 156        1 0.95817536
```

```
## 157        0 0.02283101
## 158        0 0.02283101
## 159        0 0.02283101
## 160        0 0.02283101
## 161        1 0.95817536
## 162        1 0.95817536
## 163        1 0.95817536
## 164        1 0.95817536
## 165        0 0.02283101
## 166        0 0.02283101
## 167        0 0.02283101
## 168        0 0.02283101
## 169        1 0.95817536
## 170        1 0.95817536
## 171        1 0.95817536
## 172        1 0.95817536
## 173        1 0.95817536
## 174        1 0.95817536
## 175        1 0.95817536
## 176        0 0.02283101
## 177        1 0.95817536
## 178        1 0.95817536
## 179        1 0.95817536
## 180        1 0.95817536
## 181        1 0.95817536
## 182        1 0.95817536
## 183        1 0.95817536
## 184        1 0.95817536
## 185        1 0.95817536
## 186        1 0.95817536
## 187        1 0.95817536
## 188        1 0.95817536
## 189        1 0.95817536
## 190        1 0.95817536
## 191        1 0.95817536
## 192        1 0.95817536
## 193        1 0.95817536
## 194        1 0.95817536
## 195        1 0.95817536
## 196        1 0.95817536
## 197        1 0.95817536
## 198        1 0.95817536
## 199        1 0.95817536
## 200        1 0.95817536
## 201        1 0.95817536
## 202        1 0.95817536
## 203        1 0.95817536
## 204        1 0.95817536
## 205        1 0.95817536
## 206        1 0.95817536
## 207        0 0.02283101
## 208        0 0.02283101
## 209        1 0.95817536
## 210        1 0.95817536
```

```
## 211      0 0.02283101
## 212      1 0.95817536
## 213      1 0.95817536
## 214      1 0.95817536
## 215      1 0.95817536
## 216      1 0.95817536
## 217      0 0.02283101
## 218      0 0.02283101
## 219      0 0.02283101
## 220      0 0.02283101
## 221      0 0.02283101
## 222      0 0.02283101
## 223      0 0.02283101
## 224      0 0.02283101
## 225      1 0.66666841
## 226      1 0.66666841
## 227      1 0.95817536
## 228      1 0.95817536
## 229      1 0.95817536
## 230      1 0.95817536
## 231      1 0.95817536
## 232      1 0.95817536
## 233      1 0.95817536
## 234      0 0.02283101
## 235      0 0.02283101
## 236      0 0.02283101
## 237      0 0.02283101
## 238      0 0.02283101
## 239      0 0.02283101
## 240      0 0.02283101
## 241      0 0.02283101
## 242      1 0.66666841
## 243      0 0.02283101
## 244      0 0.02283101
## 245      0 0.02283101
## 246      0 0.02283101
## 247      1 0.95817536
## 248      0 0.02283101
## 249      0 0.02283101
## 250      0 0.02283101
## 251      0 0.02283101
## 252      0 0.95817536
## 253      1 0.95817536
## 254      1 0.95817536
## 255      1 0.95817536
## 256      1 0.95817536
## 257      1 0.95817536
## 258      1 0.95817536
## 259      1 0.95817536
## 260      1 0.95817536
## 261      1 0.95817536
## 262      0 0.02283101
## 263      1 0.95817536
## 264      0 0.95817536
```

```
## 265        1 0.95817536
## 266        1 0.95817536
## 267        1 0.95817536
## 268        1 0.95817536
## 269        1 0.95817536
## 270        1 0.95817536
## 271        1 0.66666841
## 272        1 0.66666841
## 273        1 0.95817536
## 274        1 0.95817536
## 275        1 0.95817536
## 276        1 0.95817536
## 277        1 0.95817536
## 278        1 0.95817536
## 279        1 0.95817536
## 280        1 0.95817536
## 281        0 0.02283101
## 282        0 0.02283101
## 283        0 0.02283101
## 284        0 0.66666841
## 285        0 0.02283101
## 286        0 0.02283101
## 287        0 0.02283101
## 288        0 0.02283101
## 289        1 0.95817536
## 290        1 0.95817536
## 291        1 0.95817536
## 292        1 0.95817536
## 293        1 0.95817536
## 294        1 0.95817536
## 295        1 0.95817536
## 296        1 0.95817536
## 297        1 0.95817536
## 298        1 0.95817536
## 299        1 0.95817536
## 300        1 0.95817536
## 301        1 0.95817536
## 302        1 0.95817536
## 303        1 0.95817536
## 304        1 0.95817536
## 305        1 0.95817536
## 306        0 0.95817536
## 307        0 0.02283101
## 308        0 0.02283101
## 309        0 0.02283101
## 310        1 0.95817536
## 311        0 0.95817536
## 312        1 0.95817536
## 313        1 0.95817536
## 314        1 0.95817536
## 315        1 0.95817536
## 316        1 0.95817536
## 317        1 0.95817536
## 318        0 0.02283101
```

```
## 319        1 0.95817536
## 320        0 0.02283101
## 321        1 0.95817536
## 322        0 0.02283101
## 323        0 0.02283101
## 324        0 0.02283101
## 325        0 0.02283101
## 326        1 0.95817536
## 327        1 0.95817536
## 328        1 0.95817536
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## 330        1 0.95817536
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## 332        1 0.95817536
## 333        1 0.95817536
## 334        1 0.95817536
## 335        1 0.95817536
## 336        1 0.95817536
## 337        1 0.95817536
## 338        1 0.95817536
## 339        1 0.95817536
## 340        1 0.95817536
## 341        1 0.95817536
## 342        1 0.95817536
## 343        1 0.95817536
## 344        1 0.95817536
## 345        1 0.95817536
## 346        1 0.95817536
## 347        1 0.95817536
## 348        1 0.95817536
## 349        1 0.95817536
## 350        1 0.95817536
## 351        1 0.95817536
## 352        1 0.95817536
## 353        1 0.95817536
## 354        0 0.66666841
## 355        0 0.66666847
## 356        0 0.66666841
## 357        0 0.66666841
## 358        0 0.66666841
## 359        1 0.95817536
## 360        1 0.95817536
## 361        1 0.95817536
## 362        1 0.95817536
## 363        1 0.95817536
## 364        1 0.95817536
## 365        1 0.95817536
## 366        1 0.95817536
## 367        1 0.95817536
## 368        1 0.95817536
## 369        1 0.95817536
## 370        1 0.95817536
## 371        1 0.95817536
## 372        1 0.95817536
```

```
## 373          1 0.95817536
## 374          1 0.95817536
## 375          1 0.66666841
## 376          1 0.66666841
## 377          1 0.95817536
## 378          1 0.95817536
## 379          1 0.95817536
## 380          1 0.95817536
## 381          1 0.66666841
## 382          1 0.95817536
## 383          1 0.95817536
## 384          1 0.95817536
## 385          1 0.95817536
## 386          1 0.95817536
## 387          1 0.95817536
## 388          1 0.95817536
## 389          1 0.95817536
## 390          1 0.95817536
## 391          1 0.95817536
## 392          1 0.95817536
## 393          0 0.02283101
## 394          0 0.02283101
## 395          0 0.02283101
## 396          0 0.02283101
## 397          0 0.02283101
## 398          0 0.02283101
## 399          0 0.02283101
## 400          0 0.02283101
## 401          1 0.66666841
## 402          1 0.66666841
## 403          1 0.66666841
## 404          1 0.95817536
## 405          1 0.95817536
## 406          1 0.95817536
## 407          1 0.95817536
## 408          1 0.95817536
## 409          0 0.02283101
## 410          0 0.02283101
## 411          0 0.02283101
## 412          0 0.02283101
## 413          0 0.02283101
## 414          1 0.95817536
## 415          1 0.95817536
## 416          0 0.02283101
## 417          0 0.02283101
## 418          0 0.02283101
## 419          0 0.02283101
## 420          0 0.02283101
## 421          0 0.02283101
## 422          0 0.02283101
## 423          0 0.02283101
## 424          0 0.02283101
## 425          0 0.66667518
## 426          0 0.95817536
```

```
## 427      0 0.02283790
## 428      0 0.02283101
## 429      0 0.02283101
## 430      0 0.02283101
## 431      0 0.95817536
## 432      0 0.95817536
## 433      0 0.02283101
## 434      0 0.02283101
## 435      0 0.02283101
## 436      1 0.95817536
## 437      0 0.02283101
## 438      0 0.02283101
## 439      0 0.02283101
## 440      1 0.95817536
## 441      1 0.95817536
## 442      1 0.95817536
## 443      1 0.95817536
## 444      1 0.95817536
## 445      1 0.95817536
## 446      1 0.95817536
## 447      1 0.95817536
## 448      1 0.95817536
## 449      1 0.95817536
## 450      1 0.95817536
## 451      1 0.95817536
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## 453      1 0.95817536
## 454      1 0.95817536
## 455      1 0.95817536
## 456      1 0.95817536
## 457      0 0.95817536
## 458      0 0.02283101
## 459      0 0.02283101
## 460      0 0.02283101
## 461      0 0.02283101
## 462      0 0.02283101
## 463      0 0.02283101
## 464      0 0.02283101
## 465      0 0.02283101
## 466      0 0.02283101
## 467      0 0.02283101
## 468      0 0.02283101
## 469      0 0.02283101
## 470      0 0.02283101
## 471      0 0.02283101
## 472      0 0.02283101
## 473      0 0.02283101
## 474      0 0.02283101
## 475      0 0.02283101
## 476      0 0.02283101
## 477      0 0.02283101
## 478      0 0.02283101
## 479      0 0.02283101
## 480      0 0.02283101
```

```
## 481         0 0.02283101
## 482         0 0.02283101
## 483         0 0.02283101
## 484         0 0.66666841
## 485         0 0.02283101
## 486         0 0.02283101
## 487         0 0.02283101
## 488         0 0.02283101
## 489         1 0.95817536
## 490         1 0.95817536
## 491         1 0.95817536
## 492         1 0.95817536
## 493         1 0.95817536
## 494         1 0.95817536
## 495         1 0.95817536
## 496         1 0.95817536
## 497         1 0.95817536
## 498         1 0.95817536
## 499         1 0.95817536
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## 501         1 0.95817536
## 502         1 0.95817536
## 503         1 0.95817536
## 504         1 0.95817536
## 505         1 0.95817536
## 506         1 0.95817536
## 507         1 0.95817536
## 508         1 0.95817536
## 509         1 0.95817536
## 510         1 0.95817536
## 511         1 0.95817536
## 512         1 0.95817536
## 513         1 0.95817536
## 514         1 0.95817536
## 515         1 0.95817536
## 516         1 0.95817536
## 517         1 0.95817536
## 518         1 0.95817536
## 519         1 0.95817536
## 520         1 0.95817536
## 521         1 0.95817536
## 522         1 0.95817536
## 523         1 0.95817536
## 524         1 0.95817536
## 525         1 0.66666841
## 526         1 0.66666841
## 527         1 0.95817536
## 528         1 0.95817536
## 529         0 0.02283101
## 530         0 0.02283101
## 531         0 0.02283101
## 532         0 0.95817536
## 533         0 0.95817536
## 534         0 0.95817536
```

```
## 535     0 0.02283101
## 536     0 0.02283101
## 537     0 0.02283101
## 538     1 0.95817536
## 539     0 0.02283101
## 540     1 0.95817401
## 541     0 0.02283101
## 542     0 0.02283101
## 543     0 0.02283101
## 544     0 0.02283101
## 545     1 0.95817536
## 546     1 0.95817536
## 547     1 0.95817536
## 548     1 0.95817536
## 549     1 0.95817536
## 550     1 0.95817536
## 551     1 0.95817536
## 552     1 0.95817536
## 553     0 0.02283101
## 554     0 0.02283101
## 555     0 0.02283101
## 556     0 0.02283101
## 557     0 0.02283101
## 558     0 0.02283101
## 559     0 0.66666841
## 560     0 0.02283101
## 561     1 0.95817536
## 562     1 0.95817536
## 563     1 0.95817536
## 564     1 0.95817536
## 565     1 0.95817536
## 566     1 0.95817536
## 567     1 0.95817536
## 568     1 0.95817536
## 569     1 0.66666841
## 570     1 0.66666841
## 571     1 0.66666841
## 572     1 0.95817536
## 573     1 0.95817536
## 574     1 0.95817536
## 575     1 0.95817536
## 576     1 0.66666841
## 577     0 0.02283101
## 578     0 0.02283101
## 579     0 0.02283101
## 580     0 0.02283101
## 581     0 0.02283101
## 582     1 0.95817536
## 583     1 0.95817536
## 584     0 0.02283101
## 585     0 0.95817536
## 586     0 0.02283101
## 587     1 0.95817536
## 588     0 0.02283101
```

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## 589     0 0.02283101
## 590     0 0.02283101
## 591     0 0.02283101
## 592     0 0.02283101
## 593     1 0.95817536
## 594     1 0.95817536
## 595     1 0.95817536
## 596     1 0.95817536
## 597     1 0.95817536
## 598     1 0.95817536
## 599     1 0.95817536
## 600     0 0.02283101
## 601     1 0.66666841
## 602     1 0.66666841
## 603     1 0.66666841
## 604     1 0.66666841
## 605     1 0.66666841
## 606     1 0.66666841
## 607     1 0.66666841
## 608     1 0.66666841
## 609     0 0.66667518
## 610     0 0.95817536
## 611     0 0.02283790
## 612     0 0.02283101
## 613     0 0.02283101
## 614     0 0.02283101
## 615     0 0.95817536
## 616     0 0.95817536
## 617     1 0.95817536
## 618     1 0.95817536
## 619     1 0.95817536
## 620     1 0.95817536
## 621     1 0.95817536
## 622     1 0.95817536
## 623     1 0.95817536
## 624     0 0.02283101
## 625     1 0.95817536
## 626     1 0.95817536
## 627     1 0.95817536
## 628     1 0.95817536
## 629     1 0.95817536
## 630     1 0.95817536
## 631     1 0.95817536
## 632     1 0.95817536
## 633     1 0.95817536
## 634     0 0.02283101
## 635     0 0.66666847
## 636     0 0.66666841
## 637     0 0.66666841
## 638     0 0.02283101
## 639     1 0.95817536
## 640     1 0.95817536
## 641     1 0.95817536
## 642     1 0.95817536
```

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## 643       1 0.95817536
## 644       1 0.95817536
## 645       1 0.95817536
## 646       1 0.95817536
## 647       1 0.95817536
## 648       1 0.95817536
## 649       0 0.02283101
## 650       0 0.02283101
## 651       0 0.02283101
## 652       1 0.95817536
## 653       0 0.02283101
## 654       0 0.02283101
## 655       0 0.02283101
## 656       1 0.95817536
## 657       1 0.95817536
## 658       1 0.95817536
## 659       1 0.66666841
## 660       1 0.95817536
## 661       1 0.95817536
## 662       1 0.95817536
## 663       1 0.95817536
## 664       1 0.95817536
## 665       1 0.95817536
## 666       1 0.95817536
## 667       1 0.95817536
## 668       0 0.02283101
## 669       0 0.02283101
## 670       0 0.02283101
## 671       0 0.02283101
## 672       0 0.02283101
## 673       1 0.95817536
## 674       1 0.95817536
## 675       1 0.95817536
## 676       1 0.95817536
## 677       1 0.95817536
## 678       1 0.95817536
## 679       1 0.95817536
## 680       1 0.95817536
## 681       0 0.66667518
## 682       0 0.95817536
## 683       0 0.02283790
## 684       0 0.02283101
## 685       0 0.02283101
## 686       0 0.02283101
## 687       0 0.95817536
## 688       0 0.95817536
## 689       1 0.95817536
## 690       1 0.95817536
## 691       1 0.95817536
## 692       1 0.95817536
## 693       1 0.95817536
## 694       1 0.95817536
## 695       1 0.95817536
## 696       1 0.95817536
```

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## 697     0 0.02283101
## 698     0 0.02283101
## 699     0 0.02283101
## 700     0 0.02283101
## 701     1 0.95817536
## 702     1 0.95817536
## 703     1 0.95817536
## 704     0 0.02283101
## 705     1 0.95817536
## 706     1 0.95817536
## 707     1 0.95817536
## 708     1 0.95817536
## 709     1 0.95817536
## 710     1 0.95817536
## 711     1 0.95817536
## 712     1 0.95817536
## 713     1 0.95817536
## 714     1 0.95817536
## 715     1 0.95817536
## 716     1 0.95817536
## 717     1 0.95817536
## 718     1 0.95817536
## 719     1 0.95817536
## 720     1 0.95817536
## 721     1 0.95817536
## 722     1 0.95817536
## 723     1 0.95817536
## 724     1 0.95817536
## 725     1 0.95817536
## 726     1 0.95817536
## 727     1 0.95817536
## 728     1 0.95817536
## 729     1 0.95817536
## 730     1 0.95817536
## 731     1 0.95817536
## 732     1 0.95817536
## 733     1 0.95817536
## 734     1 0.95817536
## 735     1 0.95817536
## 736     1 0.02283101
## 737     1 0.95817536
## 738     1 0.95817536
## 739     1 0.95817536
## 740     0 0.02283101
## 741     0 0.02283101
## 742     0 0.02283101
## 743     0 0.02283101
## 744     0 0.02283101
## 745     0 0.02283101
## 746     0 0.02283101
## 747     0 0.02283101
## 748     0 0.02283101
## 749     0 0.02283101
## 750     0 0.02283101
```

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## 751        0 0.02283101
## 752        0 0.02283101
## 753        1 0.95817536
## 754        1 0.95817536
## 755        1 0.95817536
## 756        1 0.95817536
## 757        1 0.95817536
## 758        1 0.95817536
## 759        0 0.02283101
## 760        1 0.95817536
## 761        0 0.02283101
## 762        0 0.02283101
## 763        0 0.02283101
## 764        0 0.95817536
## 765        0 0.95817536
## 766        0 0.95817536
## 767        0 0.02283101
## 768        0 0.02283101
## 769        1 0.95817536
## 770        1 0.95817536
## 771        1 0.95817536
## 772        1 0.95817536
## 773        1 0.95817536
## 774        1 0.95817536
## 775        1 0.95817536
## 776        1 0.95817439
## 777        1 0.95817536
## 778        1 0.95817536
## 779        1 0.95817536
## 780        1 0.95817536
## 781        1 0.66666841
## 782        1 0.95817536
## 783        1 0.95817536
## 784        1 0.95817536
## 785        1 0.95817536
## 786        1 0.95817536
## 787        1 0.95817536
## 788        1 0.95817536
## 789        1 0.95817536
## 790        1 0.95817536
## 791        1 0.95817536
## 792        1 0.95817536
## 793        0 0.02283101
## 794        0 0.02283101
## 795        0 0.02283101
## 796        0 0.02283101
## 797        0 0.02283101
## 798        1 0.02283101
## 799        0 0.02283101
## 800        1 0.95817536
## 801        1 0.95817536
## 802        1 0.95817536
## 803        1 0.95817536
## 804        1 0.95817536
```

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## 805        1 0.95817536
## 806        1 0.95817536
## 807        1 0.95817536
## 808        1 0.95817536
## 809        0 0.02283101
## 810        0 0.02283101
## 811        0 0.02283101
## 812        0 0.02283101
## 813        0 0.02283101
## 814        0 0.02283101
## 815        0 0.02283101
## 816        0 0.02283101
## 817        1 0.95817536
## 818        1 0.95817536
## 819        1 0.95817536
## 820        1 0.95817536
## 821        1 0.95817536
## 822        1 0.95817536
## 823        1 0.66666841
## 824        1 0.95817536
## 825        1 0.95817536
## 826        1 0.95817536
## 827        1 0.95817536
## 828        1 0.95817536
## 829        1 0.95817536
## 830        1 0.95817486
## 831        1 0.02283101
## 832        1 0.95817536
## 833        1 0.95817536
## 834        1 0.95817536
## 835        1 0.95817536
## 836        1 0.95817536
## 837        1 0.95817536
## 838        1 0.95817536
## 839        1 0.95817536
## 840        1 0.95817536
## 841        0 0.02283101
## 842        0 0.02283101
## 843        1 0.95817536
## 844        1 0.95817536
## 845        1 0.95817536
## 846        1 0.95817536
## 847        1 0.95817536
## 848        1 0.95817536
## 849        1 0.66666841
## 850        1 0.66666841
## 851        1 0.66666841
## 852        1 0.66666841
## 853        1 0.66666841
## 854        1 0.95783700
## 855        1 0.95817536
## 856        1 0.66666841
## 857        1 0.95817536
## 858        1 0.95817536
```

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## 859      1 0.95817536
## 860      1 0.95817536
## 861      1 0.95817536
## 862      1 0.95817536
## 863      1 0.95817536
## 864      1 0.95817536
## 865      0 0.02283101
## 866      0 0.02283101
## 867      0 0.02283101
## 868      0 0.02283101
## 869      0 0.02283101
## 870      0 0.02283101
## 871      0 0.02283101
## 872      0 0.02283101
## 873      0 0.02283101
## 874      0 0.02283101
## 875      0 0.02283101
## 876      0 0.02283101
## 877      1 0.95817536
## 878      1 0.95817536
## 879      1 0.95817536
## 880      1 0.95817536
## 881      1 0.95817536
## 882      1 0.95817536
## 883      1 0.95817536
## 884      1 0.95817536
## 885      1 0.95817536
## 886      1 0.95817536
## 887      1 0.95817536
## 888      1 0.95817536
## 889      1 0.95817536
## 890      0 0.02283101
## 891      0 0.02283101
## 892      0 0.02283101
## 893      0 0.95817536
## 894      0 0.95817536
## 895      0 0.02283101
## 896      1 0.95817536
## 897      1 0.66666841
## 898      1 0.95817536
## 899      1 0.95817536
## 900      1 0.95817536
## 901      1 0.95817536
## 902      1 0.66666841
## 903      1 0.66666841
## 904      1 0.95817536
## 905      1 0.95817536
## 906      0 0.02283101
## 907      0 0.66666847
## 908      0 0.66666841
## 909      0 0.66666841
## 910      0 0.02283101
## 911      1 0.95817536
## 912      1 0.95817536
```

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## 913        1 0.95817536
## 914        1 0.95817536
## 915        1 0.95817536
## 916        1 0.95817536
## 917        1 0.95817536
## 918        1 0.95817536
## 919        1 0.95817536
## 920        1 0.95817536
## 921        1 0.95817536
## 922        1 0.95817536
## 923        1 0.95817536
## 924        1 0.95817536
## 925        1 0.95817536
## 926        1 0.95817536
## 927        1 0.95817536
## 928        1 0.95817536
## 929        1 0.95817536
## 930        1 0.95817536
## 931        1 0.95817536
## 932        1 0.95817536
## 933        1 0.95817536
## 934        1 0.95817536
## 935        1 0.95817536
## 936        1 0.95817536
## 937        0 0.02283101
## 938        0 0.02283101
## 939        0 0.02283101
## 940        0 0.02283101
## 941        1 0.95817536
## 942        1 0.95817536
## 943        1 0.95817536
## 944        1 0.95817536
## 945        1 0.95817536
## 946        1 0.95817536
## 947        1 0.95817536
## 948        1 0.95817536
## 949        1 0.95817536
## 950        1 0.95817536
## 951        1 0.95817536
## 952        1 0.66666841
## 953        1 0.95817536
## 954        1 0.95817536
## 955        1 0.95817536
## 956        1 0.95817536
## 957        1 0.66666841
## 958        1 0.66666841
## 959        1 0.95817536
## 960        1 0.95817536
## 961        1 0.95817536
## 962        1 0.95817536
## 963        1 0.95817536
## 964        1 0.95817536
## 965        1 0.95817536
## 966        1 0.95817536
```

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## 967      1 0.95817536
## 968      1 0.95817536
## 969      1 0.95817536
## 970      1 0.95817536
## 971      1 0.95817536
## 972      1 0.95817536
## 973      1 0.95817536
## 974      1 0.95817536
## 975      1 0.95817536
## 976      1 0.95817536
## 977      1 0.02283101
## 978      1 0.02283101
## 979      1 0.02283101
## 980      1 0.02283101
## 981      1 0.66666841
## 982      1 0.95817536
## 983      1 0.95817523
## 984      1 0.02283101
## 985      0 0.02283101
## 986      0 0.02283101
## 987      0 0.02283101
## 988      0 0.02283101
## 989      0 0.02283101
## 990      0 0.02283101
## 991      0 0.02283101
## 992      0 0.02283101
## 993      0 0.02283101
## 994      0 0.02283101
## 995      0 0.02283101
## 996      0 0.02283101
## 997      1 0.95817536
## 998      0 0.02283123
## 999      1 0.95817536
## 1000     1 0.95817536
## 1001     1 0.95817536
## 1002     1 0.95817536
## 1003     1 0.95817536
## 1004     1 0.66666841
## 1005     1 0.95817536
## 1006     1 0.66666841
## 1007     1 0.66666841
## 1008     1 0.66666841
## 1009     1 0.95817536
## 1010     1 0.95817536
## 1011     1 0.95817536
## 1012     1 0.95817536
## 1013     1 0.95817536
## 1014     1 0.95817536
## 1015     1 0.95817536
## 1016     1 0.95817536
## 1017     1 0.95817536
## 1018     1 0.95817536
## 1019     1 0.95817536
## 1020     1 0.95817536
```

```
## 1021     1 0.95817536
## 1022     1 0.66666841
## 1023     1 0.95817536
## 1024     1 0.02283101
## 1025     1 0.95817536
## 1026     1 0.95817536
## 1027     1 0.95817536
## 1028     1 0.95817536
## 1029     1 0.95817536
## 1030     1 0.95817536
## 1031     1 0.95817536
## 1032     1 0.95817536
## 1033     1 0.95817536
## 1034     1 0.95817536
## 1035     1 0.95817536
## 1036     1 0.95817536
## 1037     1 0.95817536
## 1038     1 0.95817536
## 1039     1 0.95817536
## 1040     1 0.95817536
## 1041     0 0.02283101
## 1042     0 0.02283101
## 1043     0 0.02283101
## 1044     0 0.02283101
## 1045     0 0.02283101
## 1046     0 0.02283101
## 1047     0 0.02283101
## 1048     0 0.02283101
## 1049     1 0.95817536
## 1050     1 0.95817536
## 1051     1 0.95817536
## 1052     1 0.95817536
## 1053     1 0.95817536
## 1054     1 0.95817536
## 1055     1 0.94559395
## 1056     1 0.95817536
## 1057     1 0.95817536
## 1058     1 0.95817536
## 1059     0 0.02283231
## 1060     1 0.95817536
## 1061     1 0.95817536
## 1062     1 0.95817536
## 1063     1 0.95817536
## 1064     1 0.95817536
## 1065     1 0.95817536
## 1066     1 0.95817536
## 1067     1 0.95817536
## 1068     1 0.95817536
## 1069     1 0.95817533
## 1070     1 0.02283101
## 1071     1 0.95817536
## 1072     0 0.02283101
## 1073     0 0.02283101
## 1074     0 0.02283101
```

```
## 1075    0 0.02283101
## 1076    0 0.02283101
## 1077    0 0.02283101
## 1078    0 0.95817536
## 1079    0 0.02283101
## 1080    0 0.02283101
## 1081    0 0.02283101
## 1082    0 0.02283101
## 1083    1 0.95817536
## 1084    0 0.02283101
## 1085    0 0.02283101
## 1086    0 0.02283101
## 1087    0 0.02283101
## 1088    0 0.02283101
## 1089    1 0.95817536
## 1090    0 0.02283101
## 1091    0 0.66666847
## 1092    0 0.66666841
## 1093    0 0.66666841
## 1094    0 0.02283101
## 1095    1 0.95817536
## 1096    1 0.95817536
## 1097    1 0.95817536
## 1098    1 0.95817536
## 1099    1 0.95817536
## 1100    1 0.95817536
## 1101    1 0.95817536
## 1102    1 0.95817536
## 1103    1 0.95817536
## 1104    1 0.95817536
## 1105    1 0.95817536
## 1106    1 0.95817536
## 1107    1 0.95817536
## 1108    1 0.95817536
## 1109    1 0.95817536
## 1110    1 0.95817536
## 1111    1 0.95817536
## 1112    1 0.95817536
## 1113    1 0.95817536
## 1114    1 0.95817536
## 1115    1 0.95817536
## 1116    1 0.95817536
## 1117    1 0.66666841
## 1118    1 0.95817536
## 1119    1 0.95817536
## 1120    1 0.95817536
## 1121    0 0.02283101
## 1122    0 0.02283101
## 1123    0 0.02283101
## 1124    0 0.02283101
## 1125    0 0.02283101
## 1126    0 0.02283101
## 1127    0 0.95817536
## 1128    0 0.95817536
```

```
#########################################################################

bannerCommenter::banner("Baseline Accuracy (Train & Test)")

##
## #####################################################################
## ##                 Baseline Accuracy (Train & Test)              ##
## #####################################################################
### Baseline Accuracy (Train & Test) ######################
set.seed(123)
prop.table(table(train_data$Y))         #Baseline Accuracy

##
##         0         1
## 0.3177215 0.6822785
prop.table(table(test_data$Y))          #Baseline Accuracy

##
##         0         1
## 0.3176575 0.6823425
###########################################################

############ Confusion Matrix #############

bannerCommenter::banner("Confusion Matrix")

##
## #####################################################################
## ##                     Confusion Matrix                          ##
## #####################################################################
set.seed(1234)
roundedresults<-sapply(results,round,digits=0)
roundedresultsdf= data.frame(roundedresults)
attach(roundedresultsdf)
table(actual,prediction)

##       prediction
## actual   0    1
##      0 309   49
##      1  11  758
bannerCommenter::banner("Accuracy of Classification ANN Model")

##
## #####################################################################
## ##            Accuracy of Classification ANN Model               ##
## #####################################################################

accuracy_model <-((310+758)/1127)
accuracy_model

## [1] 0.9476486
############### Ending the classification ################
```