Project 1

Chen zhikai 516370910008

Part 1

Read the data in

```
setwd("~/Desktop")
cars.df = read.table("~/Desktop/cars.p.csv.bz2", header = TRUE, sep = ",")
str(cars.df)
```

```
## 'data.frame':    428 obs. of  20 variables:
##  $ Model  : Factor w/ 425 levels "Acura 3.5 RL 4dr",..: 1 2 3 4 5 6 7 8 10 11 ...
##  $ Common : int  1 1 0 0 1 1 1 1 1 1 ...
##  $ Sports : int  0 0 0 1 0 0 0 0 0 0 ...
##  $ SUV    : int  0 0 1 0 0 0 0 0 0 0 ...
##  $ Wagon  : int  0 0 0 0 0 0 0 0 0 0 ...
##  $ Minivan: int  0 0 0 0 0 0 0 0 0 0 ...
##  $ Pickup : int  0 0 0 0 0 0 0 0 0 0 ...
##  $ AWD    : int  0 0 1 0 0 0 0 0 0 0 ...
##  $ RWD    : int  0 0 0 1 0 0 0 0 0 0 ...
##  $ Price  : int  43755 46100 36945 89765 23820 33195 26990 25940 31840 42490 ...
##  $ Cost   : int  39014 41100 33337 79978 21761 30299 24647 23508 28846 38325 ...
##  $ Disp   : num  3.5 3.5 3.5 3.2 2 3.2 2.4 1.8 3 3 ...
##  $ Cyli   : int  6 6 6 6 4 6 4 4 6 6 ...
##  $ HP     : int  225 225 265 290 200 270 200 170 220 220 ...
##  $ CMPG   : Factor w/ 29 levels "*","10","12",..: 9 9 8 8 15 11 13 13 11 11 ...
##  $ HMPG   : Factor w/ 33 levels "*","12","14",..: 12 12 11 12 19 16 17 19 16 15 ...
##  $ M      : Factor w/ 348 levels "*","1850","2035",..: 241 242 301 95 52 182 107 113 155 228 ...
##  $ WBL    : Factor w/ 41 levels "*","100","101",..: 17 17 8 2 3 10 7 6 6 7 ...
##  $ L      : Factor w/ 62 levels "*","143","144",..: 47 47 39 24 22 36 33 29 29 30 ...
##  $ W      : Factor w/ 19 levels "*","64","65",..: 10 10 15 9 6 10 7 8 8 8 ...
```

```
levels(cars.df$CMPG)
```

```
##  [1] "*"  "10" "12" "13" "14" "15" "16" "17" "18" "19" "20" "21" "22" "23"
## [15] "24" "25" "26" "27" "28" "29" "31" "32" "33" "35" "36" "38" "46" "59"
## [29] "60"
```

To deal with the 4th problem, we need a new column indicating the manufacturing place of cars.

```
cars.vec = as.character(cars.df$Model)
place.vec = rep("1", length(cars.df$Model))
split.vec = strsplit(cars.vec, "[ ]")
for(i in 1:length(cars.vec)){
  cars.vec[i] = split.vec[[i]][1]
}
US.id = which(cars.vec == "Buick" | cars.vec == "Cadillac" | cars.vec == "Chevrolet" | cars.vec == "Chry
                cars.vec == "Hummer" | cars.vec == "Jeep" | cars.vec == "Lincoln" | cars.vec == "Mercury
GEM.id = which(cars.vec == "Audi" | cars.vec == "BMW" | cars.vec == "Mercedes-Benz" | cars.vec == "Mini
JP.id = which(cars.vec == "Honda" | cars.vec == "Infiniti" | cars.vec == "Isuzu" | cars.vec == "Lexus"
KOR.id = which(cars.vec == "Hyundai" | cars.vec == "Kia")
UK.id = which(cars.vec == "Jaguar" | cars.vec == "Land")
cars.df$birth = rep("Others", length(cars.df$Model))
```

```
cars.df$birth[US.id] = "US"
cars.df$birth[GEM.id] = "GEM"
cars.df$birth[JP.id] = "JP"
cars.df$birth[KOR.id] = "KOR"
cars.df$birth[UK.id] = "UK"
```

Delete the missing data row

```
missing_data_index = which(cars.df$CMPG == "*" | cars.df$HMPG == "*" | cars.df$M == "*" | cars.df$WBL ==
missing_data_index
```

```
##  [1]  59  65  71  83  84  85 108 109 116 119 124 127 128 138 143 146 147
## [18] 148 205 239 240 244 245 247 248 256 291 293 295 296 297 304 315 321
## [35] 325 355 399 400 401 414 415
```

```
cars.nonull.df = cars.df[-c(missing_data_index),]
which(cars.nonull.df$CMPG == "*")
```

```
## integer(0)
```

```
cars.nonull.df$CMPG = as.double(as.character(cars.nonull.df$CMPG))
cars.nonull.df$HMPG = as.double(as.character(cars.nonull.df$HMPG))
cars.nonull.df$M = as.double(as.character(cars.nonull.df$M))
cars.nonull.df$WBL = as.double(as.character(cars.nonull.df$WBL))
cars.nonull.df$L = as.double(as.character(cars.nonull.df$L))
cars.nonull.df$W = as.double(as.character(cars.nonull.df$W))
str(cars.nonull.df)
```

```
## 'data.frame':    387 obs. of  21 variables:
##  $ Model  : Factor w/ 425 levels "Acura 3.5 RL 4dr",..: 1 2 3 4 5 6 7 8 10 11 ...
##  $ Common : int  1 1 0 0 1 1 1 1 1 1 ...
##  $ Sports : int  0 0 0 1 0 0 0 0 0 0 ...
##  $ SUV    : int  0 0 1 0 0 0 0 0 0 0 ...
##  $ Wagon  : int  0 0 0 0 0 0 0 0 0 0 ...
##  $ Minivan: int  0 0 0 0 0 0 0 0 0 0 ...
##  $ Pickup : int  0 0 0 0 0 0 0 0 0 0 ...
##  $ AWD    : int  0 0 1 0 0 0 0 0 0 0 ...
##  $ RWD    : int  0 0 0 1 0 0 0 0 0 0 ...
##  $ Price  : int  43755 46100 36945 89765 23820 33195 26990 25940 31840 42490 ...
##  $ Cost   : int  39014 41100 33337 79978 21761 30299 24647 23508 28846 38325 ...
##  $ Disp   : num  3.5 3.5 3.5 3.2 2 3.2 2.4 1.8 3 3 ...
##  $ Cyli   : int  6 6 6 6 4 6 4 4 6 6 ...
##  $ HP     : int  225 225 265 290 200 270 200 170 220 220 ...
##  $ CMPG   : num  18 18 17 17 24 20 22 22 20 20 ...
##  $ HMPG   : num  24 24 23 24 31 28 29 31 28 27 ...
##  $ M      : num  3880 3893 4451 3153 2778 ...
##  $ WBL    : num  115 115 106 100 101 108 105 104 104 105 ...
##  $ L      : num  197 197 189 174 172 186 183 179 179 180 ...
##  $ W      : num  72 72 77 71 68 72 69 70 70 70 ...
##  $ birth  : chr  "JP" "JP" "JP" "JP" ...
```

Transform the brand name column into the form that we need

```
cars.vec = as.character(cars.nonull.df$Model)
place.vec = rep("1", length(cars.nonull.df$Model))
split.vec = strsplit(cars.vec, "[ ]")
for(i in 1:length(cars.vec)){
```

```
  cars.vec[i] = split.vec[[i]][1]
}
cars.nonull.df$Model = cars.vec
clear_typo = which(cars.nonull.df$Model == "Chrvsler")
cars.nonull.df$Model[clear_typo] = "Chrysler"
mazda6_idx = which(cars.nonull.df$Model == "Mazda6")
cars.nonull.df$Model[mazda6_idx] = "Mazda"
cars.nonull.df$Model = as.factor(cars.nonull.df$Model)
cars.nonull.df$birth = as.factor(cars.nonull.df$birth)
str(cars.nonull.df)
```

```
## 'data.frame':    387 obs. of  21 variables:
##  $ Model  : Factor w/ 39 levels "Acura","Audi",..: 1 1 1 1 1 1 1 2 2 2 ...
##  $ Common : int  1 1 0 0 1 1 1 1 1 1 ...
##  $ Sports : int  0 0 0 1 0 0 0 0 0 0 ...
##  $ SUV    : int  0 0 1 0 0 0 0 0 0 0 ...
##  $ Wagon  : int  0 0 0 0 0 0 0 0 0 0 ...
##  $ Minivan: int  0 0 0 0 0 0 0 0 0 0 ...
##  $ Pickup : int  0 0 0 0 0 0 0 0 0 0 ...
##  $ AWD    : int  0 0 1 0 0 0 0 0 0 0 ...
##  $ RWD    : int  0 0 0 1 0 0 0 0 0 0 ...
##  $ Price  : int  43755 46100 36945 89765 23820 33195 26990 25940 31840 42490 ...
##  $ Cost   : int  39014 41100 33337 79978 21761 30299 24647 23508 28846 38325 ...
##  $ Disp   : num  3.5 3.5 3.5 3.2 2 3.2 2.4 1.8 3 3 ...
##  $ Cyli   : int  6 6 6 6 4 6 4 4 6 6 ...
##  $ HP     : int  225 225 265 290 200 270 200 170 220 220 ...
##  $ CMPG   : num  18 18 17 17 24 20 22 22 20 20 ...
##  $ HMPG   : num  24 24 23 24 31 28 29 31 28 27 ...
##  $ M      : num  3880 3893 4451 3153 2778 ...
##  $ WBL    : num  115 115 106 100 101 108 105 104 104 105 ...
##  $ L      : num  197 197 189 174 172 186 183 179 179 180 ...
##  $ W      : num  72 72 77 71 68 72 69 70 70 70 ...
##  $ birth  : Factor w/ 6 levels "GEM","JP","KOR",..: 2 2 2 2 2 2 2 1 1 1 ...
```

```
cars.new.df = cars.nonull.df
```

Turn some columns into categorical variables to reduce number of predictors

```
type.vec = rep(FALSE, length(cars.new.df$Common))
sports_index = which(cars.new.df$Sports == 1)
suv_index = which(cars.new.df$SUV == 1)
wagon_index = which(cars.new.df$Wagon == 1)
Minivan_index = which(cars.new.df$Minivan == 1)
PickUp_index = which(cars.new.df$Pickup == 1)
AWD_id = which(cars.new.df$AWD == 1)
RWD_id = which(cars.new.df$RWD == 1)
Common_index = which(cars.new.df$Common == 1)
type.vec[sports_index] = 'SPORTS'
type.vec[suv_index] = 'SUV'
type.vec[wagon_index] = 'WAGON'
type.vec[Minivan_index] = 'MINIVAN'
type.vec[PickUp_index] = 'PICKUP'
type.vec[Common_index] = 'COMMON'
wd.vec = rep('OTHERWD', length(cars.new.df$AWD))
AWD.id = which(cars.new.df$AWD == 1)
```

```
RWD.id = which(cars.new.df$RWD == 1)
wd.vec[AWD.id] = 'AWD'
wd.vec[RWD.id] = 'RWD'
cars.new.df$TYPE = type.vec
cars.new.df$WD = wd.vec
drops = c('Common', 'Sports', 'SUV', 'Wagon', 'Minivan', 'Pickup', 'AWD', 'RWD')
cars.new.df = cars.new.df[,!(names(cars.new.df) %in% drops) ]
```

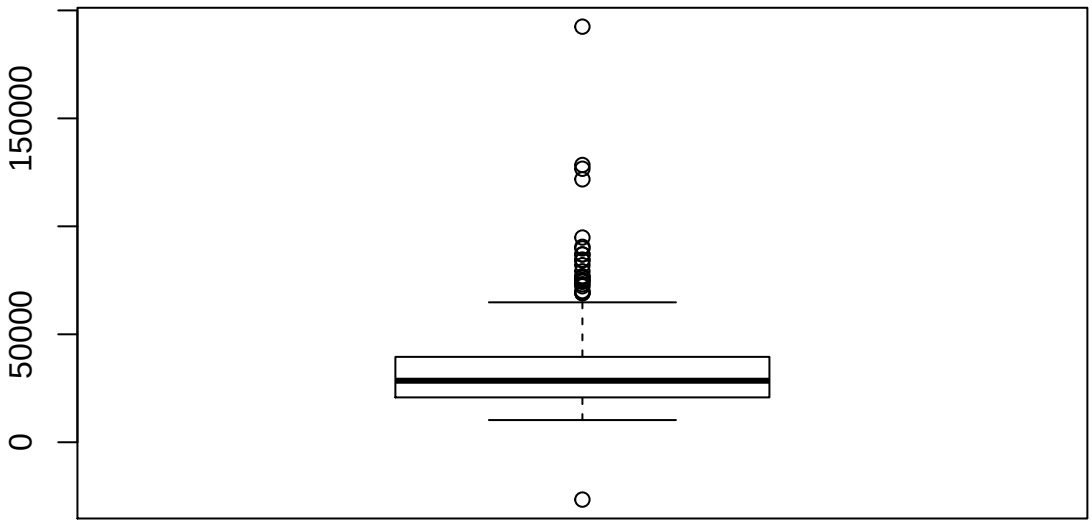
Check if there are any weird data points

```
summary(cars.new.df)
```

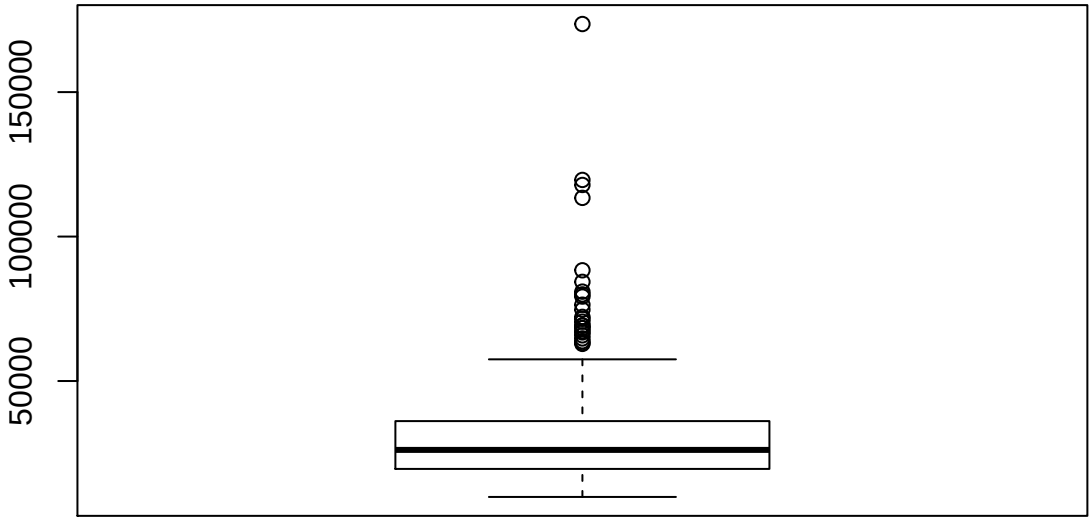
```
##            Model         Price             Cost             Disp
##  Mercedes-Benz: 25   Min.   :-26545   Min.   :  9875   Min.   : 1.400
##  Toyota       : 25   1st Qu.: 20777   1st Qu.: 19575   1st Qu.: 2.350
##  Chevrolet    : 22   Median : 28495   Median : 26155   Median : 3.000
##  BMW          : 20   Mean   : 33094   Mean   : 30441   Mean   : 3.174
##  Audi         : 19   3rd Qu.: 39552   3rd Qu.: 36124   3rd Qu.: 3.800
##  Ford         : 19   Max.   :192465   Max.   :173560   Max.   :20.000
##  (Other)      :257
##       Cyli              HP             CMPG            HMPG
##  Min.   : 3.000   Min.   : 73.0   Min.   :10.00   Min.   :12.00
##  1st Qu.: 4.000   1st Qu.:165.0   1st Qu.:18.00   1st Qu.:24.00
##  Median : 6.000   Median :210.0   Median :19.00   Median :27.00
##  Mean   : 5.757   Mean   :214.4   Mean   :20.31   Mean   :27.26
##  3rd Qu.: 6.000   3rd Qu.:250.0   3rd Qu.:21.50   3rd Qu.:30.00
##  Max.   :12.000   Max.   :493.0   Max.   :60.00   Max.   :66.00
##
##        M             WBL              L             W            birth
##  Min.   :1850   Min.   : 89.0   Min.   :143   Min.   :64.00   GEM   : 87
##  1st Qu.:3107   1st Qu.:103.0   1st Qu.:177   1st Qu.:69.00   JP    :118
##  Median :3469   Median :107.0   Median :186   Median :71.00   KOR   : 22
##  Mean   :3532   Mean   :107.2   Mean   :185   Mean   :71.28   Others: 19
##  3rd Qu.:3922   3rd Qu.:112.0   3rd Qu.:193   3rd Qu.:73.00   UK    : 15
##  Max.   :6400   Max.   :130.0   Max.   :221   Max.   :81.00   US    :126
##
##      TYPE                WD
##  Length:387         Length:387
##  Class :character   Class :character
##  Mode  :character   Mode  :character
##
##
##
##
```

According to this summary, there are obvious weird points in Price considering their practical meanings. We further do a box-plot.

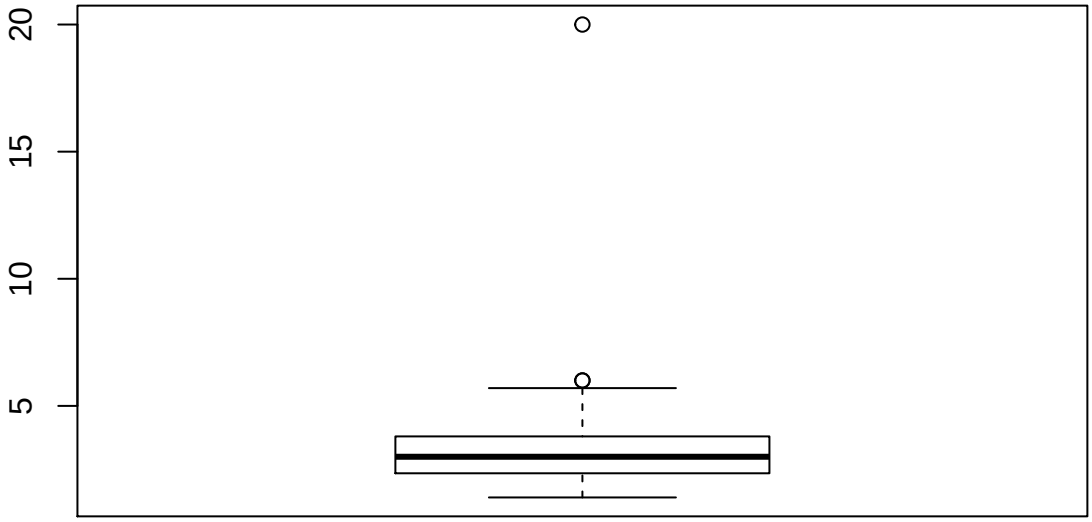
```
boxplot(cars.new.df$Price)
```



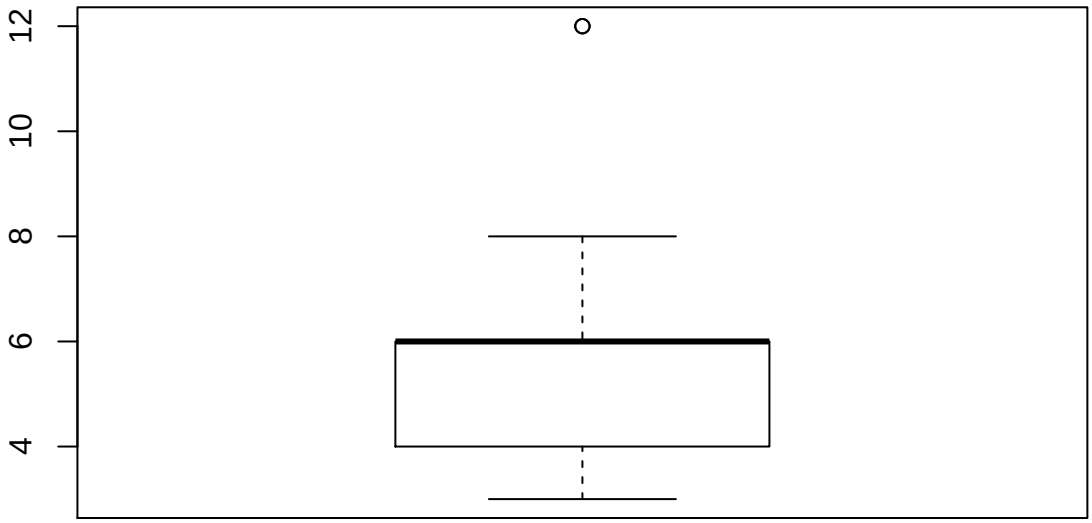

```
boxplot(cars.new.df$Cost)
```



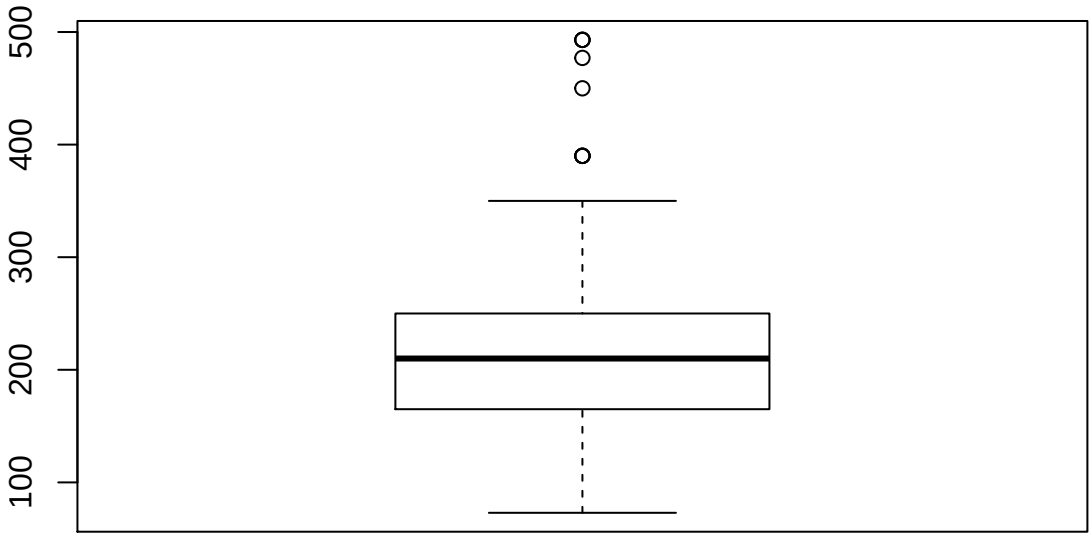

```
boxplot(cars.new.df$Disp)
```



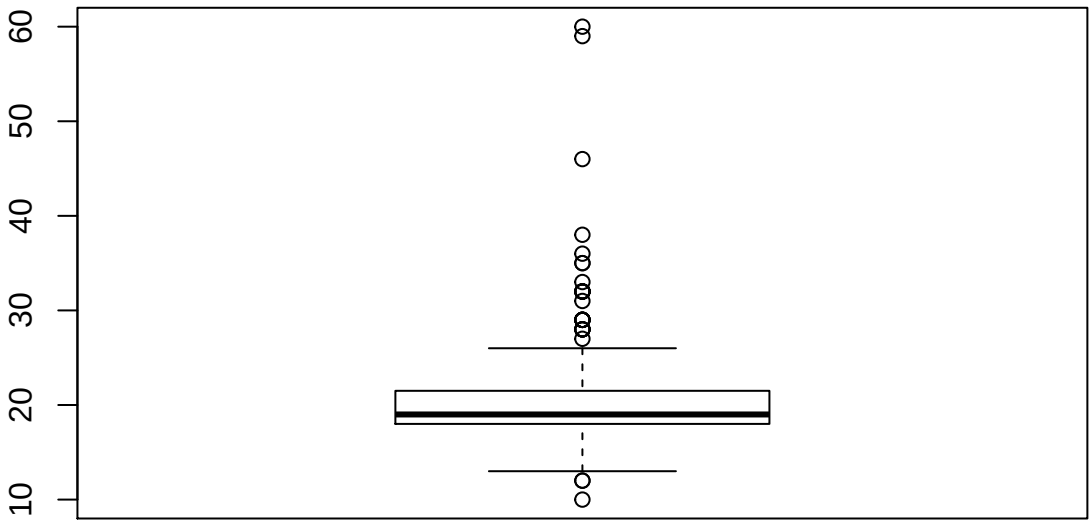
```
boxplot(cars.new.df$Cyli)
```



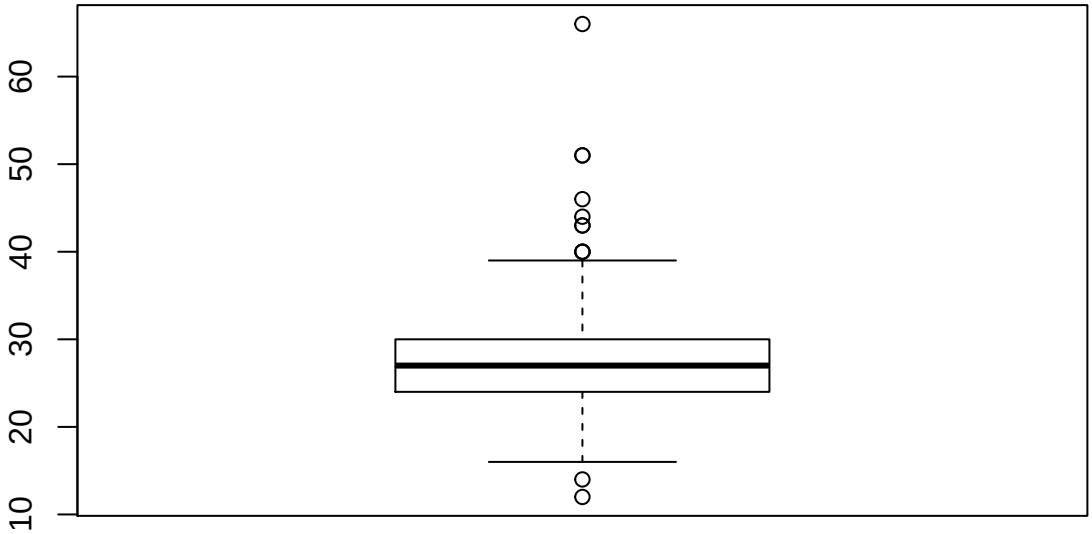

```
boxplot(cars.new.df$HP)
```



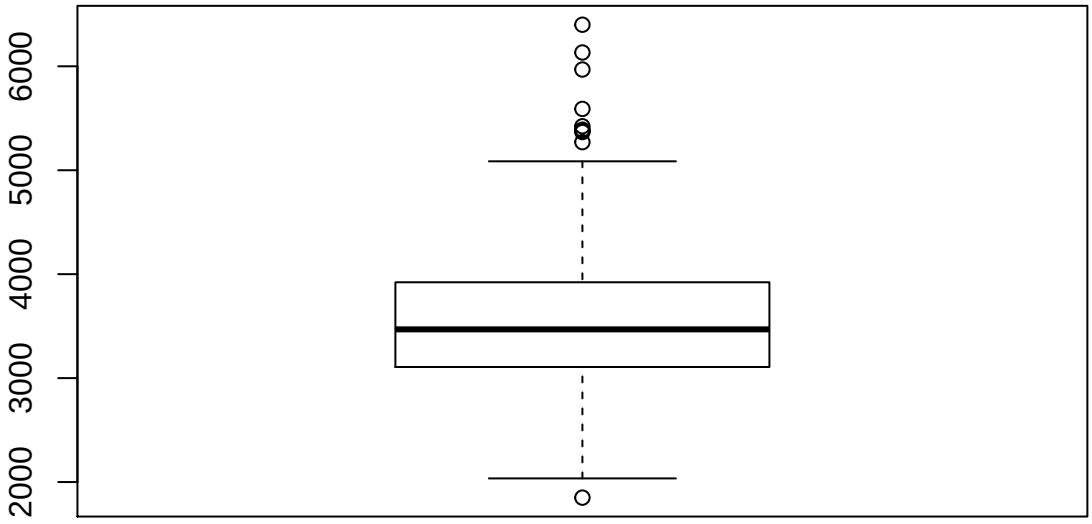

```
boxplot(cars.new.df$CMPG)
```



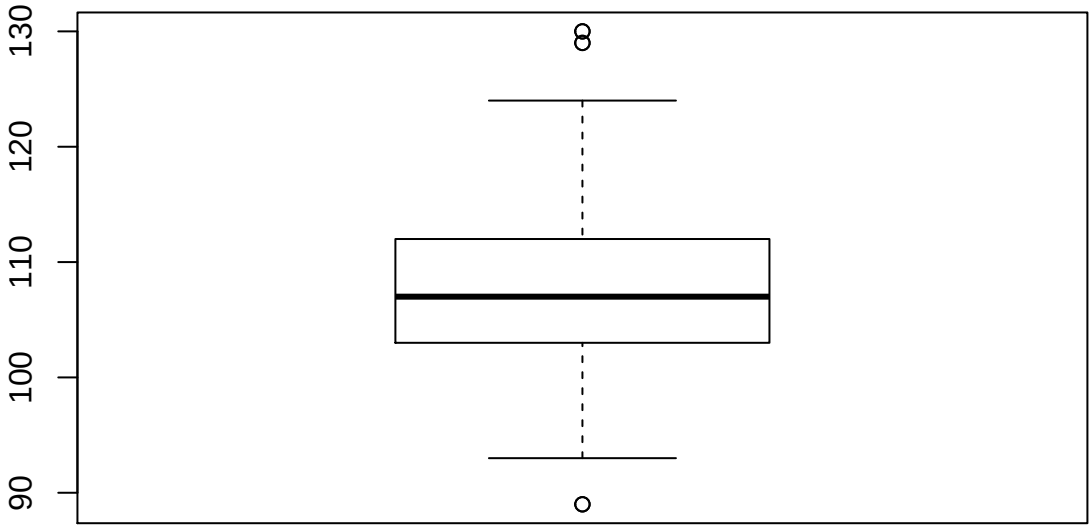

```
boxplot(cars.new.df$HMPG)
```



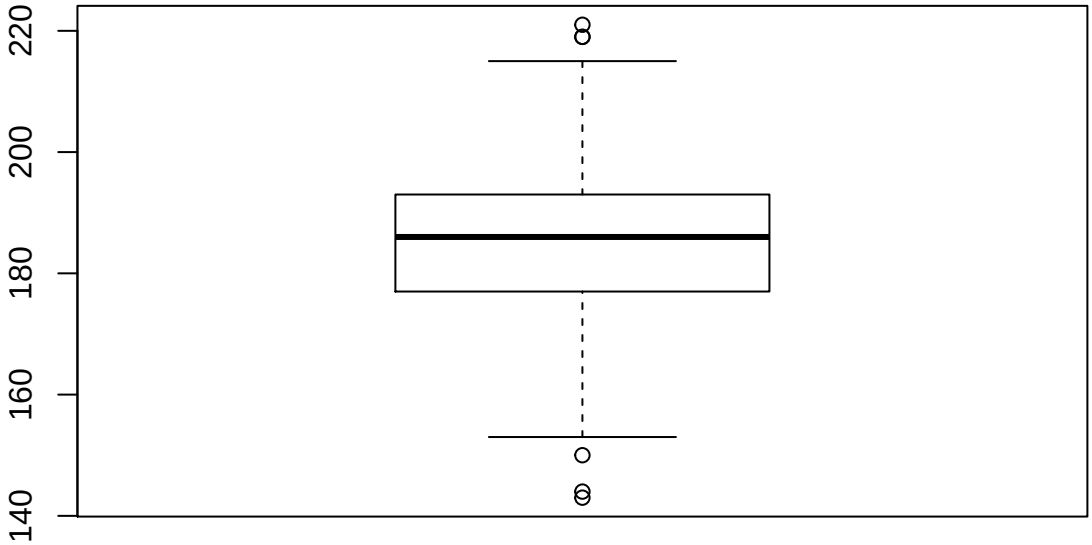

```
boxplot(cars.new.df$M)
```



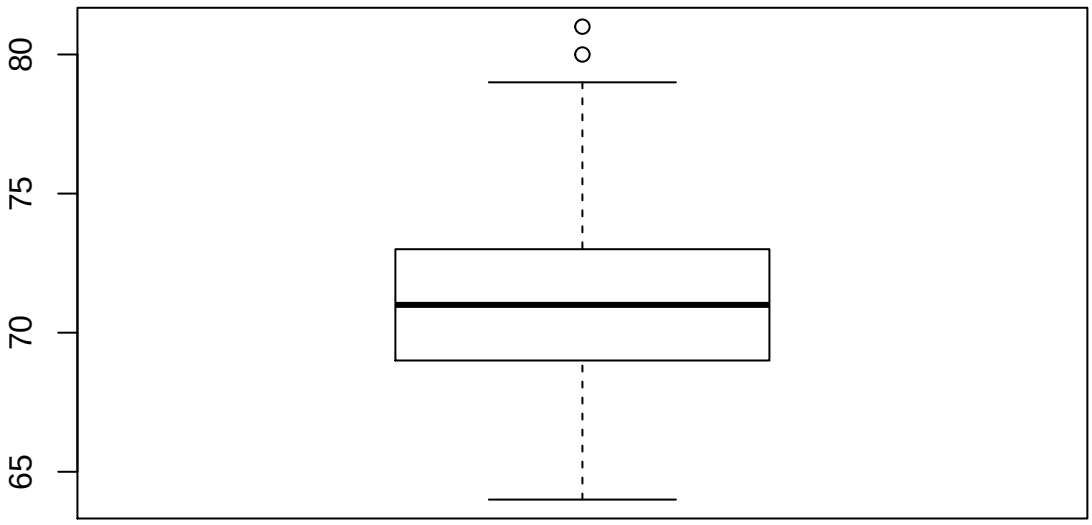
```r
boxplot(cars.new.df$WBL)
```




```r
boxplot(cars.new.df$L)
```




```r
boxplot(cars.new.df$W)
```



We further check and fix some weird points Check the disp data, we found a Jetta with 20.0 disp. That's no doubt a mistake. However, we don't have any excuses to delete the rows with these large cylinder values.

```
neg_price = which(cars.new.df$Price < 0)
cars.new.df$Price[neg_price] = -cars.new.df$Price[neg_price]
large_disp = which(cars.new.df$Disp == 20)
large_cyli = which(cars.new.df$Cyli == 12)
large_disp
```

```
## [1] 365
```

```
large_cyli
```

```
## [1] 234 247
```

```
cars.new.df[large_disp,]
```

```
##          Model Price  Cost Disp Cyli  HP CMPG HMPG    M WBL   L  W birth
## 404 Volkswagen 19005 17427   20    4 115   24   30 3034  99 174 68   GEM
##      TYPE      WD
## 404 WAGON OTHERWD
```

```
cars.new.df[large_cyli,]
```

```
##             Model  Price   Cost Disp Cyli  HP CMPG HMPG    M WBL   L  W
## 260 Mercedes-Benz 128420 119600  5.5   12 493   13   19 4473 114 196 73
## 273 Mercedes-Benz 126670 117854  5.5   12 493   13   19 4429 101 179 72
##     birth   TYPE  WD
## 260   GEM COMMON RWD
## 273   GEM SPORTS RWD
```

```
cars.new.df = cars.new.df[-c(large_disp),]
```

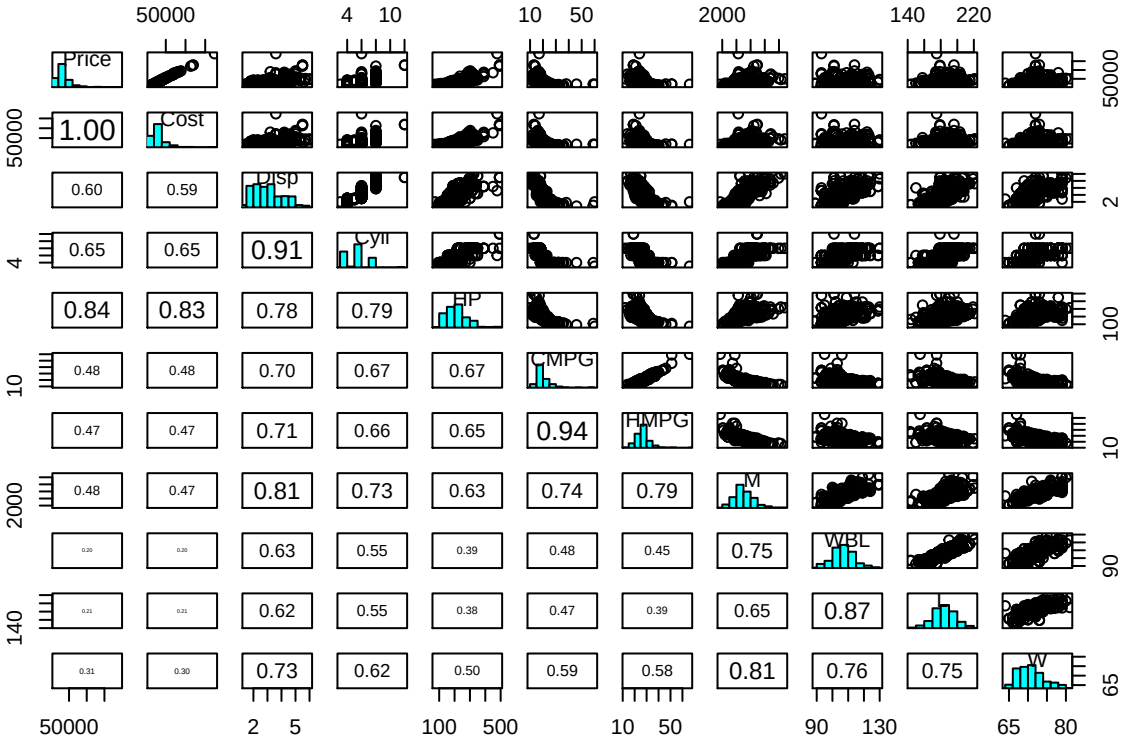
Now data seems OK other than the 1.00 correlation, We may need some further adjustions in part 2.

```
summary(cars.new.df)
```

```
##            Model         Price             Cost             Disp
##  Mercedes-Benz: 25   Min.   : 10280   Min.   :  9875   Min.   :1.400
##  Toyota       : 25   1st Qu.: 21055   1st Qu.: 19638   1st Qu.:2.325
##  Chevrolet    : 22   Median : 28617   Median : 26156   Median :3.000
##  BMW          : 20   Mean   : 33268   Mean   : 30474   Mean   :3.130
```

```
##  Audi          : 19   3rd Qu.: 39596   3rd Qu.: 36160   3rd Qu.:3.800
##  Ford          : 19   Max.   :192465   Max.   :173560   Max.   :6.000
##  (Other)       :256
##       Cyli              HP              CMPG            HMPG
##  Min.   : 3.000   Min.   : 73.0   Min.   :10.0   Min.   :12.00
##  1st Qu.: 4.000   1st Qu.:165.0   1st Qu.:18.0   1st Qu.:24.00
##  Median : 6.000   Median :210.0   Median :19.0   Median :26.50
##  Mean   : 5.762   Mean   :214.7   Mean   :20.3   Mean   :27.26
##  3rd Qu.: 6.000   3rd Qu.:250.0   3rd Qu.:21.0   3rd Qu.:30.00
##  Max.   :12.000   Max.   :493.0   Max.   :60.0   Max.   :66.00
##
##        M             WBL              L             W            birth
##  Min.   :1850   Min.   : 89.0   Min.   :143   Min.   :64.00   GEM   : 86
##  1st Qu.:3111   1st Qu.:103.0   1st Qu.:177   1st Qu.:69.00   JP    :118
##  Median :3470   Median :107.0   Median :186   Median :71.00   KOR   : 22
##  Mean   :3534   Mean   :107.2   Mean   :185   Mean   :71.28   Others: 19
##  3rd Qu.:3928   3rd Qu.:112.0   3rd Qu.:193   3rd Qu.:73.00   UK    : 15
##  Max.   :6400   Max.   :130.0   Max.   :221   Max.   :81.00   US    :126
##
##      TYPE                WD
##  Length:386         Length:386
##  Class :character   Class :character
##  Mode  :character   Mode  :character
##
##
##
##
```

```r
panel.hist <- function(x, ...)
{
    usr <- par("usr"); on.exit(par(usr))
    par(usr = c(usr[1:2], 0, 1.5) )
    h <- hist(x, plot = FALSE)
    breaks <- h$breaks; nB <- length(breaks)
    y <- h$counts; y <- y/max(y)
    rect(breaks[-nB], 0, breaks[-1], y, col = "cyan", ...)
}
panel.cor <- function(x, y, digits = 2, prefix = "", cex.cor, ...)
{
    usr <- par("usr"); on.exit(par(usr))
    par(usr = c(0, 1, 0, 1))
    r <- abs(cor(x, y))
    txt <- format(c(r, 0.123456789), digits = digits)[1]
    txt <- paste0(prefix, txt)
    if(missing(cex.cor)) cex.cor <- 0.8/strwidth(txt)
    text(0.5, 0.5, txt, cex = cex.cor * r)
}
pairs(cars.new.df[2:12], diag.panel = panel.hist, lower.panel = panel.cor)
```



Part 2

```
str(cars.new.df)
```

```
## 'data.frame':    386 obs. of  15 variables:
##  $ Model: Factor w/ 39 levels "Acura","Audi",..: 1 1 1 1 1 1 1 2 2 2 ...
##  $ Price: int  43755 46100 36945 89765 23820 33195 26990 25940 31840 42490 ...
##  $ Cost : int  39014 41100 33337 79978 21761 30299 24647 23508 28846 38325 ...
##  $ Disp : num  3.5 3.5 3.5 3.2 2 3.2 2.4 1.8 3 3 ...
##  $ Cyli : int  6 6 6 6 4 6 4 4 6 6 ...
##  $ HP   : int  225 225 265 290 200 270 200 170 220 220 ...
##  $ CMPG : num  18 18 17 17 24 20 22 22 20 20 ...
##  $ HMPG : num  24 24 23 24 31 28 29 31 28 27 ...
##  $ M    : num  3880 3893 4451 3153 2778 ...
##  $ WBL  : num  115 115 106 100 101 108 105 104 104 105 ...
##  $ L    : num  197 197 189 174 172 186 183 179 179 180 ...
##  $ W    : num  72 72 77 71 68 72 69 70 70 70 ...
##  $ birth: Factor w/ 6 levels "GEM","JP","KOR",..: 2 2 2 2 2 2 2 1 1 1 ...
##  $ TYPE : chr  "COMMON" "COMMON" "SUV" "SPORTS" ...
##  $ WD   : chr  "OTHERWD" "OTHERWD" "AWD" "RWD" ...
```

```
cars.new.df
```

```
##            Model  Price   Cost Disp Cyli  HP CMPG HMPG    M WBL   L  W
## 1          Acura  43755  39014  3.5    6 225   18   24 3880 115 197 72
## 2          Acura  46100  41100  3.5    6 225   18   24 3893 115 197 72
## 3          Acura  36945  33337  3.5    6 265   17   23 4451 106 189 77
## 4          Acura  89765  79978  3.2    6 290   17   24 3153 100 174 71
## 5          Acura  23820  21761  2.0    4 200   24   31 2778 101 172 68
## 6          Acura  33195  30299  3.2    6 270   20   28 3575 108 186 72
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## 7          Acura  26990  24647  2.4    4 200   22   29 3230 105 183 69
## 8           Audi  25940  23508  1.8    4 170   22   31 3252 104 179 70
## 9           Audi  31840  28846  3.0    6 220   20   28 3462 104 179 70
## 10          Audi  42490  38325  3.0    6 220   20   27 3814 105 180 70
## 11          Audi  34480  31388  3.0    6 220   18   25 3627 104 179 70
## 12          Audi  33430  30366  3.0    6 220   17   26 3583 104 179 70
## 13          Audi  44240  40075  3.0    6 220   18   25 4013 105 180 70
## 14          Audi  35940  32506  1.8    4 170   23   30 3638 105 180 70
## 15          Audi  42840  38840  2.7    6 250   18   25 3836 109 192 71
## 16          Audi  36640  33129  3.0    6 220   20   27 3561 109 192 71
## 17          Audi  40840  37060  3.0    6 220   18   25 4035 109 192 71
## 18          Audi  39640  35992  3.0    6 220   18   25 3880 109 192 71
## 19          Audi  49690  44936  4.2    8 300   17   24 4024 109 193 71
## 20          Audi  69190  64740  4.2    8 330   17   24 4399 121 204 75
## 21          Audi  84600  76417  4.2    8 450   15   22 4024 109 191 78
## 22          Audi  49090  44446  4.2    8 340   15   21 3936 104 179 70
## 23          Audi  48040  43556  4.2    8 340   14   20 3825 104 179 70
## 24          Audi  35940  32512  1.8    4 180   20   28 3131  95 159 73
## 25          Audi  37390  33891  1.8    4 225   20   28 2921  96 159 73
## 26          Audi  40590  36739  3.2    6 250   21   29 3351  96 159 73
## 27           BMW  30795  28245  2.5    6 184   20   29 3197 107 177 69
## 28           BMW  37995  34800  2.5    6 184   19   27 3560 107 177 69
## 29           BMW  28495  26155  2.5    6 184   20   29 3219 107 176 69
## 30           BMW  30245  27745  2.5    6 184   19   27 3461 107 176 69
## 31           BMW  32845  30110  2.5    6 184   19   26 3594 107 176 69
## 32           BMW  36995  33890  3.0    6 225   20   30 3285 107 176 69
## 33           BMW  44295  40530  3.0    6 225   19   28 3616 107 177 69
## 34           BMW  35495  32525  3.0    6 225   20   30 3285 107 176 69
## 35           BMW  37245  34115  3.0    6 225   20   29 3483 107 176 69
## 36           BMW  39995  36620  2.5    6 184   19   28 3428 114 191 73
## 37           BMW  44995  41170  3.0    6 225   20   30 3472 114 191 73
## 38           BMW  54995  50270  4.4    8 325   18   26 3814 114 191 73
## 39           BMW  69195  63190  4.4    8 325   18   26 4376 118 198 75
## 40           BMW  73195  66830  4.4    8 325   18   26 4464 123 204 75
## 41           BMW  56595  51815  3.2    6 333   16   23 3781 108 177 70
## 42           BMW  48195  44170  3.2    6 333   16   24 3415 108 177 70
## 43           BMW  37000  33873  3.0    6 225   16   23 4023 110 180 73
## 44           BMW  52195  47720  4.4    8 325   16   22 4824 111 184 74
## 45           BMW  33895  31065  2.5    6 184   20   28 2932  98 161 70
## 46           BMW  41045  37575  3.0    6 225   21   29 2998  98 161 70
## 47         Buick  22180  20351  3.1    6 175   20   30 3353 109 195 73
## 48         Buick  26470  24282  3.8    6 205   20   29 3567 112 200 74
## 49         Buick  32245  29566  3.8    6 205   20   29 3591 112 200 74
## 50         Buick  35545  32244  3.8    6 205   20   29 3778 114 207 75
## 51         Buick  40720  36927  3.8    6 240   18   28 3909 114 207 75
## 52         Buick  37895  34357  4.2    6 275   15   21 4600 113 193 75
## 53         Buick  28345  26047  3.8    6 240   18   28 3536 109 196 73
## 54         Buick  24895  22835  3.8    6 200   20   30 3461 109 196 73
## 55         Buick  26545  24085  3.4    6 185   19   26 4024 112 187 74
## 56      Cadillac  30835  28575  3.6    6 255   18   25 3694 113 190 71
## 57      Cadillac  45445  41650  4.6    8 275   18   26 3984 115 207 74
## 58      Cadillac  50595  46362  4.6    8 300   18   26 4044 115 207 74
## 60      Cadillac  52795  48377  5.3    8 295   14   18 5367 116 199 79
## 61      Cadillac  47955  43841  4.6    8 275   18   26 3992 112 201 75
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## 62       Cadillac  46995  43523  4.6    8 320   16   21 4302 116 195 73
## 63       Cadillac  76200  70546  4.6    8 320   17   25 3647 106 178 72
## 64      Chevrolet  26395  23954  4.3    6 190   14   17 4605 111 190 78
## 66      Chevrolet  11690  10965  1.6    4 103   28   34 2370  98 167 66
## 67      Chevrolet  12585  11802  1.6    4 103   28   34 2348  98 153 66
## 68      Chevrolet  14610  13697  2.2    4 140   26   37 2617 104 183 69
## 69      Chevrolet  14810  13884  2.2    4 140   26   37 2676 104 183 68
## 70      Chevrolet  16385  15357  2.2    4 140   26   37 2617 104 183 69
## 72      Chevrolet  44535  39068  5.7    8 350   18   25 3246 105 180 74
## 73      Chevrolet  51535  45193  5.7    8 350   18   25 3248 105 180 74
## 74      Chevrolet  21900  20095  3.4    6 180   21   32 3465 111 200 73
## 75      Chevrolet  25000  22931  3.8    6 200   20   30 3476 111 200 73
## 76      Chevrolet  27995  25672  3.8    6 240   18   28 3606 111 200 73
## 77      Chevrolet  18995  17434  2.2    4 145   24   34 3174 106 188 70
## 78      Chevrolet  20370  18639  3.5    6 200   22   30 3297 106 188 70
## 79      Chevrolet  23495  21551  3.5    6 200   23   32 3315 106 188 70
## 80      Chevrolet  22225  20394  3.5    6 200   22   30 3458 112 188 70
## 81      Chevrolet  21825  20026  3.4    6 180   21   32 3340 111 198 73
## 82      Chevrolet  24225  22222  3.8    6 200   18   28 3434 111 198 73
## 86      Chevrolet  42735  37422  5.3    8 295   14   18 4947 130 219 79
## 87      Chevrolet  41465  36287  5.3    8 295   14   18 5050 116 197 79
## 88      Chevrolet  20255  19108  2.5    6 165   19   22 2866  98 163 67
## 89      Chevrolet  30295  27479  4.2    6 275   16   21 4425 113 192 75
## 90      Chevrolet  27020  24518  3.4    6 185   19   26 3699 112 187 72
## 91       Chrysler  25955  24172  2.4    4 220   21   27 3217 103 169 67
## 92       Chrysler  29865  27797  3.5    6 250   18   27 3581 113 198 74
## 93       Chrysler  33295  30884  3.5    6 255   18   27 3650 113 198 74
## 94       Chrysler  24130  22452  2.7    6 200   21   29 3479 113 208 74
## 95       Chrysler  26860  24909  3.5    6 232   19   27 3548 113 208 74
## 96       Chrysler  34495  32033  3.2    6 215   17   25 3060  95 160 70
## 97       Chrysler  31230  28725  3.5    6 250   17   23 4675 116 199 79
## 98       Chrysler  17985  16919  2.4    4 150   22   29 3101 103 169 67
## 99       Chrysler  22000  20573  2.4    4 150   22   29 3105 103 169 67
## 100      Chrysler  19090  17805  2.4    4 150   22   30 3173 108 191 71
## 101      Chrysler  25215  23451  2.4    4 150   22   30 3357 106 194 64
## 102      Chrysler  30950  28613  2.7    6 200   21   28 3448 106 194 69
## 103      Chrysler  21840  20284  2.7    6 200   21   28 3222 108 191 71
## 104      Chrysler  38380  35063  3.8    6 215   18   25 4331 119 201 79
## 105      Chrysler  27490  25371  3.3    6 180   19   26 4068 119 201 79
## 106           CMC  35725  31361  4.8    8 285   16   19 5042 116 199 79
## 107         Dodge  21795  20508  2.4    4 150   20   26 3862 113 189 79
## 110         Dodge  32235  29472  4.7    8 230   15   21 4987 119 201 76
## 111         Dodge  32660  29812  3.8    6 215   18   25 4440 119 201 79
## 112         Dodge  24885  23058  3.5    6 232   18   27 3487 113 204 75
## 113         Dodge  22035  20502  2.7    6 200   21   29 3469 113 204 75
## 114         Dodge  13670  12849  2.0    4 132   29   36 2581 105 174 67
## 115         Dodge  15040  14086  2.0    4 132   29   36 2626 105 174 67
## 117         Dodge  20220  18821  2.4    4 150   21   28 3175 108 191 71
## 118         Dodge  18820  17512  2.4    4 150   21   28 3182 108 191 71
## 120          Ford  24345  22856  4.6    8 224   17   25 4057 115 212 78
## 121          Ford  27370  25105  4.6    8 224   17   25 4057 115 212 78
## 122          Ford  30315  27756  4.6    8 239   17   25 4057 115 212 78
## 123          Ford  22515  20907  3.0    6 201   18   23 3346 103 173 70
## 125          Ford  34560  30468  4.6    8 232   15   19 5000 119 206 79
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## 126          Ford  29670  26983  4.0    6 210   15   20 4463 114 190 72
## 129          Ford  13730  12906  2.0    4 110   27   36 2606 103 168 67
## 130          Ford  15460  14496  2.0    4 130   26   33 2606 103 168 67
## 131          Ford  19135  17878  2.0    4 170   21   28 2750 103 168 67
## 132          Ford  17475  16375  2.0    4 130   26   33 2702 103 178 67
## 133          Ford  13270  12482  2.0    4 130   26   33 2612 103 168 67
## 134          Ford  15580  14607  2.0    4 130   26   33 2691 103 168 67
## 135          Ford  26930  24498  3.9    6 193   17   23 4275 121 201 77
## 136          Ford  18345  16943  3.8    6 193   20   29 3290 101 183 73
## 137          Ford  29380  26875  4.6    8 260   17   25 3347 101 183 73
## 139          Ford  20320  18881  3.0    6 155   20   27 3306 109 198 73
## 140          Ford  22290  20457  3.0    6 155   19   26 3497 109 198 73
## 141          Ford  22735  20857  3.0    6 201   19   26 3313 109 198 73
## 142          Ford  37530  34483  3.9    8 280   17   24 3780 107 186 72
## 144           GMC  31890  28922  4.2    6 275   15   19 4945 129 208 75
## 145           GMC  25640  23215  4.3    6 190   16   20 4309 111 190 78
## 149           GMC  46265  40534  6.0    8 325   13   17 6133 130 219 79
## 150         Honda  22260  20080  2.4    4 160   26   34 3047 105 188 71
## 151         Honda  26960  24304  3.0    6 240   21   30 3294 105 188 71
## 152         Honda  19860  17924  2.4    4 160   26   34 2994 105 188 71
## 153         Honda  23760  21428  3.0    6 240   21   30 3349 108 190 72
## 154         Honda  13270  12175  1.7    4 115   32   38 2432 103 175 67
## 155         Honda  17750  16265  1.7    4 127   32   37 2601 103 175 68
## 156         Honda  14170  12996  1.7    4 117   36   44 2500 103 175 67
## 157         Honda  20140  18451  1.4    4  93   46   51 2732 103 175 68
## 158         Honda  15850  14531  1.7    4 115   32   38 2513 103 175 68
## 159         Honda  19490  17849  2.0    4 160   26   30 2782 101 166 67
## 160         Honda  19860  18419  2.4    4 160   21   25 3258 103 179 70
## 161         Honda  18690  17334  2.4    4 160   21   24 3468 101 167 72
## 162         Honda  19110  17911  2.0    3  73   60   66 1850  95 155 67
## 163         Honda  27450  24744  3.5    6 240   18   25 4365 118 201 76
## 164         Honda  24950  22498  3.5    6 240   18   25 4310 118 201 76
## 165         Honda  27560  24843  3.5    6 240   17   22 4387 106 188 77
## 166         Honda  33260  29965  2.2    4 240   20   25 2835  95 162 69
## 167        Hummer  49995  45815  6.0    8 316   10   12 6400 123 190 81
## 168       Hyundai  10539  10107  1.6    4 103   29   33 2255  96 167 66
## 169       Hyundai  11839  11116  1.6    4 103   29   33 2290  96 167 66
## 170       Hyundai  11939  11209  1.6    4 103   29   33 2339  96 167 66
## 171       Hyundai  13839  12781  2.0    4 138   26   34 2635 103 178 68
## 172       Hyundai  15389  14207  2.0    4 138   26   34 2635 103 178 68
## 173       Hyundai  15389  14207  2.0    4 138   26   34 2698 103 178 68
## 174       Hyundai  21589  20201  2.7    6 173   20   26 3549 103 177 73
## 175       Hyundai  19339  17574  2.7    6 170   19   27 3217 106 187 72
## 176       Hyundai  20339  18380  2.7    6 170   19   27 3217 106 187 72
## 177       Hyundai  18739  17101  2.7    6 172   19   26 3023 100 173 69
## 178       Hyundai  24589  22055  3.5    6 194   17   26 3651 108 192 72
## 179       Hyundai  26189  23486  3.5    6 194   17   26 3651 108 192 72
## 180      Infiniti  34895  31756  3.5    6 280   16   22 4056 112 189 76
## 181      Infiniti  36395  33121  4.5    8 315   15   19 4309 112 189 76
## 182      Infiniti  28495  26157  3.5    6 260   18   26 3336 112 187 69
## 183      Infiniti  32445  29783  3.5    6 260   18   26 3677 112 187 69
## 184      Infiniti  29795  27536  3.5    6 280   18   26 3416 112 182 72
## 185      Infiniti  31145  28320  3.5    6 255   19   26 3306 108 194 70
## 186      Infiniti  42845  38792  4.5    8 340   17   23 3851 110 197 70
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## 187      Infiniti  52545  47575  4.5    8 340   17   23 3977 113 200 73
## 188         Isuzu  31849  29977  4.2    6 275   15   20 4967 129 208 76
## 189         Isuzu  20449  19261  3.2    6 193   17   21 3836 106 178 70
## 190        Jaguar  43895  40004  3.0    6 235   18   26 3777 115 192 72
## 191        Jaguar  49995  45556  4.2    8 294   18   28 3874 115 192 72
## 192        Jaguar  63120  57499  4.2    8 390   17   24 4046 115 192 72
## 193        Jaguar  68995  62846  4.2    8 294   18   28 3803 119 200 73
## 194        Jaguar  59995  54656  4.2    8 294   18   28 3803 119 200 73
## 195        Jaguar  74995  68306  4.2    8 390   17   24 3948 119 200 73
## 196        Jaguar  74995  68306  4.2    8 294   18   26 3980 102 187 71
## 197        Jaguar  69995  63756  4.2    8 294   18   26 3779 102 187 71
## 198        Jaguar  86995  79226  4.2    8 390   16   23 4042 102 187 71
## 199        Jaguar  81995  74676  4.2    8 390   16   23 3865 102 187 71
## 200        Jaguar  29995  27355  2.5    6 192   18   26 3428 107 184 70
## 201        Jaguar  33995  30995  3.0    6 227   18   25 3516 107 184 70
## 202          Jeep  27905  25686  4.0    6 195   16   21 3790 106 181 72
## 203          Jeep  20130  18973  2.4    4 150   20   24 3826 104 174 72
## 204          Jeep  25520  23275  4.0    6 190   16   19 3575  93 150 67
## 206           Kia  16040  14910  2.4    4 138   23   30 3281 106 186 72
## 207           Kia  18435  16850  2.7    6 170   20   27 3279 106 186 72
## 208           Kia  11155  10705  1.6    4 104   25   32 2458  95 167 66
## 209           Kia  10280   9875  1.6    4 104   26   33 2403  95 167 66
## 210           Kia  11905  11410  1.6    4 104   26   33 2447  95 167 66
## 211           Kia  20615  19400  3.5    6 195   16   22 4802 115 194 75
## 212           Kia  19635  18630  3.5    6 192   16   19 4112 107 180 73
## 213           Kia  12360  11630  1.8    4 124   24   32 2661 101 178 68
## 214           Kia  13580  12830  1.8    4 124   24   32 2686 101 178 68
## 215           Kia  14630  13790  1.8    4 124   24   32 2697 101 178 68
## 216          Land  39250  35777  4.6    8 217   12   16 4576 100 185 74
## 217          Land  25995  23969  2.5    6 174   18   21 3577 101 175 71
## 218          Land  72250  65807  4.4    8 282   12   16 5379 113 195 76
## 219         Lexus  32350  28755  3.3    6 225   20   29 3460 107 191 71
## 220         Lexus  41010  36196  3.0    6 220   18   25 3649 110 189 71
## 221         Lexus  48450  42232  4.3    8 300   18   23 3715 110 189 71
## 222         Lexus  45700  39838  4.7    8 235   15   19 4740 110 188 74
## 223         Lexus  32415  28611  3.0    6 215   18   24 3285 105 177 68
## 224         Lexus  31045  27404  3.0    6 215   18   25 3255 105 177 68
## 225         Lexus  32455  28647  3.0    6 215   18   24 3410 105 177 68
## 226         Lexus  55750  48583  4.3    8 290   18   25 3990 115 197 72
## 227         Lexus  64800  56455  4.7    8 235   13   17 5590 112 193 76
## 228         Lexus  39195  34576  3.3    6 230   18   24 4065 107 186 73
## 229         Lexus  63200  55063  4.3    8 300   18   23 3840 103 178 72
## 230       Lincoln  42915  39443  4.6    8 302   13   18 4834 114 193 76
## 231       Lincoln  32495  29969  3.0    6 232   20   26 3681 115 194 73
## 232       Lincoln  36895  33929  3.0    6 232   20   26 3681 115 194 73
## 233       Lincoln  40095  36809  3.9    8 280   17   24 3768 115 194 73
## 234       Lincoln  43495  39869  3.9    8 280   17   24 3768 115 194 73
## 235       Lincoln  52775  46360  5.4    8 300   13   18 5969 119 206 80
## 236       Lincoln  41815  38418  4.6    8 239   17   25 4369 118 215 78
## 237       Lincoln  44925  41217  4.6    8 239   17   25 4369 118 215 78
## 238       Lincoln  50470  46208  4.6    8 239   17   25 4474 124 221 78
## 241         Mazda  28750  26600  3.0    6 200   18   25 3812 112 188 72
## 242         Mazda  22388  20701  1.8    4 142   23   28 2387  89 156 66
## 243         Mazda  25193  23285  1.8    4 142   23   28 2387  89 156 66
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## 246         Mazda  21087  19742  2.0    4 130   22   25 3091 103 173 72
## 249         Mazda  19270  17817  2.3    4 160   24   32 3042 105 187 70
## 250 Mercedes-Benz  26060  24249  1.8    4 189   22   30 3250 107 178 68
## 251 Mercedes-Benz  33780  31466  2.6    6 168   19   25 3470 107 179 68
## 252 Mercedes-Benz  32280  30071  2.6    6 168   20   25 3360 107 178 68
## 253 Mercedes-Benz  33480  31187  2.6    6 168   19   25 3360 107 178 68
## 254 Mercedes-Benz  52120  48522  3.2    6 349   16   21 3540 107 178 68
## 255 Mercedes-Benz  37630  35046  3.2    6 215   20   26 3450 107 178 68
## 257 Mercedes-Benz  28370  26435  3.2    6 215   19   26 3430 107 178 68
## 258 Mercedes-Benz  35920  33456  3.2    6 215   19   26 3430 107 178 68
## 259 Mercedes-Benz  94820  88324  5.0    8 302   16   24 4085 114 196 73
## 260 Mercedes-Benz 128420 119600  5.5   12 493   13   19 4473 114 196 73
## 261 Mercedes-Benz  45707  41966  3.2    6 215   20   26 3770 107 183 69
## 262 Mercedes-Benz  52800  49104  5.0    8 302   17   22 3585 107 183 69
## 263 Mercedes-Benz  50670  47174  3.2    6 221   19   27 3966 112 190 71
## 264 Mercedes-Benz  48170  44849  3.2    6 221   19   27 3635 112 190 71
## 265 Mercedes-Benz  60670  56474  5.0    8 302   16   24 4230 112 190 71
## 266 Mercedes-Benz  57270  53382  5.0    8 302   16   20 3815 112 190 71
## 267 Mercedes-Benz  76870  71540  5.0    8 292   13   14 5423 112 186 71
## 268 Mercedes-Benz  46470  43268  5.0    8 288   14   17 4874 111 183 72
## 269 Mercedes-Benz  74320  69168  4.3    8 275   18   26 4160 122 203 73
## 270 Mercedes-Benz  86970  80939  5.0    8 302   16   24 4390 122 203 73
## 271 Mercedes-Benz  90520  84325  5.0    8 302   16   23 4065 101 179 72
## 272 Mercedes-Benz 121770 113388  5.5    8 493   14   21 4235 101 179 72
## 273 Mercedes-Benz 126670 117854  5.5   12 493   13   19 4429 101 179 72
## 274 Mercedes-Benz  40320  37548  2.3    4 192   21   29 3055  95 158 68
## 275 Mercedes-Benz  56170  52289  3.2    6 349   17   22 3220  95 158 68
## 276       Mercury  24695  23217  4.6    8 224   17   25 4052 115 212 78
## 277       Mercury  29595  27148  4.6    8 224   17   25 4052 115 212 78
## 278       Mercury  30895  28318  4.6    8 224   17   25 4052 115 212 78
## 279       Mercury  34495  31558  4.6    8 302   17   23 4195 115 212 78
## 280       Mercury  33995  30846  4.2    6 201   16   23 4340 121 202 77
## 281       Mercury  29995  27317  4.0    6 210   16   21 4374 114 190 72
## 282       Mercury  22595  20748  3.0    6 155   19   26 3488 109 198 73
## 283       Mercury  21595  19848  3.0    6 155   20   27 3308 109 200 73
## 284       Mercury  23895  21918  3.0    6 201   19   26 3315 109 200 73
## 285          Mini  16999  15437  1.6    4 115   28   37 2524  97 143 67
## 286          Mini  19999  18137  1.6    4 163   25   34 2678  97 144 67
## 287    Mitsubishi  29282  27250  3.5    6 205   18   25 3549 107 194 70
## 288    Mitsubishi  25092  23456  3.0    6 210   21   28 3241 101 177 69
## 289    Mitsubishi  26992  25218  3.0    6 210   21   28 3296 101 177 69
## 290    Mitsubishi  30492  28330  3.8    6 215   17   21 4134 109 190 74
## 292    Mitsubishi  25700  23883  3.8    6 230   18   26 3649 108 191 72
## 294    Mitsubishi  29562  27466  2.0    4 271   18   26 3263 103 179 70
## 298    Mitsubishi  33112  30763  3.8    6 215   15   19 4718 110 190 75
## 299    Mitsubishi  18892  17569  2.4    4 160   21   27 3240 103 179 69
## 300        Nissan  26910  25203  3.5    6 287   20   26 3188 104 169 72
## 301        Nissan  34390  31845  3.5    6 287   20   26 3428 104 169 72
## 302        Nissan  19240  18030  2.5    4 175   21   26 3039 110 192 70
## 303        Nissan  23290  21580  3.5    6 245   21   26 3197 110 192 70
## 305        Nissan  27490  25182  3.5    6 265   20   28 3473 111 194 72
## 306        Nissan  29440  26966  3.5    6 265   20   28 3476 111 194 72
## 307        Nissan  28739  27300  3.5    6 245   20   25 3801 111 188 74
## 308        Nissan  33840  30815  5.6    8 305   13   19 5013 123 207 79
```

```
## 309        Nissan  27339  25972  3.5    6 240   16   21 3871 106 183 72
## 310        Nissan  24780  22958  3.5    6 240   19   26 4012 124 204 78
## 311        Nissan  32780  30019  3.5    6 240   18   25 4175 124 204 78
## 312        Nissan  12740  12205  1.8    4 126   28   35 2513 100 178 67
## 313        Nissan  14740  13747  1.8    4 126   28   35 2581 100 178 67
## 314        Nissan  17640  16444  2.5    4 165   23   28 2761 100 178 67
## 316        Nissan  20939  19512  3.3    6 180   17   20 3760 104 178 70
## 317    Oldsmobile  23675  21485  3.4    6 170   20   29 3085 107 187 70
## 318    Oldsmobile  18825  17642  2.2    4 140   24   32 2946 107 187 70
## 319    Oldsmobile  28790  26120  3.4    6 185   19   26 3948 120 201 72
## 320       Pontiac  21595  19810  3.4    6 185   19   26 3779 108 182 74
## 322       Pontiac  22450  20595  3.4    6 175   20   29 3118 107 186 70
## 323       Pontiac  22395  20545  3.8    6 200   20   30 3477 111 198 74
## 324       Pontiac  24295  22284  3.8    6 200   20   30 3484 111 198 74
## 326       Pontiac  23845  21644  3.4    6 185   19   26 3803 112 187 72
## 327       Pontiac  31370  28454  3.4    6 185   18   24 4431 121 201 72
## 328       Pontiac  15495  14375  2.2    4 140   24   33 2771 104 182 68
## 329       Pontiac  17735  16369  2.2    4 140   24   33 2771 104 182 68
## 330       Pontiac  17045  15973  1.8    4 130   29   36 2701 102 172 70
## 331       Porsche  84165  72206  3.6    6 315   17   24 3240  93 175 72
## 332       Porsche  79165  69229  3.6    6 315   18   26 3135  93 175 70
## 333       Porsche 192465 173560  3.6    6 477   17   24 3131  93 175 72
## 334       Porsche  76765  67128  3.6    6 315   18   26 3119  93 175 70
## 335       Porsche  43365  37886  2.7    6 228   20   29 2811  95 170 70
## 336       Porsche  52365  45766  3.2    6 258   18   26 2911  95 170 70
## 337       Porsche  56665  49865  4.5    8 340   14   18 4950 112 188 76
## 338          Saab  33360  31562  2.0    4 210   20   28 3175 105 183 69
## 339          Saab  43175  40883  2.0    4 210   21   30 3700 105 182 69
## 340          Saab  40670  38520  2.0    4 210   21   29 3480 105 182 69
## 341          Saab  30860  29269  2.0    4 210   20   28 3175 105 183 69
## 342          Saab  40845  38376  2.3    4 250   19   29 3620 106 190 71
## 343          Saab  39465  37721  2.3    4 250   21   29 3470 106 190 71
## 344          Saab  35105  33011  2.3    4 220   21   29 3470 106 190 71
## 345        Saturn  10995  10319  2.2    4 140   26   35 2692 103 185 67
## 346        Saturn  23560  21779  2.2    4 140   24   34 3109 107 190 69
## 347        Saturn  21410  19801  3.0    6 182   20   28 3197 107 190 69
## 348        Saturn  14300  13393  2.2    4 140   26   35 2692 103 185 67
## 349        Saturn  14850  13904  2.2    4 140   26   35 2751 103 185 68
## 350        Saturn  15825  14811  2.2    4 140   26   35 2692 103 185 67
## 351        Saturn  16350  15299  2.2    4 140   26   35 2751 103 185 68
## 352        Saturn  20585  19238  2.2    4 143   21   26 3381 107 181 72
## 353         Scion  12965  12340  1.5    4 108   32   38 2340  93 154 67
## 354         Scion  14165  13480  1.5    4 108   31   35 2425  98 155 67
## 356        Subaru  21445  19646  2.5    4 165   21   28 3090  99 175 68
## 357        Subaru  19945  18399  2.5    4 165   22   28 2965  99 174 69
## 358        Subaru  25045  23022  2.0    4 227   20   27 3085  99 174 69
## 359        Subaru  31545  29130  2.5    4 300   18   24 3263 100 174 69
## 360        Subaru  25645  23336  2.5    4 165   21   28 3395 104 184 69
## 361        Subaru  20445  18713  2.5    4 165   21   28 3285 104 184 69
## 362        Subaru  23895  21773  2.5    4 165   21   28 3430 104 187 69
## 363        Subaru  29345  26660  3.0    6 212   19   26 3610 104 184 69
## 364        Subaru  31545  28603  3.0    6 212   19   26 3630 104 184 69
## 365        Subaru  27145  24687  2.5    4 165   20   27 3495 104 184 69
## 366        Suzuki  12884  12719  2.3    4 155   25   31 2676  98 171 68
```

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## 367        Suzuki  14500  14317  2.3    4 155   25   31 2676  98 171 68
## 368        Suzuki  16497  16291  2.3    4 155   24   29 2932  98 167 68
## 369        Suzuki  15568  15378  2.0    4 119   22   30 2756 102 177 68
## 370        Suzuki  12269  12116  2.0    4 119   24   31 2701 102 177 68
## 371        Suzuki  17262  17053  2.5    6 155   20   27 3380 106 188 72
## 372        Suzuki  17163  16949  2.5    6 165   19   22 3020  98 163 67
## 373        Suzuki  23699  22307  2.7    6 185   18   22 3682 110 187 70
## 374        Toyota  27710  24801  4.0    6 245   18   21 4035 110 189 74
## 375        Toyota  26560  23693  3.0    6 210   21   29 3417 107 192 72
## 376        Toyota  30920  27271  3.0    6 210   21   29 3439 107 192 72
## 377        Toyota  19560  17558  2.4    4 157   24   33 3086 107 189 71
## 378        Toyota  22775  20325  3.0    6 210   21   29 3296 107 189 71
## 379        Toyota  19635  17722  2.4    4 157   24   33 3175 107 193 72
## 380        Toyota  21965  19819  3.3    6 225   20   29 3417 107 193 72
## 381        Toyota  26510  23908  3.3    6 225   20   29 3439 107 193 72
## 382        Toyota  25920  23125  3.0    6 210   21   29 3362 107 189 71
## 383        Toyota  22570  20363  1.8    4 180   24   33 2500 102 171 68
## 384        Toyota  14085  13065  1.8    4 130   32   40 2502 102 178 67
## 385        Toyota  15295  13889  1.8    4 130   32   40 2524 102 178 67
## 386        Toyota  15030  13650  1.8    4 130   32   40 2524 102 178 67
## 387        Toyota  11560  10896  1.5    4 108   33   39 2085  93 163 65
## 388        Toyota  10760  10144  1.5    4 108   35   43 2035  93 163 65
## 389        Toyota  11290  10642  1.5    4 108   35   43 2055  93 163 65
## 390        Toyota  27930  24915  3.3    6 230   18   24 3935 107 185 72
## 391        Toyota  54765  47986  4.7    8 325   13   17 5390 112 193 76
## 392        Toyota  16695  15156  1.8    4 130   29   36 2679 102 171 70
## 393        Toyota  25130  22787  1.8    4 138   26   32 2195  97 153 67
## 394        Toyota  20510  18926  1.5    4 110   59   51 2890 106 175 68
## 395        Toyota  20290  18553  2.4    4 161   22   27 3119  98 167 68
## 396        Toyota  35695  31827  4.7    8 240   14   17 5270 118 204 78
## 397        Toyota  23495  21198  3.3    6 230   19   27 4120 119 200 77
## 398        Toyota  28800  25690  3.3    6 230   19   27 4165 119 200 77
## 402    Volkswagen  18715  17478  2.0    4 115   24   31 2897  99 165 68
## 403    Volkswagen  19825  18109  1.8    4 180   24   31 2934  99 168 68
## 405    Volkswagen  23785  21686  2.8    6 200   21   30 3179  99 172 68
## 406    Volkswagen  21055  19638  1.9    4 100   38   46 3003  99 172 68
## 407    Volkswagen  21055  19638  1.8    4 150   24   31 2820  99 161 68
## 408    Volkswagen  23215  21689  2.0    4 115   24   30 3082  99 161 68
## 409    Volkswagen  24955  22801  1.8    4 170   22   31 3338 106 184 69
## 410    Volkswagen  23955  21898  1.8    4 170   22   31 3241 106 185 69
## 411    Volkswagen  33180  30583  2.8    6 190   19   26 3721 106 185 69
## 412    Volkswagen  40235  36956  4.0    8 270   18   25 4067 106 184 69
## 413    Volkswagen  39235  36052  4.0    8 270   18   25 3953 106 185 69
## 416    Volkswagen  35515  32243  3.2    6 220   15   20 5086 112 187 76
## 417         Volvo  42565  40083  2.3    5 242   20   26 3450 105 186 72
## 418         Volvo  40565  38203  2.4    5 197   21   28 3450 105 186 72
## 419         Volvo  25135  23701  1.9    4 170   22   29 2767 101 178 68
## 420         Volvo  31745  29916  2.5    5 208   20   27 3903 107 180 71
## 421         Volvo  37560  35382  2.5    5 300   18   25 3571 107 181 71
## 422         Volvo  34845  32902  2.3    5 247   20   28 3766 107 180 71
## 423         Volvo  37885  35688  2.5    5 194   20   27 3691 110 190 72
## 424         Volvo  37730  35542  2.9    6 208   20   28 3576 110 190 72
## 425         Volvo  45210  42573  2.9    6 268   19   26 3653 110 190 72
## 426         Volvo  26135  24641  1.9    4 170   22   29 2822 101 180 68
```

```
## 427         Volvo  35145  33112  2.5    5 208   20   27 3823 109 186 73
## 428         Volvo  41250  38851  2.9    6 268   15   20 4638 113 189 75
##      birth    TYPE      WD
## 1       JP  COMMON OTHERWD
## 2       JP  COMMON OTHERWD
## 3       JP     SUV     AWD
## 4       JP  SPORTS     RWD
## 5       JP  COMMON OTHERWD
## 6       JP  COMMON OTHERWD
## 7       JP  COMMON OTHERWD
## 8      GEM  COMMON OTHERWD
## 9      GEM  COMMON OTHERWD
## 10     GEM  COMMON OTHERWD
## 11     GEM  COMMON     AWD
## 12     GEM  COMMON     AWD
## 13     GEM  COMMON     AWD
## 14     GEM  COMMON OTHERWD
## 15     GEM  COMMON     AWD
## 16     GEM  COMMON OTHERWD
## 17     GEM   WAGON     AWD
## 18     GEM  COMMON     AWD
## 19     GEM  COMMON     AWD
## 20     GEM  COMMON     AWD
## 21     GEM  SPORTS OTHERWD
## 22     GEM   WAGON     AWD
## 23     GEM  COMMON     AWD
## 24     GEM  SPORTS OTHERWD
## 25     GEM  SPORTS     AWD
## 26     GEM  SPORTS     AWD
## 27     GEM  COMMON     RWD
## 28     GEM  COMMON     RWD
## 29     GEM  COMMON     RWD
## 30     GEM  COMMON     AWD
## 31     GEM   WAGON     AWD
## 32     GEM  COMMON     RWD
## 33     GEM  COMMON     RWD
## 34     GEM  COMMON     RWD
## 35     GEM  COMMON     AWD
## 36     GEM  COMMON     RWD
## 37     GEM  COMMON     RWD
## 38     GEM  COMMON     RWD
## 39     GEM  COMMON     RWD
## 40     GEM  COMMON     RWD
## 41     GEM  SPORTS     RWD
## 42     GEM  SPORTS     RWD
## 43     GEM     SUV     AWD
## 44     GEM     SUV     AWD
## 45     GEM  SPORTS     RWD
## 46     GEM  SPORTS     RWD
## 47      US  COMMON OTHERWD
## 48      US  COMMON OTHERWD
## 49      US  COMMON OTHERWD
## 50      US  COMMON OTHERWD
## 51      US  COMMON OTHERWD
```

```
## 52      US     SUV     AWD
## 53      US  COMMON OTHERWD
## 54      US  COMMON OTHERWD
## 55      US     SUV OTHERWD
## 56      US  COMMON     RWD
## 57      US  COMMON OTHERWD
## 58      US  COMMON OTHERWD
## 60      US     SUV OTHERWD
## 61      US  COMMON OTHERWD
## 62      US     SUV OTHERWD
## 63      US  SPORTS     RWD
## 64      US MINIVAN     AWD
## 66      US  COMMON OTHERWD
## 67      US  COMMON OTHERWD
## 68      US  COMMON OTHERWD
## 69      US  COMMON OTHERWD
## 70      US  COMMON OTHERWD
## 72      US  SPORTS     RWD
## 73      US  SPORTS     RWD
## 74      US  COMMON OTHERWD
## 75      US  COMMON OTHERWD
## 76      US  COMMON OTHERWD
## 77      US  COMMON OTHERWD
## 78      US  COMMON OTHERWD
## 79      US  COMMON OTHERWD
## 80      US   WAGON OTHERWD
## 81      US  COMMON OTHERWD
## 82      US  COMMON OTHERWD
## 86      US     SUV OTHERWD
## 87      US     SUV     AWD
## 88      US     SUV OTHERWD
## 89      US     SUV OTHERWD
## 90      US MINIVAN OTHERWD
## 91      US  COMMON OTHERWD
## 92      US  COMMON OTHERWD
## 93      US  COMMON OTHERWD
## 94      US  COMMON OTHERWD
## 95      US  COMMON OTHERWD
## 96      US  SPORTS     RWD
## 97      US   WAGON     RWD
## 98      US  COMMON OTHERWD
## 99      US  COMMON OTHERWD
## 100     US  COMMON OTHERWD
## 101     US  COMMON OTHERWD
## 102     US  COMMON OTHERWD
## 103     US  COMMON OTHERWD
## 104     US MINIVAN OTHERWD
## 105     US MINIVAN OTHERWD
## 106    GEM     SUV OTHERWD
## 107     US MINIVAN OTHERWD
## 110     US     SUV     AWD
## 111     US MINIVAN     AWD
## 112     US  COMMON OTHERWD
## 113     US  COMMON OTHERWD
```

```
## 114     US  COMMON OTHERWD
## 115     US  COMMON OTHERWD
## 117     US  COMMON OTHERWD
## 118     US  COMMON OTHERWD
## 120     US  COMMON     RWD
## 121     US  COMMON     RWD
## 122     US  COMMON     RWD
## 123     US     SUV     AWD
## 125     US     SUV OTHERWD
## 126     US     SUV     AWD
## 129     US  COMMON OTHERWD
## 130     US  COMMON OTHERWD
## 131     US  COMMON OTHERWD
## 132     US   WAGON OTHERWD
## 133     US  COMMON OTHERWD
## 134     US  COMMON OTHERWD
## 135     US MINIVAN OTHERWD
## 136     US  SPORTS     RWD
## 137     US  SPORTS     RWD
## 139     US  COMMON OTHERWD
## 140     US   WAGON OTHERWD
## 141     US  COMMON OTHERWD
## 142     US  SPORTS OTHERWD
## 144     US     SUV OTHERWD
## 145     US MINIVAN     RWD
## 149     US     SUV     AWD
## 150     JP  COMMON OTHERWD
## 151     JP  COMMON OTHERWD
## 152     JP  COMMON OTHERWD
## 153     JP  COMMON OTHERWD
## 154     JP  COMMON OTHERWD
## 155     JP  COMMON OTHERWD
## 156     JP  COMMON OTHERWD
## 157     JP  COMMON OTHERWD
## 158     JP  COMMON OTHERWD
## 159     JP  COMMON OTHERWD
## 160     JP     SUV     AWD
## 161     JP     SUV     AWD
## 162     JP  COMMON OTHERWD
## 163     JP MINIVAN OTHERWD
## 164     JP MINIVAN OTHERWD
## 165     JP     SUV     AWD
## 166     JP  SPORTS     RWD
## 167     US     SUV     AWD
## 168    KOR  COMMON OTHERWD
## 169    KOR  COMMON OTHERWD
## 170    KOR  COMMON OTHERWD
## 171    KOR  COMMON OTHERWD
## 172    KOR  COMMON OTHERWD
## 173    KOR  COMMON OTHERWD
## 174    KOR     SUV OTHERWD
## 175    KOR  COMMON OTHERWD
## 176    KOR  COMMON OTHERWD
## 177    KOR  SPORTS OTHERWD
```

```
## 178    KOR  COMMON OTHERWD
## 179    KOR  COMMON OTHERWD
## 180     JP   WAGON     RWD
## 181     JP   WAGON     AWD
## 182     JP  COMMON     RWD
## 183     JP  COMMON     AWD
## 184     JP  COMMON     RWD
## 185     JP  COMMON OTHERWD
## 186     JP  COMMON     RWD
## 187     JP  COMMON     RWD
## 188     JP     SUV     AWD
## 189     JP     SUV OTHERWD
## 190     UK  COMMON     RWD
## 191     UK  COMMON     RWD
## 192     UK  COMMON     RWD
## 193     UK  COMMON     RWD
## 194     UK  COMMON     RWD
## 195     UK  COMMON     RWD
## 196     UK  SPORTS     RWD
## 197     UK  SPORTS     RWD
## 198     UK  SPORTS     RWD
## 199     UK  SPORTS     RWD
## 200     UK  COMMON     AWD
## 201     UK  COMMON     AWD
## 202     US     SUV OTHERWD
## 203     US     SUV     AWD
## 204     US     SUV     AWD
## 206    KOR  COMMON OTHERWD
## 207    KOR  COMMON OTHERWD
## 208    KOR  COMMON OTHERWD
## 209    KOR  COMMON OTHERWD
## 210    KOR   WAGON OTHERWD
## 211    KOR MINIVAN OTHERWD
## 212    KOR     SUV OTHERWD
## 213    KOR  COMMON OTHERWD
## 214    KOR  COMMON OTHERWD
## 215    KOR  COMMON OTHERWD
## 216     UK     SUV     AWD
## 217     UK     SUV     AWD
## 218     UK     SUV     AWD
## 219     JP  COMMON OTHERWD
## 220     JP  COMMON     RWD
## 221     JP  COMMON     RWD
## 222     JP     SUV     AWD
## 223     JP  COMMON     RWD
## 224     JP  COMMON     RWD
## 225     JP   WAGON     RWD
## 226     JP  COMMON     RWD
## 227     JP     SUV     AWD
## 228     JP     SUV     AWD
## 229     JP  SPORTS     RWD
## 230     US     SUV OTHERWD
## 231     US  COMMON     RWD
## 232     US  COMMON     RWD
```

```
## 233     US  COMMON     RWD
## 234     US  COMMON     RWD
## 235     US     SUV     AWD
## 236     US  COMMON     RWD
## 237     US  COMMON     RWD
## 238     US  COMMON     RWD
## 241     JP MINIVAN OTHERWD
## 242     JP  SPORTS     RWD
## 243     JP  SPORTS     RWD
## 246     JP     SUV     AWD
## 249     JP  COMMON OTHERWD
## 250    GEM  COMMON     RWD
## 251    GEM   WAGON     RWD
## 252    GEM  COMMON     RWD
## 253    GEM  COMMON     AWD
## 254    GEM  COMMON     RWD
## 255    GEM  COMMON     RWD
## 257    GEM  COMMON     RWD
## 258    GEM  COMMON     RWD
## 259    GEM  COMMON     RWD
## 260    GEM  COMMON     RWD
## 261    GEM  COMMON     RWD
## 262    GEM  COMMON     RWD
## 263    GEM   WAGON     RWD
## 264    GEM  COMMON     RWD
## 265    GEM   WAGON     AWD
## 266    GEM  COMMON     RWD
## 267    GEM     SUV     AWD
## 268    GEM     SUV     AWD
## 269    GEM  COMMON     RWD
## 270    GEM  COMMON     AWD
## 271    GEM  SPORTS     RWD
## 272    GEM  SPORTS     RWD
## 273    GEM  SPORTS     RWD
## 274    GEM  SPORTS     RWD
## 275    GEM  SPORTS     RWD
## 276     US  COMMON     RWD
## 277     US  COMMON     RWD
## 278     US  COMMON     RWD
## 279     US  COMMON     RWD
## 280     US MINIVAN OTHERWD
## 281     US     SUV OTHERWD
## 282     US   WAGON OTHERWD
## 283     US  COMMON OTHERWD
## 284     US  COMMON OTHERWD
## 285    GEM  COMMON OTHERWD
## 286    GEM  COMMON OTHERWD
## 287     JP  COMMON OTHERWD
## 288     JP  SPORTS OTHERWD
## 289     JP  SPORTS OTHERWD
## 290     JP     SUV     AWD
## 292     JP  COMMON OTHERWD
## 294     JP  SPORTS OTHERWD
## 298     JP     SUV     AWD
```

```
## 299     JP     SUV OTHERWD
## 300     JP  SPORTS     RWD
## 301     JP  SPORTS     RWD
## 302     JP  COMMON OTHERWD
## 303     JP  COMMON OTHERWD
## 305     JP  COMMON OTHERWD
## 306     JP  COMMON OTHERWD
## 307     JP   WAGON     RWD
## 308     JP     SUV OTHERWD
## 309     JP     SUV OTHERWD
## 310     JP MINIVAN OTHERWD
## 311     JP MINIVAN OTHERWD
## 312     JP  COMMON OTHERWD
## 313     JP  COMMON OTHERWD
## 314     JP  COMMON OTHERWD
## 316     JP     SUV OTHERWD
## 317     US  COMMON OTHERWD
## 318     US  COMMON OTHERWD
## 319     US MINIVAN OTHERWD
## 320     US     SUV OTHERWD
## 322     US  COMMON OTHERWD
## 323     US  COMMON OTHERWD
## 324     US  COMMON OTHERWD
## 326     US MINIVAN OTHERWD
## 327     US MINIVAN     AWD
## 328     US  COMMON OTHERWD
## 329     US  COMMON OTHERWD
## 330     US   WAGON     RWD
## 331    GEM  SPORTS     AWD
## 332    GEM  SPORTS     RWD
## 333    GEM  SPORTS     RWD
## 334    GEM  SPORTS     RWD
## 335    GEM  SPORTS     RWD
## 336    GEM  SPORTS     RWD
## 337    GEM     SUV     AWD
## 338 Others  COMMON OTHERWD
## 339 Others  COMMON OTHERWD
## 340 Others  COMMON OTHERWD
## 341 Others  COMMON OTHERWD
## 342 Others   WAGON OTHERWD
## 343 Others  COMMON OTHERWD
## 344 Others  COMMON OTHERWD
## 345     US  COMMON OTHERWD
## 346     US   WAGON OTHERWD
## 347     US  COMMON OTHERWD
## 348     US  COMMON OTHERWD
## 349     US  COMMON OTHERWD
## 350     US  COMMON OTHERWD
## 351     US  COMMON OTHERWD
## 352     US     SUV     AWD
## 353     JP  COMMON OTHERWD
## 354     JP   WAGON OTHERWD
## 356     JP   WAGON     AWD
## 357     JP  COMMON     AWD
```

```
## 358     JP  SPORTS     AWD
## 359     JP  SPORTS     AWD
## 360     JP  COMMON     AWD
## 361     JP  COMMON     AWD
## 362     JP   WAGON     AWD
## 363     JP  COMMON     AWD
## 364     JP  COMMON     AWD
## 365     JP  COMMON     AWD
## 366     JP  COMMON OTHERWD
## 367     JP  COMMON OTHERWD
## 368     JP   WAGON     AWD
## 369     JP  COMMON OTHERWD
## 370     JP  COMMON OTHERWD
## 371     JP  COMMON OTHERWD
## 372     JP     SUV     AWD
## 373     JP     SUV OTHERWD
## 374     JP     SUV OTHERWD
## 375     JP  COMMON OTHERWD
## 376     JP  COMMON OTHERWD
## 377     JP  COMMON OTHERWD
## 378     JP  COMMON OTHERWD
## 379     JP  COMMON OTHERWD
## 380     JP  COMMON OTHERWD
## 381     JP  COMMON OTHERWD
## 382     JP  COMMON OTHERWD
## 383     JP  SPORTS OTHERWD
## 384     JP  COMMON OTHERWD
## 385     JP  COMMON OTHERWD
## 386     JP  COMMON OTHERWD
## 387     JP  COMMON OTHERWD
## 388     JP  COMMON OTHERWD
## 389     JP  COMMON OTHERWD
## 390     JP     SUV     AWD
## 391     JP     SUV     AWD
## 392     JP   WAGON OTHERWD
## 393     JP  SPORTS     RWD
## 394     JP  COMMON OTHERWD
## 395     JP     SUV     AWD
## 396     JP     SUV     AWD
## 397     JP MINIVAN OTHERWD
## 398     JP MINIVAN OTHERWD
## 402    GEM  COMMON OTHERWD
## 403    GEM  COMMON OTHERWD
## 405    GEM  COMMON OTHERWD
## 406    GEM  COMMON OTHERWD
## 407    GEM  COMMON OTHERWD
## 408    GEM  COMMON OTHERWD
## 409    GEM   WAGON OTHERWD
## 410    GEM  COMMON OTHERWD
## 411    GEM  COMMON OTHERWD
## 412    GEM   WAGON OTHERWD
## 413    GEM  COMMON OTHERWD
## 416    GEM     SUV     AWD
## 417 Others  COMMON OTHERWD
```

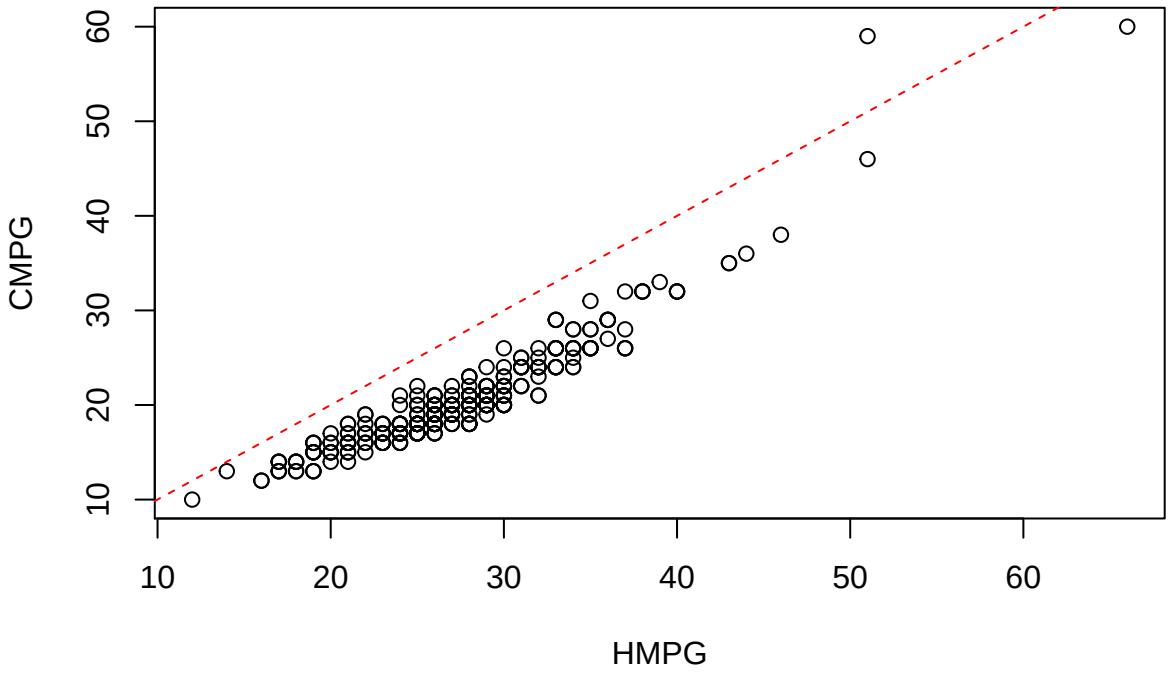
```
## 418 Others  COMMON OTHERWD
## 419 Others  COMMON OTHERWD
## 420 Others  COMMON     AWD
## 421 Others  COMMON     AWD
## 422 Others  COMMON OTHERWD
## 423 Others  COMMON     AWD
## 424 Others  COMMON OTHERWD
## 425 Others  COMMON OTHERWD
## 426 Others   WAGON OTHERWD
## 427 Others   WAGON     AWD
## 428 Others     SUV     AWD
```

Firstly, we can see cost and price are highly correlated(corr 1.0 and R^2 0.9983, if we take cost column, no need to use other regressors). Considering the practical meanings, we must delete this column. Also the HMPG and CMPG term, they are actually too linearly correlated, we can only leave one of them. I think "HMPG" can represent the most cases and I delete CMPG. Moreover, birth is derived directly from model column, so we need to delete them at this time.

```
cars.nouse.lm = lm(Price~Cost, data = cars.new.df)
summary(cars.nouse.lm)
```

```
##
## Call:
## lm(formula = Price ~ Cost, data = cars.new.df)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -2967.4  -300.4   -29.9   280.0  4954.2
##
## Coefficients:
##               Estimate Std. Error t value Pr(>|t|)
## (Intercept) -2.815e+02  8.306e+01  -3.389 0.000773 ***
## Cost         1.101e+00  2.351e-03 468.344  < 2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 826.2 on 384 degrees of freedom
## Multiple R-squared:  0.9983, Adjusted R-squared:  0.9982
## F-statistic: 2.193e+05 on 1 and 384 DF,  p-value: < 2.2e-16
```

```
plot(cars.new.df$HMPG, cars.new.df$CMPG, xlab = "HMPG", ylab ="CMPG")
abline(a = 0, b = 1, col = 'red', lty = 2)
```




```
drops = c("Cost", "CMPG", "birth")
cars.new.df = cars.new.df[,!(names(cars.new.df) %in% drops) ]
str(cars.new.df)
```

```
## 'data.frame':    386 obs. of  12 variables:
##  $ Model: Factor w/ 39 levels "Acura","Audi",..: 1 1 1 1 1 1 1 2 2 2 ...
##  $ Price: int  43755 46100 36945 89765 23820 33195 26990 25940 31840 42490 ...
##  $ Disp : num  3.5 3.5 3.5 3.2 2 3.2 2.4 1.8 3 3 ...
##  $ Cyli : int  6 6 6 6 4 6 4 4 6 6 ...
##  $ HP   : int  225 225 265 290 200 270 200 170 220 220 ...
##  $ HMPG : num  24 24 23 24 31 28 29 31 28 27 ...
##  $ M    : num  3880 3893 4451 3153 2778 ...
##  $ WBL  : num  115 115 106 100 101 108 105 104 104 105 ...
##  $ L    : num  197 197 189 174 172 186 183 179 179 180 ...
##  $ W    : num  72 72 77 71 68 72 69 70 70 70 ...
##  $ TYPE : chr  "COMMON" "COMMON" "SUV" "SPORTS" ...
##  $ WD   : chr  "OTHERWD" "OTHERWD" "AWD" "RWD" ...
```

```
cars.new.df$TYPE = as.factor(cars.new.df$TYPE)
cars.new.df$WD = as.factor(cars.new.df$WD)
cars.new.df$Model = as.factor(cars.new.df$Model)
str(cars.new.df)
```

```
## 'data.frame':    386 obs. of  12 variables:
##  $ Model: Factor w/ 39 levels "Acura","Audi",..: 1 1 1 1 1 1 1 2 2 2 ...
##  $ Price: int  43755 46100 36945 89765 23820 33195 26990 25940 31840 42490 ...
##  $ Disp : num  3.5 3.5 3.5 3.2 2 3.2 2.4 1.8 3 3 ...
##  $ Cyli : int  6 6 6 6 4 6 4 4 6 6 ...
##  $ HP   : int  225 225 265 290 200 270 200 170 220 220 ...
##  $ HMPG : num  24 24 23 24 31 28 29 31 28 27 ...
##  $ M    : num  3880 3893 4451 3153 2778 ...
##  $ WBL  : num  115 115 106 100 101 108 105 104 104 105 ...
##  $ L    : num  197 197 189 174 172 186 183 179 179 180 ...
##  $ W    : num  72 72 77 71 68 72 69 70 70 70 ...
```

```
##  $ TYPE : Factor w/ 5 levels "COMMON","MINIVAN",..: 1 1 4 3 1 1 1 1 1 1 ...
##  $ WD   : Factor w/ 3 levels "AWD","OTHERWD",..: 2 2 1 3 2 2 2 2 2 2 ...
```

```
library(leaps)
leaps.out = regsubsets(Price~., data = cars.new.df, nbest = 1, nvmax = NULL, method = "forward")
summary(leaps.out)
```

```
## Subset selection object
## Call: regsubsets.formula(Price ~ ., data = cars.new.df, nbest = 1,
##     nvmax = NULL, method = "forward")
## 52 Variables  (and intercept)
##                     Forced in Forced out
## ModelAudi               FALSE      FALSE
## ModelBMW                FALSE      FALSE
## ModelBuick              FALSE      FALSE
## ModelCadillac           FALSE      FALSE
## ModelChevrolet          FALSE      FALSE
## ModelChrysler           FALSE      FALSE
## ModelCMC                FALSE      FALSE
## ModelDodge              FALSE      FALSE
## ModelFord               FALSE      FALSE
## ModelGMC                FALSE      FALSE
## ModelHonda              FALSE      FALSE
## ModelHummer             FALSE      FALSE
## ModelHyundai            FALSE      FALSE
## ModelInfiniti           FALSE      FALSE
## ModelIsuzu              FALSE      FALSE
## ModelJaguar             FALSE      FALSE
## ModelJeep               FALSE      FALSE
## ModelKia                FALSE      FALSE
## ModelLand               FALSE      FALSE
## ModelLexus              FALSE      FALSE
## ModelLincoln            FALSE      FALSE
## ModelMazda              FALSE      FALSE
## ModelMercedes-Benz      FALSE      FALSE
## ModelMercury            FALSE      FALSE
## ModelMini               FALSE      FALSE
## ModelMitsubishi         FALSE      FALSE
## ModelNissan             FALSE      FALSE
## ModelOldsmobile         FALSE      FALSE
## ModelPontiac            FALSE      FALSE
## ModelPorsche            FALSE      FALSE
## ModelSaab               FALSE      FALSE
## ModelSaturn             FALSE      FALSE
## ModelScion              FALSE      FALSE
## ModelSubaru             FALSE      FALSE
## ModelSuzuki             FALSE      FALSE
## ModelToyota             FALSE      FALSE
## ModelVolkswagen         FALSE      FALSE
## ModelVolvo              FALSE      FALSE
## Disp                    FALSE      FALSE
## Cyli                    FALSE      FALSE
## HP                      FALSE      FALSE
## HMPG                    FALSE      FALSE
## M                       FALSE      FALSE
```

```
## WBL                   FALSE      FALSE
## L                     FALSE      FALSE
## W                     FALSE      FALSE
## TYPEMINIVAN           FALSE      FALSE
## TYPESPORTS            FALSE      FALSE
## TYPESUV               FALSE      FALSE
## TYPEWAGON             FALSE      FALSE
## WDOTHERWD             FALSE      FALSE
## WDRWD                 FALSE      FALSE
## 1 subsets of each size up to 52
## Selection Algorithm: forward
##           ModelAudi ModelBMW ModelBuick ModelCadillac ModelChevrolet
## 1  ( 1 )  " "       " "      " "        " "           " "
## 2  ( 1 )  " "       " "      " "        " "           " "
## 3  ( 1 )  " "       " "      " "        " "           " "
## 4  ( 1 )  " "       " "      " "        " "           " "
## 5  ( 1 )  " "       " "      " "        " "           " "
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## 51  ( 1 ) "*"       "*"      "*"        "*"           "*"
## 52  ( 1 ) "*"       "*"      "*"        "*"           "*"
##           ModelChrysler ModelCMC ModelDodge ModelFord ModelGMC ModelHonda
## 1  ( 1 )  " "           " "      " "        " "        " "      " "
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##           ModelHummer ModelHyundai ModelInfiniti ModelIsuzu ModelJaguar
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## 41  ( 1 ) "*"       "*"      "*"       "*"        "*"          "*"
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## 52  ( 1 ) "*"       "*"      "*"       "*"        "*"          "*"
##           ModelMercedes-Benz ModelMercury ModelMini ModelMitsubishi
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## 51  ( 1 ) "*"               "*"          "*"       "*"
## 52  ( 1 ) "*"               "*"          "*"       "*"
##           ModelNissan ModelOldsmobile ModelPontiac ModelPorsche ModelSaab
## 1   ( 1 )  " "         " "             " "          " "          " "
## 2   ( 1 )  " "         " "             " "          "*"          " "
## 3   ( 1 )  " "         " "             " "          "*"          " "
## 4   ( 1 )  " "         " "             " "          "*"          " "
## 5   ( 1 )  "*"         " "             " "          "*"          " "
## 6   ( 1 )  "*"         " "             " "          "*"          " "
## 7   ( 1 )  "*"         " "             " "          "*"          " "
## 8   ( 1 )  "*"         " "             " "          "*"          " "
## 9   ( 1 )  "*"         " "             " "          "*"          " "
## 10  ( 1 ) "*"         " "             " "          "*"          " "
## 11  ( 1 ) "*"         " "             " "          "*"          " "
## 12  ( 1 ) "*"         " "             " "          "*"          " "
## 13  ( 1 ) "*"         " "             " "          "*"          " "
## 14  ( 1 ) "*"         " "             " "          "*"          " "
## 15  ( 1 ) "*"         " "             " "          "*"          " "
## 16  ( 1 ) "*"         " "             " "          "*"          " "
## 17  ( 1 ) "*"         " "             " "          "*"          " "
## 18  ( 1 ) "*"         " "             " "          "*"          " "
## 19  ( 1 ) "*"         " "             " "          "*"          "*"
## 20  ( 1 ) "*"         " "             " "          "*"          "*"
## 21  ( 1 ) "*"         " "             " "          "*"          "*"
## 22  ( 1 ) "*"         " "             " "          "*"          "*"
## 23  ( 1 ) "*"         " "             " "          "*"          "*"
## 24  ( 1 ) "*"         " "             " "          "*"          "*"
## 25  ( 1 ) "*"         " "             " "          "*"          "*"
## 26  ( 1 ) "*"         "*"             " "          "*"          "*"
## 27  ( 1 ) "*"         "*"             " "          "*"          "*"
## 28  ( 1 ) "*"         "*"             " "          "*"          "*"
## 29  ( 1 ) "*"         "*"             " "          "*"          "*"
## 30  ( 1 ) "*"         "*"             " "          "*"          "*"
## 31  ( 1 ) "*"         "*"             " "          "*"          "*"
## 32  ( 1 ) "*"         "*"             " "          "*"          "*"
## 33  ( 1 ) "*"         "*"             " "          "*"          "*"
## 34  ( 1 ) "*"         "*"             " "          "*"          "*"
## 35  ( 1 ) "*"         "*"             " "          "*"          "*"
## 36  ( 1 ) "*"         "*"             " "          "*"          "*"
## 37  ( 1 ) "*"         "*"             " "          "*"          "*"
## 38  ( 1 ) "*"         "*"             " "          "*"          "*"
## 39  ( 1 ) "*"         "*"             "*"          "*"          "*"
## 40  ( 1 ) "*"         "*"             "*"          "*"          "*"
## 41  ( 1 ) "*"         "*"             "*"          "*"          "*"
## 42  ( 1 ) "*"         "*"             "*"          "*"          "*"
## 43  ( 1 ) "*"         "*"             "*"          "*"          "*"
## 44  ( 1 ) "*"         "*"             "*"          "*"          "*"
## 45  ( 1 ) "*"         "*"             "*"          "*"          "*"
## 46  ( 1 ) "*"         "*"             "*"          "*"          "*"
## 47  ( 1 ) "*"         "*"             "*"          "*"          "*"
```

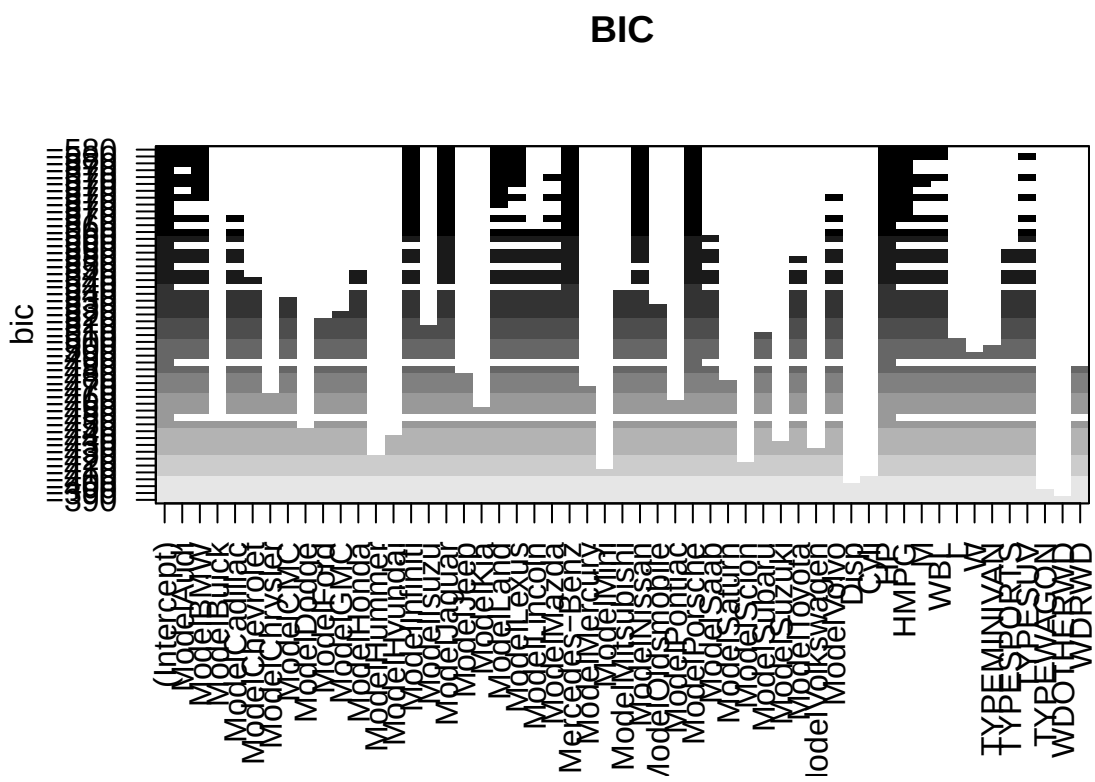
```
## 48  ( 1 ) "*"         "*"             "*"          "*"          "*"
## 49  ( 1 ) "*"         "*"             "*"          "*"          "*"
## 50  ( 1 ) "*"         "*"             "*"          "*"          "*"
## 51  ( 1 ) "*"         "*"             "*"          "*"          "*"
## 52  ( 1 )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

```
## 49  ( 1 ) "*"          "*"         "*"           "*"          "*"
## 50  ( 1 ) "*"          "*"         "*"           "*"          "*"
## 51  ( 1 ) "*"          "*"         "*"           "*"          "*"
## 52  ( 1 ) "*"          "*"         "*"           "*"          "*"
##           ModelVolkswagen ModelVolvo Disp Cyli HP  HMPG M   WBL L   W
## 1   ( 1 )  " "              " "         " "  " "  "*" " "  " " " " " " " " "
## 2   ( 1 )  " "              " "         " "  " "  "*" " "  " " " " " " " " "
## 3   ( 1 )  " "              " "         " "  " "  "*" " "  " " " " " " " " "
## 4   ( 1 )  " "              " "         " "  " "  "*" " "  " " " " " " " " "
## 5   ( 1 )  " "              " "         " "  " "  "*" " "  " " " " " " " " "
## 6   ( 1 )  " "              " "         " "  " "  "*" " "  " " " " " " " " "
## 7   ( 1 )  " "              " "         " "  " "  "*" "*"  " " " " " " " " "
## 8   ( 1 )  " "              " "         " "  " "  "*" "*"  " " " " " " " " "
## 9   ( 1 )  " "              " "         " "  " "  "*" "*"  " " " " " " " " "
## 10  ( 1 ) " "              " "         " "  " "  "*" "*"  " " " " " " " " "
## 11  ( 1 ) " "              " "         " "  " "  "*" "*"  " " " " " " " " "
## 12  ( 1 ) " "              " "         " "  " "  "*" "*"  "*" " " " " " " "
## 13  ( 1 ) " "              " "         " "  " "  "*" "*"  "*" "*" " " " " "
## 14  ( 1 ) " "              " "         " "  " "  "*" "*"  "*" "*" " " " " "
## 15  ( 1 ) " "              " "         " "  " "  "*" "*"  "*" "*" " " " " "
## 16  ( 1 ) " "              "*"         " "  " "  "*" "*"  "*" "*" " " " " "
## 17  ( 1 ) " "              "*"         " "  " "  "*" "*"  "*" "*" " " " " "
## 18  ( 1 ) " "              "*"         " "  " "  "*" "*"  "*" "*" " " " " "
## 19  ( 1 ) " "              "*"         " "  " "  "*" "*"  "*" "*" " " " " "
## 20  ( 1 ) " "              "*"         " "  " "  "*" "*"  "*" "*" " " " " "
## 21  ( 1 ) " "              "*"         " "  " "  "*" "*"  "*" "*" " " " " "
## 22  ( 1 ) " "              "*"         " "  " "  "*" "*"  "*" "*" " " " " "
## 23  ( 1 ) " "              "*"         " "  " "  "*" "*"  "*" "*" " " " " "
## 24  ( 1 ) " "              "*"         " "  " "  "*" "*"  "*" "*" " " " " "
## 25  ( 1 ) " "              "*"         " "  " "  "*" "*"  "*" "*" " " " " "
## 26  ( 1 ) " "              "*"         " "  " "  "*" "*"  "*" "*" " " " " "
## 27  ( 1 ) " "              "*"         " "  " "  "*" "*"  "*" "*" " " " " "
## 28  ( 1 ) " "              "*"         " "  " "  "*" "*"  "*" "*" " " " " "
## 29  ( 1 ) " "              "*"         " "  " "  "*" "*"  "*" "*" " " " " "
## 30  ( 1 ) " "              "*"         " "  " "  "*" "*"  "*" "*" " " " " "
## 31  ( 1 ) " "              "*"         " "  " "  "*" "*"  "*" "*" "*" " " "
## 32  ( 1 ) " "              "*"         " "  " "  "*" "*"  "*" "*" "*" " " "
## 33  ( 1 ) " "              "*"         " "  " "  "*" "*"  "*" "*" "*" "*"
## 34  ( 1 ) " "              "*"         " "  " "  "*" "*"  "*" "*" "*" "*"
## 35  ( 1 ) " "              "*"         " "  " "  "*" "*"  "*" "*" "*" "*"
## 36  ( 1 ) " "              "*"         " "  " "  "*" "*"  "*" "*" "*" "*"
## 37  ( 1 ) " "              "*"         " "  " "  "*" "*"  "*" "*" "*" "*"
## 38  ( 1 ) " "              "*"         " "  " "  "*" "*"  "*" "*" "*" "*"
## 39  ( 1 ) " "              "*"         " "  " "  "*" "*"  "*" "*" "*" "*"
## 40  ( 1 ) " "              "*"         " "  " "  "*" "*"  "*" "*" "*" "*"
## 41  ( 1 ) " "              "*"         " "  " "  "*" "*"  "*" "*" "*" "*"
## 42  ( 1 ) " "              "*"         " "  " "  "*" "*"  "*" "*" "*" "*"
## 43  ( 1 ) " "              "*"         " "  " "  "*" "*"  "*" "*" "*" "*"
## 44  ( 1 ) " "              "*"         " "  " "  "*" "*"  "*" "*" "*" "*"
## 45  ( 1 ) "*"              "*"         " "  " "  "*" "*"  "*" "*" "*" "*"
## 46  ( 1 ) "*"              "*"         " "  " "  "*" "*"  "*" "*" "*" "*"
## 47  ( 1 ) "*"              "*"         " "  " "  "*" "*"  "*" "*" "*" "*"
## 48  ( 1 ) "*"              "*"         " "  " "  "*" "*"  "*" "*" "*" "*"
## 49  ( 1 ) "*"              "*"         " "  "*"  "*" "*"  "*" "*" "*" "*"
```

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

```
## 51  ( 1 ) "*"         "*"        "*"     "*"       " "       "*"
## 52  ( 1 ) "*"         "*"        "*"     "*"       "*"       "*"
```

```
plot(leaps.out, main = "BIC")
```



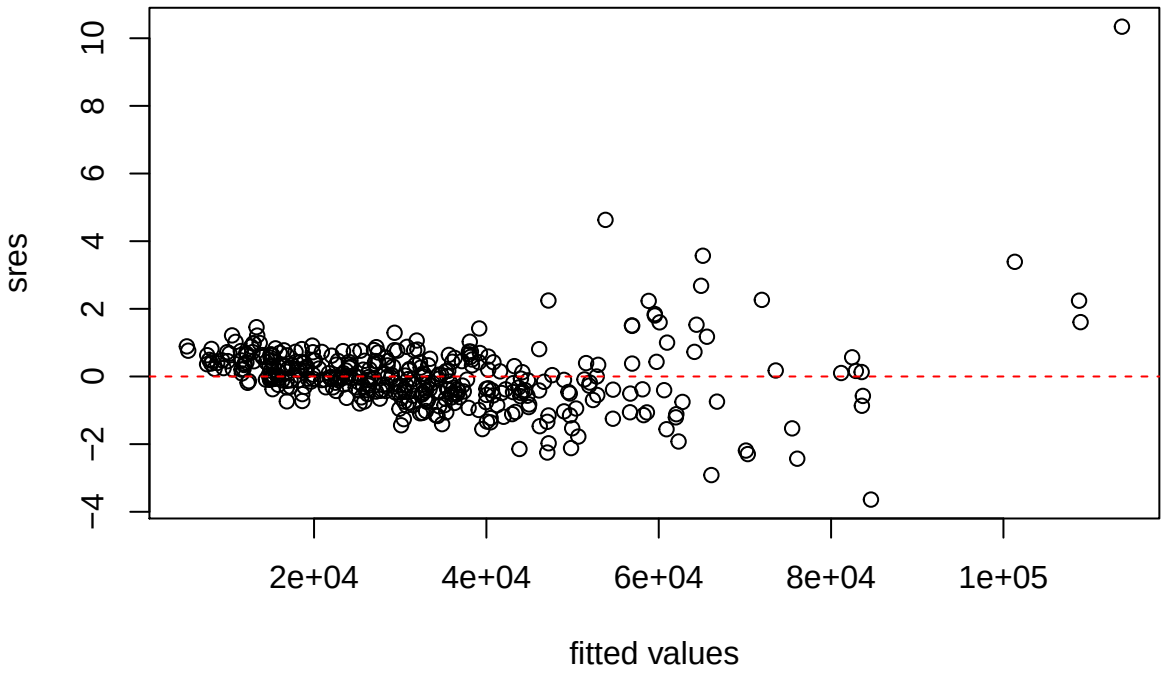
Check the effect

```
cars.lm = lm(Price~HP+HMPG+M+WBL+TYPE+Model, data = cars.new.df)
summary(cars.lm)
```

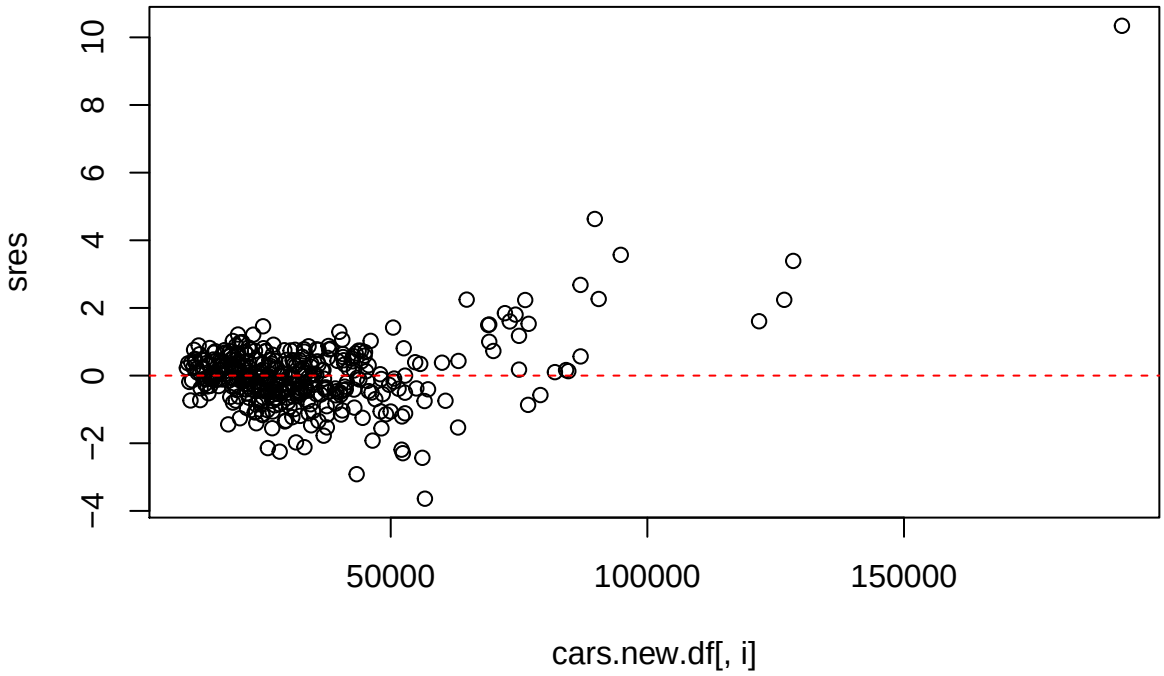
```
##
## Call:
## lm(formula = Price ~ HP + HMPG + M + WBL + TYPE + Model, data = cars.new.df)
##
## Residuals:
##    Min     1Q Median     3Q    Max
## -27961  -3620   -237   3508  78713
##
## Coefficients:
##                       Estimate Std. Error t value Pr(>|t|)
## (Intercept)        -18311.238  14269.743  -1.283 0.200291
## HP                    195.459     13.395  14.592  < 2e-16 ***
## HMPG                  786.744    167.880   4.686 4.03e-06 ***
## M                       7.211      1.984   3.634 0.000323 ***
## WBL                  -300.409    154.186  -1.948 0.052197 .
## TYPEMINIVAN          1537.312   2537.295   0.606 0.544996
## TYPESPORTS           3870.956   2092.724   1.850 0.065224 .
## TYPESUV             -1164.786   2164.044  -0.538 0.590761
## TYPEWAGON              -8.289   1785.008  -0.005 0.996297
## ModelAudi           -3550.368   3817.751  -0.930 0.353052
## ModelBMW             -807.592   3755.481  -0.215 0.829863
```

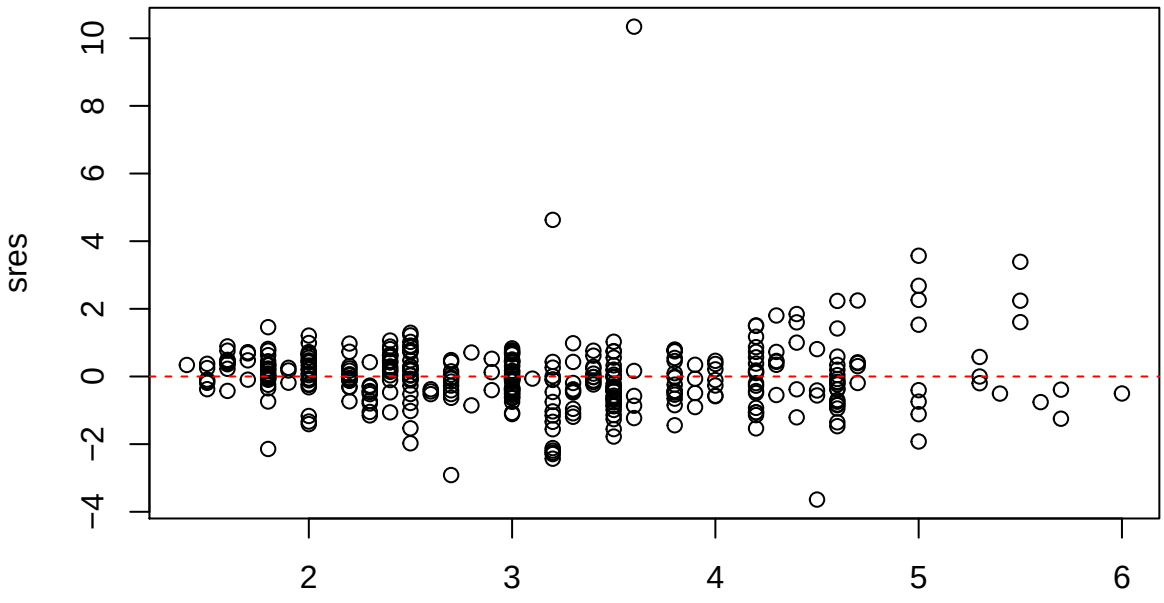
```
## ModelBuick          -8244.674   4335.314  -1.902 0.058052 .
## ModelCadillac       -3395.746   4595.702  -0.739 0.460481
## ModelChevrolet     -10821.177   3739.647  -2.894 0.004055 **
## ModelChrysler       -8397.559   3935.567  -2.134 0.033580 *
## ModelCMC           -16962.274   9208.385  -1.842 0.066342 .
## ModelDodge          -8465.332   4387.656  -1.929 0.054522 .
## ModelFord           -9372.465   3830.869  -2.447 0.014930 *
## ModelGMC           -12916.777   6086.843  -2.122 0.034556 *
## ModelHonda         -11313.824   3984.945  -2.839 0.004796 **
## ModelHummer        -10933.678   9479.053  -1.153 0.249536
## ModelHyundai        -7613.967   4126.727  -1.845 0.065904 .
## ModelInfiniti      -14845.153   4490.466  -3.306 0.001048 **
## ModelIsuzu         -12680.848   7031.540  -1.803 0.072209 .
## ModelJaguar          4055.170   4115.234   0.985 0.325128
## ModelJeep           -4203.688   6091.742  -0.690 0.490627
## ModelKia            -8314.559   4306.972  -1.930 0.054380 .
## ModelLand            6477.936   6095.782   1.063 0.288678
## ModelLexus            704.080   4139.203   0.170 0.865033
## ModelLincoln        -3912.821   4391.604  -0.891 0.373573
## ModelMazda          -3251.603   5139.332  -0.633 0.527363
## ModelMercedes-Benz  10310.930   3679.022   2.803 0.005360 **
## ModelMercury        -8321.927   4369.680  -1.904 0.057695 .
## ModelMini           -7903.545   6942.226  -1.138 0.255726
## ModelMitsubishi    -11509.805   4466.755  -2.577 0.010395 *
## ModelNissan        -14326.198   3953.777  -3.623 0.000335 ***
## ModelOldsmobile     -4044.106   5989.385  -0.675 0.500001
## ModelPontiac        -8475.687   4383.152  -1.934 0.053983 .
## ModelPorsche        21437.130   4785.888   4.479 1.03e-05 ***
## ModelSaab           -3453.913   4587.852  -0.753 0.452069
## ModelSaturn         -8212.791   4510.776  -1.821 0.069533 .
## ModelScion          -6435.965   7022.975  -0.916 0.360100
## ModelSubaru         -9344.635   4265.438  -2.191 0.029148 *
## ModelSuzuki         -7592.371   4509.302  -1.684 0.093158 .
## ModelToyota        -11071.333   3741.648  -2.959 0.003304 **
## ModelVolkswagen     -6842.876   4154.724  -1.647 0.100482
## ModelVolvo          -3644.453   4072.829  -0.895 0.371518
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 8516 on 339 degrees of freedom
## Multiple R-squared:  0.8361, Adjusted R-squared:  0.8138
## F-statistic: 37.58 on 46 and 339 DF,  p-value: < 2.2e-16
```

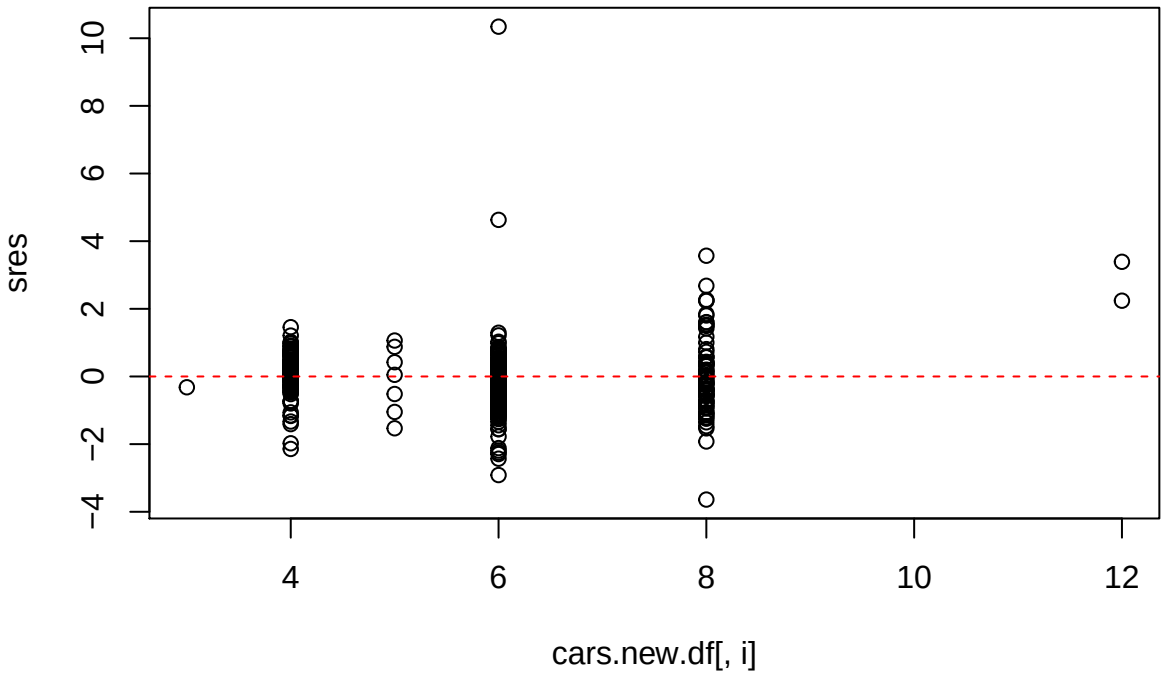
```r
fvs = fitted.values(cars.lm)
res = residuals(cars.lm)
sres = rstandard(cars.lm)
plot(fvs, sres, xlab = "fitted values", ylab = "sres")
abline(a = 0, b = 0, col = 'red', lty = 2)
```

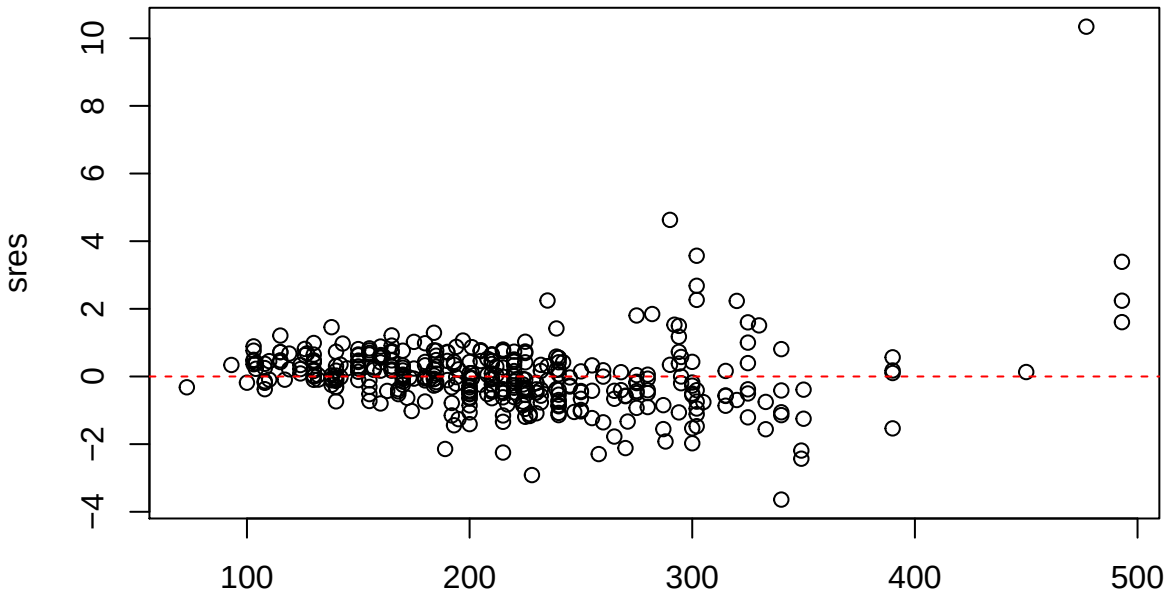


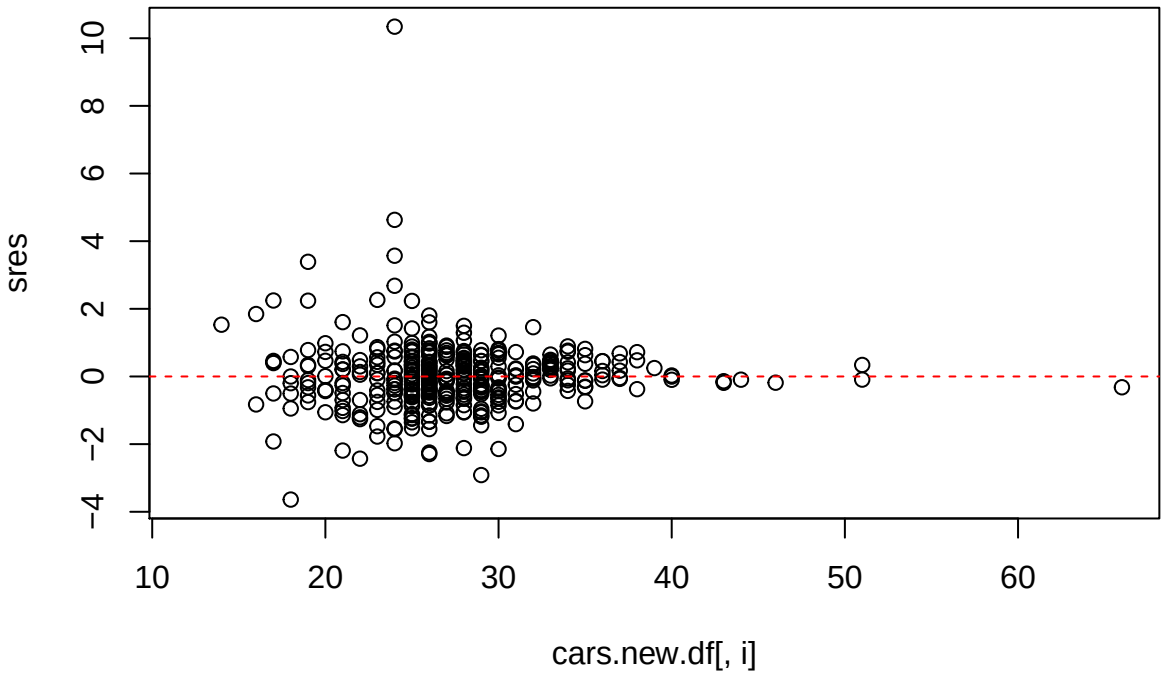

```
for (i in 2:10){
    plot(cars.new.df[,i], sres)
    abline(a = 0, b= 0, col = 'red', lty = 2)
}
```

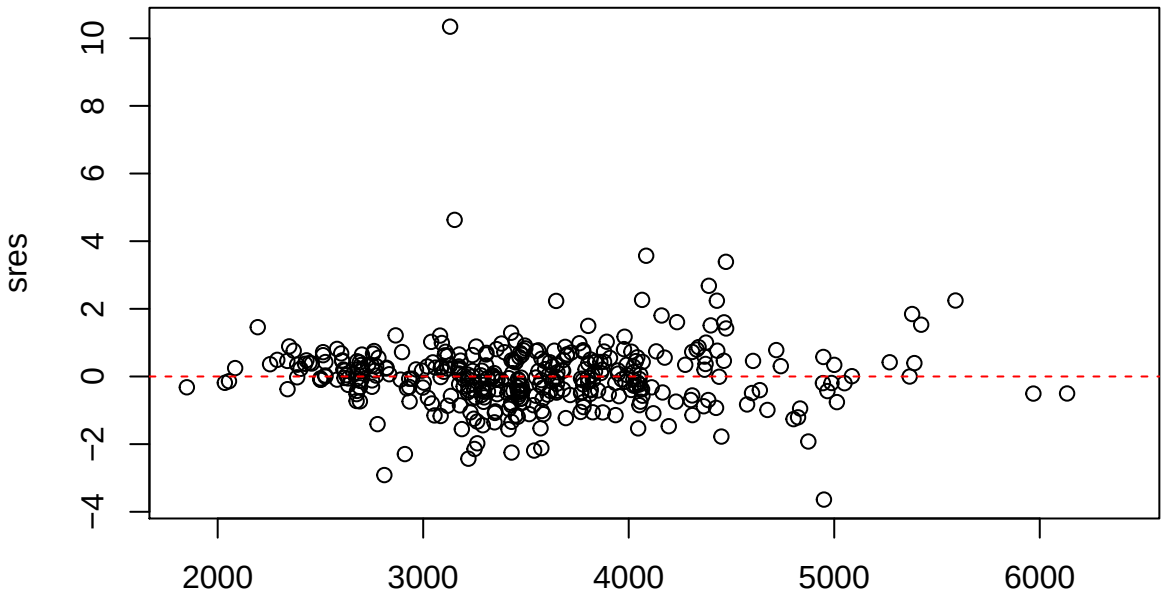


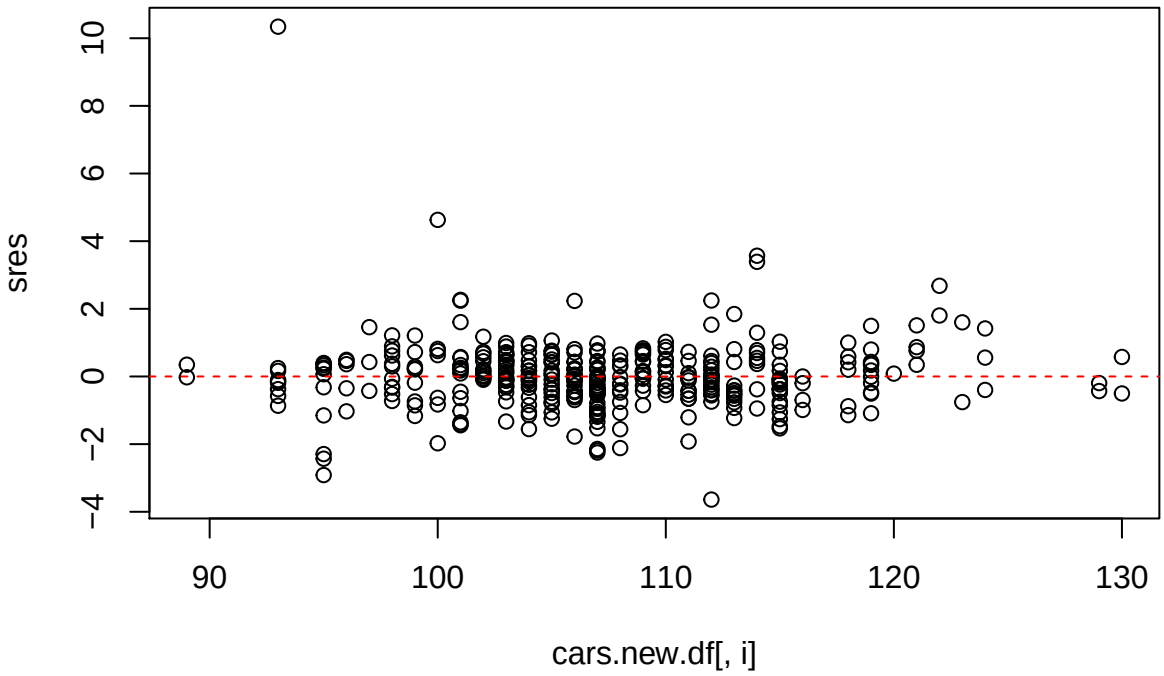

sres
10
8
6
4
2
0
−2
−4
2
3
4
5
6
cars.new.df[, i]

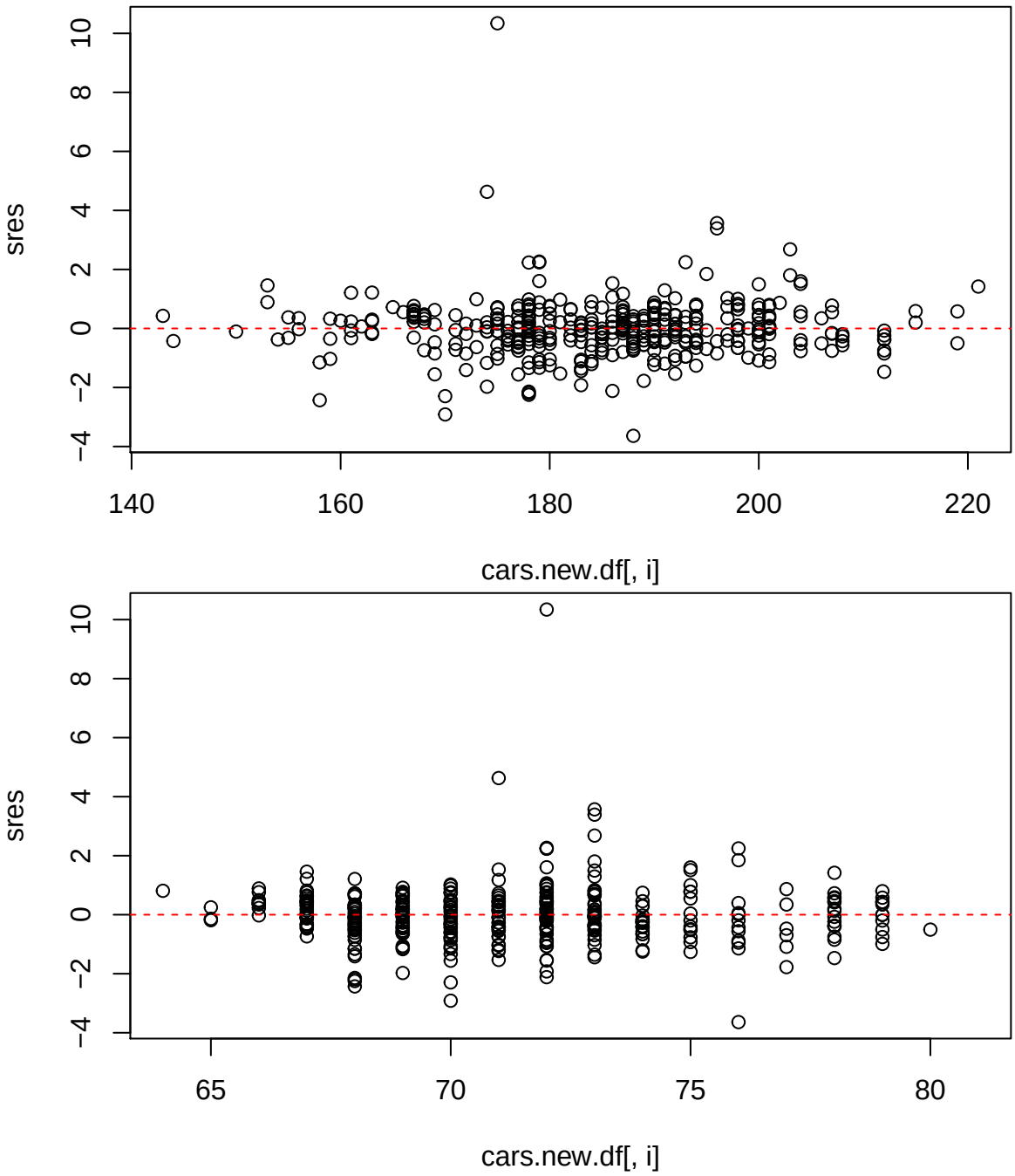

sres
10
8
6
4
2
0
−2
−4
4
6
8
10
12
cars.new.df[, i]


sres
10
8
6
4
2
0
−2
−4
100
200
300
400
500
cars.new.df[, i]


sres
10
8
6
4
2
0
−2
−4
10
20
30
40
50
60
cars.new.df[, i]

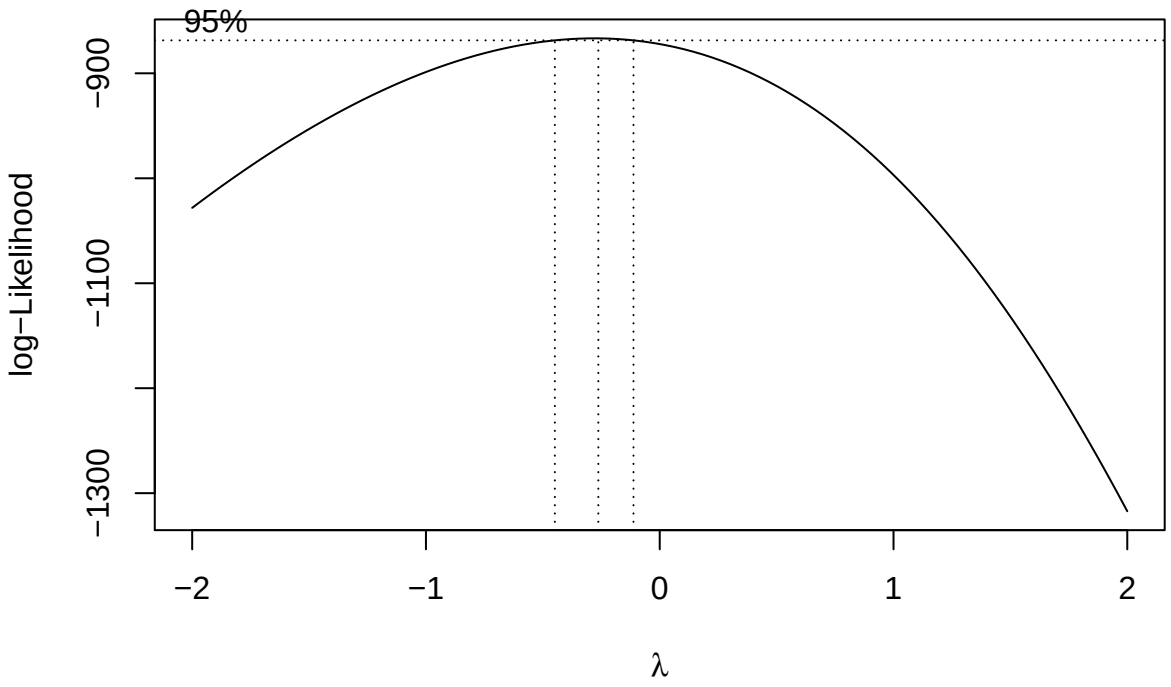

sres
10
8
6
4
2
0
−2
−4
2000
3000
4000
5000
6000
cars.new.df[, i]


sres
10
8
6
4
2
0
−2
−4
90
100
110
120
130
cars.new.df[, i]



From above the assumption is not very satisfied(such as equal variance) Try Box-cox

```
library(MASS)
x.LM = lm(Price~1, data = cars.new.df)
bc = boxcox(x.LM)
title("Box cox plot")
```



Try

lambda = -0.2

```
leaps.out = regsubsets((Price^(-0.2) - 1) / (-0.2)~., data = cars.new.df, nbest = 1, nvmax = NULL, metho
summary(leaps.out)
```

```
## Subset selection object
## Call: regsubsets.formula((Price^(-0.2) - 1)/(-0.2) ~ ., data = cars.new.df,
##     nbest = 1, nvmax = NULL, method = "forward")
## 52 Variables  (and intercept)
##                    Forced in Forced out
## ModelAudi              FALSE      FALSE
## ModelBMW               FALSE      FALSE
## ModelBuick             FALSE      FALSE
## ModelCadillac          FALSE      FALSE
## ModelChevrolet         FALSE      FALSE
## ModelChrysler          FALSE      FALSE
## ModelCMC               FALSE      FALSE
## ModelDodge             FALSE      FALSE
## ModelFord              FALSE      FALSE
## ModelGMC               FALSE      FALSE
## ModelHonda             FALSE      FALSE
## ModelHummer            FALSE      FALSE
## ModelHyundai           FALSE      FALSE
## ModelInfiniti          FALSE      FALSE
## ModelIsuzu             FALSE      FALSE
## ModelJaguar            FALSE      FALSE
## ModelJeep              FALSE      FALSE
## ModelKia               FALSE      FALSE
## ModelLand              FALSE      FALSE
## ModelLexus             FALSE      FALSE
## ModelLincoln           FALSE      FALSE
```

```
## ModelMazda             FALSE      FALSE
## ModelMercedes-Benz     FALSE      FALSE
## ModelMercury           FALSE      FALSE
## ModelMini              FALSE      FALSE
## ModelMitsubishi        FALSE      FALSE
## ModelNissan            FALSE      FALSE
## ModelOldsmobile        FALSE      FALSE
## ModelPontiac           FALSE      FALSE
## ModelPorsche           FALSE      FALSE
## ModelSaab              FALSE      FALSE
## ModelSaturn            FALSE      FALSE
## ModelScion             FALSE      FALSE
## ModelSubaru            FALSE      FALSE
## ModelSuzuki            FALSE      FALSE
## ModelToyota            FALSE      FALSE
## ModelVolkswagen        FALSE      FALSE
## ModelVolvo             FALSE      FALSE
## Disp                   FALSE      FALSE
## Cyli                   FALSE      FALSE
## HP                     FALSE      FALSE
## HMPG                   FALSE      FALSE
## M                      FALSE      FALSE
## WBL                    FALSE      FALSE
## L                      FALSE      FALSE
## W                      FALSE      FALSE
## TYPEMINIVAN            FALSE      FALSE
## TYPESPORTS             FALSE      FALSE
## TYPESUV                FALSE      FALSE
## TYPEWAGON              FALSE      FALSE
## WDOTHERWD              FALSE      FALSE
## WDRWD                  FALSE      FALSE
## 1 subsets of each size up to 52
## Selection Algorithm: forward
##           ModelAudi ModelBMW ModelBuick ModelCadillac ModelChevrolet
## 1  ( 1 )  " "       " "      " "        " "           " "
## 2  ( 1 )  " "       " "      " "        " "           " "
## 3  ( 1 )  " "       " "      " "        " "           " "
## 4  ( 1 )  " "       " "      " "        " "           " "
## 5  ( 1 )  " "       " "      " "        " "           " "
## 6  ( 1 )  " "       " "      " "        " "           " "
## 7  ( 1 )  " "       " "      " "        " "           " "
## 8  ( 1 )  " "       " "      " "        " "           " "
## 9  ( 1 )  " "       " "      " "        " "           " "
## 10  ( 1 ) " "       " "      " "        " "           " "
## 11  ( 1 ) " "       "*"      " "        " "           " "
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## 13  ( 1 ) "*"       "*"      " "        " "           " "
## 14  ( 1 ) "*"       "*"      " "        " "           " "
## 15  ( 1 ) "*"       "*"      " "        " "           " "
## 16  ( 1 ) "*"       "*"      " "        "*"           " "
## 17  ( 1 ) "*"       "*"      " "        "*"           " "
## 18  ( 1 ) "*"       "*"      " "        "*"           " "
## 19  ( 1 ) "*"       "*"      " "        "*"           " "
## 20  ( 1 ) "*"       "*"      "*"        "*"           " "
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## 29  ( 1 ) "*"       "*"      "*"        "*"           " "
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## 38  ( 1 ) "*"       "*"      "*"        "*"           "*"
## 39  ( 1 ) "*"       "*"      "*"        "*"           "*"
## 40  ( 1 ) "*"       "*"      "*"        "*"           "*"
## 41  ( 1 ) "*"       "*"      "*"        "*"           "*"
## 42  ( 1 ) "*"       "*"      "*"        "*"           "*"
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## 51  ( 1 ) "*"       "*"      "*"        "*"           "*"
## 52  ( 1 ) "*"       "*"      "*"        "*"           "*"
##           ModelChrysler ModelCMC ModelDodge ModelFord ModelGMC ModelHonda
## 1  ( 1 )  " "           " "      " "        " "        " "      " "
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## 19  ( 1 ) " "           " "      " "        " "        " "      " "
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##           ModelHummer ModelHyundai ModelInfiniti ModelIsuzu ModelJaguar
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##           ModelJeep ModelKia ModelLand ModelLexus ModelLincoln ModelMazda
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## 48  ( 1 ) "*"       "*"      "*"       "*"        "*"          "*"
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## 51  ( 1 ) "*"       "*"      "*"       "*"        "*"          "*"
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##           ModelMercedes-Benz ModelMercury ModelMini ModelMitsubishi
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## 2  ( 1 )  " "                " "          " "       " "
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## 11  ( 1 ) "*"                " "          " "       " "
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## 32  ( 1 ) "*"               " "          " "       " "
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## 51  ( 1 ) "*"               "*"          "*"       "*"
## 52  ( 1 ) "*"               "*"          "*"       "*"
##           ModelNissan ModelOldsmobile ModelPontiac ModelPorsche ModelSaab
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## 2  ( 1 )  " "         " "             " "          " "          " "
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## 4  ( 1 )  " "         " "             " "          " "          " "
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## 19  ( 1 ) " "         " "             " "          "*"          "*"
## 20  ( 1 ) " "         " "             " "          "*"          "*"
## 21  ( 1 ) " "         " "             " "          "*"          "*"
## 22  ( 1 ) " "         " "             " "          "*"          "*"
## 23  ( 1 ) "*"         " "             " "          "*"          "*"
## 24  ( 1 ) "*"         " "             " "          "*"          "*"
## 25  ( 1 ) "*"         " "             " "          "*"          "*"
```

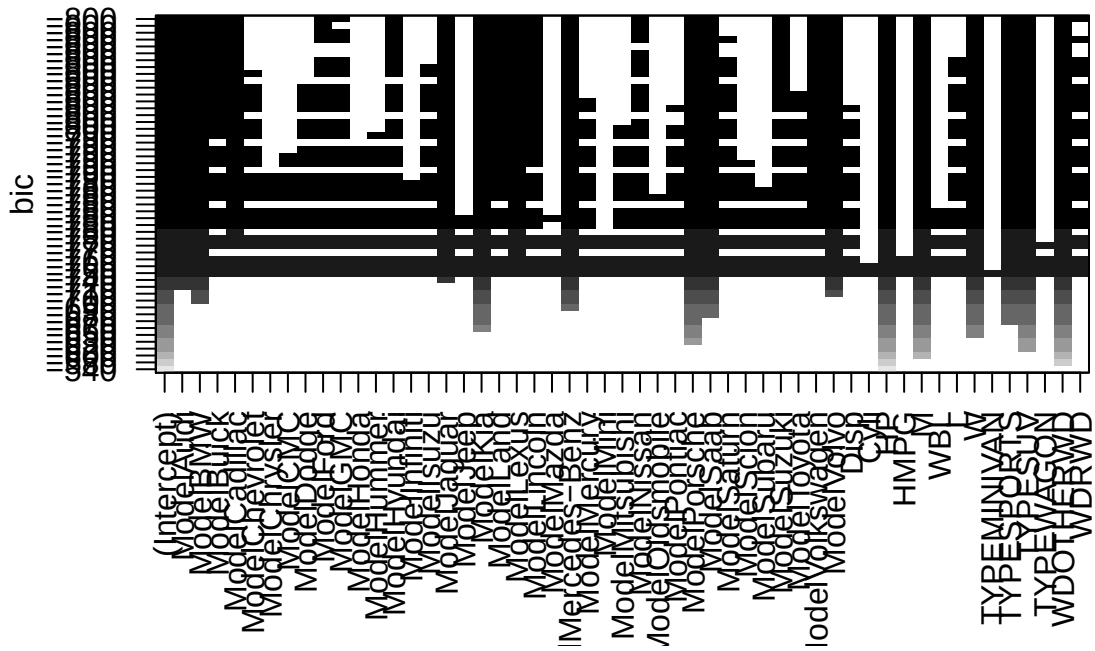
```
## 26  ( 1 ) "*"         " "             " "          "*"          "*"
## 27  ( 1 ) "*"         " "             " "          "*"          "*"
## 28  ( 1 ) "*"         " "             " "          "*"          "*"
## 29  ( 1 ) "*"         " "             " "          "*"          "*"
## 30  ( 1 )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

```
## 27  ( 1 ) "*"         " "         " "         "*"         " "
## 28  ( 1 ) "*"         " "         " "         "*"         " "
## 29  ( 1 ) "*"         " "         " "         "*"         " "
## 30  ( 1 ) "*"         " "         " "         "*"         " "
## 31  ( 1 ) "*"         " "         " "         "*"         " "
## 32  ( 1 ) "*"         " "         " "         "*"         "*"
## 33  ( 1 ) "*"         " "         " "         "*"         "*"
## 34  ( 1 ) "*"         " "         " "         "*"         "*"
## 35  ( 1 ) "*"         " "         " "         "*"         "*"
## 36  ( 1 ) "*"         " "         " "         "*"         "*"
## 37  ( 1 ) "*"         " "         " "         "*"         "*"
## 38  ( 1 ) "*"         " "         " "         "*"         "*"
## 39  ( 1 ) "*"         " "         " "         "*"         "*"
## 40  ( 1 ) "*"         "*"         " "         "*"         "*"
## 41  ( 1 ) "*"         "*"         " "         "*"         "*"
## 42  ( 1 ) "*"         "*"         " "         "*"         "*"
## 43  ( 1 ) "*"         "*"         "*"         "*"         "*"
## 44  ( 1 ) "*"         "*"         "*"         "*"         "*"
## 45  ( 1 ) "*"         "*"         "*"         "*"         "*"
## 46  ( 1 ) "*"         "*"         "*"         "*"         "*"
## 47  ( 1 ) "*"         "*"         "*"         "*"         "*"
## 48  ( 1 ) "*"         "*"         "*"         "*"         "*"
## 49  ( 1 ) "*"         "*"         "*"         "*"         "*"
## 50  ( 1 ) "*"         "*"         "*"         "*"         "*"
## 51  ( 1 ) "*"         "*"         "*"         "*"         "*"
## 52  ( 1 ) "*"         "*"         "*"         "*"         "*"
##           ModelVolkswagen ModelVolvo Disp Cyli HP  HMPG M   WBL L   W
## 1  ( 1 )  " "             " "        " "  " "  "*" " "  " " " " " " " "
## 2  ( 1 )  " "             " "        " "  " "  "*" " "  " " " " " " " "
## 3  ( 1 )  " "             " "        " "  " "  "*" " "  "*" " " " " " "
## 4  ( 1 )  " "             " "        " "  " "  "*" " "  "*" " " " " " "
## 5  ( 1 )  " "             " "        " "  " "  "*" " "  "*" " " " " " "
## 6  ( 1 )  " "             " "        " "  " "  "*" " "  "*" " " " " "*"
## 7  ( 1 )  " "             " "        " "  " "  "*" " "  "*" " " " " "*"
## 8  ( 1 )  " "             " "        " "  " "  "*" " "  "*" " " " " "*"
## 9  ( 1 )  " "             " "        " "  " "  "*" " "  "*" " " " " "*"
## 10  ( 1 ) " "             " "        " "  " "  "*" " "  "*" " " " " "*"
## 11  ( 1 ) " "             " "        " "  " "  "*" " "  "*" " " " " "*"
## 12  ( 1 ) " "             "*"        " "  " "  "*" " "  "*" " " " " "*"
## 13  ( 1 ) " "             "*"        " "  " "  "*" " "  "*" " " " " "*"
## 14  ( 1 ) " "             "*"        " "  " "  "*" " "  "*" " " " " "*"
## 15  ( 1 ) " "             "*"        " "  " "  "*" " "  "*" " " " " "*"
## 16  ( 1 ) " "             "*"        " "  " "  "*" " "  "*" " " " " "*"
## 17  ( 1 ) "*"             "*"        " "  " "  "*" " "  "*" " " " " "*"
## 18  ( 1 ) "*"             "*"        " "  " "  "*" " "  "*" " " " " "*"
## 19  ( 1 ) "*"             "*"        " "  " "  "*" " "  "*" " " " " "*"
## 20  ( 1 ) "*"             "*"        " "  " "  "*" " "  "*" " " " " "*"
## 21  ( 1 ) "*"             "*"        " "  " "  "*" " "  "*" " " " " "*"
## 22  ( 1 ) "*"             "*"        " "  " "  "*" " "  "*" " " " " "*"
## 23  ( 1 ) "*"             "*"        " "  " "  "*" " "  "*" " " " " "*"
## 24  ( 1 ) "*"             "*"        " "  " "  "*" " "  "*" " " " " "*"
## 25  ( 1 ) "*"             "*"        " "  " "  "*" " "  "*" " " " " "*"
## 26  ( 1 ) "*"             "*"        " "  " "  "*" " "  "*" " " " " "*"
## 27  ( 1 ) "*"             "*"        " "  " "  "*" " "  "*" " " " " "*"
```

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

```
## 29  ( 1 ) " "         "*"         "*"       " "         "*"         "*"
## 30  ( 1 ) " "         "*"         "*"       " "         "*"         "*"
## 31  ( 1 ) " "         "*"         "*"       " "         "*"         "*"
## 32  ( 1 ) " "         "*"         "*"       " "         "*"         "*"
## 33  ( 1 ) " "         "*"         "*"       " "         "*"         "*"
## 34  ( 1 ) " "         "*"         "*"       " "         "*"         "*"
## 35  ( 1 ) " "         "*"         "*"       " "         "*"         "*"
## 36  ( 1 ) " "         "*"         "*"       " "         "*"         "*"
## 37  ( 1 ) " "         "*"         "*"       " "         "*"         "*"
## 38  ( 1 ) " "         "*"         "*"       " "         "*"         "*"
## 39  ( 1 ) " "         "*"         "*"       " "         "*"         "*"
## 40  ( 1 ) " "         "*"         "*"       " "         "*"         "*"
## 41  ( 1 ) " "         "*"         "*"       " "         "*"         "*"
## 42  ( 1 ) " "         "*"         "*"       " "         "*"         "*"
## 43  ( 1 ) " "         "*"         "*"       " "         "*"         "*"
## 44  ( 1 ) " "         "*"         "*"       " "         "*"         "*"
## 45  ( 1 ) " "         "*"         "*"       " "         "*"         "*"
## 46  ( 1 ) " "         "*"         "*"       " "         "*"         "*"
## 47  ( 1 ) " "         "*"         "*"       " "         "*"         "*"
## 48  ( 1 ) " "         "*"         "*"       " "         "*"         "*"
## 49  ( 1 ) " "         "*"         "*"       "*"         "*"         "*"
## 50  ( 1 ) " "         "*"         "*"       "*"         "*"         "*"
## 51  ( 1 ) " "         "*"         "*"       "*"         "*"         "*"
## 52  ( 1 ) "*"         "*"         "*"       "*"         "*"         "*"
```

```
plot(leaps.out, main = "BIC")
```



Part 3

According to variable selection,

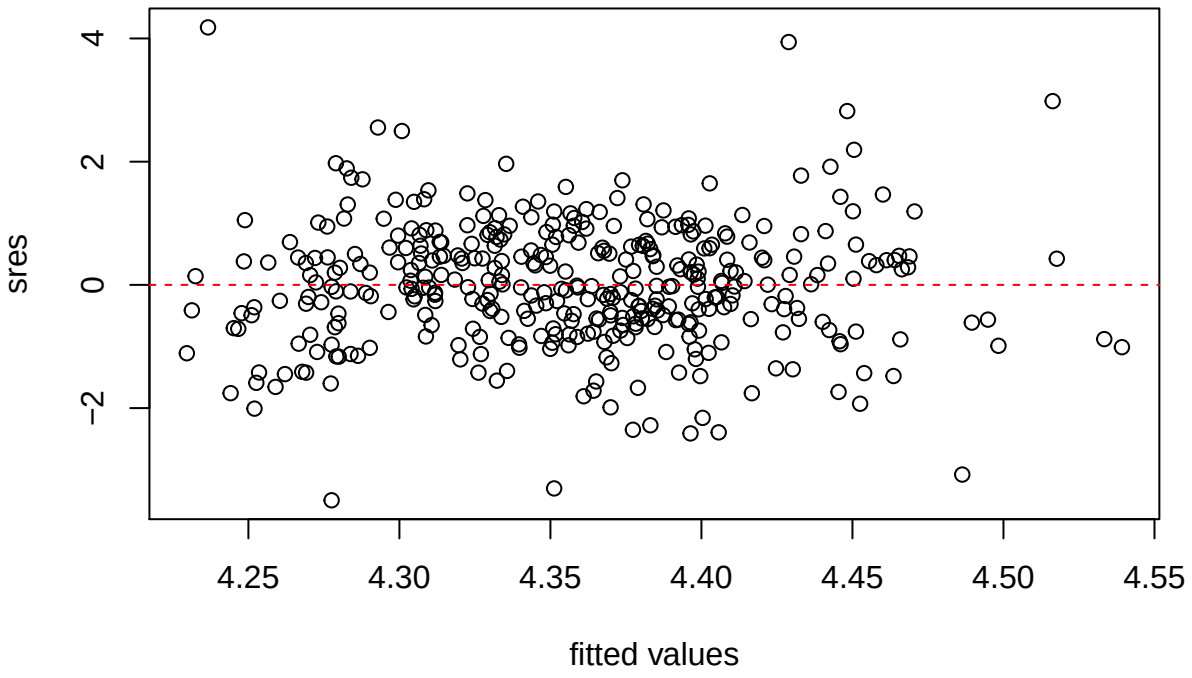
```
cars.lm = lm((Price^(-0.2) - 1) / (-0.2)~Model+HP+M+L+W+TYPE+WD, data = cars.new.df)
summary(cars.lm)
```

```
##
## Call:
## lm(formula = (Price^(-0.2) - 1)/(-0.2) ~ Model + HP + M + L +
##     W + TYPE + WD, data = cars.new.df)
##
## Residuals:
##       Min        1Q    Median        3Q       Max
## -0.055109 -0.009641 -0.000288  0.009792  0.067193
##
## Coefficients:
##                     Estimate Std. Error t value Pr(>|t|)
## (Intercept)         4.164e+00  3.491e-02 119.278  < 2e-16 ***
## ModelAudi           1.397e-03  7.736e-03   0.181 0.856800
## ModelBMW            5.035e-04  7.779e-03   0.065 0.948431
## ModelBuick         -2.859e-02  8.677e-03  -3.295 0.001088 **
## ModelCadillac      -1.153e-02  9.125e-03  -1.264 0.207112
## ModelChevrolet     -4.815e-02  7.430e-03  -6.481 3.23e-10 ***
## ModelChrysler      -3.495e-02  7.812e-03  -4.474 1.05e-05 ***
## ModelCMC           -5.874e-02  1.844e-02  -3.185 0.001583 **
## ModelDodge         -5.245e-02  8.741e-03  -6.000 5.09e-09 ***
## ModelFord          -5.577e-02  7.634e-03  -7.305 2.02e-12 ***
## ModelGMC           -7.276e-02  1.211e-02  -6.009 4.83e-09 ***
## ModelHonda         -3.882e-02  7.754e-03  -5.007 8.94e-07 ***
## ModelHummer        -6.301e-02  1.944e-02  -3.240 0.001312 **
## ModelHyundai       -5.956e-02  8.198e-03  -7.265 2.61e-12 ***
## ModelInfiniti      -3.640e-02  9.074e-03  -4.011 7.45e-05 ***
## ModelIsuzu         -6.843e-02  1.387e-02  -4.935 1.26e-06 ***
## ModelJaguar         2.187e-03  8.509e-03   0.257 0.797275
## ModelJeep          -2.654e-02  1.205e-02  -2.202 0.028339 *
## ModelKia           -7.882e-02  8.526e-03  -9.244  < 2e-16 ***
## ModelLand          -3.483e-03  1.200e-02  -0.290 0.771824
## ModelLexus         -3.676e-03  8.499e-03  -0.433 0.665600
## ModelLincoln       -2.592e-02  8.971e-03  -2.889 0.004110 **
## ModelMazda         -2.604e-02  1.028e-02  -2.534 0.011728 *
## ModelMercedes-Benz  8.622e-03  7.856e-03   1.098 0.273202
## ModelMercury       -4.998e-02  8.908e-03  -5.610 4.22e-08 ***
## ModelMini          -1.336e-02  1.458e-02  -0.916 0.360127
## ModelMitsubishi    -4.384e-02  8.938e-03  -4.905 1.46e-06 ***
## ModelNissan        -5.558e-02  7.836e-03  -7.092 7.81e-12 ***
## ModelOldsmobile    -3.262e-02  1.193e-02  -2.734 0.006596 **
## ModelPontiac       -4.660e-02  8.713e-03  -5.349 1.64e-07 ***
## ModelPorsche        3.177e-02  9.516e-03   3.339 0.000935 ***
## ModelSaab           8.227e-03  9.095e-03   0.905 0.366320
## ModelSaturn        -5.912e-02  9.127e-03  -6.477 3.31e-10 ***
## ModelScion         -4.836e-02  1.406e-02  -3.439 0.000657 ***
## ModelSubaru        -3.348e-02  8.947e-03  -3.743 0.000214 ***
## ModelSuzuki        -6.365e-02  8.917e-03  -7.138 5.87e-12 ***
## ModelToyota        -4.514e-02  7.355e-03  -6.138 2.35e-09 ***
```

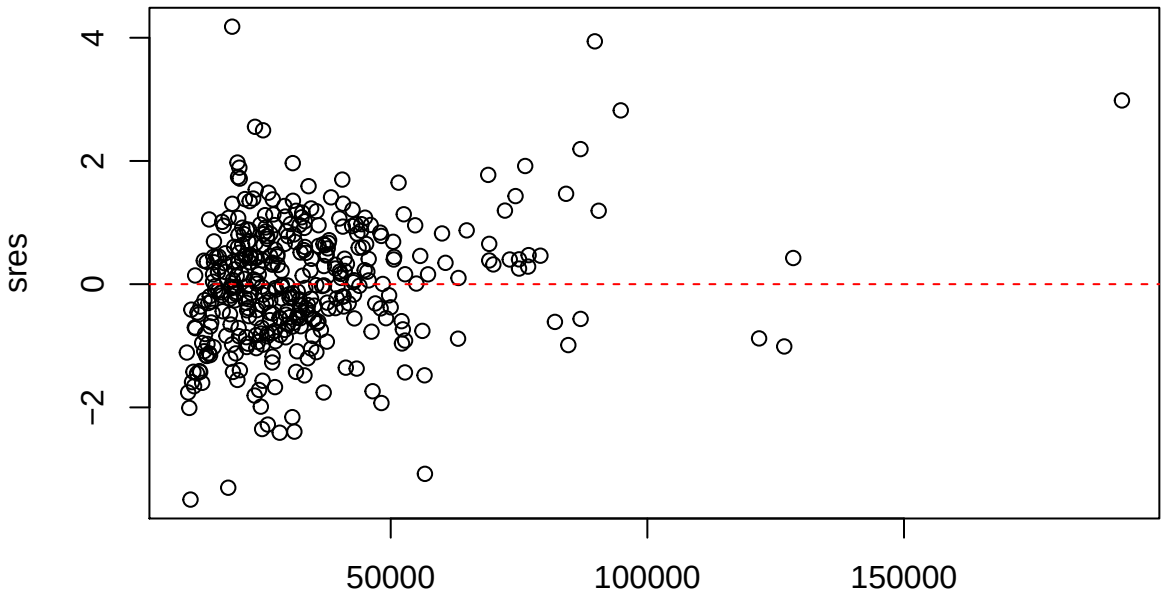
```
## ModelVolkswagen    -1.956e-02  8.284e-03  -2.361 0.018815 *
## ModelVolvo          4.406e-05  8.109e-03   0.005 0.995668
## HP                  3.020e-04  2.538e-05  11.897  < 2e-16 ***
## M                   3.018e-05  4.329e-06   6.973 1.64e-11 ***
## L                   5.188e-04  1.815e-04   2.859 0.004516 **
## W                  -6.990e-04  6.807e-04  -1.027 0.305261
## TYPEMINIVAN        -1.584e-03  5.386e-03  -0.294 0.768923
## TYPESPORTS          3.102e-02  4.388e-03   7.069 9.05e-12 ***
## TYPESUV            -5.831e-03  4.918e-03  -1.186 0.236606
## TYPEWAGON           1.554e-03  3.577e-03   0.434 0.664242
## WDOTHERWD           7.931e-05  3.447e-03   0.023 0.981658
## WDRWD               1.057e-02  4.079e-03   2.590 0.010004 *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.01687 on 337 degrees of freedom
## Multiple R-squared:  0.9343, Adjusted R-squared:  0.925
## F-statistic: 99.91 on 48 and 337 DF,  p-value: < 2.2e-16
```

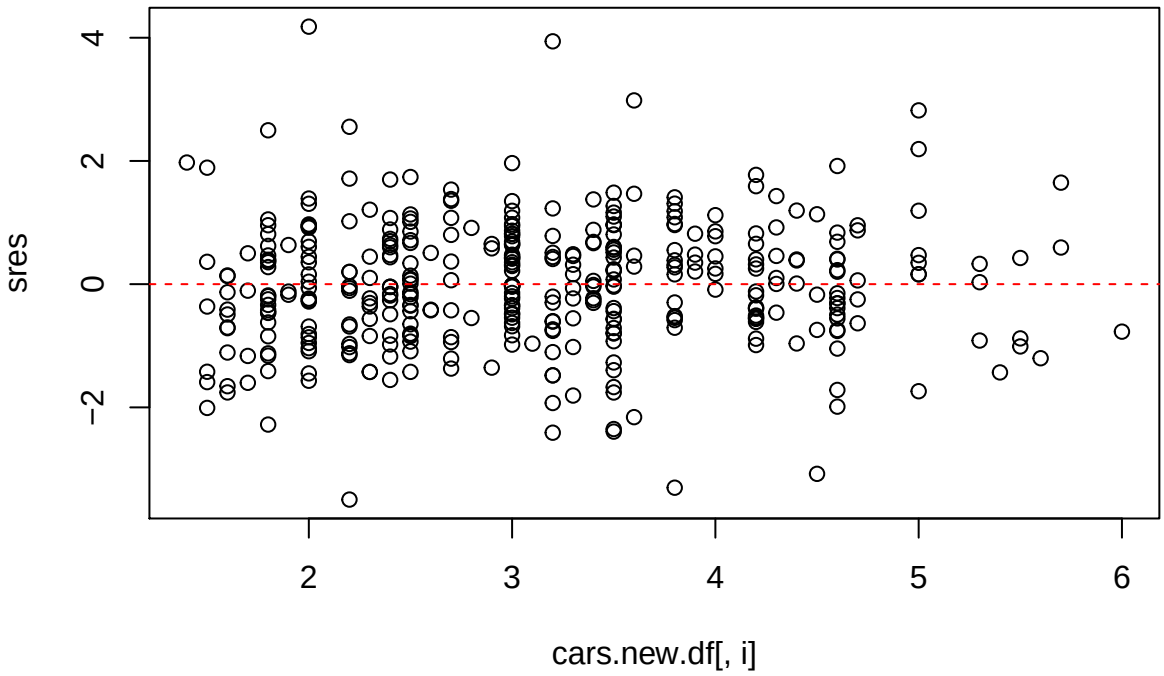
Firstly, we check the assumptions of linear regression.

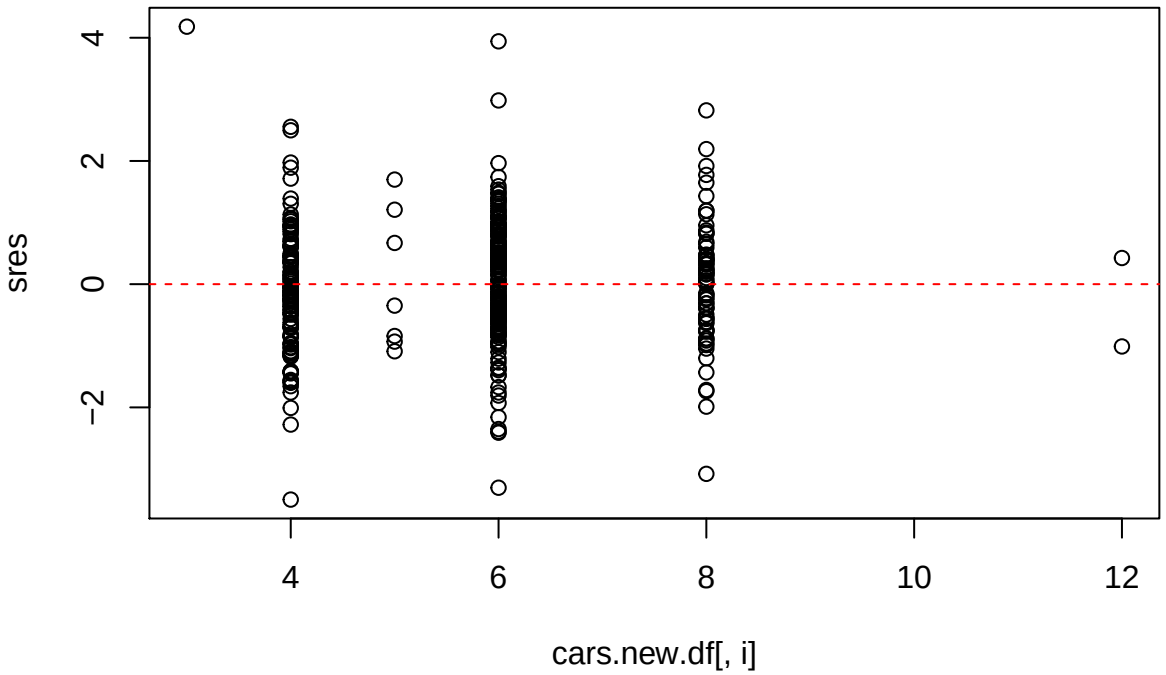
```
fvs = fitted.values(cars.lm)
res = residuals(cars.lm)
sres = rstandard(cars.lm)
plot(fvs, sres, xlab = "fitted values", ylab = "sres")
abline(a = 0, b = 0, col = 'red', lty = 2)
```

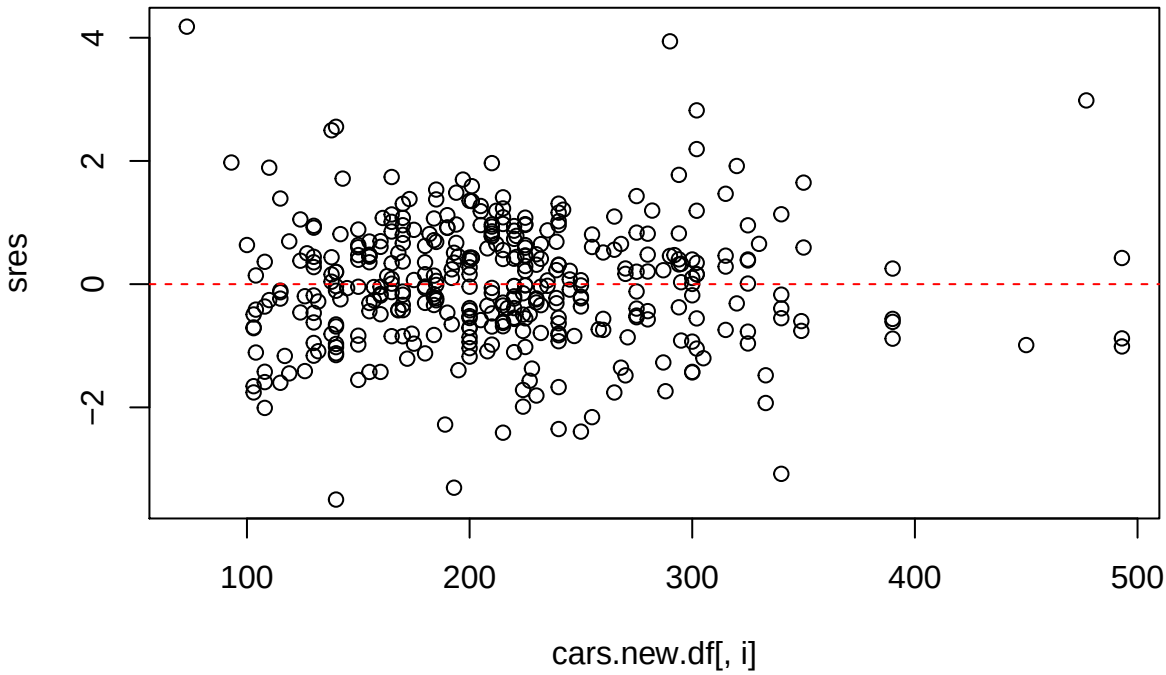


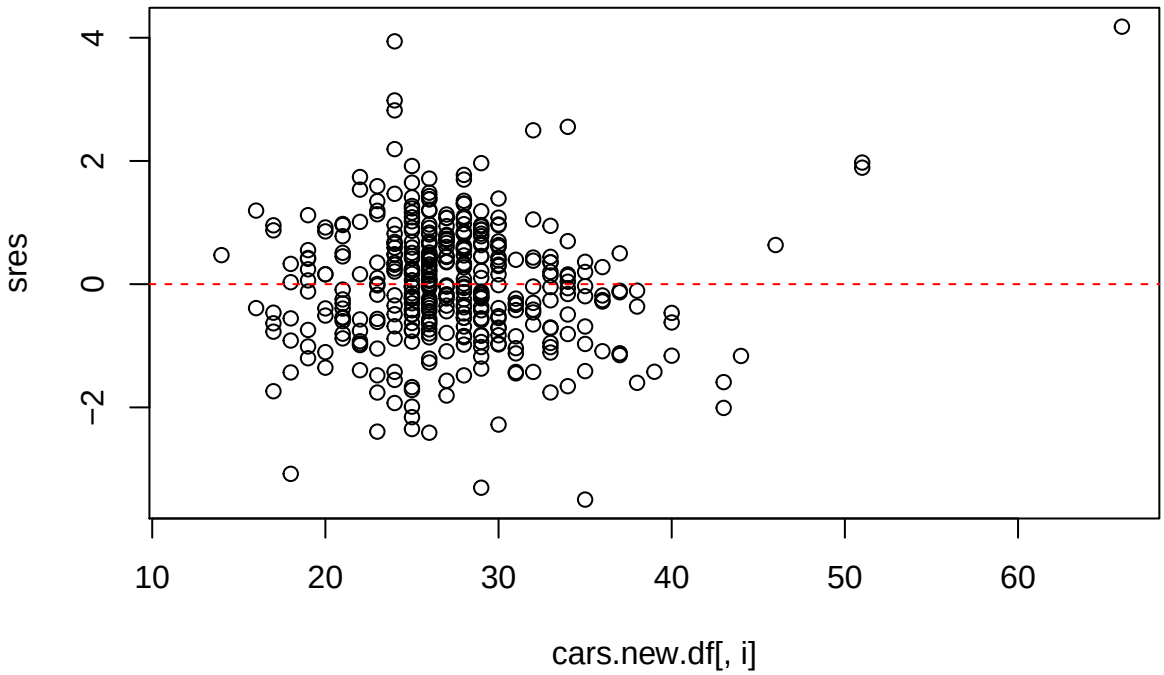

```
for (i in 2:10){
    plot(cars.new.df[,i], sres)
    abline(a = 0, b= 0, col = 'red', lty = 2)
}
```

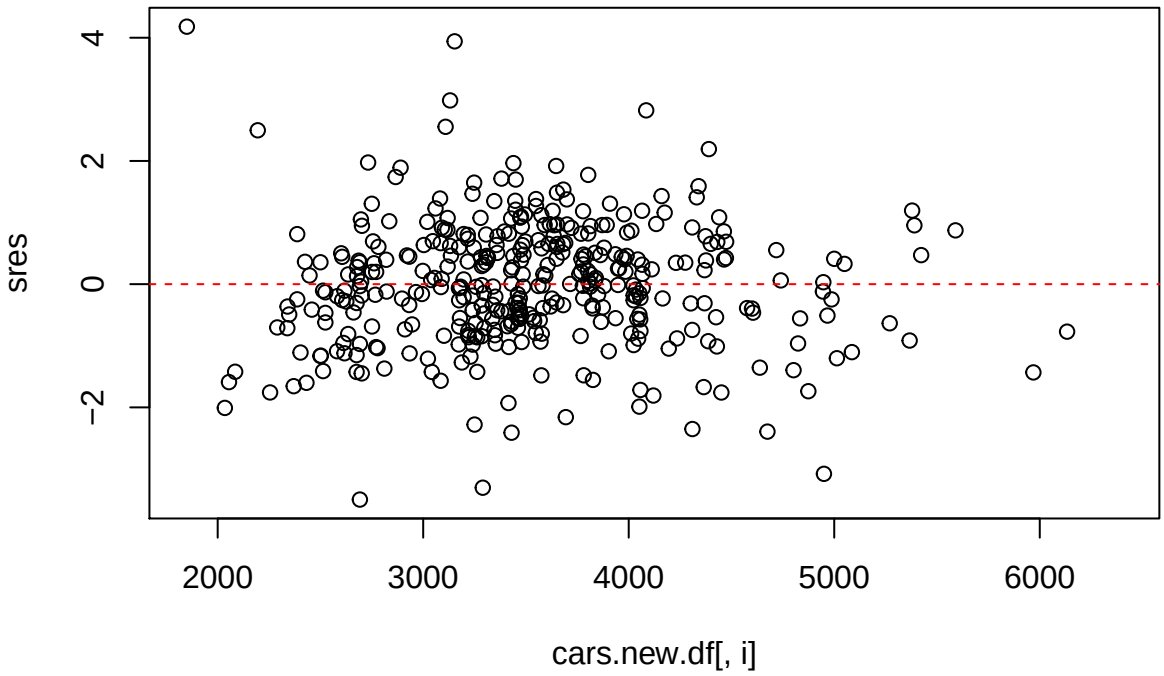

sres
4
2
0
−2
50000
100000
150000
cars.new.df[, i]

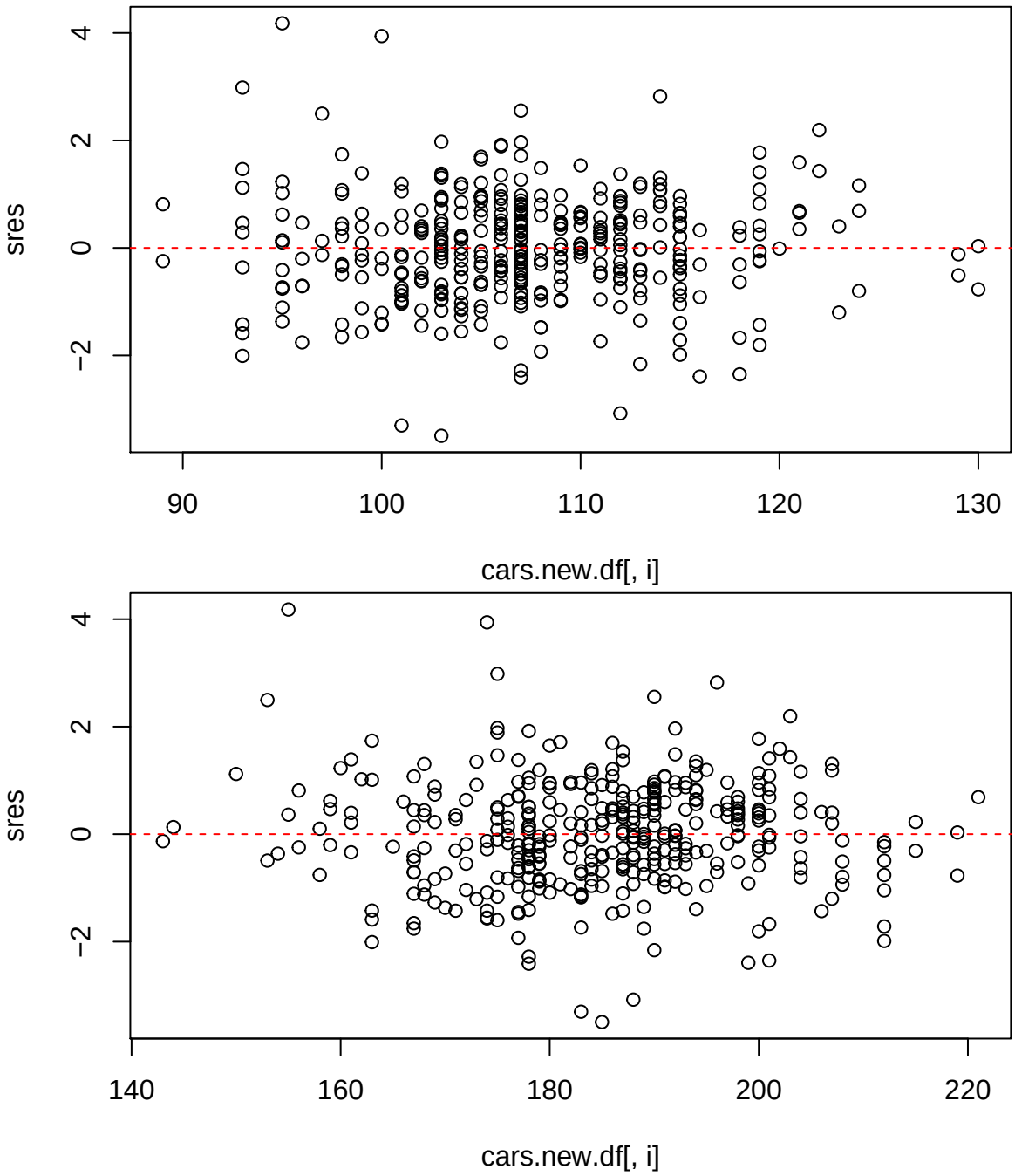

sres
4
2
0
−2
2
3
4
5
6
cars.new.df[, i]

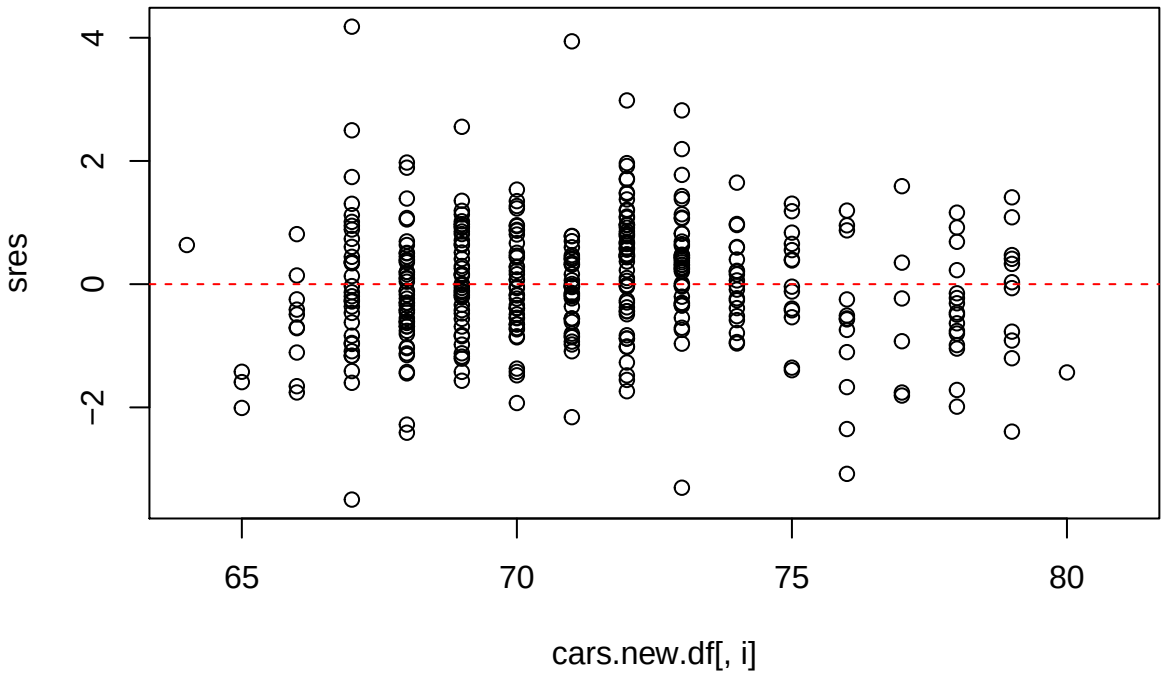

sres
4
2
0
−2
4
6
8
10
12
cars.new.df[, i]


sres
4
2
0
−2
100
200
300
400
500
cars.new.df[, i]


sres
4
2
0
−2
10
20
30
40
50
60
cars.new.df[, i]

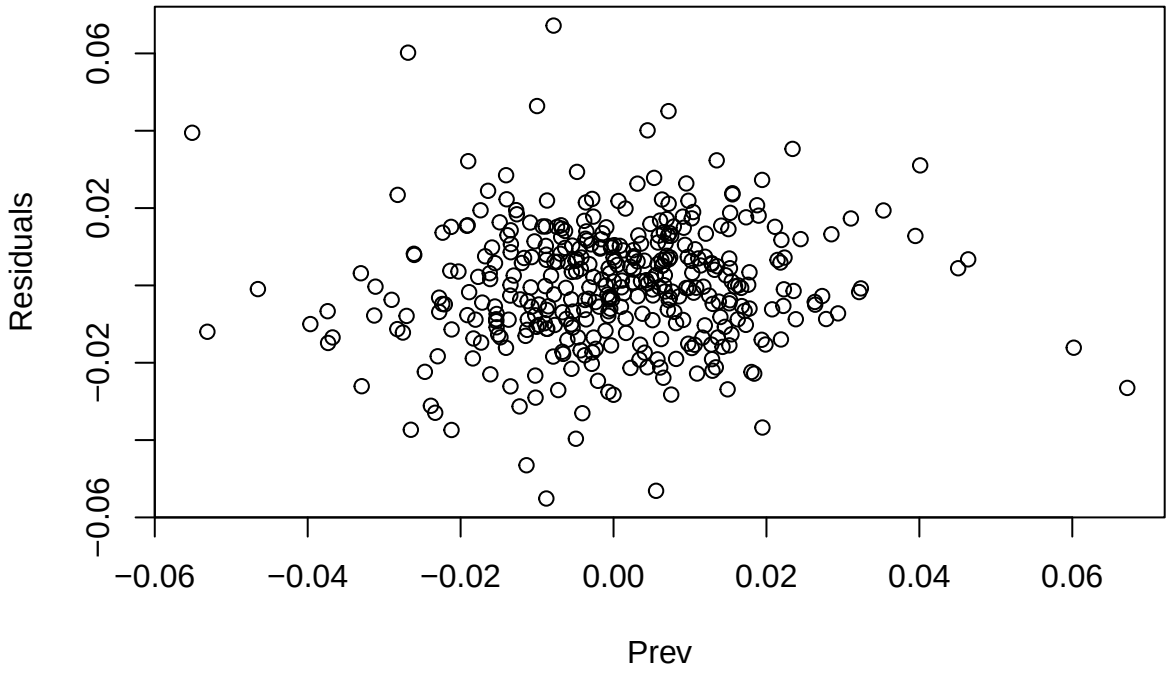

sres
4
2
0
−2
2000
3000
4000
5000
6000
cars.new.df[, i]


sres
4
2
0
−2
90
100
110
120
130
cars.new.df[, i]
sres
4
2
0
−2
140
160
180
200
220
cars.new.df[, i]

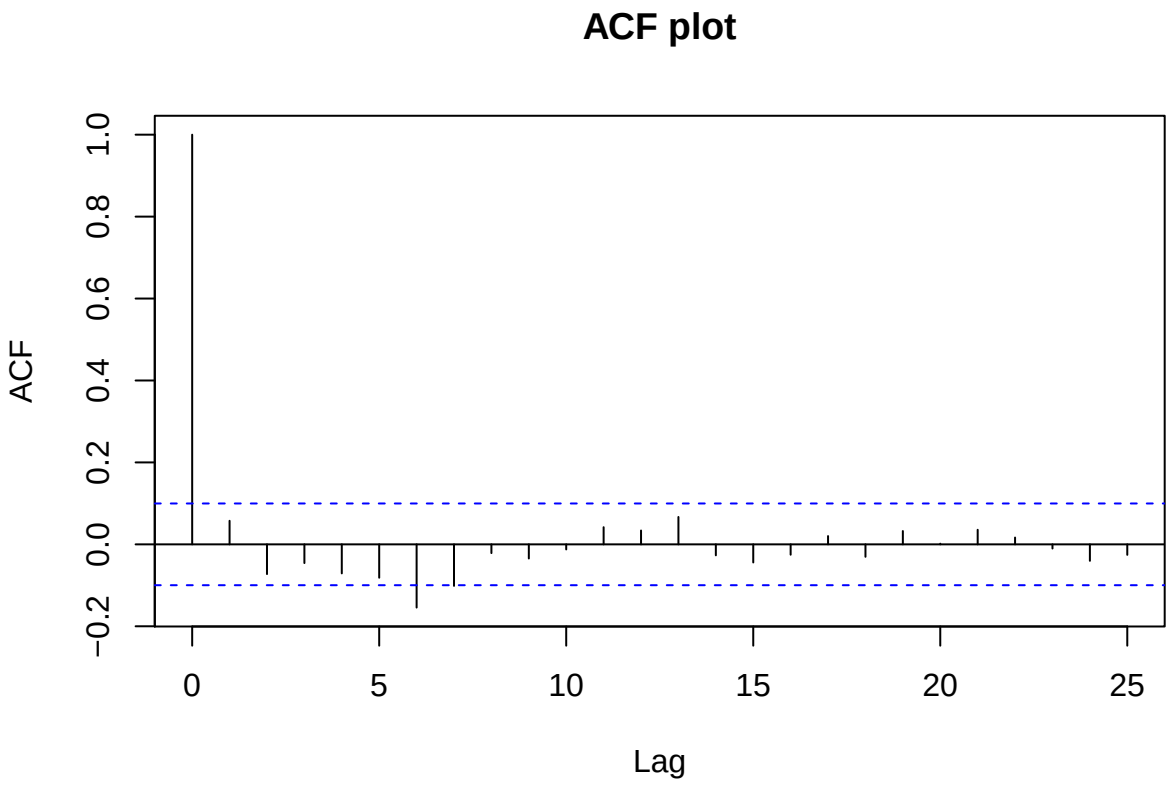


All above seem OK.

```
sz = length(cars.lm$residuals)
plot(cars.lm$residuals[-sz], cars.lm$residuals[-1], xlab = "Prev", ylab = "Residuals")
```

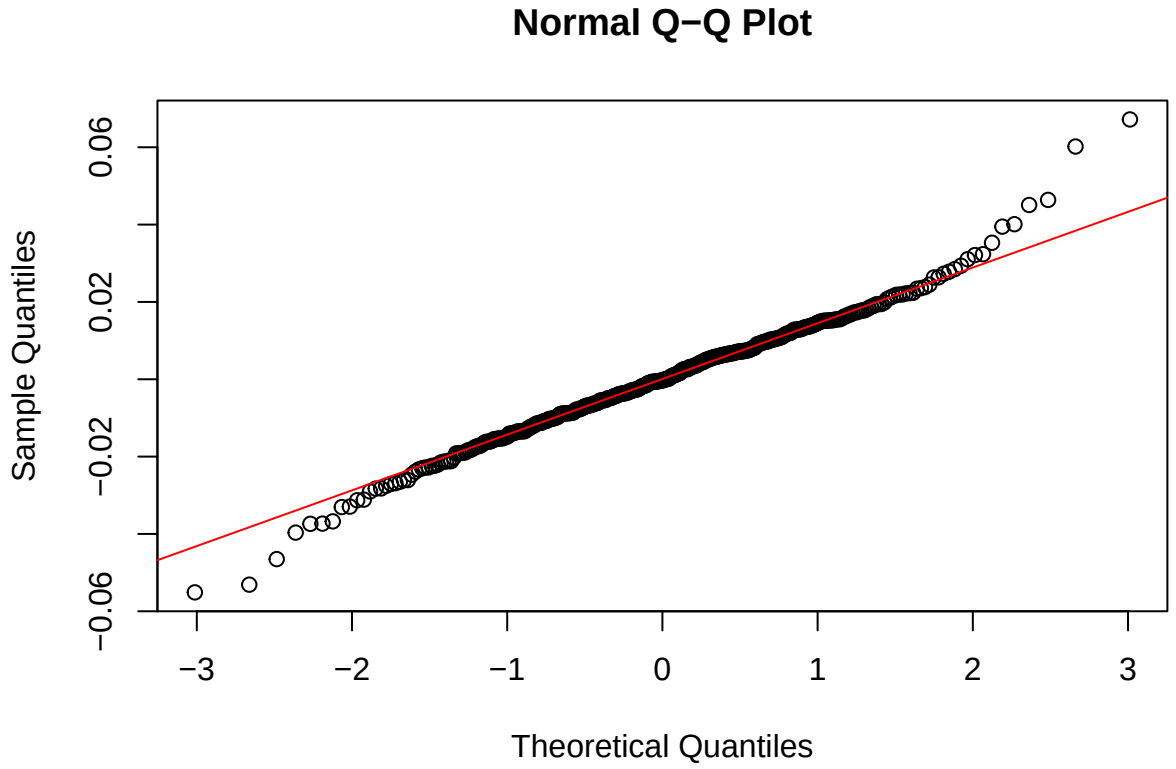



```
acf(cars.lm$residuals, main = "ACF plot")
```



No multicolinearity problem.

```
qqnorm(cars.lm$residuals)
qqline(cars.lm$residuals, col = 2)
```



```
shapiro.test(cars.lm$residuals)
```

```
##
##  Shapiro-Wilk normality test
##
## data:  cars.lm$residuals
## W = 0.98466, p-value = 0.0004093
```

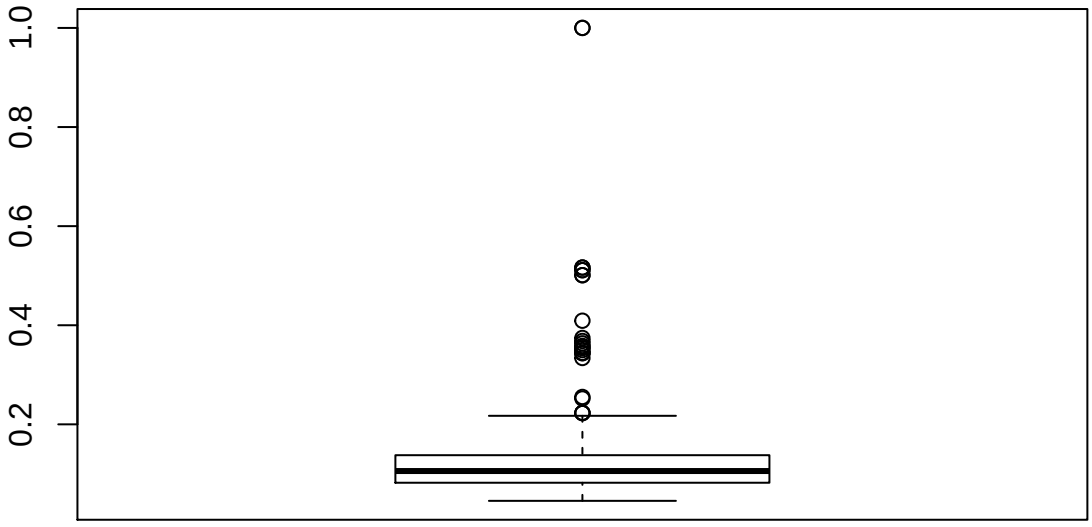
Normality seems OK. Check VIF

```
X_minus_cat = cars.new.df[,-c(1,2,11,12)]
VIF = diag(solve(cor(X_minus_cat)))
VIF
```

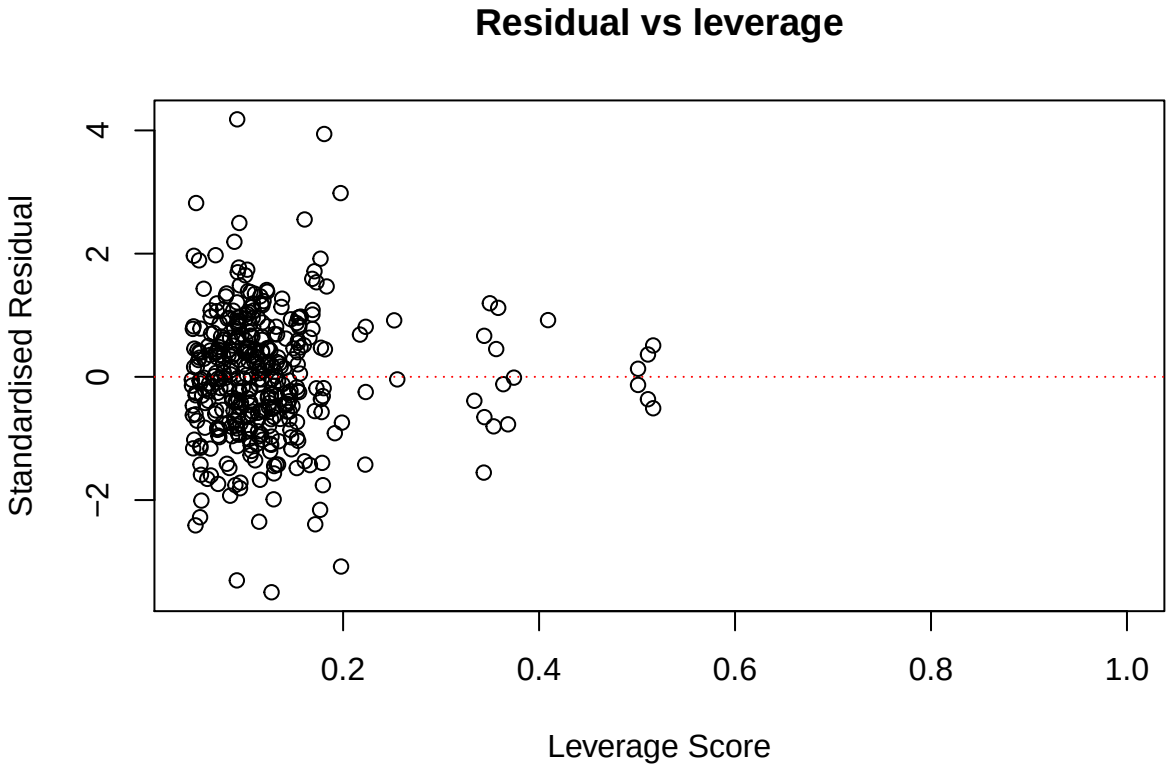
```
##     Disp     Cyli       HP     HMPG        M      WBL        L        W
## 9.166579 6.655912 3.078439 3.291322 7.337281 5.622613 4.803604 3.969216
```

VIF OK. Check influential point

```
pii.vec = hatvalues(cars.lm)
boxplot(pii.vec)
```




```
plot(pii.vec, sres, xlab = "Leverage Score", ylab = "Standardised Residual", main = "Residual vs levera
abline(a = 0, b = 0, col = 2, lty = 3)
```




```
influence.measures(cars.lm)
```

```
## Influence measures of
##   lm(formula = (Price^(-0.2) - 1)/(-0.2) ~ Model + HP + M + L +      W + TYPE + WD, data = cars.new.c
##
##        dfb.1_  dfb.MdlA  dfb.MBMW  dfb.MdlB dfb.MdlCd dfb.MdlChv
## 1    5.14e-02 -2.00e-01 -1.96e-01 -1.83e-01 -1.74e-01  -2.08e-01
## 2    8.53e-02 -3.25e-01 -3.19e-01 -2.98e-01 -2.82e-01  -3.38e-01
## 3    2.99e-02  6.11e-01  6.07e-01  5.61e-01  5.12e-01   6.47e-01
## 4    3.51e-01 -1.37e+00 -1.51e+00 -1.20e+00 -1.19e+00  -1.45e+00
## 5   -1.06e-01  3.51e-01  3.42e-01  3.05e-01  2.87e-01   3.66e-01
## 6   -9.40e-02  5.11e-01  4.82e-01  4.38e-01  4.24e-01   5.09e-01
## 7   -1.36e-01  3.94e-01  3.90e-01  3.52e-01  3.33e-01   4.14e-01
## 8    1.61e-02 -1.27e-01 -9.65e-03  1.00e-02  1.99e-03   1.01e-02
## 9   -7.34e-03 -7.81e-02 -4.78e-03  5.41e-04  2.86e-03   9.58e-04
## 10   5.45e-02  1.29e-01  1.97e-04  4.15e-03 -8.08e-03   6.22e-03
## 11  -1.01e-02 -2.46e-02  4.18e-03 -1.41e-03 -1.56e-03  -8.69e-04
## 12  -1.46e-02 -4.12e-02  6.49e-03 -2.01e-03 -2.72e-03  -9.84e-04
## 13   7.98e-02  8.49e-02 -2.38e-02  1.05e-02  2.76e-03   1.13e-02
## 14   2.82e-02  1.36e-01  1.88e-03 -5.59e-03 -5.67e-03  -2.56e-03
## 15   1.74e-03  7.33e-03 -8.20e-04 -2.35e-04 -7.66e-05  -1.85e-04
## 16   6.12e-04 -4.70e-03 -4.55e-04  5.10e-04  3.49e-04   4.24e-04
## 17  -8.17e-03 -2.23e-02  3.35e-03  1.40e-03  1.05e-03   2.05e-03
## 18  -8.97e-04 -3.47e-03  4.74e-04  2.13e-04  2.36e-05   1.34e-04
## 19  -1.01e-02 -1.99e-02  2.62e-03 -1.01e-03  8.09e-04  -1.01e-03
## 20  -2.35e-02  7.30e-02 -2.11e-03 -4.37e-03 -5.31e-03   2.04e-03
## 21   1.85e-01 -1.46e-01 -5.92e-02  9.98e-03  1.50e-02   9.62e-04
## 22  -4.99e-02 -5.46e-02  9.28e-03 -1.44e-02  1.12e-03  -7.27e-03
## 23  -3.27e-02 -3.90e-02  6.50e-03 -1.04e-02 -8.42e-04  -7.86e-03
## 24  -8.09e-02  8.60e-02  2.20e-02 -8.51e-03  5.87e-03  -6.70e-03
```

```
## 25  -6.62e-02  4.96e-02  9.27e-03 -3.31e-03  1.09e-02  -5.20e-03
## 26   1.66e-02 -1.92e-02 -2.02e-03 -9.40e-04 -3.90e-03  -5.97e-04
## 27  -3.94e-03 -2.54e-03 -2.05e-02  2.05e-04 -1.23e-04   1.00e-03
## 28   4.65e-02  2.47e-03  6.31e-02  4.10e-03 -1.59e-03   3.50e-03
## 29  -1.86e-02 -8.56e-03 -7.94e-02 -4.84e-04 -7.85e-04   2.55e-03
## 30  -3.48e-03  6.10e-03 -2.10e-02 -2.25e-04 -3.31e-03  -7.84e-04
## 31   4.21e-03 -5.65e-03  1.81e-02  1.37e-04  2.26e-03  -2.27e-04
## 32   1.04e-02  2.34e-03  2.84e-02  2.19e-03 -1.74e-04   6.85e-04
## 33   7.48e-02  1.23e-03  8.68e-02  1.21e-02 -3.60e-03   9.81e-03
## 34  -5.46e-04 -1.22e-04 -1.49e-03 -1.14e-04  9.10e-06  -3.58e-05
## 35   1.83e-02 -2.47e-02  8.32e-02  4.76e-03  1.21e-02   5.79e-03
## 36  -1.04e-01  2.22e-02  1.20e-01 -2.51e-02 -2.98e-03  -1.82e-02
## 37  -9.43e-02  2.03e-02  1.22e-01 -1.83e-02 -4.49e-03  -1.31e-02
## 38  -3.29e-04  8.72e-05  1.11e-03  3.18e-05 -9.47e-05   6.06e-05
## 39  -1.30e-02  8.92e-04  4.08e-02  6.27e-05 -5.58e-03   4.53e-03
## 40  -1.15e-02  2.84e-03  4.25e-02 -2.07e-03 -7.38e-03   3.06e-03
## 41  -9.50e-02  2.11e-04 -1.65e-01 -1.80e-02  1.61e-02  -1.20e-02
## 42  -3.30e-02 -1.68e-02 -2.34e-01 -1.02e-02  1.55e-02   3.45e-03
## 43   1.36e-03 -1.64e-04 -2.95e-03  3.48e-04 -1.31e-04   3.64e-04
## 44  -9.31e-03  8.76e-03 -1.32e-01 -4.16e-03  2.91e-03  -7.16e-03
## 45   1.54e-02 -1.67e-03 -4.01e-02  1.96e-03 -2.81e-03   3.66e-03
## 46  -6.94e-03  5.34e-04  2.55e-02  2.44e-04  1.44e-03  -1.14e-03
## 47   1.47e-02  1.23e-03 -3.08e-03 -2.19e-01 -5.39e-03   2.99e-03
## 48   1.32e-02  1.03e-03 -2.97e-03 -1.32e-01 -1.09e-03   5.00e-04
## 49  -1.88e-02 -2.25e-03  4.28e-03  2.17e-01  1.61e-03  -1.93e-04
## 50  -4.30e-02  9.74e-04  7.35e-03  2.60e-01 -2.55e-03  -4.37e-03
## 51  -1.97e-02 -4.10e-03  6.21e-03  2.97e-01 -5.38e-03   4.10e-03
## 52  -2.97e-02  5.47e-03  1.11e-02 -9.88e-02  6.89e-04  -2.93e-03
## 53  -8.34e-03  3.26e-03 -1.34e-03 -1.30e-01 -1.03e-03  -3.71e-03
## 54  -5.59e-04  2.32e-03 -1.53e-03 -1.63e-01 -2.49e-03  -7.42e-04
## 55  -5.02e-03 -8.11e-03  1.97e-04 -6.04e-02  1.74e-03   2.76e-03
## 56  -1.92e-01  1.37e-02  1.23e-01 -3.59e-02 -6.36e-01  -1.37e-02
## 57  -7.40e-03 -7.03e-04  4.00e-03 -2.47e-03  5.86e-02  -1.06e-03
## 58  -1.02e-02 -2.21e-03  7.84e-03 -2.96e-03  1.15e-01  -4.87e-04
## 60   4.05e-02 -8.54e-03 -1.21e-02  6.39e-03 -2.60e-01  -4.44e-03
## 61  -5.32e-02 -9.51e-03  1.76e-02 -6.29e-03  2.47e-01   7.80e-04
## 62  -9.06e-03 -1.05e-02 -5.63e-03  7.68e-04 -8.82e-02   4.14e-03
## 63   1.03e-01 -3.10e-02 -6.90e-02  3.92e-02  5.69e-01   1.49e-02
## 64  -6.32e-03  2.32e-02  1.39e-02 -5.76e-03 -7.58e-03  -5.38e-02
## 66  -1.08e-01  7.08e-03  7.29e-03 -1.59e-02 -2.51e-02  -1.78e-01
## 67  -3.83e-02  9.86e-03  4.64e-03 -1.27e-02 -1.14e-02  -6.08e-02
## 68   1.61e-02 -6.65e-03 -9.71e-03  8.00e-03 -9.10e-03  -1.09e-01
## 69  -2.97e-02 -5.75e-03 -4.00e-03  3.94e-03 -7.11e-03  -1.14e-01
## 70   1.52e-03 -6.30e-04 -9.20e-04  7.58e-04 -8.62e-04  -1.03e-02
## 72  -2.68e-02 -3.50e-03 -1.40e-02  9.46e-03 -3.26e-03   7.05e-02
## 73  -7.40e-02 -9.80e-03 -3.91e-02  2.64e-02 -9.08e-03   1.96e-01
## 74   1.53e-02 -7.63e-04 -3.26e-03  4.88e-03  7.89e-04  -3.08e-02
## 75  -1.81e-02  7.10e-04  4.46e-03 -5.08e-03 -1.23e-03   4.00e-02
## 76  -8.02e-03 -6.43e-04  3.24e-03 -1.64e-03 -1.62e-03   3.43e-02
## 77  -1.22e-03  1.36e-04 -3.02e-05  2.92e-04 -1.60e-04  -6.78e-03
## 78  -2.90e-02  4.39e-03 -2.51e-04 -3.72e-03 -1.20e-04  -8.10e-02
## 79   1.86e-02 -2.84e-03 -4.35e-05  2.40e-03  1.34e-05   4.93e-02
## 80  -2.08e-02  3.73e-03  3.54e-04 -2.11e-03  1.69e-03  -4.28e-02
## 81   2.47e-03 -1.23e-04 -5.04e-04  6.18e-04  2.19e-05  -3.85e-03
```

```
## 82  -1.37e-02  1.53e-04  3.23e-03 -3.17e-03 -4.90e-04   2.85e-02
## 86  -3.07e-03  1.32e-03  6.88e-04 -9.77e-04 -9.91e-04   3.01e-03
## 87  -1.65e-02 -6.91e-03 -4.15e-03  4.30e-04 -2.07e-03   4.00e-02
## 88   1.38e-01  6.11e-02  1.11e-03  1.78e-02  2.15e-03   1.71e-01
## 89   2.10e-03 -1.32e-02 -4.30e-03  3.49e-04  9.35e-03  -5.90e-02
## 90   1.25e-01  9.39e-03 -9.96e-03  1.39e-02  3.31e-03   1.32e-01
## 91   9.99e-02 -1.44e-02 -7.58e-03  2.54e-02  5.49e-03   1.92e-02
## 92   1.57e-03 -2.78e-05 -4.00e-04  1.50e-04  2.96e-05  -2.01e-05
## 93  -4.11e-02 -2.36e-04  1.10e-02 -3.26e-03 -1.28e-03   1.99e-03
## 94   1.01e-01 -1.55e-02 -2.22e-02  2.64e-02  4.55e-03   1.62e-02
## 95   7.51e-02 -1.12e-02 -1.87e-02  1.77e-02  4.91e-03   9.89e-03
## 96   6.41e-02 -1.74e-02 -5.51e-02  3.12e-02  7.06e-03   1.59e-02
## 97   1.80e-01  4.39e-02  1.20e-01 -8.60e-03  3.62e-02  -3.77e-02
## 98  -9.37e-02  1.27e-02  9.32e-03 -1.87e-02 -8.48e-03  -1.38e-02
## 99   9.97e-02 -1.36e-02 -9.97e-03  1.99e-02  8.96e-03   1.47e-02
## 100  3.40e-02 -6.43e-03 -1.04e-02  1.24e-02 -3.49e-03   8.73e-03
## 101  1.45e-01  5.93e-03 -1.27e-02  3.86e-03 -6.67e-03  -1.06e-03
## 102  9.40e-02  4.52e-03  1.08e-04  1.55e-03 -6.07e-03   1.79e-03
## 103  1.95e-02 -3.74e-03 -1.04e-02  4.19e-03 -1.64e-03   2.66e-03
## 104 -1.31e-01  1.39e-02  2.16e-02 -1.69e-02  1.25e-03  -2.76e-02
## 105  8.49e-03 -1.10e-03 -1.31e-03  1.42e-03 -2.51e-04   1.93e-03
## 106  0.00e+00  0.00e+00  0.00e+00  0.00e+00  0.00e+00   0.00e+00
## 107 -4.75e-02  3.33e-03  5.54e-03 -2.57e-03  3.90e-03  -7.19e-03
## 110 -1.60e-02  2.06e-03  6.91e-03 -5.37e-04  3.70e-03  -2.37e-03
## 111 -1.94e-02 -3.29e-02 -2.06e-02  5.31e-03  9.65e-03  -5.71e-03
## 112  3.31e-03 -3.58e-04 -8.10e-04  4.54e-04  2.85e-04   1.83e-05
## 113  3.73e-02 -4.24e-03 -7.94e-03  6.84e-03  2.58e-03   1.66e-03
## 114 -9.85e-02 -1.88e-03  4.91e-03 -1.62e-02 -7.82e-03  -6.00e-03
## 115 -2.71e-02 -1.75e-04  1.60e-03 -4.42e-03 -1.92e-03  -1.90e-03
## 117  1.00e-02  2.92e-03  1.84e-03 -1.46e-03 -8.06e-04   7.16e-04
## 118 -7.35e-04 -1.95e-04 -1.20e-04  9.59e-05  5.82e-05  -5.76e-05
## 120  1.80e-01 -1.45e-02  5.02e-02  2.87e-02  2.47e-02   2.91e-03
## 121  7.95e-02 -6.41e-03  2.22e-02  1.26e-02  1.09e-02   1.29e-03
## 122  2.31e-02 -1.82e-03  6.37e-03  3.27e-03  3.31e-03   7.24e-05
## 123  6.33e-02 -3.95e-04 -9.36e-03  1.45e-02  1.38e-02  -8.76e-03
## 125 -3.29e-02  1.13e-02  9.05e-03 -8.60e-03 -8.88e-03  -1.47e-03
## 126  9.20e-02 -7.43e-03 -1.79e-02  6.49e-03 -4.41e-03   3.68e-03
## 129 -1.67e-02  2.09e-03 -1.12e-03 -3.44e-03 -3.93e-03  -1.61e-03
## 130  2.98e-02 -3.78e-03  2.42e-03  7.16e-03  6.54e-03   3.58e-03
## 131  1.18e-01 -1.68e-02  5.23e-03  3.20e-02  1.66e-02   2.04e-02
## 132  5.84e-02  1.14e-03  9.40e-03  3.30e-03  5.15e-03  -9.79e-03
## 133 -6.49e-02  8.28e-03 -5.07e-03 -1.55e-02 -1.40e-02  -7.86e-03
## 134  2.78e-02 -3.75e-03  1.17e-03  6.29e-03  5.01e-03   3.67e-03
## 135 -4.71e-03  2.77e-03  4.64e-03 -1.99e-03 -4.63e-04  -5.38e-03
## 136  8.11e-02 -5.52e-03  8.56e-02  1.31e-02  1.27e-02   1.66e-02
## 137  6.72e-03  8.51e-04  1.72e-02 -4.82e-03  4.40e-03  -1.99e-03
## 139 -2.45e-02  2.07e-03  8.15e-03 -6.41e-03  5.07e-04  -2.96e-03
## 140 -3.73e-02  1.28e-03  1.47e-02 -1.22e-02 -2.31e-03  -9.26e-03
## 141 -2.68e-02  2.00e-03  1.08e-02 -4.94e-03  8.90e-05  -1.71e-03
## 142  1.81e-02 -7.86e-03  1.22e-02  4.27e-03 -2.42e-03   6.81e-03
## 144 -7.23e-04 -3.94e-03 -4.38e-03  1.41e-03  1.43e-03   8.88e-04
## 145 -3.85e-02 -2.54e-03 -3.46e-02  1.15e-02  1.97e-02  -1.13e-02
## 149 -2.64e-02  2.35e-02  4.25e-04  1.90e-04  6.67e-03  -1.49e-02
## 150 -2.91e-02  2.42e-03  7.87e-03 -7.76e-03 -1.93e-03  -1.41e-03
```

```
## 151 -3.60e-04 -1.30e-03  2.98e-03  1.42e-03 -2.13e-03   3.73e-03
## 152  7.71e-03 -7.52e-04 -2.01e-03  1.93e-03  3.76e-04   5.45e-04
## 153  2.42e-02  2.97e-03 -1.04e-02 -4.51e-04  5.59e-03  -8.52e-03
## 154 -3.15e-02 -9.68e-03 -7.32e-03  5.01e-03 -6.69e-03   8.28e-03
## 155  4.84e-03  6.50e-04  2.31e-03 -4.87e-04  2.02e-03  -1.93e-04
## 156 -3.32e-02 -5.09e-03 -3.43e-03  1.85e-03 -4.19e-03   3.69e-03
## 157  4.47e-02 -2.19e-03 -1.10e-03 -6.44e-03  7.75e-03   9.04e-05
## 158  3.04e-04 -3.82e-04 -6.52e-04  4.47e-04 -5.28e-04   4.00e-04
## 159  4.79e-02 -8.23e-03 -3.27e-03  1.22e-02  3.15e-03   1.09e-02
## 160 -3.29e-04 -5.15e-04  5.16e-04  4.23e-04  9.08e-07   8.21e-04
## 161  9.49e-03  3.97e-03  7.05e-03 -1.47e-03 -3.86e-03   7.69e-04
## 162 -1.68e-01 -9.06e-03  4.03e-02  1.50e-02  8.92e-02  -1.22e-02
## 163 -3.47e-02 -1.24e-02 -4.06e-03  1.04e-03  2.26e-02   1.25e-02
## 164 -3.20e-02 -2.06e-02 -9.14e-03  3.95e-03  3.10e-02   2.13e-02
## 165  7.42e-02  9.28e-03  6.10e-03  6.10e-03  4.90e-03  -3.17e-03
## 166  6.28e-02 -8.95e-03 -4.30e-02  2.42e-02 -4.73e-03   1.41e-02
## 167  0.00e+00  0.00e+00  0.00e+00  0.00e+00  0.00e+00   0.00e+00
## 168 -6.02e-02 -3.11e-04  8.18e-03 -1.11e-02 -1.62e-02   5.12e-03
## 169 -2.71e-02  4.68e-04  3.89e-03 -4.86e-03 -6.26e-03   1.38e-03
## 170 -3.21e-02  1.32e-03  4.85e-03 -5.60e-03 -6.09e-03   4.56e-04
## 171 -7.39e-03 -1.67e-03  5.08e-04 -3.70e-05 -1.88e-03   2.54e-03
## 172  1.44e-03  3.26e-04 -9.91e-05  7.22e-06  3.67e-04  -4.96e-04
## 173  6.92e-04  2.21e-05 -9.01e-05  4.91e-05  7.34e-05  -5.79e-05
## 174 -8.93e-02  4.69e-02  1.19e-02 -1.36e-02 -1.41e-02  -1.75e-02
## 175 -2.00e-02 -1.50e-03  1.74e-03 -2.13e-03 -7.08e-04   8.59e-04
## 176 -4.36e-02 -3.27e-03  3.79e-03 -4.64e-03 -1.54e-03   1.87e-03
## 177 -2.61e-02  1.10e-02 -1.09e-02  8.56e-04  2.38e-03   6.29e-04
## 178 -9.58e-04 -9.00e-03 -3.04e-03 -1.77e-04 -8.43e-03   1.05e-02
## 179 -1.47e-03 -1.38e-02 -4.67e-03 -2.71e-04 -1.29e-02   1.61e-02
## 180  5.37e-02 -5.36e-04  5.38e-03  3.04e-03  2.33e-03   1.25e-03
## 181  6.75e-02  3.82e-02 -1.97e-02 -6.59e-04 -1.16e-02  -7.43e-03
## 182 -3.43e-02 -1.10e-02  1.25e-02 -1.51e-03  2.26e-03   3.10e-03
## 183  3.77e-02 -1.69e-02  4.34e-03  2.81e-03  7.91e-03   2.84e-03
## 184  1.03e-02 -4.29e-03  5.92e-03 -2.13e-03 -9.95e-04  -7.44e-04
## 185 -2.31e-02  1.62e-02  3.90e-02 -1.45e-02  1.79e-03  -1.23e-02
## 186 -1.61e-02 -2.83e-03  3.99e-03 -1.59e-03  2.46e-03  -7.16e-04
## 187  5.10e-03  1.76e-02 -1.56e-02 -1.52e-04 -1.40e-02   2.01e-03
## 188  2.32e-02  1.09e-02  4.52e-03  5.08e-03  1.71e-03  -4.59e-04
## 189  2.32e-02  1.09e-02  4.52e-03  5.08e-03  1.71e-03  -4.59e-04
## 190  5.07e-04 -2.38e-04  3.37e-04  1.94e-04 -6.64e-06   1.14e-04
## 191 -1.64e-04 -1.98e-03  4.42e-03 -1.06e-03  7.62e-04  -1.41e-03
## 192 -3.02e-02  8.05e-04  9.75e-03 -1.74e-02  5.24e-03  -1.53e-02
## 193 -8.99e-02  2.81e-02 -5.40e-03 -1.88e-02 -7.72e-03  -1.38e-02
## 194 -4.16e-02  1.30e-02 -2.50e-03 -8.72e-03 -3.57e-03  -6.40e-03
## 195 -5.27e-03  2.62e-03 -3.69e-04  1.42e-03 -2.03e-03   1.25e-03
## 196  1.58e-02  1.11e-03 -1.81e-03 -1.07e-03 -2.54e-03  -1.10e-03
## 197  4.12e-03  2.45e-03  2.40e-04 -2.07e-03 -1.50e-03  -2.63e-03
## 198 -3.28e-02  4.62e-04  4.06e-04 -6.81e-03  5.22e-03  -4.40e-03
## 199 -2.15e-02 -2.13e-03 -2.37e-03 -5.34e-03  4.80e-03  -1.82e-03
## 200  1.77e-02  2.16e-02 -1.45e-02  5.86e-03 -1.78e-02   3.80e-03
## 201  5.61e-03  1.77e-02 -1.07e-02  1.14e-03 -1.26e-02   8.18e-05
## 202 -3.49e-02  1.87e-02  1.38e-02 -9.93e-03 -7.61e-03  -6.88e-03
## 203  9.04e-02  1.34e-02  5.71e-03  2.19e-02 -7.08e-03   1.32e-02
## 204  1.53e-01 -3.68e-02 -3.03e-02  4.07e-02  1.38e-02   2.67e-02
```

```
## 206 -3.17e-02 -2.26e-03  2.92e-03 -4.67e-03 -2.32e-04   8.79e-04
## 207 -7.43e-02 -6.25e-03  9.19e-03 -6.67e-03 -1.45e-03   5.28e-03
## 208 -1.57e-02  1.56e-03  1.71e-03 -3.15e-03 -3.38e-03  -1.00e-03
## 209 -3.42e-02  2.71e-03  3.03e-03 -7.31e-03 -9.57e-03  -1.03e-03
## 210  4.02e-03 -4.24e-04 -1.40e-04  6.47e-04  7.15e-04  -1.16e-03
## 211 -1.27e-01  1.56e-02  2.71e-02 -1.75e-02  1.82e-02  -1.05e-02
## 212 -3.56e-03  5.87e-03  4.57e-04 -6.53e-04 -3.94e-03   2.27e-04
## 213  5.49e-03 -1.26e-03 -1.67e-03  1.89e-03 -1.40e-03   1.84e-03
## 214 -3.32e-03  8.19e-04  1.14e-03 -1.39e-03  1.09e-03  -1.27e-03
## 215 -7.66e-03  1.98e-03  2.85e-03 -3.61e-03  2.91e-03  -3.19e-03
## 216  1.59e-03  7.14e-04  3.79e-04  3.13e-04 -8.13e-05  -3.73e-04
## 217  2.59e-02 -1.26e-02 -6.95e-03  5.42e-03 -9.57e-03   1.59e-02
## 218  4.33e-02 -1.65e-02 -9.12e-03  9.02e-03 -1.45e-02   2.24e-02
## 219  4.26e-02 -3.07e-03 -2.91e-02  8.77e-03 -3.48e-03   4.44e-03
## 220 -3.32e-03  2.86e-03 -6.38e-03 -1.08e-03 -8.61e-04  -5.86e-04
## 221  3.70e-05  1.37e-05 -4.81e-05  3.72e-05 -1.77e-05   2.91e-05
## 222 -1.62e-03 -4.46e-04  1.17e-03 -6.33e-04  1.91e-04  -2.89e-04
## 223 -1.98e-02 -1.14e-03  7.77e-03 -4.16e-03 -1.02e-03  -1.36e-03
## 224 -3.36e-02 -2.54e-03  1.36e-02 -7.22e-03 -2.00e-03  -1.96e-03
## 225 -4.51e-02 -5.80e-04  1.59e-02 -7.98e-03  9.35e-04   1.95e-03
## 226  1.13e-03  2.76e-03 -6.17e-03  6.96e-04 -4.34e-03   2.12e-03
## 227  1.07e-02 -2.07e-02  5.87e-03 -4.97e-03 -2.97e-03   1.01e-02
## 228 -2.54e-02  2.36e-03  1.02e-02 -6.00e-03  2.61e-03  -6.57e-03
## 229 -1.01e-03 -7.46e-04 -6.64e-05  6.56e-04 -2.75e-04   6.82e-04
## 230 -1.02e-02 -1.01e-02 -2.66e-02 -2.73e-03  2.45e-03  -1.05e-03
## 231 -1.05e-02  1.71e-05  4.40e-03 -2.58e-03 -2.04e-03   1.82e-04
## 232  2.00e-02 -3.26e-05 -8.41e-03  4.92e-03  3.89e-03  -3.47e-04
## 233  9.83e-03 -6.61e-04 -2.58e-03  3.30e-03  8.34e-04   1.30e-03
## 234  3.92e-02 -2.64e-03 -1.03e-02  1.32e-02  3.33e-03   5.16e-03
## 235 -3.91e-02  4.64e-02 -2.07e-02 -5.66e-03  1.10e-03  -2.37e-02
## 236  2.16e-02 -1.63e-03  9.46e-04  5.24e-03  1.13e-03   2.65e-03
## 237 -1.58e-02  1.20e-03 -6.94e-04 -3.85e-03 -8.29e-04  -1.95e-03
## 238 -4.31e-02  6.76e-03 -2.35e-03 -1.53e-02 -5.41e-03  -8.55e-03
## 241 -2.33e-03 -2.22e-04 -6.59e-04 -2.49e-04  2.98e-04   1.44e-04
## 242 -1.54e-02  1.27e-03  7.75e-03 -3.35e-03 -1.50e-04  -1.85e-03
## 243  5.09e-02 -4.19e-03 -2.56e-02  1.11e-02  4.96e-04   6.12e-03
## 246 -1.19e-01  5.19e-03  1.64e-02 -1.94e-02  8.84e-03  -1.60e-02
## 249  7.53e-02  7.12e-04 -4.26e-02  1.77e-02  5.16e-03  -7.73e-03
## 250  4.69e-03 -3.37e-02  2.53e-02  1.64e-02 -1.05e-02   2.54e-02
## 251 -5.90e-03 -4.91e-03  6.13e-03  4.21e-03  1.38e-04   7.63e-03
## 252 -4.05e-03 -5.34e-03  6.36e-03  3.40e-03 -1.82e-03   4.26e-03
## 253 -1.16e-02 -1.50e-02  1.17e-02 -6.03e-03  1.30e-02  -4.44e-03
## 254 -3.19e-02 -2.74e-03  5.84e-03 -1.22e-02  1.01e-03  -6.59e-03
## 255 -7.82e-03 -2.82e-03  4.37e-03 -2.96e-05 -7.15e-04   1.03e-03
## 257 -5.74e-02 -2.40e-02  3.43e-02  6.51e-04 -6.18e-03   9.63e-03
## 258 -1.44e-02 -6.01e-03  8.58e-03  1.63e-04 -1.55e-03   2.41e-03
## 259 -1.86e-01  3.06e-02 -1.63e-03 -2.88e-02 -1.97e-02  -6.30e-03
## 260  2.40e-03 -1.05e-03  1.68e-06  1.02e-02 -6.46e-03   1.10e-02
## 261  1.18e-02  2.90e-03 -6.99e-03 -9.75e-04 -5.14e-04  -4.69e-04
## 262  2.47e-03  1.55e-03 -1.24e-03  9.86e-04 -3.26e-04   2.78e-04
## 263 -1.19e-02  4.44e-03 -3.97e-03 -6.32e-03 -3.10e-03  -6.46e-03
## 264 -4.69e-02  1.35e-02 -2.59e-03 -1.36e-02 -9.07e-04  -1.04e-02
## 265 -5.67e-03 -1.41e-02  9.46e-03 -6.47e-04  3.55e-03   4.42e-04
## 266 -4.46e-03  1.79e-03 -5.49e-04 -4.66e-04 -7.30e-04  -2.09e-04
```

```
## 267  5.70e-02 -7.89e-03  1.70e-03  3.39e-03 -2.76e-03   6.08e-03
## 268 -3.24e-02  1.25e-02 -3.47e-02  4.95e-03 -3.01e-03  -1.88e-04
## 269 -9.47e-02  2.51e-02 -1.76e-03 -2.94e-02 -1.51e-02  -1.46e-02
## 270 -1.48e-01 -6.77e-02  7.21e-02 -3.65e-02  1.79e-02  -5.16e-04
## 271 -3.78e-02 -2.88e-03  6.21e-03 -4.76e-03 -4.37e-03   1.24e-03
## 272 -1.06e-02  9.39e-03 -1.02e-02 -2.29e-02  8.81e-03  -2.04e-02
## 273 -3.77e-02  1.55e-02 -6.59e-03 -3.00e-02  1.17e-02  -2.88e-02
## 274 -2.02e-03  1.82e-04  1.88e-04 -3.06e-04  1.26e-03  -1.01e-03
## 275 -1.46e-02  4.14e-03 -4.75e-03 -1.66e-02 -5.37e-03  -6.62e-03
## 276  1.00e-01  1.01e-03  5.30e-02  9.53e-03  9.97e-03  -5.30e-03
## 277  2.48e-02  2.51e-04  1.31e-02  2.36e-03  2.47e-03  -1.31e-03
## 278  7.40e-03  7.48e-05  3.91e-03  7.04e-04  7.36e-04  -3.91e-04
## 279  2.32e-02  6.00e-03  2.72e-02 -9.56e-03  8.59e-03  -1.45e-02
## 280  8.47e-02 -2.91e-03  2.56e-02  1.26e-02  1.13e-02  -1.57e-02
## 281  1.16e-01  1.52e-02  5.80e-03  1.13e-02 -6.88e-03   4.25e-03
## 282  4.45e-04 -3.45e-03  1.21e-02 -2.86e-03  3.03e-03  -4.55e-03
## 283 -7.38e-03 -4.04e-04  1.26e-02 -4.00e-03  4.53e-03  -2.87e-03
## 284 -4.19e-03 -8.75e-04  1.28e-02 -8.80e-04  3.69e-03  -7.78e-04
## 285  2.16e-03 -3.16e-04 -8.08e-05  7.46e-04 -2.64e-04   6.58e-04
## 286  2.16e-03 -3.16e-04 -8.08e-05  7.46e-04 -2.64e-04   6.58e-04
## 287  3.27e-02 -1.80e-03 -4.14e-03  1.36e-03 -3.52e-03   7.46e-03
## 288 -2.33e-02  8.06e-03 -1.05e-02 -2.65e-03 -2.82e-03  -1.73e-03
## 289 -1.47e-02  4.55e-03 -4.39e-03 -1.79e-03 -1.15e-03  -1.56e-03
## 290 -4.81e-02  1.11e-03 -1.49e-02 -8.29e-03  1.74e-03  -9.70e-03
## 292  6.92e-03  2.67e-03 -6.05e-04 -1.40e-03 -1.63e-04  -3.78e-03
## 294  2.28e-03  7.06e-03 -1.58e-02 -5.81e-03 -1.30e-03  -4.32e-03
## 298 -3.03e-03 -7.70e-03 -1.49e-02  6.67e-05 -7.75e-04   3.09e-03
## 299  5.02e-05 -9.24e-03 -9.44e-04  2.01e-03  9.28e-04   4.59e-03
## 300 -8.72e-03  2.41e-02  4.30e-02 -2.61e-02 -3.64e-03  -1.94e-02
## 301  8.64e-03 -5.62e-03 -9.08e-03  5.67e-03  2.19e-04   4.94e-03
## 302 -7.05e-04  7.94e-05  7.37e-04 -7.75e-04  2.61e-04  -4.49e-04
## 303  1.37e-03 -3.14e-04  8.25e-04  9.02e-05  6.47e-05   3.01e-04
## 305 -7.10e-03 -5.44e-03  7.28e-03  8.11e-04  5.36e-05   5.21e-03
## 306 -1.35e-02 -1.08e-02  1.42e-02  1.66e-03  7.97e-05   1.03e-02
## 307  1.06e-05 -3.64e-03 -1.10e-02  2.52e-03 -1.54e-03   2.42e-03
## 308  1.03e-01 -2.61e-02 -2.35e-02  2.14e-02  2.66e-02  -5.56e-04
## 309  1.73e-02  2.49e-02  9.02e-03 -1.19e-03 -8.38e-03  -4.10e-03
## 310  7.59e-02 -9.00e-03 -1.70e-02  1.33e-02 -1.24e-03   1.96e-02
## 311 -8.48e-02  8.37e-03  1.97e-02 -1.56e-02  2.90e-04  -2.32e-02
## 312 -4.28e-02 -1.42e-04 -7.07e-03  5.40e-03 -1.74e-02   1.06e-02
## 313 -7.62e-03  2.99e-04 -6.37e-04  4.99e-04 -2.30e-03   1.11e-03
## 314  2.25e-02 -2.25e-03  2.70e-04  2.11e-03  3.17e-03   9.02e-04
## 316  1.11e-02  4.05e-03 -9.20e-05 -8.13e-05 -1.07e-03  -9.11e-04
## 317 -1.93e-02 -5.92e-03  2.59e-03  1.81e-03  2.22e-03   7.49e-03
## 318  3.54e-02  2.74e-03 -4.02e-03  3.46e-03 -3.61e-03  -2.36e-03
## 319 -1.08e-03 -1.70e-04  1.31e-04 -3.36e-05  1.15e-04   1.93e-04
## 320  1.74e-02 -7.26e-03 -4.44e-03  2.40e-03  1.90e-03   1.54e-03
## 322 -1.49e-03 -3.74e-03  8.51e-03  1.47e-03  1.38e-03   6.99e-03
## 323  5.19e-02  7.13e-04 -1.13e-02  6.83e-03  1.29e-03  -1.77e-03
## 324 -1.58e-02 -2.47e-04  3.46e-03 -2.08e-03 -4.05e-04   5.76e-04
## 326  4.60e-03  2.11e-04 -1.72e-04  7.01e-04 -1.11e-05  -2.97e-04
## 327  1.18e-01 -2.17e-02 -2.70e-02  8.94e-03  4.55e-04  -1.98e-03
## 328 -2.10e-02 -1.27e-03 -7.68e-03 -2.84e-04 -4.49e-03  -1.31e-03
## 329  4.09e-03  2.48e-04  1.50e-03  5.53e-05  8.73e-04   2.56e-04
```

```
## 330  2.50e-03  1.17e-04  8.87e-03 -1.69e-03 -4.49e-04   5.09e-04
## 331 -8.04e-02 -5.63e-02  4.94e-02 -8.84e-03  2.84e-02   1.18e-03
## 332  1.62e-02  4.60e-03 -5.43e-03  6.82e-04 -2.51e-03  -9.06e-04
## 333 -4.69e-02  1.72e-02  1.68e-02  5.99e-02 -2.04e-02   3.57e-02
## 334  9.38e-03  2.95e-03 -3.23e-03  3.32e-04 -1.51e-03  -6.86e-04
## 335  1.82e-02 -1.93e-02  1.40e-02  1.56e-02 -3.23e-03   1.87e-02
## 336 -2.74e-03 -7.93e-03  8.15e-03  3.70e-03 -5.34e-04   5.81e-03
## 337 -3.28e-02  4.20e-02 -1.93e-02 -1.05e-03  1.51e-02  -4.35e-02
## 338  2.06e-04 -2.43e-04 -9.07e-05  5.67e-05 -1.93e-04   2.04e-04
## 339  6.60e-02 -1.00e-02 -1.26e-02  1.02e-02 -4.98e-04   1.21e-02
## 340  3.58e-02 -4.47e-03 -6.56e-03  5.78e-03  1.19e-03   5.86e-03
## 341  2.33e-03 -2.75e-03 -1.03e-03  6.42e-04 -2.18e-03   2.30e-03
## 342  9.02e-03 -8.56e-06 -2.04e-03  1.30e-03  2.10e-03   2.65e-03
## 343  8.17e-03 -7.30e-04 -1.50e-03  7.91e-04  2.53e-04   2.25e-04
## 344  2.20e-02 -2.16e-03 -2.72e-03  4.38e-03  1.72e-04   2.14e-03
## 345 -7.84e-02 -7.71e-03 -2.70e-03 -7.35e-03 -1.65e-03  -3.61e-03
## 346 -1.33e-02 -6.76e-03  6.35e-03 -1.14e-02 -1.56e-02  -1.32e-02
## 347  1.65e-02 -5.07e-03 -3.71e-04  5.13e-03 -3.58e-03   9.44e-03
## 348 -2.14e-02 -2.10e-03 -7.35e-04 -2.01e-03 -4.50e-04  -9.84e-04
## 349  2.85e-03 -1.64e-04 -2.09e-03 -3.21e-04 -1.05e-03  -1.24e-03
## 350 -6.89e-04 -6.77e-05 -2.37e-05 -6.46e-05 -1.45e-05  -3.17e-05
## 351 -8.23e-04  4.73e-05  6.03e-04  9.27e-05  3.03e-04   3.57e-04
## 352 -1.29e-01  3.18e-03 -1.82e-02 -1.60e-02  1.03e-02  -2.33e-02
## 353  3.27e-04 -8.30e-05  2.67e-04 -6.14e-04 -1.11e-03  -2.19e-03
## 354  3.27e-04 -8.30e-05  2.67e-04 -6.14e-04 -1.11e-03  -2.19e-03
## 356 -1.90e-04 -1.49e-05 -1.71e-04  1.00e-04  2.17e-04  -6.39e-04
## 357  5.45e-03 -8.61e-05 -2.30e-04 -2.54e-05 -1.14e-03   3.93e-05
## 358  5.35e-02 -2.83e-03 -2.88e-02  7.79e-03 -2.69e-03   1.13e-02
## 359  2.76e-03  5.95e-03 -2.54e-02 -1.27e-02  2.34e-03  -6.50e-03
## 360  2.71e-03  1.61e-03 -4.62e-03 -2.99e-03 -3.80e-05   3.00e-04
## 361  9.41e-03 -3.85e-03  2.15e-03  4.70e-03 -6.96e-04   2.23e-03
## 362 -3.33e-05  4.13e-05 -1.80e-05 -7.54e-05 -4.28e-05  -9.84e-05
## 363  2.39e-02 -2.84e-03 -5.46e-03  4.70e-03 -1.94e-03   6.87e-03
## 364  4.68e-02 -5.76e-03 -1.06e-02  9.04e-03 -3.73e-03   1.32e-02
## 365  1.84e-02 -6.15e-04 -9.07e-03 -1.82e-03 -9.46e-04   3.48e-03
## 366  1.06e-02  4.65e-03 -9.18e-03 -8.27e-03 -5.44e-03  -9.90e-03
## 367  2.27e-03  9.93e-04 -1.96e-03 -1.77e-03 -1.16e-03  -2.12e-03
## 368  1.43e-02 -2.24e-02 -1.02e-02  7.65e-03  6.58e-03   4.28e-03
## 369 -5.23e-03  1.84e-03  3.26e-03 -3.48e-03  5.30e-04  -6.52e-04
## 370  2.15e-02 -5.82e-03 -8.92e-03  8.81e-03 -1.75e-03   3.56e-03
## 371  3.05e-02  1.06e-03 -4.48e-03  5.32e-03  2.28e-03  -1.76e-03
## 372  6.32e-02  2.97e-03 -2.06e-02  1.06e-02  4.93e-03  -6.91e-03
## 373  2.19e-02  7.58e-02  1.31e-02 -2.41e-02 -3.71e-02  -2.69e-02
## 374  3.48e-03 -2.97e-03 -1.14e-03  7.30e-04  1.55e-03   5.12e-04
## 375 -2.47e-02 -2.86e-03  6.71e-03 -2.73e-03 -3.40e-03   5.45e-03
## 376 -5.41e-02 -7.92e-03  1.51e-02 -5.78e-03 -8.51e-03   1.43e-02
## 377  1.98e-03 -1.16e-04 -4.14e-04  4.97e-04  7.16e-06   1.30e-04
## 378  1.40e-03  5.09e-04 -9.11e-04 -7.14e-05  4.40e-04  -1.06e-03
## 379  1.77e-02 -1.16e-03 -3.09e-03  4.23e-03  3.91e-04   1.44e-03
## 380  3.01e-02  2.73e-03 -9.59e-03  2.48e-03  5.16e-03  -7.06e-03
## 381 -1.22e-02 -1.46e-03  4.04e-03 -9.27e-04 -2.39e-03   3.43e-03
## 382 -1.18e-03 -3.99e-03  3.69e-03  1.33e-03 -2.80e-03   7.17e-03
## 383 -4.11e-03  7.21e-04  8.07e-03 -1.92e-03  1.62e-03  -3.53e-03
## 384 -2.59e-02 -7.16e-03 -3.63e-03  2.23e-03 -5.77e-03   6.52e-03
```

```
## 385 -1.17e-02 -2.63e-03 -1.20e-03  7.08e-04 -2.24e-03   2.35e-03
## 386 -1.56e-02 -3.50e-03 -1.60e-03  9.42e-04 -2.98e-03   3.12e-03
## 387 -6.81e-02 -5.60e-04  1.00e-03 -1.41e-02 -1.97e-02   1.31e-03
## 388 -8.37e-02 -3.18e-03 -1.13e-03 -1.81e-02 -2.87e-02   4.53e-03
## 389 -7.01e-02 -1.76e-03 -8.63e-05 -1.49e-02 -2.24e-02   2.73e-03
## 390  1.22e-02 -6.27e-04 -8.22e-03  8.36e-04 -1.90e-03  -1.34e-03
## 391  7.98e-02 -2.99e-02 -3.00e-02  2.15e-02 -1.56e-02   3.19e-02
## 392 -1.54e-02 -1.91e-03  2.78e-03 -3.77e-04  2.43e-03  -1.61e-03
## 393  9.58e-02 -4.72e-03 -1.10e-01  3.66e-02  2.11e-02  -4.73e-03
## 394  7.53e-02 -1.22e-02 -9.91e-03  6.25e-03  1.06e-02   1.00e-02
## 395  6.88e-02  9.26e-04 -2.37e-02  9.22e-03  8.58e-03  -8.71e-03
## 396  1.31e-02  9.21e-03  1.33e-02  6.44e-03  1.02e-02  -5.35e-03
## 397  8.96e-02 -1.91e-02 -1.80e-02  1.24e-02  1.03e-02   2.75e-02
## 398  1.01e-02 -2.19e-03 -2.02e-03  1.38e-03  1.40e-03   3.22e-03
## 402  6.46e-03 -1.32e-04 -6.10e-04  4.53e-04 -2.49e-03   8.21e-04
## 403  2.07e-02 -1.99e-03 -7.24e-03 -4.87e-03 -7.91e-03  -1.53e-04
## 405 -6.23e-03 -3.56e-05 -1.54e-03 -3.85e-03 -1.32e-03  -2.30e-03
## 406 -1.46e-02  4.09e-03  1.15e-03 -6.52e-03  4.05e-03  -6.15e-03
## 407 -1.17e-02 -1.17e-03  1.97e-03  2.47e-03  4.98e-03   7.94e-04
## 408  7.45e-04 -1.19e-02 -5.25e-03  8.73e-03  1.59e-02   8.24e-03
## 409  8.92e-03 -3.72e-03 -2.89e-03  4.74e-03  2.19e-03   6.27e-03
## 410  1.31e-02 -5.82e-03 -3.56e-03  5.88e-03  1.22e-03   5.04e-03
## 411  3.05e-02  1.64e-03 -2.58e-03 -1.94e-03 -6.56e-03   2.60e-03
## 412  1.37e-02 -1.52e-03 -8.26e-04  2.37e-03 -2.52e-03   1.80e-03
## 413  1.86e-02 -1.41e-03 -1.12e-03  3.44e-03 -2.83e-03   4.20e-03
## 416  4.76e-02  1.06e-02  2.22e-02  1.01e-02  9.16e-03  -1.60e-03
## 417 -4.48e-02  1.66e-02  1.86e-02 -3.32e-03 -3.89e-03  -1.72e-05
## 418 -7.19e-02  2.50e-02  2.20e-02 -1.54e-02 -3.50e-03  -7.01e-03
## 419 -1.39e-03 -4.18e-03 -1.86e-03  9.54e-04 -4.01e-04   2.23e-03
## 420 -7.30e-02  4.10e-02  2.98e-02 -1.62e-02 -1.02e-02  -1.94e-02
## 421 -3.11e-02  2.84e-02  1.23e-02 -1.91e-02 -8.47e-03  -1.51e-02
## 422 -3.73e-02  4.35e-04 -1.20e-03 -1.15e-02  3.43e-03  -1.39e-02
## 423 -4.39e-03 -1.40e-02 -9.87e-03 -3.79e-03  4.95e-03  -7.90e-04
## 424 -1.67e-02  9.29e-03  6.89e-03 -5.71e-03 -3.20e-03  -2.38e-03
## 425 -7.79e-03  8.40e-03  8.61e-03  6.49e-06 -4.99e-03   2.25e-03
## 426 -5.53e-04 -3.18e-03 -1.61e-03  1.20e-03  3.06e-04   2.93e-03
## 427  9.06e-03  1.02e-02  4.32e-03  7.32e-04 -2.25e-03   1.00e-03
## 428  5.14e-03 -1.35e-02  1.62e-02  5.40e-03  1.27e-02   6.04e-03
##     dfb.MdlChr  dfb.MCMC  dfb.MdlD  dfb.MdlF  dfb.MGMC dfb.MdlHn dfb.MdlHm
## 1    -2.04e-01 -8.58e-02 -1.78e-01 -2.05e-01 -1.35e-01 -1.95e-01 -8.55e-02
## 2    -3.32e-01 -1.40e-01 -2.90e-01 -3.33e-01 -2.20e-01 -3.16e-01 -1.40e-01
## 3     5.85e-01  2.83e-01  5.62e-01  6.31e-01  4.08e-01  6.30e-01  2.67e-01
## 4    -1.36e+00 -5.32e-01 -1.21e+00 -1.46e+00 -9.08e-01 -1.39e+00 -4.56e-01
## 5     3.44e-01  1.40e-01  3.08e-01  3.47e-01  2.02e-01  3.61e-01  1.25e-01
## 6     4.88e-01  2.15e-01  4.29e-01  4.83e-01  2.98e-01  4.87e-01  2.15e-01
## 7     3.98e-01  1.60e-01  3.51e-01  4.01e-01  2.50e-01  3.99e-01  1.50e-01
## 8     9.96e-03  1.25e-02  9.10e-03  1.03e-02  5.10e-03  1.09e-02 -4.47e-03
## 9     2.43e-03  7.59e-03 -2.05e-03 -1.19e-03  1.24e-03  6.33e-04  1.46e-03
## 10   -5.73e-03 -1.67e-02  1.10e-02  5.57e-03 -1.21e-02  8.84e-03 -2.58e-02
## 11   -4.64e-04 -2.77e-03  1.73e-04 -2.67e-04  2.58e-04  6.81e-04  8.73e-04
## 12   -8.14e-04 -4.79e-03  7.12e-04 -2.05e-04 -3.64e-05  1.66e-03  1.23e-04
## 13    2.81e-04  6.77e-03  6.87e-03  4.61e-03 -1.09e-02  7.49e-03 -2.69e-02
## 14   -1.29e-02 -1.82e-02 -2.02e-03 -7.72e-03 -1.68e-02 -1.32e-03 -2.11e-02
## 15   -9.14e-05  1.02e-03 -3.89e-04 -3.35e-04 -5.43e-04 -1.10e-04  1.22e-03
```

```
## 16    3.72e-04  3.20e-04  2.98e-04  3.81e-04  3.73e-04  1.97e-04 -7.16e-04
## 17    2.66e-03 -1.80e-03  1.73e-03  4.40e-03  4.29e-03  3.96e-04 -2.37e-03
## 18    1.91e-04 -4.07e-04  3.20e-04  3.50e-04  4.68e-04  1.05e-04 -3.24e-04
## 19   -9.63e-04 -3.20e-03 -1.25e-03 -1.38e-03  9.01e-04 -1.60e-03 -2.84e-03
## 20    2.68e-03  5.49e-03 -5.46e-04  3.00e-03 -3.23e-03  7.25e-03  6.53e-03
## 21   -1.48e-02  2.20e-02 -1.02e-02 -1.88e-02 -2.88e-02 -1.57e-02 -2.48e-02
## 22   -7.63e-03 -7.80e-03 -1.54e-02 -1.15e-02 -6.46e-03 -8.96e-03 -3.14e-03
## 23   -8.07e-03 -6.99e-03 -1.05e-02 -1.24e-02 -6.43e-03 -6.23e-03 -3.78e-04
## 24   -5.36e-03 -2.03e-02 -1.00e-02 -9.75e-03  6.70e-03 -1.00e-02 -1.76e-02
## 25    3.00e-03  9.90e-04 -1.01e-02 -5.30e-03  1.45e-02 -1.17e-02  4.02e-03
## 26   -1.87e-03  3.03e-04  1.18e-03 -1.31e-04 -4.83e-03  1.72e-03  4.32e-03
## 27    1.23e-03 -2.99e-04  1.04e-03  1.84e-03  1.24e-03  1.81e-03 -1.29e-03
## 28   -4.89e-03 -2.13e-03  2.95e-03 -2.67e-03 -1.13e-02  1.92e-03 -1.57e-02
## 29    4.36e-03 -4.51e-04  2.77e-03  5.97e-03  4.67e-03  6.09e-03 -1.29e-03
## 30   -2.93e-04 -2.79e-03  1.24e-03 -1.38e-03 -3.17e-03  7.13e-04  1.44e-03
## 31   -7.28e-04  1.83e-03 -8.81e-04 -3.28e-04  1.97e-03 -5.04e-04 -8.37e-04
## 32    2.79e-04  7.41e-04  1.71e-03  8.78e-04  7.70e-05 -3.26e-04  9.65e-04
## 33   -5.47e-04 -8.53e-04  1.28e-02  6.22e-03 -9.33e-03  8.45e-03 -1.90e-02
## 34   -1.46e-05 -3.87e-05 -8.94e-05 -4.58e-05 -4.02e-06  1.70e-05 -5.04e-05
## 35    5.22e-03  1.25e-02  3.58e-04  1.16e-02  1.69e-02  3.71e-04 -2.32e-03
## 36   -1.42e-02 -6.76e-03 -2.66e-02 -2.59e-02 -1.08e-02 -1.66e-02  1.62e-02
## 37   -7.49e-03 -4.39e-03 -1.74e-02 -1.54e-02 -3.82e-03 -1.07e-02  2.01e-02
## 38    7.94e-05 -1.45e-05  1.10e-04  1.35e-04  6.12e-05  1.13e-04  8.90e-05
## 39    1.13e-03 -4.13e-03  4.66e-03  4.53e-03 -3.17e-03  8.31e-03 -8.24e-03
## 40   -4.07e-04 -3.26e-03  3.28e-03  2.30e-03 -6.25e-03  8.51e-03 -4.41e-03
## 41   -6.34e-03 -7.00e-03 -2.83e-02 -9.87e-03  8.83e-03 -2.73e-02 -9.08e-03
## 42   -1.02e-02 -1.78e-02 -1.91e-02 -2.97e-03 -7.98e-03 -1.34e-02 -6.75e-02
## 43   -9.23e-05  2.46e-04  4.07e-04  1.66e-04 -2.26e-05  4.73e-04 -2.85e-04
## 44   -1.56e-02  1.55e-02 -1.13e-02 -2.00e-02  1.66e-03 -8.10e-03  2.27e-02
## 45    2.39e-03  1.67e-03  4.62e-03  6.79e-03 -7.91e-04  5.25e-03 -4.15e-04
## 46   -1.59e-04 -6.28e-04 -9.33e-04 -2.08e-03  1.79e-03 -1.96e-03  6.37e-04
## 47    4.16e-03 -3.83e-03  6.47e-03  4.26e-03 -6.53e-03  5.63e-03 -4.88e-03
## 48    1.61e-03 -1.79e-03  2.14e-03  5.72e-04 -3.42e-03  1.23e-04 -2.61e-03
## 49   -2.71e-03  2.65e-03 -2.93e-03 -6.13e-04  4.98e-03  5.34e-04  2.47e-03
## 50   -8.66e-03  1.61e-03 -1.01e-02 -8.41e-03 -2.93e-03  1.27e-03  5.80e-03
## 51   -2.64e-03  2.84e-03  1.96e-03  3.89e-03  8.58e-04  1.18e-02  5.94e-04
## 52   -6.46e-03 -5.50e-04 -5.07e-03 -2.86e-03  6.36e-03 -1.06e-03  6.01e-03
## 53   -2.75e-03 -3.74e-03 -5.07e-03 -6.65e-03 -7.32e-03 -3.49e-03 -2.49e-03
## 54    8.56e-04 -3.53e-03  1.65e-04 -1.23e-03 -5.47e-03  1.76e-04 -2.60e-03
## 55    1.68e-04  7.05e-03  3.19e-04  2.89e-03  5.68e-03  3.54e-03  2.87e-03
## 56    4.11e-04 -4.28e-02 -1.38e-02  1.12e-02  2.20e-02  2.84e-03 -2.79e-03
## 57   -1.29e-03  1.75e-03 -2.24e-03 -5.19e-04  1.80e-03 -3.46e-04  3.74e-03
## 58   -9.60e-04  3.87e-03 -1.86e-03  1.72e-03  4.87e-03  1.19e-03  7.19e-03
## 60    9.40e-04  4.22e-02 -3.00e-03 -1.59e-03  2.23e-02 -7.26e-03  6.35e-02
## 61   -1.67e-03  9.78e-04 -6.23e-03  3.91e-03  1.47e-02 -1.07e-05 -3.09e-03
## 62   -1.84e-03  3.50e-03 -7.44e-04 -1.85e-05  2.07e-03  3.60e-03 -1.02e-02
## 63    1.20e-02  3.36e-02  2.21e-02 -6.00e-03  3.56e-03  7.10e-03  3.46e-03
## 64    4.93e-03 -3.56e-03  1.11e-02  7.41e-04  1.22e-02  4.51e-03  2.58e-02
## 66    7.33e-04 -1.78e-02 -1.57e-03 -1.62e-03 -2.64e-02  1.98e-02 -7.35e-03
## 67   -4.13e-03 -1.24e-03 -7.32e-03 -8.76e-03 -1.41e-02  2.72e-03  1.70e-02
## 68    4.21e-03 -1.11e-02  1.21e-02  8.68e-03 -1.48e-02  1.54e-02 -3.06e-02
## 69    5.04e-03 -1.44e-02  7.51e-03  7.45e-03 -9.42e-03  1.18e-02 -2.99e-02
## 70    3.99e-04 -1.05e-03  1.15e-03  8.22e-04 -1.40e-03  1.46e-03 -2.90e-03
## 72    1.13e-02  5.94e-03  1.13e-02  5.02e-03  8.38e-03  7.85e-03  9.46e-03
```

```
## 73    3.14e-02  1.65e-02  3.14e-02  1.40e-02  2.32e-02  2.19e-02  2.60e-02
## 74    2.54e-03  2.34e-04  3.32e-03  2.77e-03  8.00e-04 -3.20e-04 -1.17e-03
## 75   -2.04e-03  1.72e-04 -2.71e-03 -1.71e-03  3.18e-04  1.34e-03  2.44e-03
## 76    1.95e-04  4.90e-04  1.11e-03  2.00e-03  1.50e-03  3.60e-03  9.09e-04
## 77    4.53e-04 -2.02e-04  2.53e-04  3.42e-04  1.07e-04  1.77e-05  2.50e-04
## 78   -8.40e-04 -3.82e-03 -6.53e-03 -6.26e-03 -3.78e-03 -6.53e-03  3.03e-03
## 79    4.88e-04  2.22e-03  4.15e-03  3.90e-03  2.08e-03  4.20e-03 -2.43e-03
## 80    2.28e-03 -3.70e-04 -4.44e-03  5.79e-04  3.19e-04 -4.29e-03  1.41e-03
## 81    2.61e-04  1.83e-05  4.62e-04  3.25e-04 -9.21e-05  6.89e-05 -2.99e-04
## 82   -1.07e-03 -7.08e-05 -1.64e-03 -7.13e-04  9.84e-04  8.67e-04  1.05e-03
## 86   -1.58e-04 -1.09e-03 -2.51e-04 -4.89e-04 -1.22e-03  2.40e-04  1.29e-04
## 87    5.09e-03 -6.81e-03  2.86e-03  3.18e-03 -5.47e-03  4.99e-03 -1.84e-02
## 88    1.66e-02 -1.93e-02  1.33e-02 -1.27e-03 -2.53e-04 -3.81e-02  4.05e-02
## 89   -4.42e-03  1.70e-02 -7.77e-03 -4.03e-03  9.94e-03 -5.30e-03  1.25e-02
## 90   -2.31e-02  1.22e-02 -2.52e-02 -7.90e-03 -3.57e-02 -2.72e-02  2.16e-02
## 91    1.25e-01  4.17e-03  2.69e-02  2.58e-02  1.55e-02  1.29e-02 -2.06e-02
## 92   -3.19e-03  5.56e-05 -2.17e-05 -1.67e-04 -3.34e-04 -9.39e-05 -1.92e-04
## 93    9.50e-02 -1.95e-03  2.25e-03  6.22e-03  9.35e-03  4.41e-03  2.97e-03
## 94   -1.36e-01 -1.16e-03  1.99e-02  1.59e-02 -1.32e-03  8.49e-03 -3.59e-02
## 95   -1.18e-01 -2.05e-03  1.06e-02  6.78e-03 -4.45e-03  2.77e-03 -3.02e-02
## 96    2.03e-01  4.42e-03  2.26e-02 -1.75e-03  8.18e-05  4.75e-03 -3.14e-02
## 97   -3.77e-01  6.75e-02 -3.27e-02  2.13e-02  6.37e-02 -6.09e-02  1.86e-01
## 98   -1.33e-01 -1.88e-03 -1.70e-02 -1.42e-02 -8.93e-03 -5.33e-03  2.56e-02
## 99    1.40e-01  1.95e-03  1.81e-02  1.51e-02  9.37e-03  5.76e-03 -2.74e-02
## 100  -1.42e-01 -1.26e-03  1.17e-02  1.03e-02 -3.99e-03  9.53e-03 -1.39e-02
## 101   9.32e-02  1.64e-02  6.44e-03 -5.66e-03 -1.84e-02  4.41e-03  2.12e-02
## 102   2.03e-01  1.35e-02  9.34e-03  2.71e-03 -4.54e-03  8.13e-03  2.24e-02
## 103  -1.31e-01 -3.52e-03  1.26e-03 -1.34e-03 -1.05e-02  2.58e-03 -1.62e-02
## 104   1.94e-01 -1.85e-02 -4.91e-02 -1.78e-02 -3.01e-02 -3.27e-02  3.91e-04
## 105  -8.54e-03  7.90e-04  3.11e-03  1.58e-03  1.34e-03  2.28e-03 -9.86e-04
## 106   0.00e+00  0.00e+00  0.00e+00  0.00e+00  0.00e+00  0.00e+00  0.00e+00
## 107  -7.09e-03 -9.33e-03  9.70e-02 -4.92e-03 -5.06e-03 -1.21e-02 -9.08e-03
## 110  -1.98e-03  3.14e-03 -6.09e-02  6.49e-04  9.49e-03 -4.21e-03  9.76e-03
## 111  -6.88e-03  1.60e-02  2.29e-01 -5.44e-03 -2.05e-02 -1.44e-02 -6.81e-03
## 112  -1.82e-04  9.69e-05 -9.36e-03 -1.82e-04 -5.90e-04 -3.51e-04 -7.56e-04
## 113   2.62e-04  1.87e-03 -9.54e-02  1.39e-03 -3.76e-03 -1.99e-03 -6.21e-03
## 114  -6.65e-03 -1.19e-02 -2.67e-01 -9.84e-03 -1.95e-02  1.03e-03 -1.36e-02
## 115  -1.68e-03 -2.91e-03 -6.92e-02 -2.72e-03 -4.69e-03 -1.43e-04 -2.50e-03
## 117  -9.25e-04  8.90e-04  1.39e-01 -7.33e-04  2.59e-03  2.35e-03  2.80e-03
## 118   6.49e-05 -5.81e-05 -9.67e-03  4.67e-05 -1.72e-04 -1.72e-04 -1.71e-04
## 120   1.00e-02  9.59e-03  1.81e-02 -1.83e-01  3.81e-02 -1.20e-02  1.27e-02
## 121   4.43e-03  4.23e-03  8.00e-03 -8.08e-02  1.68e-02 -5.29e-03  5.59e-03
## 122   7.72e-04  1.02e-03  1.73e-03 -2.47e-02  4.32e-03 -1.92e-03  1.08e-03
## 123   2.64e-02  1.41e-02  1.84e-03  1.73e-01  1.20e-02 -2.75e-02  3.91e-02
## 125  -1.50e-03 -1.92e-02 -9.35e-04  4.82e-02 -1.37e-02  3.86e-03 -1.75e-02
## 126   6.87e-03  7.34e-04  6.87e-03  1.06e-01 -2.37e-02  3.13e-03 -1.28e-02
## 129  -8.19e-04 -1.62e-03 -1.77e-03 -3.42e-02 -5.40e-03  1.58e-03  1.78e-03
## 130   2.81e-03  3.39e-03  4.69e-03  6.08e-02  1.10e-02 -1.80e-03 -1.58e-03
## 131   1.61e-02  1.13e-02  2.84e-02  1.95e-01  3.73e-02  6.04e-03 -1.06e-02
## 132  -6.45e-03  9.69e-03  7.76e-04  1.09e-01  1.16e-02 -9.21e-03  2.98e-02
## 133  -6.03e-03 -7.23e-03 -1.02e-02 -1.31e-01 -2.35e-02  3.69e-03  3.85e-03
## 134   2.17e-03  2.35e-03  4.52e-03  4.91e-02  7.97e-03 -4.97e-04 -3.62e-03
## 135  -7.04e-03 -1.94e-03 -9.98e-03  4.04e-02 -9.49e-03 -5.84e-03  6.74e-04
## 136   1.75e-02 -1.52e-02  2.34e-02 -3.33e-01  5.27e-02  5.86e-03 -1.39e-02
```

```
## 137  -3.90e-03 -6.24e-03 -5.17e-03 -8.53e-02  3.29e-03 -5.23e-03 -8.14e-03
## 139  -2.62e-03 -3.91e-04 -5.32e-03  4.02e-02  2.15e-03 -1.93e-03  4.45e-03
## 140  -1.02e-02 -4.17e-03 -8.56e-03  7.26e-02 -6.54e-04 -1.99e-03  7.68e-03
## 141  -7.12e-05  8.25e-04 -2.69e-03  5.28e-02  6.21e-03 -1.93e-04  8.40e-03
## 142   2.80e-03  6.24e-04  9.59e-03  6.70e-02  3.72e-03  1.23e-02 -5.29e-03
## 144  -3.62e-04  1.43e-03 -1.14e-03 -1.86e-04 -7.02e-02 -4.41e-04 -3.62e-03
## 145  -1.34e-02  1.14e-02 -2.72e-02 -1.40e-02  5.59e-01 -3.34e-02  4.21e-03
## 149  -8.53e-03 -6.78e-05 -1.46e-02 -1.01e-02 -4.43e-01 -2.42e-02  2.69e-02
## 150  -3.31e-03 -1.21e-03 -3.15e-03 -2.67e-03  1.78e-03  9.47e-02  2.64e-03
## 151   2.27e-03  2.23e-04  5.21e-03  5.66e-03  3.47e-03  4.82e-02 -6.39e-04
## 152   7.33e-04  1.73e-04  9.30e-04  7.25e-04 -6.37e-04 -2.13e-02 -1.26e-03
## 153  -5.18e-03  1.76e-03 -1.07e-02 -1.31e-02 -9.33e-03 -1.25e-01  3.19e-03
## 154   6.41e-03 -1.32e-02  5.72e-03  8.27e-03 -1.26e-02 -2.01e-01 -3.19e-02
## 155  -1.05e-03  1.81e-03  1.18e-05 -2.64e-04  4.47e-03  6.51e-02  2.75e-03
## 156   4.51e-03 -8.78e-03  1.74e-03  4.38e-03 -7.45e-03 -1.49e-01 -1.74e-02
## 157  -1.55e-02 -5.48e-04 -5.93e-03 -1.28e-02 -2.07e-03  2.60e-01 -2.06e-02
## 158   3.93e-04 -4.07e-04  4.61e-04  4.70e-04 -9.53e-04 -1.33e-02 -1.08e-03
## 159   4.68e-03  9.43e-04  1.38e-02  1.27e-02  8.70e-03  8.88e-02 -1.56e-02
## 160  -2.25e-04 -3.26e-04  6.39e-04  8.87e-04  6.45e-04 -4.89e-03 -1.68e-03
## 161  -6.36e-03  4.57e-03  1.32e-03  1.75e-03  1.72e-03 -5.91e-02  9.61e-03
## 162   1.45e-02  1.09e-03 -2.40e-02  5.54e-03  1.41e-01  4.93e-01  3.23e-03
## 163   2.95e-02  8.12e-03  2.41e-02  3.69e-03  6.28e-02 -2.29e-01  2.69e-03
## 164   4.13e-02  9.85e-03  3.74e-02  7.07e-03  8.51e-02 -3.20e-01 -6.59e-03
## 165  -1.16e-02  1.79e-02  5.13e-04  8.61e-05  1.28e-02 -1.29e-01  3.16e-02
## 166   1.09e-02  9.49e-03  2.43e-02  1.87e-03 -3.61e-03  1.53e-01 -7.68e-03
## 167   0.00e+00  0.00e+00  0.00e+00  0.00e+00  0.00e+00  0.00e+00  0.00e+00
## 168  -2.21e-03 -1.80e-02  2.44e-03  1.98e-04 -1.93e-02  1.98e-02 -2.73e-02
## 169  -8.13e-04 -6.85e-03  3.48e-04 -2.66e-04 -7.00e-03  7.11e-03 -8.94e-03
## 170  -7.30e-04 -6.53e-03 -5.31e-04 -7.62e-04 -6.15e-03  6.13e-03 -6.34e-03
## 171   1.22e-04 -6.37e-03  1.88e-03  8.23e-04 -3.93e-03  3.88e-03 -1.36e-02
## 172  -2.38e-05  1.24e-03 -3.67e-04 -1.61e-04  7.67e-04 -7.57e-04  2.65e-03
## 173  -1.30e-05  2.85e-04 -2.95e-05 -5.36e-06  1.25e-04 -1.13e-04  4.75e-04
## 174   6.06e-03 -4.62e-02 -6.83e-03 -1.21e-02 -2.37e-02 -1.77e-02 -9.45e-03
## 175  -1.43e-04 -1.89e-03 -8.96e-04  6.41e-04  4.65e-04  1.92e-03 -3.94e-03
## 176  -3.12e-04 -4.12e-03 -1.95e-03  1.40e-03  1.01e-03  4.19e-03 -8.58e-03
## 177   5.62e-03 -3.21e-03 -6.38e-04  1.07e-02  9.30e-03 -8.36e-03  2.27e-03
## 178  -8.64e-04 -5.58e-03  7.65e-03  7.08e-03 -1.00e-02  1.83e-02 -2.55e-02
## 179  -1.33e-03 -8.58e-03  1.18e-02  1.09e-02 -1.54e-02  2.81e-02 -3.92e-02
## 180   4.05e-03  1.53e-02  1.85e-03  7.65e-03  4.70e-03 -4.16e-04  2.21e-02
## 181  -4.73e-03  5.16e-03  3.85e-04 -9.01e-03 -1.89e-02 -6.18e-03  3.34e-02
## 182   1.95e-03 -4.16e-03  4.42e-04  5.27e-03  7.29e-03  4.33e-03 -1.19e-02
## 183   1.90e-03  1.21e-02 -1.34e-03  4.38e-03  5.36e-03 -6.66e-04  1.23e-03
## 184  -1.86e-03  2.59e-03 -6.71e-04 -6.22e-04 -1.64e-03  2.47e-03  3.09e-03
## 185  -5.95e-03 -2.93e-04 -1.19e-02 -3.20e-03  9.34e-03 -9.95e-03  2.99e-02
## 186  -3.82e-04 -1.61e-03 -2.48e-03 -6.99e-04  2.89e-03 -1.80e-03 -3.40e-03
## 187   1.60e-03 -9.56e-04  6.38e-03  8.27e-04 -1.40e-02  8.61e-03  9.45e-03
## 188  -3.49e-04 -6.25e-03  4.55e-03  2.75e-03  4.92e-03 -3.90e-03 -1.39e-03
## 189  -3.49e-04 -6.25e-03  4.55e-03  2.75e-03  4.92e-03 -3.90e-03 -1.39e-03
## 190   2.40e-04  2.60e-04  2.66e-04  3.19e-04  3.22e-04  2.08e-04  4.45e-04
## 191  -6.30e-05  2.57e-03 -1.35e-03 -1.17e-03  1.27e-03 -5.60e-04  5.34e-03
## 192  -1.34e-02  2.10e-03 -2.32e-02 -2.48e-02 -9.19e-03 -1.52e-02  1.03e-02
## 193  -7.43e-03 -7.90e-03 -1.67e-02 -1.45e-02 -8.29e-03 -1.19e-02  2.01e-02
## 194  -3.44e-03 -3.65e-03 -7.71e-03 -6.69e-03 -3.84e-03 -5.50e-03  9.30e-03
## 195   2.74e-03  9.95e-05  3.14e-03  4.12e-03  2.49e-03  2.04e-03  4.12e-03
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## 196  -4.01e-03 -1.70e-03 -5.27e-04 -6.31e-03 -8.76e-03  1.67e-03 -3.99e-03
## 197  -3.00e-03 -5.50e-04 -2.07e-03 -5.91e-03 -5.15e-03 -7.28e-04  1.96e-03
## 198  -3.01e-03 -9.50e-04 -1.04e-02 -4.33e-03  2.71e-03 -9.17e-03 -9.14e-04
## 199  -3.56e-03 -2.37e-03 -8.50e-03 -3.16e-03 -7.26e-05 -6.50e-03 -9.59e-03
## 200   1.95e-03 -8.76e-03  1.54e-02  2.37e-03 -1.41e-02  1.34e-02  2.93e-03
## 201  -1.19e-03 -7.24e-03  7.16e-03 -2.87e-03 -1.27e-02  6.83e-03  2.70e-03
## 202  -4.98e-03 -8.68e-03 -3.97e-03 -4.97e-03 -3.82e-03 -6.59e-04  1.15e-02
## 203   9.54e-03 -7.45e-03  3.02e-02  2.57e-02  9.39e-03  1.49e-02 -4.68e-03
## 204   1.93e-02  1.62e-02  3.19e-02  3.11e-02  1.63e-02  1.25e-02 -3.20e-02
## 206  -8.05e-04 -2.84e-03 -2.44e-03 -1.01e-03  7.73e-04  2.15e-03 -6.72e-03
## 207   3.56e-03 -4.57e-03  4.48e-04  5.53e-03  8.63e-03  8.88e-03 -1.05e-02
## 208  -1.69e-03 -4.20e-03 -1.75e-03 -1.75e-03 -5.44e-03  1.78e-03 -3.57e-03
## 209  -4.72e-03 -1.21e-02 -3.14e-03 -3.86e-03 -1.63e-02  6.75e-03 -1.45e-02
## 210  -3.69e-04  1.12e-03  2.80e-04 -1.26e-03  1.68e-03 -1.17e-03  3.32e-03
## 211   2.42e-02  1.44e-02  4.98e-03 -5.86e-03  7.44e-02 -1.82e-02  7.12e-02
## 212   1.75e-03 -8.44e-03  2.50e-03  3.22e-04 -5.84e-03  1.50e-03 -7.44e-03
## 213  -3.51e-04 -4.13e-03  1.87e-03  1.22e-03 -4.16e-03  2.32e-03 -9.84e-03
## 214   2.65e-04  3.32e-03 -1.31e-03 -8.80e-04  3.19e-03 -1.62e-03  7.42e-03
## 215   7.00e-04  9.00e-03 -3.31e-03 -2.26e-03  8.49e-03 -4.11e-03  1.95e-02
## 216   5.39e-04  1.11e-03  3.09e-04  4.21e-04  9.30e-04 -3.22e-04  3.40e-03
## 217   4.35e-04 -1.04e-02  1.43e-02  1.08e-02 -1.46e-02  2.37e-02 -4.27e-02
## 218   2.33e-03 -1.20e-02  2.22e-02  1.73e-02 -1.87e-02  3.42e-02 -5.27e-02
## 219   2.48e-03  4.56e-04  6.49e-03 -2.83e-03 -1.46e-02  3.08e-03 -1.29e-02
## 220  -2.21e-03  1.56e-03 -1.65e-03 -2.85e-03 -2.00e-03 -5.95e-04  1.99e-03
## 221   2.74e-05  3.21e-05  4.81e-05  4.76e-05  3.30e-05  3.43e-05  5.00e-05
## 222   1.45e-04 -8.66e-04 -6.41e-04 -1.97e-04 -6.26e-04 -4.17e-04 -1.29e-03
## 223  -3.31e-04 -3.73e-03 -2.41e-03 -9.95e-04 -1.37e-03  6.80e-04 -2.69e-03
## 224  -6.53e-04 -7.02e-03 -3.89e-03 -1.54e-03 -3.01e-03  1.84e-03 -6.39e-03
## 225   4.23e-03 -4.64e-03 -5.66e-03  5.69e-03  9.34e-04  9.76e-04 -7.89e-03
## 226   1.55e-04  2.72e-03  3.05e-03  1.78e-03 -1.87e-03  4.96e-03  4.49e-03
## 227  -1.96e-03 -2.55e-02  2.10e-04  1.59e-03 -2.79e-02  1.27e-02 -7.22e-02
## 228   1.35e-03 -1.25e-03 -7.57e-03 -3.53e-03  1.87e-03 -8.33e-03  9.36e-03
## 229   1.91e-04  3.51e-05  8.86e-04  6.65e-05  2.11e-04  1.21e-03 -8.18e-04
## 230  -5.92e-03  1.80e-02 -8.93e-03 -1.17e-02 -3.59e-03 -1.74e-03  1.06e-02
## 231  -3.05e-04 -4.09e-03 -3.89e-04  1.79e-04 -2.90e-03  2.21e-03 -5.13e-03
## 232   5.83e-04  7.81e-03  7.43e-04 -3.42e-04  5.53e-03 -4.23e-03  9.78e-03
## 233   1.73e-03  2.94e-03  2.57e-03  2.47e-03  3.17e-03  2.86e-04  3.37e-03
## 234   6.91e-03  1.17e-02  1.03e-02  9.83e-03  1.27e-02  1.14e-03  1.34e-02
## 235  -1.12e-02  3.39e-02 -1.50e-02 -2.18e-02  2.52e-02 -2.68e-02  1.07e-01
## 236   3.36e-03  6.98e-05  5.12e-03  5.40e-03  3.00e-03  1.15e-03 -1.96e-03
## 237  -2.46e-03 -5.12e-05 -3.76e-03 -3.96e-03 -2.20e-03 -8.44e-04  1.44e-03
## 238  -1.03e-02  1.54e-03 -1.39e-02 -1.62e-02 -1.23e-02 -2.44e-03  1.08e-02
## 241   5.65e-04  6.85e-05  3.26e-04 -5.14e-04  8.67e-04 -2.87e-06 -7.64e-05
## 242  -5.73e-04 -2.17e-03 -3.30e-03  1.51e-03  5.19e-04 -1.52e-03  1.41e-03
## 243   1.89e-03  7.15e-03  1.09e-02 -4.99e-03 -1.71e-03  5.02e-03 -4.65e-03
## 246   9.23e-03 -9.59e-03 -2.07e-02 -1.05e-02  9.56e-03 -2.44e-02  1.34e-02
## 249   1.61e-03  8.17e-03 -4.33e-03 -1.62e-02 -2.08e-02 -1.96e-02  6.76e-03
## 250   2.05e-02 -5.13e-03  3.34e-02  3.73e-02  1.17e-02  4.06e-02 -2.91e-02
## 251   8.43e-03  1.57e-03  6.73e-03  1.34e-02  7.44e-03  7.14e-03 -3.46e-03
## 252   5.33e-03  2.16e-04  6.67e-03  8.29e-03  5.12e-03  7.00e-03 -3.01e-04
## 253  -2.49e-03  9.69e-03 -1.33e-02 -3.74e-03  1.00e-02 -1.08e-02  4.70e-03
## 254  -9.21e-03 -5.76e-03 -1.33e-02 -1.45e-02 -1.03e-02 -4.67e-03 -1.02e-02
## 255   1.62e-03 -4.71e-04  1.44e-03  2.27e-03  1.68e-03  2.64e-03 -4.68e-04
## 257   1.30e-02 -4.41e-03  1.29e-02  1.91e-02  1.24e-02  2.29e-02 -7.54e-03
```

```
## 258   3.26e-03 -1.10e-03  3.23e-03  4.78e-03  3.09e-03  5.73e-03 -1.89e-03
## 259  -6.51e-03 -1.72e-02 -1.56e-02 -8.31e-03 -1.22e-02  5.66e-03  5.58e-03
## 260   1.16e-02  9.50e-04  1.72e-02  2.01e-02  9.27e-03  1.48e-02  1.65e-03
## 261  -3.64e-03 -1.06e-03 -1.95e-03 -3.93e-03 -6.13e-03 -1.31e-03 -4.96e-03
## 262   8.32e-04  8.84e-04  1.06e-03  1.21e-03  1.02e-03  2.26e-06  2.67e-03
## 263  -8.23e-03 -4.26e-03 -6.05e-03 -1.23e-02 -8.93e-03 -3.07e-03  1.14e-04
## 264  -8.59e-03 -2.36e-03 -1.55e-02 -1.52e-02 -7.19e-03 -1.08e-02  9.92e-03
## 265   4.49e-04  4.30e-03 -8.04e-04  2.46e-03  6.97e-03  1.85e-03  6.18e-04
## 266   1.89e-04  4.34e-05 -6.95e-05  2.28e-04  1.85e-04  2.03e-05  1.95e-03
## 267   1.88e-03 -8.15e-03  6.34e-03  5.54e-03 -1.47e-02  7.27e-03 -2.69e-02
## 268  -1.24e-02  2.76e-02  1.88e-03 -1.08e-02  1.85e-02  4.49e-03  4.54e-02
## 269  -1.58e-02 -6.50e-03 -2.24e-02 -2.35e-02 -2.46e-02 -2.94e-03  1.67e-02
## 270   6.66e-04  3.10e-02 -3.40e-02  1.16e-02  2.95e-02  7.65e-03  1.52e-02
## 271  -5.28e-03 -1.11e-02 -1.50e-03 -1.02e-02 -1.05e-02  8.17e-03 -2.19e-02
## 272  -2.26e-02 -1.49e-03 -3.44e-02 -3.36e-02 -2.04e-02 -2.87e-02 -4.12e-04
## 273  -2.54e-02  7.13e-04 -4.45e-02 -4.13e-02 -1.80e-02 -3.92e-02  1.51e-02
## 274  -8.06e-04 -3.87e-04 -1.44e-03 -2.11e-03  1.67e-04 -1.88e-03 -5.41e-04
## 275  -1.25e-02 -3.72e-03 -1.46e-02 -1.34e-02 -2.04e-02 -2.34e-03 -6.22e-03
## 276  -4.44e-04 -6.52e-04  4.88e-03  1.62e-02  1.78e-02 -8.78e-03  1.67e-02
## 277  -1.10e-04 -1.61e-04  1.21e-03  4.01e-03  4.39e-03 -2.17e-03  4.13e-03
## 278  -3.28e-05 -4.81e-05  3.60e-04  1.20e-03  1.31e-03 -6.48e-04  1.23e-03
## 279  -1.31e-02 -4.21e-03 -1.70e-02 -1.30e-02 -2.45e-03 -1.82e-02  6.67e-03
## 280  -2.25e-02  1.13e-03 -2.99e-02  3.57e-03 -2.47e-02 -2.78e-02 -2.94e-04
## 281   5.94e-03 -1.66e-02  1.85e-02  9.24e-03 -1.44e-02  4.35e-03 -1.72e-02
## 282  -4.26e-03 -4.40e-05 -2.14e-03 -4.63e-03  6.20e-03 -2.80e-03  5.23e-03
## 283  -1.26e-03  2.75e-03 -4.17e-03 -7.31e-04  8.21e-03 -4.19e-03  7.99e-03
## 284   2.00e-03  3.91e-03 -7.21e-05  3.99e-03  1.14e-02 -1.71e-03  1.06e-02
## 285   5.84e-04  1.79e-04  1.05e-03  1.07e-03  3.63e-04  8.30e-04 -9.58e-05
## 286   5.84e-04  1.79e-04  1.05e-03  1.07e-03  3.63e-04  8.30e-04 -9.58e-05
## 287  -5.38e-03  8.54e-03  5.64e-03  8.74e-03  2.30e-03  1.15e-02  7.75e-04
## 288   4.73e-03 -7.32e-03 -2.30e-03  1.90e-03 -6.23e-03 -5.18e-03 -3.64e-03
## 289   2.36e-03 -3.21e-03 -1.80e-03  5.39e-04 -2.27e-03 -3.35e-03  3.60e-04
## 290   5.72e-03 -2.17e-03 -1.42e-02 -1.07e-02 -1.10e-02 -1.59e-02  5.33e-03
## 292  -7.37e-04  5.04e-04 -2.71e-03 -5.10e-03 -4.06e-03 -3.87e-03  5.65e-03
## 294  -3.74e-03 -7.99e-03 -8.27e-03 -8.57e-03 -1.69e-02 -8.38e-03 -1.31e-02
## 298   2.58e-03 -7.29e-03 -1.18e-03 -1.58e-03 -1.34e-02  5.95e-04 -2.52e-02
## 299   6.07e-04  2.48e-03  2.40e-03  3.24e-03  2.04e-03  5.47e-03 -7.58e-03
## 300  -1.72e-02 -9.40e-03 -2.35e-02 -6.40e-03 -1.04e-02 -1.50e-02  2.24e-02
## 301   2.91e-03  9.99e-04  5.57e-03  1.91e-03  3.36e-04  4.40e-03 -8.30e-03
## 302  -4.12e-04  6.95e-04 -6.96e-04 -5.15e-04  4.47e-04 -3.83e-04  1.44e-03
## 303   3.48e-04  1.01e-03  5.13e-04  8.17e-04  1.20e-03  5.05e-04  1.60e-03
## 305   3.71e-03  3.13e-03  5.33e-03  8.80e-03  9.54e-03  7.15e-03  9.50e-04
## 306   7.28e-03  6.10e-03  1.06e-02  1.73e-02  1.87e-02  1.42e-02  1.61e-03
## 307  -4.79e-05 -9.73e-04  3.15e-03 -1.41e-03 -2.62e-03  3.31e-03 -7.73e-03
## 308  -2.93e-03  4.93e-02 -4.45e-03 -3.11e-04  3.11e-02 -1.77e-02  4.40e-02
## 309   6.62e-03 -2.11e-02  7.26e-03  1.60e-03 -1.03e-02 -3.36e-03 -3.61e-03
## 310   1.48e-02  2.43e-04  3.20e-02  1.18e-02  1.22e-02  2.08e-02 -2.26e-02
## 311  -2.19e-02 -2.72e-03 -4.14e-02 -1.43e-02 -2.30e-02 -2.40e-02  1.76e-02
## 312   7.26e-03 -2.12e-02  1.37e-02  1.12e-02 -1.85e-02  2.10e-02 -3.36e-02
## 313   1.04e-03 -2.77e-03  1.56e-03  1.36e-03 -2.19e-03  2.48e-03 -3.61e-03
## 314   1.22e-04  4.94e-03  1.28e-03  1.53e-03  4.63e-03 -1.01e-03  3.70e-03
## 316  -2.74e-05 -3.40e-03  7.22e-04 -1.09e-03 -3.55e-03 -1.17e-03 -2.12e-03
## 317   7.34e-03 -2.25e-03  9.10e-03  7.43e-03  1.37e-02  6.95e-03 -9.96e-03
## 318  -3.83e-03  2.48e-03 -1.90e-03 -4.60e-04 -1.20e-02 -1.03e-03  5.27e-03
```

```
## 319   2.20e-04 -9.33e-05  2.16e-04  1.54e-04  5.08e-04  1.56e-04 -3.00e-04
## 320  -1.89e-03  8.69e-03 -4.64e-04  5.94e-04  1.33e-03  1.48e-03  4.02e-03
## 322   4.86e-03  9.32e-04  8.58e-03  9.19e-03  1.32e-02  7.89e-03 -3.37e-03
## 323  -1.49e-03  4.18e-03  3.08e-04 -2.45e-03 -7.14e-03 -5.04e-03  3.31e-03
## 324   4.55e-04 -1.30e-03 -6.58e-05  7.69e-04  2.17e-03  1.59e-03 -1.11e-03
## 326  -5.75e-04  2.10e-04 -4.47e-04  1.60e-04 -1.16e-03 -5.30e-04  2.15e-04
## 327  -1.03e-02  2.43e-02 -1.14e-02 -6.43e-03 -3.28e-02 -3.03e-03  5.23e-03
## 328  -2.45e-03 -7.53e-03 -4.31e-03 -3.21e-03 -1.46e-02  2.47e-04 -1.31e-02
## 329   4.77e-04  1.46e-03  8.38e-04  6.25e-04  2.84e-03 -4.81e-05  2.56e-03
## 330  -1.25e-04 -6.72e-05 -9.01e-04  3.37e-03 -2.58e-04  1.47e-03  4.84e-04
## 331   6.01e-03  2.33e-02 -1.79e-02  1.03e-02  4.23e-02 -5.56e-03  5.31e-03
## 332  -2.21e-03  1.67e-03  9.31e-04 -3.06e-03 -4.21e-03  5.37e-04  4.68e-03
## 333   7.10e-02  2.53e-02  8.48e-02  9.66e-02  9.41e-02  4.66e-02  9.92e-02
## 334  -1.35e-03  1.09e-03  4.55e-04 -1.95e-03 -2.47e-03  1.83e-04  3.26e-03
## 335   2.07e-02  2.28e-03  2.48e-02  3.57e-02  1.76e-02  2.23e-02 -8.60e-03
## 336   7.57e-03  5.80e-04  7.01e-03  1.26e-02  7.10e-03  7.07e-03 -2.46e-03
## 337  -2.55e-02  9.20e-02 -2.75e-02 -5.96e-02  5.86e-02 -4.08e-02  2.14e-01
## 338  -5.80e-05 -2.51e-04  2.25e-04  7.48e-05 -2.79e-04  3.99e-04 -7.43e-04
## 339   1.10e-04 -3.09e-03  1.08e-02  7.46e-03 -9.27e-03  1.08e-02 -3.26e-02
## 340   6.88e-04 -3.50e-04  4.98e-03  4.16e-03 -3.02e-03  3.65e-03 -1.45e-02
## 341  -6.56e-04 -2.84e-03  2.55e-03  8.46e-04 -3.16e-03  4.51e-03 -8.40e-03
## 342   1.52e-03  1.43e-03 -6.54e-05  3.00e-03  3.45e-04 -5.12e-04 -4.05e-03
## 343  -7.23e-04 -1.48e-04  3.87e-04 -6.50e-04 -1.20e-03 -3.65e-07 -2.15e-03
## 344   1.00e-03  8.35e-04  4.21e-03  2.43e-03  4.09e-04  1.83e-03 -2.32e-03
## 345   1.18e-03 -1.84e-02 -6.94e-03 -9.61e-03 -1.06e-02 -2.49e-03 -2.74e-02
## 346  -2.76e-02 -1.70e-02 -1.22e-03 -3.02e-02 -2.05e-02  1.17e-02 -1.08e-02
## 347   2.32e-03 -1.65e-03  9.68e-03  1.04e-02 -1.93e-04  1.24e-02 -1.43e-02
## 348   3.23e-04 -5.03e-03 -1.89e-03 -2.62e-03 -2.89e-03 -6.79e-04 -7.47e-03
## 349   1.01e-05 -6.56e-04 -3.62e-04 -2.12e-03 -3.34e-03 -5.61e-04  3.05e-04
## 350   1.04e-05 -1.62e-04 -6.10e-05 -8.44e-05 -9.31e-05 -2.19e-05 -2.40e-04
## 351  -2.93e-06  1.89e-04  1.04e-04  6.11e-04  9.63e-04  1.62e-04 -8.80e-05
## 352   1.53e-02 -1.58e-02 -3.23e-02 -2.73e-02 -1.87e-02 -4.13e-02 -9.01e-04
## 353  -1.85e-03 -7.36e-04 -2.15e-04 -3.16e-03 -1.24e-03 -3.04e-04  2.37e-03
## 354  -1.85e-03 -7.36e-04 -2.15e-04 -3.16e-03 -1.24e-03 -3.04e-04  2.37e-03
## 356  -3.41e-04 -1.88e-04 -1.49e-04 -6.95e-04  3.56e-04 -6.83e-04  5.95e-04
## 357  -5.46e-04  2.71e-04  6.14e-04 -5.00e-04 -1.77e-03  1.24e-03  3.92e-04
## 358  -2.24e-03 -6.97e-03  9.14e-03  1.08e-02 -1.01e-02  6.99e-03 -3.54e-02
## 359  -1.83e-02 -1.05e-02 -1.82e-02 -1.84e-02 -2.25e-02 -1.30e-02 -2.98e-02
## 360  -2.78e-03 -1.03e-03 -3.57e-03 -1.99e-03 -5.73e-03 -1.03e-03 -6.72e-03
## 361   2.49e-03 -1.29e-04  5.90e-03  3.28e-03  3.07e-03  3.97e-03 -7.29e-04
## 362  -9.67e-05 -1.90e-05 -6.82e-05 -1.49e-04 -9.75e-05 -4.12e-05  9.43e-05
## 363   2.41e-03 -4.03e-04  6.65e-03  7.63e-03 -2.36e-03  6.93e-03 -1.10e-02
## 364   4.34e-03 -1.03e-03  1.28e-02  1.43e-02 -4.98e-03  1.34e-02 -2.21e-02
## 365  -4.01e-03 -2.78e-03 -1.85e-03 -1.03e-03 -1.08e-02  2.24e-03 -1.79e-02
## 366  -4.73e-03 -5.92e-04 -9.20e-03 -1.65e-02 -2.12e-02 -6.31e-03  8.23e-03
## 367  -1.01e-03 -1.27e-04 -1.97e-03 -3.53e-03 -4.53e-03 -1.35e-03  1.76e-03
## 368   2.52e-03  9.58e-03  2.90e-03  1.72e-03  6.93e-03  1.93e-03 -5.69e-03
## 369  -4.59e-03  4.61e-04 -3.27e-03 -2.29e-03  2.67e-04 -4.29e-05 -4.20e-04
## 370   9.37e-03 -1.97e-03  8.89e-03  5.92e-03 -2.81e-03  2.66e-03 -5.54e-03
## 371   3.36e-03  5.16e-03  2.25e-03  6.24e-04  2.40e-03 -4.84e-03  1.13e-02
## 372   1.46e-02  9.82e-03  5.10e-04 -2.27e-03 -5.73e-03 -1.79e-02  2.44e-02
## 373  -8.73e-03 -3.39e-02 -5.95e-03 -2.50e-02 -5.70e-02 -7.55e-03  3.57e-02
## 374  -4.89e-04  2.72e-03 -4.99e-04  2.58e-05  1.52e-03 -1.61e-04  4.60e-04
## 375   3.87e-04 -2.34e-03  3.99e-03  6.10e-03  3.93e-03  1.01e-02 -7.37e-03
```

```
## 376   8.16e-04 -6.16e-03  1.07e-02  1.53e-02  8.30e-03  2.57e-02 -2.11e-02
## 377   2.59e-04  4.31e-05  3.36e-04  2.37e-04 -1.35e-04  1.98e-06 -1.14e-04
## 378  -3.08e-04 -1.71e-05 -1.10e-03 -1.39e-03 -1.01e-03 -1.69e-03  7.04e-04
## 379   2.03e-03  7.62e-04  3.10e-03  2.37e-03 -1.54e-04  2.73e-04 -9.64e-04
## 380  -2.24e-03  1.27e-03 -6.74e-03 -9.84e-03 -6.93e-03 -1.37e-02  3.75e-03
## 381   9.77e-04 -6.91e-04  3.27e-03  4.55e-03  2.83e-03  6.44e-03 -2.45e-03
## 382   1.55e-03 -5.23e-04  7.28e-03  8.34e-03  4.16e-03  1.08e-02 -7.80e-03
## 383  -1.02e-03  3.75e-03 -2.21e-03 -4.02e-03  4.37e-03 -2.33e-03  1.21e-02
## 384   3.80e-03 -1.28e-02  4.85e-03  4.95e-03 -1.05e-02  9.74e-03 -2.86e-02
## 385   1.55e-03 -4.99e-03  1.69e-03  1.84e-03 -3.93e-03  3.59e-03 -1.07e-02
## 386   2.07e-03 -6.65e-03  2.25e-03  2.46e-03 -5.23e-03  4.79e-03 -1.43e-02
## 387  -3.81e-03 -1.73e-02 -3.21e-03 -5.46e-03 -3.10e-02  1.78e-02 -2.43e-02
## 388  -5.68e-03 -2.58e-02 -2.04e-03 -6.35e-03 -4.67e-02  2.84e-02 -4.23e-02
## 389  -4.40e-03 -2.00e-02 -2.40e-03 -5.45e-03 -3.60e-02  2.14e-02 -3.09e-02
## 390   5.77e-03  8.19e-04  7.32e-04 -1.32e-03 -7.34e-03 -2.07e-03  3.38e-03
## 391   1.93e-02 -1.77e-02  3.51e-02  2.71e-02 -2.90e-02  3.90e-02 -7.86e-02
## 392  -1.30e-03 -2.23e-03 -8.97e-04 -2.06e-03  5.22e-03 -2.21e-03 -1.57e-03
## 393   2.96e-03  3.09e-02  3.16e-03 -4.74e-02 -4.88e-03 -3.01e-02  1.37e-02
## 394  -9.76e-03 -3.17e-04  3.74e-03 -5.95e-04  1.26e-03  2.57e-03 -3.86e-02
## 395   1.35e-02  1.02e-02 -2.08e-03 -6.83e-03 -5.09e-03 -2.24e-02  2.21e-02
## 396  -5.62e-04  1.45e-02 -1.70e-04  4.81e-03  2.88e-02 -1.18e-02  3.88e-02
## 397   3.06e-02  1.02e-02  4.78e-02  1.29e-02  4.54e-02  2.38e-02 -1.65e-02
## 398   3.93e-03  1.43e-03  5.84e-03  1.50e-03  6.09e-03  2.70e-03 -1.28e-03
## 402   4.33e-04  3.22e-04  2.11e-03  9.86e-04 -2.27e-03  2.97e-03  9.12e-04
## 403  -7.34e-03 -5.06e-03 -1.13e-03 -8.63e-03 -2.09e-02  7.02e-03 -1.45e-02
## 405  -3.58e-03 -2.92e-03 -3.74e-03 -5.95e-03 -6.73e-03 -8.26e-04 -4.75e-03
## 406  -5.66e-03  3.90e-04 -1.04e-02 -9.36e-03 -1.28e-03 -9.25e-03  3.54e-03
## 407   2.56e-03 -1.94e-04 -1.11e-04  3.06e-03  8.69e-03 -3.71e-03 -1.40e-03
## 408   2.10e-04 -8.58e-03 -2.72e-04  4.60e-03  1.11e-02 -6.63e-03 -4.22e-02
## 409   4.23e-03 -9.46e-04  4.12e-03  7.43e-03  2.15e-03  2.75e-03 -1.23e-02
## 410   2.56e-03 -3.01e-03  5.71e-03  4.87e-03  1.10e-03  3.47e-03 -1.40e-02
## 411  -3.85e-03  2.37e-03  2.18e-03 -1.39e-04 -1.10e-02  8.27e-03 -1.14e-03
## 412   2.68e-04  1.15e-04  4.31e-03  2.00e-03 -1.24e-03  4.37e-03 -7.62e-04
## 413   2.02e-03  1.34e-03  5.96e-03  5.54e-03 -8.01e-04  6.35e-03 -1.53e-03
## 416  -4.80e-03  2.35e-02  8.18e-03  1.18e-02  4.16e-02 -3.33e-03  5.31e-02
## 417   1.38e-03 -9.98e-03  2.86e-03  7.54e-03  9.81e-03  2.29e-03  4.77e-03
## 418  -1.03e-02 -1.93e-02 -1.03e-02 -7.11e-03 -8.82e-04 -4.82e-03 -6.28e-03
## 419   9.19e-04 -6.73e-04  1.48e-03  1.45e-03 -1.03e-03  2.77e-03 -6.13e-03
## 420  -5.22e-03 -1.29e-02 -8.61e-03 -1.01e-02  3.99e-03 -1.16e-02  4.37e-02
## 421  -1.86e-02 -2.15e-02 -1.47e-02 -2.32e-02 -2.11e-02 -8.67e-03 -4.70e-03
## 422  -3.68e-03  1.02e-02 -1.73e-02 -1.66e-02 -1.60e-03 -1.46e-02  2.90e-02
## 423  -1.81e-03  1.09e-02 -9.03e-03 -6.56e-03 -3.61e-03 -3.11e-03  2.58e-04
## 424  -4.14e-03 -5.62e-03 -2.87e-03 -2.75e-03 -3.05e-03  1.26e-04 -6.60e-05
## 425   1.45e-03 -4.23e-03  5.38e-03  6.66e-03  2.69e-03  5.84e-03  2.61e-03
## 426   1.65e-03 -2.37e-04  1.39e-03  2.82e-03 -1.22e-04  2.31e-03 -6.22e-03
## 427   1.59e-03 -2.48e-03  2.90e-03  4.58e-03  4.61e-04  7.16e-04  3.26e-03
## 428  -9.52e-03  2.13e-02  2.72e-03  9.46e-03  3.76e-02  5.12e-03  1.71e-02
##     dfb.MdlHy dfb.MdlIn dfb.MdlIs dfb.MdlJg dfb.MdlJp  dfb.MdlK dfb.MdlLnd
## 1   -1.90e-01 -1.67e-01 -1.13e-01 -1.82e-01 -1.21e-01 -1.84e-01  -1.27e-01
## 2   -3.08e-01 -2.72e-01 -1.84e-01 -2.96e-01 -1.97e-01 -2.99e-01  -2.07e-01
## 3    5.69e-01  5.19e-01  3.71e-01  5.34e-01  4.46e-01  5.41e-01   4.53e-01
## 4   -1.28e+00 -1.26e+00 -7.93e-01 -1.44e+00 -8.97e-01 -1.21e+00  -9.06e-01
## 5    3.40e-01  2.97e-01  1.86e-01  3.03e-01  2.31e-01  3.27e-01   2.16e-01
## 6    4.62e-01  4.28e-01  2.56e-01  4.36e-01  3.06e-01  4.44e-01   3.02e-01
```

```
## 7    3.82e-01  3.34e-01  2.21e-01  3.56e-01  2.53e-01  3.70e-01   2.50e-01
## 8    1.74e-02 -1.69e-02  4.84e-03 -1.91e-02  6.12e-03  1.96e-02  -5.75e-03
## 9    4.46e-03 -6.33e-03  5.52e-04 -8.53e-03  1.57e-03  6.56e-03  -5.92e-03
## 10  -3.23e-03  1.15e-02 -1.54e-03  1.01e-02 -1.84e-03 -1.19e-02   6.66e-03
## 11  -3.06e-04  2.61e-03  1.11e-04  2.95e-03  1.64e-03 -4.42e-05   2.62e-03
## 12  -2.55e-04  4.37e-03  2.16e-04  4.70e-03  2.73e-03 -9.59e-05   4.15e-03
## 13   5.73e-03 -9.20e-03 -8.82e-04 -1.56e-02 -5.25e-03 -3.16e-04  -1.34e-02
## 14  -1.47e-02  1.98e-02 -6.03e-03  1.66e-02 -6.02e-03 -2.28e-02   2.49e-03
## 15   2.27e-04 -1.08e-03 -6.47e-04 -1.69e-03  1.50e-04  3.99e-04  -6.50e-04
## 16   3.97e-04 -3.33e-04  4.06e-04 -1.77e-04 -1.18e-04  3.83e-04  -2.82e-04
## 17   1.64e-04  5.56e-03  3.76e-03  4.96e-03  3.75e-04  1.93e-03   3.03e-03
## 18   4.19e-05  3.49e-04  3.84e-04  7.34e-04  1.02e-06  1.99e-05   4.38e-04
## 19  -2.75e-03  4.61e-03  1.22e-03  6.23e-03 -1.29e-03 -3.13e-03   1.09e-03
## 20   1.15e-02 -1.38e-02 -9.72e-04 -1.61e-02  1.12e-02  1.52e-02  -1.09e-03
## 21  -1.65e-02 -2.27e-02 -1.74e-02 -2.85e-02 -3.29e-02 -3.31e-02  -3.96e-02
## 22  -1.50e-02  2.73e-02 -2.28e-03  1.48e-02 -6.28e-04 -1.04e-02  -8.68e-04
## 23  -1.05e-02  1.26e-02 -4.06e-03  1.03e-02 -1.19e-03 -1.08e-02  -7.01e-04
## 24  -1.86e-02  3.98e-02  8.25e-03  4.17e-02 -5.73e-03 -1.74e-02   7.10e-03
## 25  -7.92e-03  1.44e-02  7.90e-03  1.73e-02 -4.72e-03 -1.93e-03  -7.26e-04
## 26   1.15e-03 -5.53e-03 -4.03e-03 -6.03e-03  1.50e-03 -2.24e-04   5.97e-04
## 27   1.80e-03  1.21e-03  6.36e-04  1.45e-03  1.40e-03  2.36e-03   2.13e-04
## 28  -2.29e-03 -3.50e-03 -1.67e-03 -7.65e-03 -4.41e-03 -8.38e-03  -3.43e-03
## 29   6.43e-03  4.45e-03  1.40e-03  4.81e-03  5.83e-03  9.24e-03   8.90e-04
## 30   9.56e-04 -2.36e-03 -1.85e-03 -3.86e-03 -2.73e-04  6.09e-04   9.89e-04
## 31  -7.94e-04 -2.67e-04  7.27e-04  3.28e-03 -2.72e-05 -1.79e-03  -9.22e-04
## 32   2.17e-04 -3.65e-03  5.67e-04 -3.05e-03 -1.08e-03 -5.95e-04   9.84e-04
## 33   5.07e-03 -1.16e-02  1.26e-03 -1.48e-02 -2.70e-03 -2.44e-03  -2.51e-04
## 34  -1.13e-05  1.90e-04 -2.96e-05  1.59e-04  5.64e-05  3.11e-05  -5.14e-05
## 35   1.33e-03  4.63e-03  9.49e-03  1.24e-02  3.21e-03  3.55e-03  -7.20e-04
## 36  -1.62e-02  2.83e-03 -4.78e-03  3.73e-03  2.19e-03 -1.29e-02   6.28e-04
## 37  -7.47e-03 -4.80e-03 -9.32e-04 -8.96e-04  5.87e-03 -3.08e-03   5.68e-03
## 38   1.69e-04 -2.15e-04  8.49e-05 -1.40e-04  1.42e-04  1.96e-04   1.44e-04
## 39   7.67e-03 -6.14e-03  3.28e-03 -5.16e-03  7.30e-03  7.08e-03   3.99e-03
## 40   7.52e-03 -7.01e-03  4.09e-04 -8.77e-03  8.79e-03  7.23e-03   3.40e-03
## 41  -1.98e-02 -1.95e-03  7.18e-03  3.87e-02 -1.89e-02 -2.20e-02  -1.03e-02
## 42  -1.53e-02 -8.56e-04  1.08e-02  4.30e-02 -2.38e-02 -2.97e-02  -2.10e-02
## 43   2.81e-04 -4.94e-04  4.76e-04 -7.43e-04  6.31e-04  1.54e-04   5.23e-04
## 44  -1.34e-02 -1.01e-02  1.39e-02 -2.06e-02  1.89e-02 -1.36e-02   2.00e-02
## 45   6.93e-03 -1.03e-02 -4.11e-04 -5.89e-03  2.81e-03  5.92e-03   1.11e-04
## 46  -2.54e-03  5.00e-03  1.05e-03  2.75e-03 -1.04e-03 -1.76e-03   8.91e-04
## 47   7.74e-03 -5.26e-03 -6.58e-03 -7.49e-03 -3.87e-03  6.90e-03  -5.84e-03
## 48   1.33e-03 -1.24e-03 -4.33e-03 -2.27e-03 -5.65e-03  3.80e-04  -4.89e-03
## 49  -1.84e-03  2.10e-03  7.17e-03  3.48e-03  9.33e-03 -6.57e-04   7.80e-03
## 50  -3.72e-03  4.27e-03  3.29e-03  4.37e-04  1.64e-02 -1.45e-03   7.81e-03
## 51   7.20e-03 -3.13e-03  8.01e-03 -5.80e-03  2.22e-02  8.85e-03   1.27e-02
## 52  -6.98e-03  8.68e-03  8.98e-03  1.10e-02  1.29e-02 -5.93e-03   1.49e-02
## 53  -3.65e-03  3.34e-03 -6.33e-03  9.76e-04 -5.55e-03 -4.20e-03  -6.70e-03
## 54   1.45e-03 -6.38e-04 -5.59e-03 -2.04e-03 -4.75e-03  1.07e-03  -5.60e-03
## 55   3.21e-03 -4.19e-03  7.39e-03 -3.95e-03  1.04e-02  4.77e-03   5.87e-03
## 56  -1.32e-02  8.67e-02 -2.13e-03  1.07e-01  1.51e-02 -8.35e-04   1.93e-02
## 57  -1.08e-03  1.29e-03  1.23e-03  1.85e-03  3.76e-03 -1.52e-04   2.34e-03
## 58   1.71e-04  7.63e-04  3.38e-03  2.41e-03  8.32e-03  2.05e-03   5.68e-03
## 60   9.77e-04 -2.76e-02  9.58e-03 -3.70e-02  2.05e-02  9.75e-03   1.61e-02
## 61  -3.15e-03  9.54e-03  1.53e-02  2.09e-02  1.34e-02 -4.31e-04   1.18e-02
```

```
## 62   1.34e-03 -1.45e-03  9.49e-03 -1.97e-03  8.23e-03  8.95e-04   3.60e-03
## 63   1.56e-02 -2.80e-02  1.24e-02 -7.29e-02 -1.29e-03  1.76e-02  -4.98e-03
## 64  -3.97e-03  3.66e-03 -7.25e-03  1.36e-03  4.10e-03  3.47e-03   1.04e-02
## 66   2.55e-02 -1.30e-02 -1.05e-02 -2.03e-02  1.94e-02  2.85e-02  -2.40e-03
## 67   4.97e-03 -5.96e-03 -1.21e-02 -1.50e-02  9.21e-03  8.32e-03  -1.95e-03
## 68   1.63e-02 -6.93e-03 -1.77e-03 -9.86e-03 -6.15e-04  1.09e-02  -6.29e-03
## 69   1.46e-02 -3.84e-03  2.63e-03 -6.98e-04 -2.32e-04  1.13e-02  -3.96e-03
## 70   1.55e-03 -6.57e-04 -1.68e-04 -9.34e-04 -5.83e-05  1.03e-03  -5.96e-04
## 72   1.49e-02 -1.62e-02  7.65e-03 -2.46e-02  7.45e-03  2.10e-02   5.79e-03
## 73   4.16e-02 -4.51e-02  2.13e-02 -6.84e-02  2.07e-02  5.83e-02   1.61e-02
## 74   1.81e-03 -2.47e-03 -2.81e-04 -1.55e-03 -4.45e-03  7.49e-04  -1.60e-03
## 75  -8.18e-04  1.81e-03  1.03e-03  1.21e-03  6.29e-03  7.84e-04   2.96e-03
## 76   2.22e-03 -6.20e-04  1.96e-03 -6.11e-04  6.11e-03  3.38e-03   3.51e-03
## 77   5.50e-04 -5.21e-04 -4.43e-05 -2.41e-04 -2.86e-04  6.09e-04  -7.66e-05
## 78  -2.37e-03  8.29e-04 -3.99e-03  1.89e-03 -6.44e-03 -1.93e-03  -4.81e-03
## 79   1.55e-03 -4.85e-04  2.43e-03 -1.23e-03  3.92e-03  1.16e-03   2.83e-03
## 80  -1.57e-03  6.82e-03  1.73e-04  1.32e-03 -2.87e-03  2.44e-03  -2.37e-03
## 81   2.68e-04 -3.24e-04 -1.24e-04 -3.43e-04 -5.20e-04  8.55e-05  -2.65e-04
## 82  -5.22e-04  1.41e-03  1.39e-03  1.66e-03  4.17e-03  5.90e-04   2.30e-03
## 86   1.63e-04  2.86e-04 -1.19e-03 -7.48e-05 -8.67e-05  2.83e-04  -4.53e-04
## 87   7.52e-03 -2.54e-03 -2.73e-03 -7.34e-04 -5.79e-03  7.26e-03  -1.06e-02
## 88  -2.48e-02  1.28e-02 -5.04e-02  1.98e-02 -8.51e-02 -2.83e-02  -3.25e-02
## 89  -4.83e-03 -3.79e-03  1.13e-02 -4.66e-03  1.06e-02 -3.17e-03   6.96e-03
## 90  -7.69e-03 -3.93e-03 -1.05e-02 -1.15e-02 -1.37e-02 -2.74e-02  -1.76e-03
## 91   1.04e-02 -4.72e-03  1.08e-02  8.89e-04 -5.34e-03  6.30e-03   3.57e-03
## 92  -1.12e-04 -3.56e-05 -1.76e-04 -2.30e-04 -2.59e-04 -2.78e-04  -2.25e-04
## 93   4.50e-03  6.24e-04  5.58e-03  6.11e-03  7.98e-03  8.89e-03   6.63e-03
## 94   8.96e-03 -6.98e-03  8.21e-03 -4.25e-03 -1.26e-02 -1.91e-03  -4.03e-03
## 95   1.97e-03 -1.50e-03  4.60e-03 -5.83e-04 -1.28e-02 -7.36e-03  -6.03e-03
## 96   8.19e-03 -9.76e-03  6.54e-03 -3.47e-02 -2.22e-02  6.75e-03  -1.54e-02
## 97  -5.82e-02  1.02e-01 -2.74e-02  5.37e-02 -4.74e-03 -2.03e-02   2.49e-02
## 98   6.34e-04 -4.85e-03 -6.92e-03 -7.62e-03  1.10e-02  6.22e-03   2.37e-03
## 99  -6.19e-04  5.15e-03  7.35e-03  8.04e-03 -1.16e-02 -6.60e-03  -2.55e-03
## 100  1.28e-02 -1.12e-02  3.73e-03 -1.08e-02  6.14e-04  8.14e-03   7.92e-04
## 101 -2.73e-03 -6.76e-03 -2.37e-02 -3.23e-02 -1.30e-03 -5.82e-03  -9.50e-03
## 102  1.67e-03 -4.94e-03 -1.47e-02 -2.14e-02  5.98e-03  3.52e-03  -1.39e-03
## 103  2.59e-03 -2.36e-03 -5.13e-04 -4.96e-03 -3.02e-03 -2.59e-03  -4.27e-03
## 104 -9.85e-03  1.79e-02  1.94e-03  3.17e-02 -6.12e-03 -2.00e-02   1.26e-03
## 105  1.14e-03 -1.18e-03  1.44e-04 -1.85e-03  4.91e-04  1.42e-03   5.09e-05
## 106  0.00e+00  0.00e+00  0.00e+00  0.00e+00  0.00e+00  0.00e+00   0.00e+00
## 107 -6.25e-03  9.58e-03  6.76e-03  1.88e-02 -4.93e-03 -1.11e-02   2.87e-03
## 110 -4.30e-03  3.02e-03  8.52e-03  7.80e-03  6.10e-03 -3.29e-03   1.09e-02
## 111  1.18e-02 -2.04e-02  5.80e-03 -1.89e-02 -2.74e-03  4.52e-03  -1.66e-02
## 112 -2.32e-04  4.79e-05 -2.71e-04 -1.44e-04 -8.49e-04 -6.16e-04  -6.88e-04
## 113  2.71e-04 -1.93e-03 -1.63e-03 -2.91e-03 -7.77e-03 -3.31e-03  -5.56e-03
## 114  6.13e-03  1.00e-03 -2.83e-03  7.46e-04  7.51e-03  6.23e-03  -6.48e-03
## 115  1.39e-03  2.27e-04 -7.56e-04  3.31e-04  1.92e-03  1.63e-03  -1.54e-03
## 117 -2.84e-03  2.67e-03 -3.17e-04  2.45e-04  3.33e-03 -1.78e-03   3.29e-03
## 118  1.92e-04 -1.86e-04  2.14e-05 -1.39e-05 -2.31e-04  1.24e-04  -2.25e-04
## 120 -1.86e-02  4.60e-02 -1.03e-03  5.87e-02 -2.69e-02 -2.36e-02   4.25e-03
## 121 -8.21e-03  2.03e-02 -4.55e-04  2.59e-02 -1.19e-02 -1.04e-02   1.88e-03
## 122 -3.06e-03  6.61e-03 -4.28e-04  7.98e-03 -3.79e-03 -3.86e-03   1.26e-04
## 123  1.31e-03 -1.71e-02 -3.11e-02 -8.84e-03 -5.72e-02  8.79e-03  -4.30e-02
## 125  3.63e-04  1.11e-02 -9.66e-03  1.12e-02 -5.33e-03 -1.05e-03  -6.45e-03
```

```
## 126  8.65e-03 -8.94e-03 -2.89e-02 -2.19e-02 -2.62e-02  5.43e-03  -3.58e-02
## 129  2.76e-03 -3.27e-03 -3.24e-03 -5.86e-03  2.25e-03  3.44e-03  -1.60e-03
## 130 -3.10e-03  4.06e-03  6.34e-03  9.25e-03 -3.15e-03 -3.91e-03   3.87e-03
## 131  3.37e-03  3.24e-03  2.36e-02  2.04e-02 -4.80e-03  1.36e-04   1.61e-02
## 132 -1.10e-02 -9.81e-03 -4.57e-03  7.90e-03 -4.05e-03 -1.74e-02   6.78e-03
## 133  6.59e-03 -8.76e-03 -1.36e-02 -1.98e-02  6.77e-03  8.42e-03  -8.26e-03
## 134 -2.04e-03  3.33e-03  5.13e-03  7.08e-03 -2.48e-03 -3.17e-03   2.78e-03
## 135 -1.85e-03  3.85e-03 -4.24e-04  4.52e-03  6.09e-04 -5.81e-03   1.51e-03
## 136  8.51e-03  1.04e-03  2.10e-02  1.04e-01 -6.28e-03 -5.22e-03   2.61e-02
## 137 -8.04e-03  8.93e-03  2.44e-04  2.80e-02 -5.51e-03 -1.25e-02  -8.96e-05
## 139 -3.81e-03  5.52e-03  1.21e-03  6.71e-03  4.53e-03 -1.84e-03   3.23e-03
## 140 -6.79e-03 -4.06e-04 -1.84e-03  1.26e-02  7.72e-03 -9.98e-03   5.64e-03
## 141 -9.05e-04  3.19e-03  3.15e-03  6.19e-03  7.04e-03  2.23e-03   6.30e-03
## 142  5.89e-03  1.18e-02  3.27e-03  1.59e-03  1.14e-02  7.79e-03   6.82e-03
## 144  9.84e-04 -2.48e-03  2.46e-03 -2.02e-03  1.02e-04  1.22e-04  -8.23e-04
## 145 -1.32e-02 -1.61e-02  2.93e-02 -8.36e-04 -7.88e-03 -2.32e-02   1.23e-02
## 149 -1.71e-02  3.03e-03  7.77e-03  1.24e-02 -7.04e-03 -1.96e-02   1.52e-02
## 150 -2.33e-03  4.25e-03  2.50e-03  4.32e-03  9.79e-03 -9.55e-05   6.18e-03
## 151  4.79e-03 -2.33e-03  3.46e-03 -1.25e-03  6.62e-03  5.61e-03   5.17e-03
## 152  6.55e-04 -9.50e-04 -5.54e-04 -1.07e-03 -2.22e-03  1.06e-05  -1.50e-03
## 153 -1.17e-02  4.00e-03 -1.04e-02 -4.75e-04 -1.86e-02 -1.46e-02  -1.41e-02
## 154  1.79e-02 -7.02e-03  1.36e-03 -4.58e-03 -2.68e-03  1.45e-02  -8.79e-03
## 155 -3.74e-03  2.83e-03  2.25e-03  3.77e-03  1.64e-03 -3.26e-03   3.38e-03
## 156  1.14e-02 -4.87e-03  6.39e-04 -2.27e-03 -2.24e-03  1.01e-02  -5.84e-03
## 157 -2.35e-02  2.37e-02  3.64e-03  1.86e-02  1.39e-03 -2.87e-02   2.28e-03
## 158  1.15e-03 -7.94e-04 -3.46e-04 -1.01e-03 -2.31e-04  9.58e-04  -6.50e-04
## 159  3.69e-03 -2.02e-05  9.24e-03  3.81e-03  8.97e-04  6.48e-04   5.41e-03
## 160  2.82e-04  5.34e-04  1.70e-03  9.54e-04  1.56e-03 -5.72e-06   1.70e-03
## 161  2.26e-04  9.91e-04  7.26e-03 -3.25e-03  1.96e-02 -1.60e-04   1.75e-02
## 162 -8.37e-02  7.07e-02  8.67e-02  1.66e-01 -5.24e-02 -7.39e-02   4.13e-02
## 163 -1.72e-02  8.86e-03  9.49e-03  2.18e-02 -2.07e-02  4.36e-03  -9.60e-03
## 164 -2.23e-02  1.28e-02  1.37e-02  2.94e-02 -2.91e-02  5.98e-03  -1.50e-02
## 165 -1.31e-02  4.76e-03  1.21e-02 -8.82e-04  1.86e-02 -1.55e-02   2.87e-02
## 166  1.71e-02 -2.12e-02  3.39e-03 -4.84e-02  1.71e-04  1.75e-02  -2.05e-03
## 167  0.00e+00  0.00e+00  0.00e+00  0.00e+00  0.00e+00  0.00e+00   0.00e+00
## 168 -3.03e-01  5.00e-03 -3.53e-03 -2.68e-03  1.57e-02  1.36e-02  -7.32e-04
## 169 -1.21e-01  1.93e-03 -1.45e-03 -8.05e-04  6.20e-03  5.46e-03  -3.12e-05
## 170 -1.24e-01  1.88e-03 -1.55e-03 -4.44e-04  6.26e-03  5.60e-03   3.39e-04
## 171 -1.43e-01  4.32e-03  2.75e-04  3.62e-03 -5.58e-04  5.13e-04  -1.79e-03
## 172  2.80e-02 -8.44e-04 -5.36e-05 -7.07e-04  1.09e-04 -1.00e-04   3.50e-04
## 173  7.14e-03 -2.08e-04 -8.74e-06 -2.07e-04  3.10e-05 -2.88e-05   6.21e-05
## 174  2.46e-01  1.56e-02 -3.48e-02  2.74e-02 -4.84e-02 -8.67e-03  -2.78e-02
## 175  6.75e-02 -6.85e-05  2.98e-03  2.05e-03  3.73e-03  2.05e-03   1.83e-03
## 176  1.47e-01 -1.49e-04  6.49e-03  4.46e-03  8.13e-03  4.47e-03   3.99e-03
## 177 -2.19e-01 -2.87e-02  7.47e-03  5.31e-03 -9.97e-03  3.79e-04   1.80e-03
## 178  1.87e-01 -4.76e-03  4.46e-03 -7.50e-03  1.47e-02  1.00e-02   2.56e-03
## 179  2.88e-01 -7.32e-03  6.85e-03 -1.15e-02  2.26e-02  1.54e-02   3.93e-03
## 180  6.03e-04 -1.42e-01 -5.31e-03 -1.01e-02  2.90e-03  6.60e-03  -6.45e-04
## 181 -6.12e-03 -1.98e-01 -1.98e-02 -3.41e-02 -5.50e-03 -3.69e-03  -3.05e-04
## 182  3.11e-03 -1.36e-01  7.86e-03  1.51e-02  5.42e-03  3.30e-03   3.20e-03
## 183 -1.00e-03  1.36e-01 -1.15e-04  1.47e-03 -1.80e-04  9.61e-04  -6.20e-03
## 184  7.10e-04 -1.09e-01 -3.12e-03 -3.42e-04  3.93e-03  4.50e-04  -7.73e-04
## 185 -1.63e-02  2.34e-01 -5.52e-03  2.75e-02  5.85e-03 -9.80e-03   1.07e-02
## 186 -2.13e-03 -3.90e-02  2.55e-03  7.78e-03 -5.62e-04 -2.05e-03   1.52e-04
```

```
## 187  1.11e-02  2.68e-01 -6.97e-03 -3.05e-02  7.11e-03  1.32e-02   2.41e-03
## 188 -7.13e-03  9.11e-03 -4.43e-01  1.35e-02 -7.32e-03 -1.00e-02   6.11e-03
## 189 -7.13e-03  9.11e-03  4.47e-01  1.35e-02 -7.32e-03 -1.00e-02   6.11e-03
## 190  2.76e-04 -1.81e-05  3.82e-05 -4.81e-03  2.35e-04  4.15e-04   1.52e-04
## 191 -8.44e-04  3.60e-03 -1.46e-03 -6.48e-02  1.42e-03  7.64e-04  -2.99e-04
## 192 -2.04e-02  2.35e-02 -1.13e-02 -1.45e-01 -3.88e-03 -1.77e-02  -9.99e-03
## 193 -5.75e-03 -1.62e-02 -4.52e-03  3.05e-01  7.65e-04 -4.02e-03   3.28e-03
## 194 -2.66e-03 -7.51e-03 -2.09e-03  1.41e-01  3.54e-04 -1.86e-03   1.52e-03
## 195  4.33e-03 -6.60e-03  1.56e-03  4.09e-02  2.18e-03  5.01e-03   3.19e-03
## 196 -2.67e-03  7.49e-03 -5.48e-03  6.68e-02 -1.77e-04 -3.74e-03  -3.01e-03
## 197 -3.08e-03  5.78e-03 -4.47e-03  5.37e-02 -2.26e-04 -2.87e-03  -1.70e-03
## 198 -7.06e-03 -8.11e-04  2.82e-03 -8.75e-02 -4.29e-03 -7.30e-03  -2.36e-03
## 199 -6.03e-03 -6.18e-04  3.27e-03 -9.61e-02 -4.51e-03 -8.07e-03  -3.72e-03
## 200  1.30e-02 -1.55e-02 -6.04e-03 -1.42e-01  5.94e-03  1.10e-02   7.80e-03
## 201  5.87e-03 -8.61e-03 -6.14e-03 -1.05e-01  2.96e-03  4.33e-03   4.11e-03
## 202 -4.18e-03  7.56e-03 -4.40e-03  6.63e-03  2.68e-01 -2.75e-03   8.46e-03
## 203  1.04e-02 -1.48e-03  5.10e-03  3.04e-03 -8.97e-01  4.89e-03   1.79e-02
## 204  1.80e-02 -1.99e-02  1.47e-02 -1.43e-02  6.38e-01  1.04e-02  -8.07e-03
## 206 -3.73e-05  3.68e-03  3.82e-03  4.39e-03  5.03e-03  9.31e-02   1.62e-03
## 207  6.41e-03  2.88e-03  1.24e-02  7.52e-03  1.53e-02  2.37e-01   8.43e-03
## 208  1.82e-03  5.64e-05 -1.82e-03  1.04e-05  1.78e-03 -8.52e-02  -6.85e-04
## 209  5.80e-03  3.00e-04 -4.77e-03 -6.32e-04  4.88e-03 -2.29e-01  -2.50e-03
## 210 -9.12e-04 -2.46e-03 -3.11e-04  1.61e-04 -9.24e-04  2.85e-02   3.92e-04
## 211 -2.41e-02  4.50e-03  5.61e-03  2.68e-02 -6.57e-03 -2.99e-01   1.04e-02
## 212  1.41e-03  2.59e-03 -5.91e-03  2.10e-03 -6.51e-03  5.18e-02  -5.06e-03
## 213  2.00e-03  1.92e-04 -1.73e-04  1.25e-03 -1.76e-03 -9.65e-02  -1.58e-03
## 214 -1.51e-03 -1.37e-04  1.62e-04 -1.14e-03  1.48e-03  8.01e-02   1.21e-03
## 215 -4.00e-03 -3.49e-04  4.70e-04 -3.28e-03  4.09e-03  2.21e-01   3.22e-03
## 216  3.45e-04 -1.12e-03 -3.80e-04 -1.16e-03  1.69e-04  8.04e-04  -2.22e-01
## 217  1.56e-02 -1.52e-03  3.86e-03 -6.66e-03  1.08e-02  9.46e-03  -4.69e-01
## 218  2.42e-02 -5.75e-03  4.55e-03 -1.35e-02  1.66e-02  1.65e-02   6.95e-01
## 219  7.49e-03 -1.75e-02 -7.65e-03 -2.47e-02 -1.16e-02  3.06e-03  -1.44e-02
## 220 -7.68e-04 -4.13e-03  1.51e-03 -5.94e-03  2.69e-03 -8.83e-04   2.10e-03
## 221  5.37e-05 -9.12e-05  4.07e-05 -8.60e-05  5.00e-05  6.14e-05   5.51e-05
## 222 -3.30e-04  1.47e-03 -1.09e-03  1.64e-03 -1.38e-03 -2.81e-04  -1.67e-03
## 223 -3.86e-06  5.39e-03 -2.04e-03  6.19e-03  5.28e-04  8.09e-04  -1.90e-03
## 224  2.77e-04  9.84e-03 -3.68e-03  1.11e-02  9.85e-04  1.45e-03  -3.66e-03
## 225 -8.91e-05  2.24e-02  2.66e-04  1.27e-02  2.39e-03  7.95e-03  -3.56e-03
## 226  5.52e-03 -9.65e-03  1.89e-03 -1.25e-02  7.84e-03  6.08e-03   4.90e-03
## 227  2.82e-03  2.76e-02 -1.29e-02  2.40e-02 -1.62e-02 -5.31e-03  -3.04e-02
## 228 -4.66e-03  6.68e-03 -6.71e-03  9.42e-03 -8.08e-03 -1.52e-03  -7.01e-03
## 229  6.13e-04  1.21e-03  9.50e-04 -8.94e-04  1.48e-03  9.48e-04   1.05e-03
## 230  1.40e-03 -2.17e-02  6.69e-03 -3.01e-02  1.27e-02  3.11e-03   6.30e-04
## 231  1.05e-03  3.57e-03 -1.73e-03  3.47e-03  6.91e-04  1.01e-03  -1.39e-03
## 232 -1.99e-03 -6.81e-03  3.31e-03 -6.63e-03 -1.32e-03 -1.92e-03   2.65e-03
## 233  1.52e-03 -3.90e-03  1.96e-03 -3.25e-03  4.31e-04  1.67e-03   1.92e-03
## 234  6.07e-03 -1.55e-02  7.80e-03 -1.30e-02  1.72e-03  6.67e-03   7.67e-03
## 235 -1.73e-02 -3.77e-02  1.48e-02 -4.08e-02  2.52e-02 -7.11e-03   4.45e-02
## 236  1.76e-03  3.17e-04 -1.64e-05  2.00e-03 -3.72e-03  9.62e-04  -6.76e-04
## 237 -1.29e-03 -2.33e-04  1.21e-05 -1.47e-03  2.73e-03 -7.06e-04   4.96e-04
## 238 -4.59e-03 -1.80e-03 -5.28e-03 -1.06e-02  1.05e-02 -2.42e-03   4.50e-05
## 241 -3.46e-04  1.07e-04 -7.27e-05 -1.96e-04 -4.84e-04  2.40e-04  -5.91e-04
## 242 -2.16e-04  1.65e-03 -1.70e-04  7.11e-03  6.00e-04 -1.55e-04   7.20e-04
## 243  7.13e-04 -5.46e-03  5.59e-04 -2.35e-02 -1.98e-03  5.11e-04  -2.38e-03
```

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## 246 -1.08e-02  6.04e-03 -1.50e-02  2.79e-02 -3.02e-02 -1.06e-03  -2.62e-02
## 249 -2.36e-03 -1.36e-02 -1.85e-02 -3.33e-02 -3.66e-02 -7.95e-03  -2.84e-02
## 250  3.94e-02 -4.05e-03  1.18e-02 -3.45e-04  2.49e-02  4.11e-02   9.25e-03
## 251  8.44e-03  4.57e-03  5.98e-03  1.93e-04  5.83e-03  1.34e-02   3.45e-03
## 252  8.28e-03 -2.42e-03  2.87e-03 -4.06e-04  5.28e-03  9.70e-03   3.31e-03
## 253 -1.08e-02  1.28e-02  2.94e-03  1.69e-02 -2.07e-03 -7.75e-03  -5.26e-03
## 254 -9.96e-03  1.54e-02 -5.46e-03  1.08e-02 -1.46e-03 -1.07e-02  -7.78e-03
## 255  2.83e-03  6.85e-04  7.63e-04  1.31e-03  2.54e-03  3.68e-03   8.58e-04
## 257  2.37e-02  5.68e-03  6.29e-03  1.01e-02  2.07e-02  2.98e-02   6.47e-03
## 258  5.93e-03  1.42e-03  1.57e-03  2.53e-03  5.17e-03  7.46e-03   1.62e-03
## 259  9.02e-03 -1.81e-02  8.81e-03 -1.11e-02  2.85e-02  1.64e-02   1.78e-02
## 260  1.93e-02 -1.70e-02  8.84e-03 -1.13e-02  1.14e-02  2.12e-02   1.14e-02
## 261 -3.23e-03 -1.23e-05 -1.76e-03 -2.63e-03 -2.16e-03 -5.29e-03  -2.22e-03
## 262  8.67e-04 -2.51e-03  4.42e-04 -2.03e-03  2.39e-04  1.11e-03   1.17e-03
## 263 -4.76e-03 -5.91e-03 -4.81e-03 -7.59e-04 -1.07e-03 -9.33e-03  -1.71e-03
## 264 -1.08e-02  1.97e-03 -3.91e-03  6.17e-04 -6.33e-04 -9.15e-03  -1.02e-03
## 265  2.34e-03 -2.70e-03  3.25e-03  7.03e-03  4.59e-03  1.74e-03   3.99e-04
## 266  6.03e-04 -1.78e-03  3.58e-04 -1.38e-03  9.49e-04  1.01e-03   1.10e-03
## 267  3.74e-03  9.42e-03 -1.34e-02  4.57e-03 -1.27e-02 -1.08e-03  -1.80e-02
## 268  1.53e-03 -4.00e-02  3.77e-02 -4.73e-02  4.99e-02  4.04e-03   5.26e-02
## 269 -5.11e-03 -5.05e-03 -1.14e-02 -1.57e-02  1.61e-02 -1.01e-03   1.46e-03
## 270  7.22e-03  2.57e-02  1.63e-02  3.57e-02  4.97e-02  2.89e-02  -9.37e-04
## 271 -2.86e-03  2.92e-02  1.32e-03  4.39e-03  8.94e-03 -7.13e-04   1.75e-03
## 272 -3.19e-02  7.81e-03 -1.60e-02  1.44e-02 -2.08e-02 -3.82e-02  -2.12e-02
## 273 -3.96e-02  8.50e-03 -1.88e-02  1.87e-02 -2.42e-02 -4.36e-02  -2.23e-02
## 274 -2.54e-03  3.64e-03  5.56e-05  2.12e-03 -1.49e-03 -2.40e-03  -4.77e-04
## 275 -5.14e-03 -6.38e-03 -1.09e-02 -3.20e-03  1.19e-03 -9.14e-03  -1.01e-02
## 276 -1.43e-02  3.71e-02 -6.48e-03  4.99e-02 -1.18e-02 -1.95e-02   8.25e-03
## 277 -3.53e-03  9.18e-03 -1.60e-03  1.23e-02 -2.91e-03 -4.83e-03   2.04e-03
## 278 -1.05e-03  2.74e-03 -4.78e-04  3.68e-03 -8.68e-04 -1.44e-03   6.09e-04
## 279 -2.55e-02  3.40e-02 -1.10e-02  3.58e-02 -1.33e-02 -2.93e-02  -4.65e-03
## 280 -1.15e-02  2.98e-02  1.52e-03  3.27e-02 -1.14e-02 -3.15e-02   4.70e-03
## 281 -1.71e-03  1.74e-02 -2.57e-02  9.55e-03 -2.94e-02 -8.34e-03  -1.78e-02
## 282 -6.76e-03  3.91e-03 -4.15e-05  1.37e-02  6.50e-04 -9.17e-03   3.27e-03
## 283 -7.18e-03  1.10e-02  1.62e-03  1.22e-02  1.91e-03 -4.41e-03   3.38e-03
## 284 -2.90e-03  6.75e-03  3.26e-03  9.42e-03  3.44e-03  4.78e-04   5.66e-03
## 285  9.64e-04 -7.49e-04  2.81e-04 -6.63e-04  4.10e-04  9.55e-04   3.81e-04
## 286  9.64e-04 -7.49e-04  2.81e-04 -6.63e-04  4.10e-04  9.55e-04   3.81e-04
## 287  5.46e-03 -1.47e-02  1.21e-02 -9.97e-03  2.27e-02  2.28e-03   1.75e-02
## 288  4.89e-03 -1.86e-02 -7.21e-03 -2.69e-03 -1.50e-02  3.23e-03  -1.24e-02
## 289  1.97e-03 -9.04e-03 -3.54e-03 -1.01e-03 -7.27e-03  1.60e-03  -5.70e-03
## 290  1.13e-03 -1.71e-02 -1.81e-02 -8.66e-03 -2.69e-02  3.68e-03  -3.04e-02
## 292 -2.90e-03  2.61e-03 -7.24e-03 -2.50e-03 -5.81e-03 -2.29e-03  -5.88e-03
## 294 -4.48e-03 -8.88e-03 -1.24e-02 -1.57e-03 -1.89e-02 -9.55e-03  -1.87e-02
## 298  5.01e-03 -7.11e-03 -7.26e-03 -4.05e-03 -1.45e-02  1.63e-03  -1.98e-02
## 299  3.82e-03 -4.56e-04  5.94e-03 -1.67e-03  6.85e-03  3.88e-03   2.52e-03
## 300 -1.92e-02  1.73e-02 -1.87e-02  3.77e-02 -1.92e-03 -2.33e-02   6.48e-04
## 301  4.24e-03 -2.95e-03  3.43e-03 -7.30e-03  4.14e-04  4.08e-03  -6.96e-04
## 302 -7.31e-04  4.61e-04 -6.19e-05  2.61e-04  6.21e-04 -3.86e-04   2.94e-04
## 303  3.50e-04 -3.96e-04  4.17e-04 -3.41e-04  1.16e-03  7.72e-04   8.85e-04
## 305  5.25e-03 -1.45e-03  7.35e-03  1.96e-03  1.06e-02  7.92e-03   7.80e-03
## 306  1.04e-02 -2.83e-03  1.45e-02  3.82e-03  2.08e-02  1.56e-02   1.53e-02
## 307  3.98e-03 -1.11e-02  2.01e-03 -7.37e-03  1.76e-04  1.16e-03  -1.11e-03
## 308 -1.07e-02 -1.98e-02  2.37e-02 -2.17e-02  8.65e-03 -1.03e-02   1.58e-02
```

```
## 309 -2.75e-03  1.06e-02 -2.37e-02  1.24e-02 -2.75e-02 -3.81e-03  -1.57e-02
## 310  6.68e-03 -5.49e-03 -1.08e-03 -1.17e-02 -5.20e-03  9.08e-03  -6.30e-03
## 311 -6.79e-03  8.40e-03  1.94e-03  1.48e-02  7.77e-03 -1.34e-02   7.07e-03
## 312  2.66e-02 -1.32e-02  3.51e-04 -1.25e-02  4.97e-03  2.22e-02  -1.76e-03
## 313  3.47e-03 -1.86e-03  2.29e-05 -1.59e-03  6.70e-04  3.09e-03  -1.04e-04
## 314 -2.65e-03  1.03e-03  1.22e-03  8.57e-04  6.54e-07 -2.40e-03   1.20e-03
## 316 -1.87e-03  2.73e-03 -5.15e-03  1.75e-03 -6.00e-03 -2.82e-03  -4.08e-03
## 317  2.71e-03  1.40e-03  8.38e-03  7.35e-03  2.99e-03  6.14e-03   3.66e-03
## 318  3.27e-03 -5.22e-03 -6.01e-03 -1.06e-02 -8.91e-04 -8.69e-04  -1.79e-03
## 319 -1.21e-05  1.31e-04  2.84e-04  3.54e-04  7.61e-05  1.37e-04   1.07e-04
## 320  1.72e-03 -5.80e-03  4.29e-03 -7.87e-03  7.06e-03  1.17e-03   3.34e-03
## 322  1.61e-03  5.73e-03  8.15e-03  7.25e-03  8.53e-03  5.25e-03   8.46e-03
## 323 -1.34e-03 -6.03e-03 -6.70e-03 -9.21e-03 -1.04e-02 -5.64e-03  -6.99e-03
## 324  4.31e-04  1.86e-03  2.06e-03  2.82e-03  3.19e-03  1.73e-03   2.14e-03
## 326  5.23e-05  2.22e-05 -2.23e-04 -2.97e-04 -3.41e-04 -6.24e-04   6.25e-05
## 327  8.59e-03 -1.90e-02 -1.53e-02 -4.20e-02 -2.20e-03 -1.13e-04  -2.09e-02
## 328  6.35e-03 -7.17e-03 -2.56e-03 -5.02e-03 -3.52e-03  1.62e-03  -6.40e-03
## 329 -1.24e-03  1.39e-03  4.97e-04  9.76e-04  6.85e-04 -3.16e-04   1.24e-03
## 330  1.02e-05  8.12e-03 -6.81e-04  4.53e-03  3.18e-03  1.46e-03   1.31e-03
## 331 -5.24e-03  3.12e-02  2.42e-02  4.51e-02  1.90e-02  7.99e-03   3.14e-03
## 332 -5.71e-04 -2.71e-03 -2.56e-03 -8.40e-03  1.28e-03 -1.27e-03   1.16e-03
## 333  8.67e-02 -9.13e-02  5.40e-02 -5.64e-02  5.42e-02  1.11e-01   8.42e-02
## 334 -4.23e-04 -1.69e-03 -1.59e-03 -5.14e-03  7.81e-04 -7.79e-04   7.64e-04
## 335  2.90e-02 -1.50e-02  1.01e-02 -7.57e-04  1.05e-02  3.15e-02   6.26e-03
## 336  9.99e-03 -4.10e-03  3.26e-03  2.58e-03  3.60e-03  1.16e-02   1.24e-03
## 337 -4.14e-02 -1.26e-02  3.42e-02 -8.76e-02  7.42e-02 -9.54e-03   9.04e-02
## 338  2.56e-04 -1.41e-04  4.19e-05 -4.94e-05  1.76e-04  7.68e-05  -8.70e-06
## 339  4.20e-03  3.84e-03  1.65e-03 -3.59e-03 -2.61e-03 -1.91e-03  -5.30e-03
## 340  8.53e-04  3.17e-03  1.17e-03 -1.16e-03 -2.78e-03 -1.54e-03  -2.83e-03
## 341  2.90e-03 -1.60e-03  4.74e-04 -5.59e-04  1.99e-03  8.69e-04  -9.84e-05
## 342 -1.23e-03  6.31e-03  1.43e-03  1.08e-04 -1.25e-03  6.71e-04  -1.32e-03
## 343 -6.52e-04  3.95e-05 -5.76e-04 -7.33e-05 -1.22e-03 -1.73e-03  -9.78e-04
## 344  1.67e-03 -3.00e-03  1.05e-04 -1.84e-03 -1.55e-03 -2.35e-04  -1.84e-04
## 345  3.23e-03 -3.42e-03 -5.88e-03  1.17e-02 -1.53e-02 -3.87e-04  -1.84e-02
## 346 -1.75e-03 -2.75e-02 -6.50e-03  6.35e-03  1.61e-02 -2.55e-02   1.06e-02
## 347  8.57e-03 -6.07e-04  6.56e-03 -2.99e-03  9.67e-03  7.40e-03   6.17e-03
## 348  8.80e-04 -9.34e-04 -1.60e-03  3.19e-03 -4.17e-03 -1.06e-04  -5.03e-03
## 349  7.61e-04 -2.89e-03 -4.05e-03 -2.70e-03 -3.30e-03 -2.10e-05  -4.23e-03
## 350  2.83e-05 -3.01e-05 -5.17e-05  1.03e-04 -1.34e-04 -3.40e-06  -1.62e-04
## 351 -2.20e-04  8.34e-04  1.17e-03  7.80e-04  9.54e-04  6.05e-06   1.22e-03
## 352 -8.64e-03 -1.46e-04 -3.94e-02  5.69e-03 -7.14e-02  4.33e-04  -6.96e-02
## 353 -2.22e-04 -4.18e-03 -1.88e-03 -2.90e-04 -3.61e-04 -2.23e-03  -3.09e-05
## 354 -2.22e-04 -4.18e-03 -1.88e-03 -2.90e-04 -3.61e-04 -2.23e-03  -3.09e-05
## 356 -3.91e-04 -1.39e-03 -7.47e-05  6.46e-04 -7.54e-04 -1.04e-03   2.17e-05
## 357  6.78e-04 -5.25e-04 -1.39e-03 -2.16e-03  8.74e-04  3.57e-04  -3.09e-04
## 358  8.54e-03 -3.62e-02  5.74e-03 -4.77e-03 -7.38e-03 -6.71e-03  -4.34e-03
## 359 -1.61e-02 -1.46e-02 -4.56e-03  8.60e-03 -1.58e-02 -3.03e-02  -1.47e-02
## 360 -2.55e-03  1.80e-03 -1.17e-03 -6.08e-04 -1.13e-03 -3.20e-03  -3.27e-03
## 361  3.92e-03 -1.55e-03  1.34e-03 -4.02e-04  1.24e-03  3.04e-03   2.23e-03
## 362 -4.44e-05 -1.27e-04 -9.52e-05 -3.18e-05 -1.53e-05 -1.04e-04  -3.03e-05
## 363  5.97e-03 -3.79e-03  2.07e-03 -4.93e-03  1.87e-03  4.48e-03  -6.90e-05
## 364  1.13e-02 -6.87e-03  3.83e-03 -9.26e-03  3.44e-03  8.15e-03  -3.81e-04
## 365 -1.68e-03  2.66e-03 -1.33e-03 -2.03e-03 -1.35e-03 -4.41e-03  -5.54e-03
## 366 -2.36e-03 -6.77e-03 -2.34e-02 -1.54e-02 -1.35e-02 -3.72e-03  -2.14e-02
```

```
## 367 -5.04e-04 -1.45e-03 -5.00e-03 -3.30e-03 -2.88e-03 -7.95e-04  -4.56e-03
## 368  5.87e-03 -1.59e-02  7.25e-03 -6.07e-03  5.50e-04  2.86e-03  -3.34e-03
## 369 -4.58e-03  6.69e-03  3.74e-03  3.89e-03  6.59e-03 -4.31e-03   5.84e-03
## 370  1.08e-02 -1.38e-02 -7.66e-03 -9.01e-03 -1.37e-02  8.90e-03  -1.31e-02
## 371 -3.29e-04 -6.06e-03 -5.24e-03 -5.51e-03 -9.11e-03 -4.23e-04  -4.86e-03
## 372  2.12e-03 -1.64e-02 -2.82e-02 -2.24e-02 -4.13e-02  5.18e-03  -3.54e-02
## 373 -7.63e-03  1.28e-02 -6.90e-02 -1.74e-02 -3.10e-02 -7.95e-03  -2.66e-02
## 374 -3.07e-04 -6.87e-04  2.10e-03 -8.71e-04  1.70e-03 -3.12e-04   9.70e-04
## 375  5.44e-03  5.26e-04  8.45e-03  2.71e-03  1.47e-02  6.90e-03   9.77e-03
## 376  1.37e-02  1.37e-03  2.04e-02  6.08e-03  3.54e-02  1.66e-02   2.31e-02
## 377  2.64e-04 -3.27e-04 -2.35e-04 -3.71e-04 -5.35e-04  1.38e-04  -3.62e-04
## 378 -1.02e-03  2.47e-04 -1.41e-03 -1.12e-04 -2.26e-03 -1.24e-03  -1.72e-03
## 379  1.84e-03 -2.35e-03 -1.07e-03 -2.50e-03 -3.62e-03  8.40e-04  -2.02e-03
## 380 -9.16e-03  2.30e-03 -1.05e-02 -6.85e-04 -2.00e-02 -1.20e-02  -1.39e-02
## 381  4.26e-03 -1.01e-03  4.75e-03  2.02e-04  8.99e-03  5.36e-03   6.13e-03
## 382  6.31e-03 -1.23e-03  7.82e-03  7.39e-05  1.25e-02  6.69e-03   8.89e-03
## 383 -4.60e-03  9.60e-03 -9.93e-04  1.95e-03  3.13e-03 -1.20e-03   3.15e-03
## 384  1.21e-02 -1.90e-03  3.57e-04 -1.40e-04 -1.83e-03  9.08e-03  -6.92e-03
## 385  4.70e-03 -7.87e-04  1.24e-04  5.12e-05 -7.49e-04  3.66e-03  -2.67e-03
## 386  6.26e-03 -1.05e-03  1.65e-04  6.82e-05 -9.97e-04  4.87e-03  -3.55e-03
## 387  1.76e-02 -4.18e-03 -1.15e-02 -1.45e-02  1.24e-02  1.66e-02  -9.75e-03
## 388  2.64e-02 -5.69e-03 -1.62e-02 -2.16e-02  1.77e-02  2.35e-02  -1.49e-02
## 389  2.04e-02 -4.57e-03 -1.28e-02 -1.68e-02  1.39e-02  1.86e-02  -1.14e-02
## 390  4.88e-03 -8.69e-03 -1.35e-02 -1.19e-02 -1.34e-02  6.24e-03  -1.68e-02
## 391  4.06e-02 -2.10e-02 -1.08e-02 -2.77e-02 -1.22e-02  3.14e-02  -3.22e-02
## 392 -2.79e-03 -9.65e-04  4.08e-03  8.67e-03 -6.39e-04 -4.66e-03   3.06e-03
## 393 -2.05e-02 -1.70e-02 -7.26e-04 -7.87e-02 -4.33e-02 -1.84e-02  -2.53e-02
## 394 -1.57e-02  1.88e-02  1.23e-02  1.75e-02 -1.00e-03 -2.42e-02   2.81e-03
## 395 -3.39e-03 -1.56e-02 -3.08e-02 -1.86e-02 -4.85e-02 -1.15e-03  -4.14e-02
## 396 -1.12e-02  2.62e-03  1.59e-02  1.14e-02  8.63e-03 -8.10e-03   2.63e-02
## 397 -3.51e-03  9.86e-05 -2.54e-03 -5.35e-03 -1.48e-02  1.20e-02  -1.56e-02
## 398 -6.04e-04 -1.25e-05 -3.44e-04 -5.71e-04 -1.91e-03  1.54e-03  -1.88e-03
## 402  3.13e-03 -3.37e-03 -1.92e-03 -4.60e-03  1.77e-03  2.85e-03  -3.03e-04
## 403  2.07e-03 -2.25e-03 -1.13e-02 -1.04e-02  8.02e-04 -2.97e-03  -9.75e-03
## 405 -2.14e-03  1.19e-03 -3.87e-03  2.31e-04 -1.75e-03 -3.70e-03  -4.37e-03
## 406 -1.11e-02  9.66e-03 -1.26e-03  6.99e-03 -3.35e-03 -1.02e-02  -1.82e-03
## 407 -2.49e-03  3.64e-03  6.46e-03  8.84e-03 -2.68e-03 -1.52e-03   2.86e-03
## 408 -1.25e-02  2.24e-02  1.92e-02  3.19e-02 -1.30e-02 -1.71e-02  -2.88e-05
## 409  2.46e-03  4.73e-03  4.53e-03  2.00e-03 -1.76e-03  3.32e-03  -1.05e-03
## 410  3.08e-03 -1.04e-03  3.46e-03  3.00e-03 -3.18e-03  3.13e-04  -1.26e-03
## 411  3.32e-03  5.86e-05 -5.05e-03 -1.29e-02  8.98e-03  2.94e-03   3.99e-04
## 412  3.85e-03 -5.11e-03 -5.30e-04 -3.97e-03  2.45e-03  2.11e-03   1.38e-03
## 413  5.67e-03 -3.49e-03  4.82e-04 -6.22e-03  4.28e-03  5.46e-03   2.09e-03
## 416 -1.15e-02 -1.63e-04  2.82e-02  1.11e-02  3.06e-02 -9.47e-03   5.05e-02
## 417 -1.18e-03  1.20e-02  8.72e-03  1.67e-02  9.48e-03  2.05e-03   1.82e-02
## 418 -1.61e-02  3.05e-02  5.60e-03  3.08e-02  7.03e-03 -1.47e-02   1.60e-02
## 419  2.93e-03 -1.94e-03  1.07e-03 -1.26e-03  7.92e-04  2.35e-03  -1.40e-03
## 420 -1.12e-02  8.50e-03 -9.98e-03  1.62e-02  2.33e-03 -6.72e-03   1.68e-02
## 421 -2.08e-02  2.38e-02 -1.43e-02  2.01e-02 -5.20e-03 -2.62e-02   1.92e-04
## 422 -7.00e-03 -7.22e-03 -1.01e-02 -8.37e-03 -4.51e-03 -2.25e-03  -9.96e-03
## 423 -6.17e-04 -3.83e-03 -9.80e-04 -1.09e-02  1.17e-03  1.87e-03  -9.98e-03
## 424 -4.15e-03  8.74e-03 -3.97e-04  6.15e-03  4.15e-03 -3.75e-03   5.10e-03
## 425  3.44e-03  2.97e-03  3.06e-03  2.64e-03  7.95e-03  4.73e-03   1.02e-02
## 426  2.32e-03  7.37e-04  1.87e-03 -6.43e-04  6.92e-04  2.79e-03  -1.01e-03
```

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## 427 -8.92e-04  7.23e-03 -9.75e-04  1.81e-03  1.80e-04  1.03e-03   3.99e-03
## 428 -8.39e-03  3.02e-03  4.18e-02  1.61e-02  4.25e-02 -8.46e-03   4.85e-02
##     dfb.MdlLx dfb.MdlLnc dfb.MdlMz  dfb.MM.B dfb.MdlMr dfb.MdlMn dfb.MdlMt
## 1   -1.83e-01  -1.78e-01 -1.45e-01 -1.98e-01 -1.79e-01 -9.91e-02 -1.77e-01
## 2   -2.99e-01  -2.90e-01 -2.35e-01 -3.23e-01 -2.91e-01 -1.62e-01 -2.87e-01
## 3    5.55e-01   5.44e-01  4.74e-01  5.67e-01  5.49e-01  3.19e-01  5.28e-01
## 4   -1.36e+00  -1.27e+00 -1.18e+00 -1.50e+00 -1.24e+00 -6.33e-01 -1.25e+00
## 5    3.08e-01   2.78e-01  2.65e-01  3.35e-01  2.86e-01  2.14e-01  2.94e-01
## 6    4.35e-01   4.13e-01  3.43e-01  4.80e-01  4.11e-01  2.99e-01  4.08e-01
## 7    3.60e-01   3.33e-01  3.00e-01  3.91e-01  3.39e-01  2.14e-01  3.46e-01
## 8   -5.18e-03   1.94e-03  6.17e-03 -1.61e-02  1.14e-02  1.06e-02  3.13e-03
## 9   -2.28e-03  -1.37e-03 -3.24e-03 -3.68e-03 -9.57e-04  1.00e-02 -2.48e-03
## 10  -6.05e-03  -4.10e-03  1.22e-02 -9.76e-03  5.97e-03 -2.43e-02  3.38e-03
## 11   3.36e-03   1.69e-03  1.29e-03  4.27e-03 -6.82e-04  7.59e-04 -9.28e-04
## 12   5.06e-03   2.51e-03  2.53e-03  6.24e-03 -8.23e-04  7.18e-04 -1.51e-03
## 13  -2.26e-02  -1.28e-02  1.81e-03 -3.22e-02  7.01e-03 -1.01e-02  2.63e-03
## 14  -5.25e-03  -9.36e-03  3.27e-04  3.46e-04 -8.04e-03 -2.01e-02 -4.48e-03
## 15  -1.00e-03  -9.72e-04 -5.27e-04 -1.16e-03 -7.53e-04  2.22e-03 -3.63e-04
## 16  -1.09e-04   2.59e-04  1.30e-04 -4.10e-04  6.59e-04 -6.82e-04  3.03e-04
## 17   5.51e-03   3.80e-03  2.86e-03  6.17e-03  5.28e-03 -7.79e-03  3.39e-03
## 18   5.93e-04   6.39e-04  3.75e-04  5.79e-04  5.43e-04 -9.98e-04  3.17e-04
## 19   3.12e-03   1.95e-03 -6.12e-04  5.28e-03 -2.29e-04 -6.05e-03 -2.02e-04
## 20  -3.23e-03  -1.20e-02  8.92e-03 -5.72e-03 -7.96e-03  2.51e-02  3.98e-03
## 21  -6.04e-02  -3.44e-02 -3.07e-02 -6.66e-02 -1.06e-02 -1.61e-02 -5.55e-03
## 22   9.49e-03  -7.00e-03 -9.27e-03  2.40e-02 -1.40e-02  1.02e-04 -9.56e-03
## 23   3.99e-03  -3.78e-03 -7.66e-03  1.30e-02 -1.35e-02  3.02e-03 -9.28e-03
## 24   2.64e-02   1.60e-02 -7.37e-03  4.26e-02 -5.67e-04 -3.37e-02 -8.04e-03
## 25   1.78e-02   1.40e-02 -1.14e-02  2.75e-02  1.84e-03 -1.17e-02 -3.02e-03
## 26  -5.51e-03  -5.37e-03  2.03e-03 -7.33e-03 -3.59e-03  7.79e-03  3.68e-04
## 27   2.87e-03   3.04e-03  2.38e-03  2.64e-03  2.36e-03  1.04e-03 -5.63e-04
## 28  -1.73e-02  -1.48e-02 -2.20e-03 -2.16e-02 -3.36e-03 -1.18e-02  2.23e-03
## 29   1.15e-02   1.16e-02  7.95e-03  1.13e-02  7.41e-03  7.84e-03 -3.39e-03
## 30  -3.12e-03  -4.83e-03 -1.07e-03 -3.77e-03 -3.44e-03  2.29e-03  1.54e-04
## 31   1.66e-03   4.53e-03  5.82e-04  1.76e-03  1.73e-03 -1.03e-03 -1.05e-03
## 32  -3.66e-03  -2.44e-03 -3.64e-04 -5.47e-03  4.50e-04 -3.21e-03  3.15e-03
## 33  -2.18e-02  -1.44e-02  4.98e-03 -3.37e-02  5.53e-03 -1.71e-02  9.47e-03
## 34   1.91e-04   1.27e-04  1.90e-05  2.85e-04 -2.35e-05  1.68e-04 -1.64e-04
## 35   1.40e-02   2.30e-02  8.93e-03  1.30e-02  1.97e-02 -8.96e-03  3.60e-03
## 36  -6.04e-04  -2.87e-02 -1.37e-02  1.77e-02 -4.22e-02  1.68e-02 -1.72e-03
## 37   1.73e-03  -2.24e-02 -5.31e-03  1.38e-02 -3.16e-02  1.62e-02  5.38e-03
## 38   3.80e-07  -9.95e-05  2.00e-04 -8.10e-05 -3.05e-06  5.85e-05  2.16e-04
## 39  -2.48e-03  -9.13e-03  1.12e-02 -5.86e-03 -2.47e-03  7.56e-04  7.61e-03
## 40  -4.28e-03  -1.20e-02  9.74e-03 -7.44e-03 -6.28e-03  9.03e-03  4.54e-03
## 41   7.95e-03  -1.11e-02  4.84e-03  3.24e-02 -1.97e-02 -3.96e-02  2.87e-02
## 42  -1.05e-02  -2.68e-02  2.26e-02  7.39e-03 -1.29e-02 -7.45e-02  3.84e-02
## 43  -4.96e-04  -4.93e-04  2.65e-04 -1.04e-03  7.46e-06 -1.94e-04  3.53e-04
## 44  -1.38e-02  -2.40e-02 -1.93e-02 -1.75e-02 -2.71e-02  5.17e-03  2.19e-03
## 45  -3.89e-03  -3.14e-03  1.01e-02 -7.95e-03  2.46e-03  3.85e-03  7.24e-03
## 46   2.79e-03   3.24e-03 -4.56e-03  3.98e-03  7.24e-04 -2.75e-03 -3.16e-03
## 47  -5.81e-03  -3.10e-03  3.39e-03 -9.10e-03  3.18e-03  6.09e-03 -9.61e-04
## 48  -4.00e-03  -7.40e-04 -1.86e-03 -4.70e-03  1.98e-03 -2.36e-04 -1.64e-03
## 49   5.90e-03   8.11e-04  3.59e-03  6.59e-03 -2.84e-03 -3.61e-04  2.72e-03
## 50   5.50e-03  -8.74e-03  2.69e-03  1.00e-02 -1.70e-02  1.74e-02 -3.81e-03
## 51   4.89e-03  -4.77e-03  1.49e-02  5.51e-04 -4.83e-03  1.44e-02  3.51e-03
```

```
## 52   1.15e-02   3.11e-03  4.30e-03  1.48e-02 -5.72e-03 -2.80e-03  2.10e-03
## 53  -3.20e-03  -5.68e-03 -5.93e-03  1.25e-03 -7.36e-03  3.93e-03 -5.68e-03
## 54  -3.29e-03  -3.41e-03 -1.53e-03 -2.21e-03 -1.91e-03  3.82e-03 -2.66e-03
## 55   2.49e-03   4.92e-04  5.16e-03 -6.89e-04  7.27e-04  3.67e-03  4.00e-03
## 56   1.02e-01   7.94e-02  3.93e-02  1.40e-01  1.95e-02  6.40e-03 -2.69e-02
## 57   3.44e-03   1.57e-03  1.36e-03  4.57e-03 -1.54e-03  3.74e-03 -4.46e-04
## 58   6.95e-03   4.44e-03  5.04e-03  7.39e-03 -1.89e-04  6.76e-03  8.24e-04
## 60  -4.93e-03   5.72e-03 -1.76e-02 -1.76e-02 -1.27e-03  3.79e-02 -1.04e-04
## 61   2.07e-02   1.09e-02  1.38e-02  2.61e-02  1.74e-03 -1.11e-02  9.05e-03
## 62  -1.22e-03  -5.43e-03  3.72e-03 -3.64e-03 -1.91e-03 -6.56e-03  4.85e-03
## 63  -4.30e-02  -1.34e-02 -4.88e-02 -7.64e-02  1.46e-02  1.25e-03 -1.50e-02
## 64   7.15e-03   5.33e-03  6.99e-03  9.59e-03  6.24e-04  1.78e-02 -6.23e-03
## 66  -6.27e-04  -2.90e-02  1.82e-02  2.12e-04 -2.72e-02  5.03e-02 -2.57e-03
## 67  -2.46e-03  -1.43e-02 -2.20e-03  6.47e-04 -2.07e-02  4.20e-02 -1.07e-02
## 68  -1.07e-02  -9.97e-03  1.17e-02 -1.95e-02  5.47e-03 -5.33e-03  3.91e-03
## 69  -2.26e-03  -8.42e-03  1.31e-02 -5.81e-03  2.38e-03 -1.09e-02  8.33e-03
## 70  -1.02e-03  -9.45e-04  1.11e-03 -1.85e-03  5.19e-04 -5.05e-04  3.71e-04
## 72  -4.52e-03  -5.92e-03 -2.70e-03 -1.46e-02  3.11e-03  8.90e-03  5.22e-03
## 73  -1.27e-02  -1.65e-02 -7.43e-03 -4.08e-02  8.71e-03  2.46e-02  1.45e-02
## 74  -2.19e-03   2.91e-03 -1.60e-03 -4.64e-03  5.53e-03 -5.50e-03  1.49e-03
## 75   3.32e-03  -2.48e-03  3.43e-03  5.39e-03 -5.21e-03  6.99e-03 -6.65e-04
## 76   2.54e-03  -6.13e-04  5.76e-03  1.87e-03 -6.47e-04  4.55e-03  1.48e-03
## 77   1.05e-04   1.94e-04  2.67e-05 -2.95e-05  2.91e-04 -2.55e-06  3.38e-04
## 78   4.31e-04  -2.88e-03 -8.24e-03  5.49e-03 -7.21e-03  2.10e-03 -2.55e-03
## 79  -4.86e-04   1.61e-03  5.17e-03 -3.71e-03  4.51e-03 -1.52e-03  1.56e-03
## 80   3.43e-03  -2.37e-03 -3.88e-03  7.75e-03 -7.48e-04 -1.12e-03  1.11e-03
## 81  -4.39e-04   2.28e-04 -1.81e-04 -8.08e-04  6.49e-04 -5.50e-04  8.55e-05
## 82   2.82e-03  -1.14e-03  2.78e-03  4.27e-03 -2.90e-03  3.18e-03  2.89e-04
## 86  -1.25e-05  -9.32e-04  2.17e-04  5.50e-04 -1.20e-03  1.91e-03 -7.18e-04
## 87  -3.65e-03  -6.83e-03  6.25e-03 -2.86e-03  9.73e-04 -3.22e-03  2.86e-03
## 88  -1.11e-02   3.78e-02 -4.67e-02  4.88e-04  3.29e-02 -2.80e-02 -2.08e-02
## 89   1.65e-03   2.53e-03 -7.02e-03 -3.82e-04 -2.72e-03  1.88e-03  1.52e-03
## 90  -1.39e-02   1.33e-02 -4.36e-02 -2.29e-02 -1.22e-03 -8.31e-04 -9.83e-03
## 91  -3.38e-03   2.00e-02  1.64e-02 -2.00e-02  3.95e-02 -3.72e-02  1.43e-02
## 92  -4.27e-04  -1.49e-04 -3.74e-04 -5.27e-04 -2.59e-05 -1.19e-04 -2.03e-04
## 93   1.17e-02   4.22e-03  1.26e-02  1.35e-02  2.22e-03  2.25e-03  6.57e-03
## 94  -1.61e-02   6.67e-03  3.69e-03 -3.28e-02  2.87e-02 -4.49e-02  1.18e-02
## 95  -1.41e-02   2.25e-03 -2.50e-03 -2.39e-02  1.73e-02 -3.65e-02  5.78e-03
## 96  -3.42e-02  -1.42e-02 -3.04e-02 -5.22e-02  1.76e-02 -3.60e-02 -3.97e-03
## 97   9.97e-02   1.52e-01 -5.62e-02  1.26e-01  7.27e-02  7.69e-02 -6.92e-02
## 98   5.95e-03  -1.44e-02 -6.32e-03  1.54e-02 -2.94e-02  4.00e-02 -6.63e-03
## 99  -6.42e-03   1.52e-02  6.78e-03 -1.65e-02  3.12e-02 -4.25e-02  7.04e-03
## 100 -8.35e-03  -1.13e-03  6.67e-03 -1.97e-02  1.08e-02 -9.58e-03  7.91e-03
## 101 -2.64e-02  -5.57e-03 -1.48e-02 -3.71e-02 -4.46e-04  4.16e-02 -2.62e-02
## 102 -1.10e-02   1.90e-03 -1.02e-04 -1.91e-02  4.84e-03  3.65e-02 -1.60e-02
## 103 -9.72e-03  -7.51e-03 -2.40e-03 -1.35e-02 -1.17e-03 -7.77e-03  1.88e-05
## 104  2.39e-02   2.89e-03 -2.56e-02  4.43e-02 -3.01e-02 -1.08e-02  3.52e-03
## 105 -1.41e-03  -4.15e-05  1.96e-03 -2.97e-03  2.22e-03 -2.21e-05  2.31e-04
## 106  0.00e+00   0.00e+00  0.00e+00  0.00e+00  0.00e+00  0.00e+00  0.00e+00
## 107  9.89e-03   3.64e-03 -7.59e-03  1.70e-02 -5.80e-03 -2.28e-02  6.21e-03
## 110  9.68e-03   8.08e-03  1.65e-04  1.07e-02  1.18e-03 -6.79e-03  4.77e-03
## 111 -1.01e-02  -9.04e-03 -2.29e-02 -1.38e-02 -1.13e-02  4.99e-03  6.40e-03
## 112 -7.51e-04  -3.39e-05 -7.92e-04 -8.95e-04  2.67e-04 -8.40e-04 -2.52e-04
## 113 -6.94e-03   1.86e-03 -5.77e-03 -1.03e-02  6.14e-03 -8.84e-03 -4.03e-04
```

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## 114  3.48e-03  -2.02e-02  2.94e-03  1.28e-02 -2.57e-02  1.86e-02 -1.10e-03
## 115  1.28e-03  -5.00e-03  4.62e-04  3.95e-03 -6.88e-03  5.22e-03 -3.01e-04
## 117  6.46e-05   3.82e-05  2.29e-03 -1.26e-04 -1.05e-04  2.84e-03 -2.63e-03
## 118  4.24e-06   2.49e-06 -1.65e-04  2.33e-05  1.93e-06 -1.87e-04  1.82e-04
## 120  4.24e-02   1.06e-01 -6.32e-03  3.85e-02  8.05e-02 -4.85e-02 -2.26e-02
## 121  1.87e-02   4.68e-02 -2.79e-03  1.70e-02  3.55e-02 -2.14e-02 -9.96e-03
## 122  5.24e-03   1.33e-02 -1.40e-03  5.17e-03  9.72e-03 -6.38e-03 -3.49e-03
## 123 -8.73e-03   2.61e-02 -3.23e-02 -2.94e-03  2.74e-02  8.10e-03 -7.56e-03
## 125  2.52e-03  -7.35e-03  7.38e-03  1.01e-02 -7.21e-03  1.03e-03 -4.25e-03
## 126 -2.69e-02  -9.25e-03 -9.83e-03 -3.06e-02  6.65e-03  2.04e-02 -1.67e-02
## 129 -2.42e-03  -7.01e-03 -5.87e-04 -1.81e-03 -7.33e-03  1.13e-02 -2.27e-03
## 130  4.91e-03   1.36e-02  2.52e-03  2.75e-03  1.46e-02 -1.93e-02  5.32e-03
## 131  1.34e-02   4.57e-02  2.06e-02 -3.25e-03  5.88e-02 -6.22e-02  2.44e-02
## 132  1.94e-03   2.50e-02 -8.67e-03 -9.81e-04  5.17e-03  3.37e-03 -8.50e-03
## 133 -1.04e-02  -2.91e-02 -5.54e-03 -5.64e-03 -3.16e-02  4.16e-02 -1.15e-02
## 134  3.05e-03   1.03e-02  2.70e-03  7.26e-04  1.23e-02 -1.64e-02  4.30e-03
## 135  3.35e-03   2.05e-03 -5.52e-03  5.17e-03 -4.72e-03 -1.65e-04 -8.35e-04
## 136  6.50e-02   9.20e-02  1.02e-01  6.71e-02  8.15e-02 -8.81e-02  7.17e-02
## 137  1.13e-02   1.26e-02  1.31e-02  1.89e-02  5.71e-03 -1.89e-02  7.73e-03
## 139  7.09e-03   1.11e-03  1.90e-03  1.17e-02 -4.85e-03  4.24e-03 -1.02e-03
## 140  7.71e-03   3.21e-03  2.97e-03  1.38e-02 -1.51e-02  1.18e-02 -6.52e-03
## 141  1.01e-02   4.58e-03  5.67e-03  1.32e-02 -1.29e-03  5.32e-03  1.91e-03
## 142  1.03e-02   1.51e-02  7.80e-03  4.56e-03  1.39e-02  6.36e-03 -9.44e-03
## 144 -2.27e-03  -2.55e-03 -1.05e-03 -3.32e-03 -6.61e-04 -3.53e-03  2.47e-03
## 145 -9.19e-03  -1.18e-02 -3.62e-02 -1.04e-02 -1.52e-02 -5.63e-02  2.99e-02
## 149  7.28e-03   6.95e-03 -2.25e-02  1.31e-02 -8.04e-03 -2.27e-02  8.18e-03
## 150  6.14e-03  -2.87e-03  6.24e-03  9.56e-03 -7.44e-03  7.56e-03 -6.40e-04
## 151  2.64e-03   1.61e-03  8.91e-03 -5.07e-04  3.83e-03  1.37e-03  3.85e-03
## 152 -1.65e-03   5.10e-04 -1.23e-03 -2.59e-03  1.85e-03 -1.99e-03  1.56e-04
## 153 -1.01e-02  -2.63e-03 -2.44e-02 -4.64e-03 -6.37e-03 -3.10e-03 -1.10e-02
## 154 -4.55e-03  -1.05e-02  1.12e-02 -8.50e-03  2.27e-03 -8.82e-03  9.14e-03
## 155  2.42e-03   3.11e-03  5.92e-04  3.05e-03  1.29e-03 -3.14e-03  1.31e-04
## 156 -1.19e-03  -6.66e-03  5.92e-03 -2.22e-03 -3.04e-04 -3.93e-03  6.17e-03
## 157 -3.63e-03  -3.44e-03 -3.18e-03  2.20e-03 -5.62e-03 -2.18e-02 -9.93e-03
## 158 -6.73e-04  -6.01e-04  2.98e-04 -1.14e-03  1.82e-04  3.86e-04  1.84e-04
## 159 -6.54e-04   9.12e-03  1.15e-02 -9.16e-03  1.91e-02 -2.43e-02  8.96e-03
## 160  8.40e-04   4.48e-04  1.65e-03  2.79e-04  7.60e-04 -2.11e-03  1.14e-03
## 161  4.87e-03   1.68e-03  7.10e-03 -3.03e-04 -2.37e-03  9.39e-03  3.51e-04
## 162  9.50e-02   1.08e-01 -1.96e-02  1.40e-01  6.38e-02 -2.37e-01  6.68e-02
## 163  9.12e-03   1.29e-02  1.02e-02  2.15e-02  2.44e-02 -3.50e-02  6.29e-03
## 164  8.98e-03   1.60e-02  1.74e-02  2.38e-02  3.69e-02 -5.37e-02  9.05e-03
## 165  5.71e-03   1.78e-02 -7.10e-03 -3.37e-03  6.79e-03 -1.71e-03 -2.32e-03
## 166 -3.11e-02  -1.73e-02 -1.66e-02 -5.43e-02  8.89e-03  2.24e-03 -4.88e-03
## 167  0.00e+00   0.00e+00  0.00e+00  0.00e+00  0.00e+00  0.00e+00  0.00e+00
## 168  1.80e-03  -1.85e-02  2.01e-02  2.99e-03 -1.39e-02  2.00e-02 -4.25e-03
## 169  1.44e-03  -6.92e-03  7.45e-03  2.40e-03 -5.98e-03  8.73e-03 -1.72e-03
## 170  2.50e-03  -6.43e-03  6.77e-03  4.17e-03 -6.72e-03  1.00e-02 -1.79e-03
## 171  2.77e-04  -1.98e-03  3.82e-03  6.51e-04  6.65e-04 -5.65e-03 -3.63e-04
## 172 -5.41e-05   3.86e-04 -7.46e-04 -1.27e-04 -1.30e-04  1.10e-03  7.08e-05
## 173 -8.82e-05   5.41e-05 -1.31e-04 -1.57e-04  1.30e-05  1.99e-04  2.11e-05
## 174  2.13e-03  -7.94e-03 -1.32e-02  2.71e-02 -1.42e-02 -9.88e-03 -7.85e-03
## 175  2.46e-03  -2.53e-03  4.77e-03  3.38e-03 -2.38e-03 -9.18e-04  3.27e-03
## 176  5.36e-03  -5.51e-03  1.04e-02  7.37e-03 -5.18e-03 -2.00e-03  7.13e-03
## 177 -6.82e-03  -1.52e-02  1.85e-02 -4.47e-03 -3.53e-03 -2.91e-02  4.11e-02
```

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## 178 -5.33e-03  -1.38e-02  2.07e-02 -1.20e-02 -2.11e-03  3.55e-03  5.95e-03
## 179 -8.19e-03  -2.13e-02  3.18e-02 -1.85e-02 -3.24e-03  5.45e-03  9.13e-03
## 180  2.76e-03   1.15e-02 -3.96e-03 -4.54e-04  1.19e-02  2.09e-02 -8.33e-03
## 181 -2.50e-02  -2.43e-02 -2.31e-02 -2.85e-02 -1.50e-02  3.08e-02 -1.14e-02
## 182  1.34e-02   1.00e-02  1.26e-02  1.54e-02  5.76e-03 -9.30e-03  4.57e-03
## 183  4.01e-03   1.34e-02 -1.64e-03  3.08e-03  1.19e-02  4.48e-03 -6.90e-03
## 184  1.93e-03   4.37e-03  1.71e-03  1.46e-03  3.85e-05  1.17e-02 -6.45e-03
## 185  3.01e-02   2.75e-02 -2.32e-03  4.37e-02  1.29e-03  1.72e-02 -1.64e-02
## 186  4.99e-03   3.50e-03  9.55e-04  7.77e-03  3.79e-04 -5.91e-03  8.57e-04
## 187 -1.73e-02  -2.64e-02  1.12e-03 -2.43e-02 -1.25e-02  2.47e-02  3.08e-03
## 188  4.45e-03   1.13e-02 -1.38e-03  4.75e-03  9.76e-03 -2.22e-02  2.12e-03
## 189  4.45e-03   1.13e-02 -1.38e-03  4.75e-03  9.76e-03 -2.22e-02  2.12e-03
## 190  3.14e-04   5.96e-04  1.16e-04  1.13e-04  4.88e-04  4.68e-04 -1.70e-04
## 191  3.58e-03   5.20e-03 -3.00e-03  4.30e-03  1.04e-03  7.35e-03 -6.01e-03
## 192  5.77e-03   4.55e-04 -2.54e-02  2.14e-02 -2.02e-02  2.11e-02 -2.84e-02
## 193 -6.58e-03  -3.25e-02 -9.46e-04  5.39e-03 -3.66e-02  1.34e-02  1.47e-02
## 194 -3.04e-03  -1.50e-02 -4.38e-04  2.49e-03 -1.69e-02  6.22e-03  6.82e-03
## 195  5.26e-05  -1.13e-03  4.92e-03 -2.07e-03  1.12e-03  1.14e-03  6.12e-03
## 196 -4.20e-03  -2.45e-03 -7.84e-03 -4.50e-03 -3.47e-03  7.71e-03 -1.28e-02
## 197 -1.40e-03  -8.08e-04 -7.71e-03 -3.49e-04 -3.94e-03  8.20e-03 -1.02e-02
## 198  2.23e-03  -5.27e-03  7.52e-04  1.03e-02 -8.46e-03 -1.05e-02  9.00e-03
## 199 -8.10e-04  -7.62e-03  3.33e-03  5.74e-03 -7.19e-03 -1.49e-02  9.90e-03
## 200 -1.72e-02  -1.99e-02  2.84e-03 -2.88e-02 -6.45e-03  1.45e-02  1.80e-03
## 201 -1.31e-02  -1.71e-02 -1.87e-03 -1.88e-02 -9.69e-03  1.20e-02 -1.52e-03
## 202  8.24e-03  -1.28e-03  2.02e-03  1.39e-02 -1.07e-02  1.25e-02 -4.55e-03
## 203  2.67e-03   2.25e-02  1.92e-02 -1.42e-02  3.45e-02 -2.66e-02  1.18e-02
## 204 -1.86e-02   1.95e-02  8.94e-03 -4.50e-02  5.18e-02 -5.06e-02  1.99e-02
## 206  4.07e-03  -4.27e-03  5.32e-03  7.07e-03 -4.57e-03 -1.01e-03  2.13e-03
## 207  1.30e-02  -4.55e-03  1.90e-02  1.61e-02 -3.24e-03 -1.84e-03  1.09e-02
## 208  3.89e-05  -4.22e-03  1.95e-03  1.24e-03 -5.14e-03  4.61e-03 -9.89e-04
## 209 -1.72e-03  -1.24e-02  6.66e-03  2.85e-04 -1.27e-02  1.04e-02 -2.59e-03
## 210 -4.73e-04   2.20e-03 -1.52e-03 -9.59e-04  1.17e-04  4.97e-05 -6.33e-04
## 211  3.48e-02   2.63e-02  1.73e-03  5.85e-02  4.13e-03  8.62e-03  2.91e-03
## 212 -1.85e-03  -2.84e-03  1.29e-03 -2.82e-05 -8.89e-05 -1.53e-03 -1.62e-03
## 213 -2.09e-03  -1.22e-03  2.14e-03 -3.37e-03  1.41e-03 -5.86e-03  1.03e-03
## 214  1.46e-03   8.46e-04 -1.56e-03  2.32e-03 -9.95e-04  4.56e-03 -8.42e-04
## 215  3.67e-03   2.13e-03 -4.03e-03  5.83e-03 -2.53e-03  1.22e-02 -2.31e-03
## 216  2.50e-04   9.95e-04 -4.60e-04 -1.34e-04  5.02e-04  2.02e-03 -8.79e-05
## 217 -9.61e-03  -1.32e-02  2.36e-02 -1.98e-02  5.30e-03 -7.26e-03  4.99e-03
## 218 -1.35e-02  -1.66e-02  3.35e-02 -2.99e-02  9.42e-03 -4.48e-03  7.13e-03
## 219 -1.34e-01  -2.08e-02 -9.14e-03 -3.49e-02 -3.61e-03 -1.31e-04  3.84e-04
## 220  7.34e-02  -8.71e-03 -1.77e-03 -5.75e-03 -6.41e-03  1.45e-03  2.60e-03
## 221  6.91e-04  -3.25e-05  4.16e-05 -7.76e-05  1.63e-05  1.02e-05  7.33e-05
## 222  1.24e-02   7.19e-04 -1.27e-04  1.74e-03  2.15e-04  9.30e-06 -9.88e-04
## 223 -6.02e-02   2.77e-03  2.30e-03  9.27e-03 -1.44e-03  4.21e-03 -3.71e-03
## 224 -1.10e-01   4.71e-03  4.62e-03  1.59e-02 -2.27e-03  7.05e-03 -6.73e-03
## 225 -1.16e-01   3.74e-03  6.48e-03  2.59e-02  3.47e-03  3.53e-03 -2.86e-03
## 226  8.15e-02  -9.53e-03  3.99e-03 -1.04e-02 -4.37e-03  8.54e-03  4.78e-03
## 227  1.68e-01  -5.34e-03  1.48e-02  5.69e-03  5.62e-03 -1.89e-02 -1.30e-02
## 228  6.94e-02   7.59e-03 -5.95e-03  1.67e-02 -1.46e-03  6.65e-03 -6.02e-03
## 229  1.99e-02   4.89e-04 -4.36e-04 -2.63e-04  6.43e-04  3.54e-04 -1.19e-03
## 230 -1.93e-02  -1.56e-01 -1.07e-02 -2.42e-02 -2.19e-02  1.82e-02  4.22e-03
## 231  2.49e-03  -7.58e-02  3.48e-03  4.25e-03 -1.03e-03  2.17e-03 -1.81e-03
## 232 -4.75e-03   1.45e-01 -6.64e-03 -8.12e-03  1.97e-03 -4.15e-03  3.46e-03
```

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## 233 -1.19e-03   4.73e-02  3.19e-05 -3.89e-03  3.28e-03 -1.74e-03  2.74e-03
## 234 -4.74e-03   1.89e-01  1.27e-04 -1.55e-02  1.31e-02 -6.92e-03  1.09e-02
## 235 -8.81e-03  -3.49e-01 -3.45e-02 -1.37e-02 -3.75e-02  3.41e-02  1.52e-02
## 236  8.82e-04  -6.15e-02  1.79e-03 -1.61e-03  9.54e-03 -6.61e-03  1.13e-03
## 237 -6.48e-04   4.52e-02 -1.32e-03  1.18e-03 -7.01e-03  4.85e-03 -8.33e-04
## 238 -5.35e-03   1.33e-01 -7.17e-03  6.39e-04 -2.77e-02  2.91e-02 -8.54e-03
## 241 -2.91e-04  -6.20e-04 -1.60e-02  9.45e-05 -2.55e-04 -3.10e-06 -3.26e-04
## 242  5.99e-03   3.24e-03 -8.72e-02  9.10e-03 -6.62e-04  4.79e-04  2.49e-03
## 243 -1.98e-02  -1.07e-02  2.88e-01 -3.00e-02  2.18e-03 -1.58e-03 -8.21e-03
## 246  1.63e-02   4.04e-03  3.39e-01  4.43e-02 -1.18e-02  2.87e-03  1.22e-04
## 249 -3.48e-02  -1.04e-02 -5.85e-01 -4.12e-02 -1.62e-03 -1.07e-03 -1.76e-02
## 250  2.19e-02   3.10e-02  4.65e-02 -2.00e-01  4.03e-02  8.24e-03  4.88e-03
## 251  9.03e-03   7.12e-03  1.07e-02 -3.11e-02  1.32e-02 -1.63e-03  5.58e-03
## 252  6.17e-03   8.04e-03  9.07e-03 -3.52e-02  8.66e-03  3.15e-03  2.26e-03
## 253  1.31e-02   1.47e-02 -5.51e-03  6.77e-02  2.64e-03 -2.16e-03 -5.50e-03
## 254  2.77e-03  -4.97e-03 -7.95e-03 -4.04e-02 -1.45e-02  6.14e-03 -1.42e-02
## 255  3.93e-03   3.76e-03  3.40e-03 -2.28e-02  2.41e-03  2.83e-03 -6.66e-04
## 257  3.05e-02   2.97e-02  2.87e-02 -1.88e-01  2.05e-02  2.14e-02 -5.35e-03
## 258  7.64e-03   7.43e-03  7.18e-03 -4.70e-02  5.12e-03  5.36e-03 -1.34e-03
## 259  5.66e-04  -5.62e-02  2.43e-02  2.63e-01 -5.16e-02  2.46e-02  2.96e-02
## 260  2.16e-03   2.41e-03  2.17e-02  2.90e-02  1.41e-02 -2.25e-04  1.81e-02
## 261 -7.32e-03  -8.70e-03 -3.09e-03  2.91e-02 -5.35e-03 -2.78e-03 -2.60e-04
## 262 -8.53e-04  -5.82e-04  4.63e-04  1.23e-02  5.37e-04  6.86e-05  2.08e-03
## 263 -7.48e-03  -1.04e-02 -4.90e-03  3.48e-02 -1.59e-02  5.33e-03 -3.73e-03
## 264 -2.87e-03  -1.74e-02 -1.02e-02  7.65e-02 -2.37e-02  8.97e-03 -1.66e-03
## 265  7.95e-03   1.19e-02  6.87e-03  3.91e-02  4.67e-03  2.88e-03 -1.76e-04
## 266 -3.36e-04  -1.87e-03  7.47e-04  1.37e-02 -1.38e-03  1.13e-03  1.74e-03
## 267 -6.27e-03   3.79e-03  5.27e-03  3.58e-02  1.17e-02 -2.30e-03 -1.04e-02
## 268 -1.65e-02  -3.41e-02 -6.18e-03 -1.93e-01 -3.00e-02  1.00e-02  2.58e-02
## 269 -8.86e-03  -4.43e-02 -3.19e-03  1.31e-01 -5.09e-02  4.72e-02 -5.29e-03
## 270  6.59e-02   3.85e-02  4.08e-02  2.86e-01  5.31e-04  6.59e-02 -1.00e-02
## 271  7.79e-03  -9.68e-04 -8.94e-03  1.17e-01 -5.34e-03  4.72e-03 -2.32e-02
## 272 -1.58e-02  -2.55e-02 -2.58e-02 -7.34e-02 -3.80e-02 -1.48e-03 -1.01e-02
## 273 -1.23e-02  -2.58e-02 -3.42e-02 -7.46e-02 -4.72e-02  4.65e-03 -1.19e-02
## 274  9.05e-04   1.21e-03 -3.51e-03  1.13e-02 -2.78e-04 -2.16e-03 -2.42e-03
## 275 -1.31e-02  -2.70e-02  3.00e-03 -7.28e-02 -2.75e-02  1.81e-02 -1.23e-03
## 276  3.90e-02   7.63e-02  1.21e-03  4.15e-02 -4.04e-01 -1.80e-02 -1.98e-02
## 277  9.64e-03   1.89e-02  3.00e-04  1.03e-02 -9.99e-02 -4.44e-03 -4.90e-03
## 278  2.88e-03   5.63e-03  8.95e-05  3.06e-03 -2.98e-02 -1.33e-03 -1.46e-03
## 279  1.79e-02   2.85e-02 -1.72e-02  3.28e-02 -2.34e-01 -5.88e-03 -2.41e-02
## 280  2.21e-02   4.88e-02 -3.02e-02  2.17e-02  3.88e-01 -2.99e-02 -9.68e-03
## 281 -7.79e-03   1.77e-02 -1.81e-03 -1.00e-02  2.06e-01 -1.09e-02 -1.80e-02
## 282  8.27e-03   1.43e-02 -2.80e-05  1.10e-02  1.10e-01 -1.05e-03 -6.34e-03
## 283  1.16e-02   1.19e-02 -4.55e-04  1.65e-02  1.06e-01  2.25e-04 -4.27e-03
## 284  1.25e-02   1.45e-02  3.08e-03  1.45e-02  1.04e-01  4.40e-04 -7.50e-04
## 285 -6.58e-05   4.17e-04  9.39e-04 -8.35e-04  1.07e-03 -1.07e-01  5.75e-04
## 286 -6.58e-05   4.17e-04  9.39e-04 -8.35e-04  1.07e-03  1.07e-01  5.75e-04
## 287 -5.70e-03  -1.03e-02  2.11e-02 -1.58e-02 -2.17e-03  1.31e-03  3.39e-01
## 288 -1.11e-02  -1.75e-02  5.95e-03 -6.70e-03 -8.31e-03 -5.60e-03 -2.33e-01
## 289 -4.58e-03  -8.00e-03  2.26e-03 -1.91e-03 -4.51e-03 -1.84e-03 -1.13e-01
## 290 -1.42e-02  -2.01e-02 -1.48e-02 -2.19e-03 -1.75e-02  1.28e-02  2.53e-01
## 292 -2.36e-03   5.91e-04 -9.44e-03 -2.29e-04 -2.41e-03  8.28e-03 -8.47e-02
## 294 -1.87e-02  -2.34e-02 -4.53e-03 -1.16e-02 -1.54e-02 -6.23e-03 -2.15e-01
## 298 -1.45e-02  -1.68e-02  6.35e-04 -1.22e-02 -4.80e-03 -7.36e-03  1.45e-01
```

```
## 299  1.03e-03   1.82e-04  5.44e-03 -2.21e-03  2.97e-03 -1.94e-03 -4.59e-02
## 300  2.08e-02   1.38e-02  1.09e-02  4.13e-02 -1.48e-02  1.97e-02 -6.38e-03
## 301 -5.32e-03  -3.42e-03 -6.75e-04 -1.01e-02  3.64e-03 -5.27e-03  1.20e-03
## 302  5.17e-04   1.83e-04 -1.91e-04  9.72e-04 -6.18e-04  1.31e-03 -5.41e-04
## 303  6.88e-04   9.08e-04  9.75e-04  2.90e-04  7.53e-04  1.19e-03  2.62e-04
## 305  7.78e-03   5.60e-03  1.38e-02  4.99e-03  6.81e-03  8.38e-04  6.61e-03
## 306  1.52e-02   1.10e-02  2.72e-02  9.64e-03  1.34e-02  1.54e-03  1.30e-02
## 307 -9.26e-03  -9.72e-03  1.93e-03 -1.30e-02 -4.03e-03 -4.00e-03  5.20e-03
## 308 -7.14e-03   2.15e-02 -2.91e-02 -2.36e-02  1.66e-02 -1.12e-02  6.00e-03
## 309 -1.19e-03   5.42e-03 -1.89e-03  6.75e-03  6.76e-03 -2.71e-03 -9.11e-03
## 310 -1.69e-02  -4.28e-03  1.66e-02 -2.81e-02  2.13e-02 -1.30e-02  4.66e-04
## 311  1.87e-02   2.84e-03 -1.95e-02  3.12e-02 -2.73e-02  1.26e-02 -4.36e-04
## 312 -7.03e-03  -1.78e-02  1.99e-02 -1.58e-02 -1.24e-03 -7.17e-04  1.14e-02
## 313 -5.81e-04  -2.23e-03  2.45e-03 -1.53e-03 -4.12e-04  3.26e-04  1.56e-03
## 314  3.33e-04   5.04e-03 -5.92e-04 -8.80e-04  4.86e-03 -2.29e-03 -5.06e-04
## 316 -2.22e-03   1.33e-05 -2.22e-03 -8.34e-04  6.27e-04 -1.06e-03 -3.22e-03
## 317  6.05e-03   3.08e-03  1.39e-02  5.77e-03  8.58e-03 -1.34e-02  8.35e-03
## 318 -7.14e-03  -9.55e-04 -7.20e-03 -1.19e-02 -1.13e-03  1.01e-02 -4.34e-03
## 319  2.61e-04   7.92e-05  4.15e-04  3.50e-04  1.90e-04 -4.62e-04  2.50e-04
## 320 -2.99e-03  -7.08e-04 -5.93e-04 -7.61e-03  7.24e-05  4.49e-03  1.06e-03
## 322  9.50e-03   8.22e-03  1.44e-02  7.86e-03  1.08e-02 -6.78e-03  4.87e-03
## 323 -1.21e-02  -1.06e-04 -1.27e-02 -1.62e-02  2.54e-03 -9.51e-04 -4.33e-03
## 324  3.68e-03   1.28e-05  3.95e-03  4.93e-03 -7.60e-04  2.56e-04  1.33e-03
## 326 -3.08e-04   6.83e-04 -1.02e-03 -7.99e-04  4.45e-04 -3.28e-04 -2.08e-04
## 327 -3.10e-02  -1.21e-02 -2.64e-02 -4.47e-02 -5.86e-03  3.67e-02 -1.77e-02
## 328 -7.25e-03  -1.16e-02 -2.20e-03 -7.67e-03 -8.85e-03 -6.58e-04  2.75e-03
## 329  1.41e-03   2.26e-03  4.29e-04  1.49e-03  1.72e-03  1.28e-04 -5.36e-04
## 330  6.74e-03   5.96e-03  3.25e-03  8.02e-03  3.76e-03  4.19e-03 -3.04e-03
## 331  5.64e-02   5.72e-02  1.26e-02  6.97e-02  2.55e-02 -1.11e-04 -7.12e-03
## 332 -6.34e-03  -5.17e-03 -4.68e-03 -8.83e-03 -3.74e-03  6.41e-03 -3.38e-03
## 333  4.08e-02   5.78e-02  7.23e-02 -1.81e-02  8.36e-02  9.02e-03  8.64e-02
## 334 -3.77e-03  -3.11e-03 -2.99e-03 -5.21e-03 -2.40e-03  4.11e-03 -2.09e-03
## 335  1.38e-02   2.30e-02  3.77e-02 -4.46e-04  3.53e-02 -3.86e-03  2.04e-02
## 336  7.66e-03   9.68e-03  1.44e-02  4.46e-03  1.21e-02  1.62e-05  7.09e-03
## 337  1.06e-02   1.53e-02 -1.15e-01 -8.17e-03 -4.71e-02  1.09e-01 -5.15e-02
## 338 -1.81e-04  -2.12e-04  4.01e-04 -3.49e-04 -1.90e-05 -1.14e-04  5.43e-05
## 339 -1.24e-02  -5.03e-03  6.86e-03 -2.07e-02  1.18e-02 -1.91e-02  1.23e-03
## 340 -5.64e-03  -1.12e-03  1.70e-03 -9.32e-03  7.42e-03 -1.15e-02  9.21e-04
## 341 -2.05e-03  -2.39e-03  4.53e-03 -3.95e-03 -2.15e-04 -1.28e-03  6.14e-04
## 342  1.10e-04  -1.12e-03 -6.59e-04  6.77e-04  3.84e-03 -5.11e-03  1.10e-03
## 343 -1.81e-03  -1.84e-04 -9.02e-04 -2.32e-03  3.49e-04 -1.70e-03 -8.64e-04
## 344 -2.95e-03   2.51e-03  7.77e-04 -6.41e-03  4.89e-03 -3.89e-03  6.97e-04
## 345 -2.12e-03  -1.12e-02  3.02e-04  7.76e-03 -1.31e-02 -9.53e-03  1.06e-03
## 346 -1.24e-02  -5.63e-03  7.63e-03 -1.82e-02 -3.46e-02  1.77e-02 -1.59e-02
## 347 -1.19e-04  -1.06e-03  1.46e-02 -7.23e-03  8.15e-03 -5.50e-03  6.40e-03
## 348 -5.77e-04  -3.06e-03  8.23e-05  2.12e-03 -3.57e-03 -2.60e-03  2.90e-04
## 349 -3.40e-03  -1.85e-03 -2.51e-03 -3.23e-03 -2.02e-03  4.18e-03 -2.57e-03
## 350 -1.86e-05  -9.86e-05  2.65e-06  6.81e-05 -1.15e-04 -8.37e-05  9.34e-06
## 351  9.82e-04   5.34e-04  7.25e-04  9.33e-04  5.84e-04 -1.21e-03  7.43e-04
## 352 -1.21e-02  -2.02e-02 -4.92e-02  2.28e-02 -2.43e-02  7.32e-03 -1.48e-02
## 353 -1.55e-03   6.27e-04 -1.17e-03 -2.03e-03 -2.88e-03  3.04e-03 -1.99e-03
## 354 -1.55e-03   6.27e-04 -1.17e-03 -2.03e-03 -2.88e-03  3.04e-03 -1.99e-03
## 356 -3.18e-04   4.71e-04 -3.55e-04 -2.94e-04 -4.28e-04 -9.06e-04  3.59e-04
## 357 -1.28e-03  -5.31e-04 -2.69e-04 -2.14e-03 -5.51e-04  3.64e-03 -2.08e-03
```

```
## 358 -2.99e-02  -3.04e-02  2.83e-02 -3.88e-02 -3.49e-03 -3.86e-02  3.97e-02
## 359 -2.86e-02  -4.13e-02  1.50e-03 -1.81e-02 -3.26e-02 -2.85e-02  1.85e-02
## 360 -4.89e-03  -9.60e-03  3.69e-04 -2.68e-03 -5.38e-03 -2.06e-03  1.81e-03
## 361  2.06e-03   7.85e-03  1.78e-03 -1.98e-03  7.01e-03 -9.67e-04 -1.67e-03
## 362 -9.02e-05  -7.58e-05 -6.32e-05 -6.96e-05 -1.83e-04  1.58e-04 -7.28e-05
## 363 -5.29e-03  -4.54e-03  8.84e-03 -1.03e-02  5.64e-03 -5.62e-03  6.56e-03
## 364 -1.04e-02  -8.71e-03  1.67e-02 -2.01e-02  1.07e-02 -1.10e-02  1.20e-02
## 365 -9.86e-03  -1.47e-02  3.11e-03 -9.20e-03 -5.05e-03 -6.41e-03  2.54e-03
## 366 -1.71e-02  -1.51e-02 -1.85e-02 -1.20e-02 -1.85e-02  3.20e-02 -1.94e-02
## 367 -3.65e-03  -3.24e-03 -3.96e-03 -2.57e-03 -3.96e-03  6.84e-03 -4.14e-03
## 368 -5.70e-03   3.20e-03  1.06e-03 -1.24e-02  5.41e-03 -6.70e-03  5.56e-03
## 369  3.25e-03  -1.28e-03  1.03e-03  4.79e-03 -3.67e-03 -9.95e-04 -7.92e-04
## 370 -9.20e-03   1.25e-03 -2.75e-04 -1.40e-02  9.16e-03 -5.41e-04  1.76e-03
## 371 -4.60e-03   5.77e-03 -8.38e-03 -6.73e-03  5.79e-03  1.95e-03 -2.34e-03
## 372 -2.09e-02   3.09e-03 -3.23e-02 -1.99e-02  9.58e-03  1.61e-02 -1.22e-02
## 373 -2.01e-02  -2.43e-02 -2.78e-02 -3.74e-03 -3.51e-02  7.77e-02 -4.79e-02
## 374 -1.26e-04   5.45e-04 -4.57e-04 -1.00e-03  5.09e-04 -7.18e-04  5.31e-04
## 375  6.66e-03  -2.48e-03  1.71e-02  4.91e-03 -1.86e-04  3.82e-04  7.30e-03
## 376  1.48e-02  -6.72e-03  4.21e-02  9.73e-03  3.25e-04 -4.44e-04  1.76e-02
## 377 -3.86e-04   2.11e-04 -2.64e-04 -6.66e-04  5.15e-04 -2.35e-04 -2.67e-05
## 378 -9.35e-04  -1.04e-04 -2.73e-03 -2.72e-04 -6.74e-04  1.06e-04 -1.31e-03
## 379 -2.73e-03   2.22e-03 -1.41e-03 -5.23e-03  4.80e-03 -2.90e-03  3.03e-04
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## 381  3.88e-03  -7.64e-04  1.04e-02  2.05e-03  8.10e-04  1.77e-03  4.53e-03
## 382  3.63e-03  -3.03e-04  1.61e-02 -9.90e-04  4.61e-03 -2.19e-03  7.21e-03
## 383  7.70e-03   9.95e-03 -8.16e-03  9.47e-03  1.11e-03  1.00e-02 -1.17e-02
## 384 -2.75e-03  -8.15e-03  1.01e-02 -4.60e-03  9.13e-04 -7.81e-03  4.77e-03
## 385 -8.06e-04  -3.09e-03  3.81e-03 -1.35e-03  1.84e-04 -2.81e-03  1.90e-03
## 386 -1.07e-03  -4.12e-03  5.07e-03 -1.80e-03  2.45e-04 -3.74e-03  2.53e-03
## 387 -7.10e-03  -2.96e-02  1.34e-02 -5.32e-03 -2.45e-02  3.61e-02 -7.80e-03
## 388 -1.30e-02  -4.36e-02  2.12e-02 -1.24e-02 -3.30e-02  4.79e-02 -1.09e-02
## 389 -9.33e-03  -3.39e-02  1.60e-02 -8.27e-03 -2.66e-02  3.88e-02 -8.67e-03
## 390 -1.04e-02  -5.81e-03 -7.25e-03 -9.68e-03 -9.69e-04  1.41e-02 -5.48e-03
## 391 -3.36e-02  -2.43e-02  3.34e-02 -5.40e-02  2.38e-02 -1.07e-02  9.42e-03
## 392  3.81e-03   4.45e-03  1.30e-03  5.27e-03 -4.16e-04 -9.82e-03  3.07e-03
## 393 -7.15e-02  -3.96e-02 -1.14e-01 -8.94e-02 -1.31e-02 -2.40e-02 -3.39e-02
## 394 -7.23e-03  -1.58e-04  4.43e-03 -9.51e-03  9.92e-03 -4.55e-02  2.36e-03
## 395 -2.41e-02   2.17e-03 -3.67e-02 -1.99e-02  7.83e-03  1.11e-02 -1.41e-02
## 396  1.88e-02   2.85e-02 -5.89e-03  1.62e-02  1.33e-02 -1.36e-02  7.75e-03
## 397 -1.55e-02   3.96e-03  2.26e-02 -2.12e-02  3.59e-02 -1.67e-02 -5.64e-03
## 398 -1.67e-03   6.87e-04  2.64e-03 -2.19e-03  4.39e-03 -1.79e-03 -7.33e-04
## 402 -2.19e-03  -1.46e-03  1.82e-03 -4.23e-03 -2.59e-04  6.22e-03 -9.97e-04
## 403 -1.45e-02  -1.61e-02 -8.61e-04 -1.58e-02 -1.28e-02  1.67e-02 -1.18e-02
## 405 -3.43e-03  -5.68e-03 -2.86e-03 -9.41e-04 -7.19e-03  3.62e-03 -4.51e-03
## 406  1.86e-03  -2.28e-03 -1.02e-02  9.25e-03 -8.44e-03 -1.64e-03 -5.18e-03
## 407  6.25e-03   6.62e-03  4.25e-04  7.85e-03  6.02e-03 -1.56e-02  6.20e-03
## 408  6.98e-03   8.56e-03  1.52e-03  1.15e-02  1.65e-02 -6.76e-02  1.44e-02
## 409  6.42e-04   4.93e-04  4.56e-03 -8.70e-04  8.94e-03 -1.35e-02  5.68e-03
## 410 -1.77e-03   2.24e-03  4.72e-03 -4.93e-03  7.74e-03 -1.50e-02  4.82e-03
## 411 -7.58e-03  -9.39e-03  3.01e-03 -1.18e-02 -4.53e-03  1.86e-02 -6.93e-03
## 412 -2.55e-03   4.94e-04  3.53e-03 -6.45e-03  1.78e-03  3.03e-03  8.35e-05
## 413 -2.13e-03  -1.78e-04  5.73e-03 -7.09e-03  4.57e-03  3.65e-03  1.44e-03
## 416  2.58e-02   3.97e-02  6.88e-03  1.39e-02  2.03e-02 -1.22e-02  1.26e-02
## 417  1.90e-02   8.75e-03  1.31e-02  2.23e-02  3.79e-03 -1.03e-02  9.01e-03
```

```
## 418  2.02e-02  -7.34e-04  5.23e-03  3.46e-02 -1.24e-02 -1.58e-02  2.98e-04
## 419 -1.37e-03  -1.85e-03  2.98e-03 -2.62e-03  7.15e-04 -1.29e-03  1.56e-03
## 420  2.08e-02   1.03e-02 -5.00e-03  3.35e-02 -1.60e-02  2.21e-02 -7.16e-03
## 421  1.38e-03  -1.07e-02 -1.09e-02  1.66e-02 -2.64e-02  3.70e-03 -1.84e-02
## 422 -2.08e-03  -5.63e-03 -1.99e-02  6.80e-03 -1.94e-02  3.02e-02 -1.14e-02
## 423 -7.13e-03  -1.03e-02 -8.05e-03 -5.41e-03 -8.60e-03  1.30e-02 -4.43e-03
## 424  4.61e-03  -2.24e-03  1.88e-03  8.29e-03 -5.68e-03  1.52e-03 -2.13e-03
## 425  7.03e-03   3.28e-03  9.98e-03  5.21e-03  3.60e-03  7.39e-04  4.00e-03
## 426 -2.78e-04  -1.61e-03  2.94e-03 -1.07e-03  2.24e-03 -3.04e-03  2.29e-03
## 427  3.41e-03   2.37e-03  1.81e-03  3.64e-03  4.58e-03 -1.37e-03  4.27e-04
## 428  2.53e-02   2.53e-02  1.89e-02  1.45e-02  1.20e-02 -2.50e-02  1.93e-02
##      dfb.MdlN  dfb.MdlO dfb.MdlPn dfb.MdlPr dfb.ModlSb dfb.MdlSt dfb.MdlSc
## 1   -1.95e-01 -1.34e-01 -1.79e-01 -1.49e-01  -1.75e-01 -1.72e-01 -1.04e-01
## 2   -3.17e-01 -2.18e-01 -2.91e-01 -2.43e-01  -2.85e-01 -2.80e-01 -1.69e-01
## 3    6.09e-01  3.79e-01  5.45e-01  5.18e-01   4.82e-01  5.10e-01  3.38e-01
## 4   -1.41e+00 -9.05e-01 -1.24e+00 -1.38e+00  -1.12e+00 -1.20e+00 -7.11e-01
## 5    3.48e-01  2.27e-01  3.12e-01  2.81e-01   3.03e-01  2.99e-01  2.15e-01
## 6    4.84e-01  3.06e-01  4.25e-01  3.90e-01   4.33e-01  3.94e-01  2.88e-01
## 7    3.92e-01  2.66e-01  3.57e-01  3.08e-01   3.47e-01  3.47e-01  2.23e-01
## 8    9.24e-03  1.02e-02  1.11e-02 -2.28e-02   3.70e-03  1.04e-02  1.14e-02
## 9    2.70e-03  1.34e-03  6.39e-04 -1.32e-02   3.96e-03 -1.35e-03  5.75e-03
## 10   3.23e-03  1.17e-03  4.15e-03  3.38e-02  -1.15e-02  1.14e-02 -8.19e-03
## 11  -1.45e-03  1.37e-04  3.50e-04 -4.07e-05  -3.31e-04  7.31e-04 -4.46e-04
## 12  -1.95e-03  4.82e-04  9.07e-04  5.27e-04  -7.83e-04  1.79e-03 -7.36e-04
## 13   1.35e-02  3.15e-03  4.09e-03  1.11e-02  -3.41e-03  6.54e-03  3.35e-03
## 14  -1.59e-03 -7.55e-03 -6.66e-03  3.81e-02  -9.36e-03 -1.54e-03 -1.11e-02
## 15  -5.59e-05 -7.23e-04 -5.05e-04 -5.48e-04   8.73e-05 -1.25e-03  1.51e-03
## 16   4.60e-04  5.64e-04  4.36e-04 -5.33e-04   1.76e-04  6.69e-04 -2.83e-04
## 17   1.95e-03  3.49e-03  4.42e-03  6.89e-04   2.40e-03  6.84e-03  7.37e-05
## 18  -2.19e-06  4.41e-04  3.58e-04  2.98e-05  -2.31e-05  6.85e-04 -6.65e-04
## 19  -6.34e-04  6.62e-04 -4.28e-04  2.35e-03   2.24e-04  1.45e-03 -5.13e-03
## 20   2.23e-03  7.72e-04  3.28e-03 -6.27e-03   2.90e-03  2.11e-04  2.11e-02
## 21   1.00e-02 -1.98e-02 -2.53e-02  3.40e-02  -1.13e-02 -3.17e-02 -1.37e-02
## 22  -8.16e-04 -8.05e-03 -5.75e-03  1.19e-02   7.62e-03 -4.92e-03  7.61e-03
## 23  -4.92e-03 -7.05e-03 -8.42e-03  6.77e-03   5.32e-04 -8.64e-03 -3.48e-03
## 24  -2.74e-03  4.06e-03 -5.26e-04  7.19e-03   6.14e-03  1.06e-02 -2.55e-02
## 25  -1.29e-03  3.97e-03 -6.19e-04 -1.68e-02   1.12e-02  2.30e-03 -1.18e-02
## 26  -1.85e-03 -3.72e-03 -2.27e-03  5.18e-03  -3.61e-03 -4.81e-03  4.77e-03
## 27   1.07e-03  1.56e-03  2.08e-03 -1.50e-03   1.99e-04  2.11e-03  1.20e-03
## 28   3.26e-03 -1.41e-03 -2.07e-03  1.42e-02  -4.26e-03  1.65e-03 -4.06e-03
## 29   2.86e-03  4.52e-03  6.75e-03 -7.23e-03   1.04e-03  5.57e-03  6.26e-03
## 30  -2.67e-03 -3.74e-05 -4.17e-04 -2.68e-03   5.34e-04  4.19e-04  1.13e-03
## 31   8.45e-04 -4.26e-04 -1.15e-03  1.86e-03  -2.22e-03 -2.11e-03 -4.13e-03
## 32  -4.18e-04  2.15e-04 -1.46e-04  8.38e-04  -6.39e-04  4.85e-04 -1.54e-03
## 33   6.19e-03  4.00e-03  4.50e-03  1.32e-02  -6.57e-03  1.01e-02 -3.26e-03
## 34   2.18e-05 -1.12e-05  7.64e-06 -4.37e-05   3.34e-05 -2.53e-05  8.07e-05
## 35   1.10e-02  3.71e-03  6.02e-03  5.67e-03  -2.28e-03  2.81e-03 -2.93e-03
## 36  -1.31e-02 -1.44e-02 -1.98e-02  9.50e-03   7.20e-03 -2.00e-02  2.26e-03
## 37  -1.16e-02 -8.15e-03 -1.21e-02  2.34e-03   6.60e-03 -1.19e-02  4.80e-03
## 38  -9.47e-06  1.05e-04  1.13e-04 -6.07e-05   1.39e-05  1.60e-04  1.03e-04
## 39   2.83e-03  5.44e-03  5.94e-03  4.03e-03  -3.73e-04  1.03e-02  5.46e-03
## 40   1.46e-03  2.32e-03  3.86e-03  3.30e-03  -8.46e-04  5.85e-03  1.02e-02
## 41  -1.33e-03 -7.73e-04 -1.59e-02  4.88e-02   2.95e-03 -6.19e-03 -3.48e-02
## 42   1.73e-02  9.77e-03 -7.02e-03  8.88e-02  -6.06e-03  1.63e-02 -4.54e-02
```

```
## 43   2.54e-04  1.55e-04  2.42e-04  2.77e-05  -2.00e-04  4.11e-04  9.55e-05
## 44  -5.57e-03 -1.37e-02 -1.50e-02 -4.36e-03  -1.39e-03 -1.64e-02 -3.90e-03
## 45   2.29e-03  1.90e-03  3.13e-03  6.20e-03  -3.27e-03  2.45e-03  5.29e-03
## 46  -1.00e-03  1.44e-04 -3.15e-04 -5.21e-03   1.88e-03  2.73e-04 -2.85e-03
## 47   2.68e-05  3.39e-03  4.15e-03 -5.12e-03   5.62e-04  4.42e-03  6.83e-03
## 48  -6.27e-04  6.89e-04  2.90e-04 -2.21e-03   4.75e-04  3.15e-04  2.25e-04
## 49   1.66e-03 -7.79e-04 -2.14e-05  4.46e-03  -1.11e-03  2.85e-04 -3.68e-04
## 50  -2.29e-04 -7.29e-03 -4.94e-03  7.78e-03  -1.16e-03 -7.61e-03  9.99e-03
## 51   4.78e-03  6.29e-04  5.34e-03  5.27e-03  -3.72e-03  4.71e-03  1.37e-02
## 52  -9.31e-04 -3.77e-03 -2.32e-03  1.15e-02  -3.53e-03 -1.95e-03 -3.80e-03
## 53  -2.42e-03 -3.38e-03 -4.66e-03  1.34e-03   1.73e-03 -5.09e-03  7.20e-04
## 54  -1.47e-03  1.52e-04 -4.18e-04 -2.19e-03   1.49e-03 -3.57e-04  2.59e-03
## 55   4.00e-03  1.11e-03  2.65e-03 -9.75e-04  -7.66e-04  1.87e-03  4.12e-03
## 56  -5.43e-03  2.39e-03  1.20e-02  3.26e-02  -3.51e-03  8.74e-03 -1.98e-03
## 57   6.24e-05 -1.91e-03 -1.01e-03  2.19e-03  -8.21e-04 -2.62e-03  1.78e-03
## 58   8.72e-04 -2.05e-03  1.44e-04  3.09e-03  -1.97e-03 -2.75e-03  4.13e-03
## 60  -5.30e-03 -1.52e-02 -9.25e-03 -3.70e-02  -3.42e-04 -2.90e-02  1.74e-02
## 61   5.91e-03  3.56e-03  3.52e-03  1.53e-02  -1.21e-03  6.68e-03 -6.65e-03
## 62   6.59e-03  3.51e-03  2.93e-03  3.38e-03   3.35e-04  6.91e-03 -1.29e-03
## 63   6.11e-03  1.23e-02  1.02e-02 -9.93e-02   1.86e-02  1.29e-02  4.85e-03
## 64  -4.15e-03  3.23e-03  5.96e-03 -1.92e-03  -3.74e-03 -1.28e-02  6.40e-03
## 66  -5.83e-03  4.07e-03  6.46e-03 -1.69e-02   8.34e-03  1.37e-02  3.83e-02
## 67  -8.49e-03 -9.87e-03 -6.57e-03 -1.09e-02   2.45e-03 -1.30e-02  2.47e-02
## 68   5.74e-03  1.11e-02  1.11e-02 -1.98e-03   2.57e-04  2.28e-02  5.31e-03
## 69   4.31e-03  1.41e-02  1.14e-02 -2.66e-03   4.26e-03  2.64e-02  1.24e-04
## 70   5.44e-04  1.05e-03  1.05e-03 -1.88e-04   2.44e-05  2.16e-03  5.03e-04
## 72  -2.13e-04  1.31e-02  1.18e-02 -4.16e-02   1.11e-02  1.41e-02  9.23e-03
## 73  -5.03e-04  3.65e-02  3.30e-02 -1.16e-01   3.09e-02  3.94e-02  2.57e-02
## 74  -4.10e-04  1.93e-03  1.25e-03 -4.33e-03   3.19e-04  2.89e-03 -3.35e-03
## 75   6.92e-04 -1.42e-03 -3.08e-04  4.12e-03  -4.66e-04 -2.38e-03  4.70e-03
## 76   1.72e-03  1.05e-03  2.47e-03  2.23e-03  -9.32e-04  1.32e-03  4.49e-03
## 77  -3.09e-04  3.65e-04  2.29e-04 -1.10e-03   3.31e-04  5.49e-04 -2.40e-05
## 78  -6.02e-03 -2.23e-03 -5.23e-03 -7.45e-03   4.88e-03 -2.72e-03 -2.49e-03
## 79   3.86e-03  1.47e-03  3.32e-03  4.79e-03  -3.07e-03  1.92e-03  1.51e-03
## 80   4.25e-04 -1.34e-04  1.05e-03 -3.26e-03   7.72e-03  2.94e-03  7.32e-03
## 81  -1.89e-06  1.94e-04  1.55e-04 -4.50e-04  -2.47e-05  3.37e-04 -2.79e-04
## 82   7.31e-04 -2.97e-04  2.40e-04  2.99e-03  -1.78e-04 -7.08e-04  2.29e-03
## 86  -5.57e-04 -2.78e-04 -1.87e-04  1.19e-04   1.56e-04 -4.22e-04  1.19e-03
## 87   4.82e-03  9.24e-03  6.71e-03 -9.91e-04   4.67e-03  1.14e-02  2.53e-03
## 88  -3.45e-02 -9.81e-03 -1.71e-02 -2.04e-02   1.44e-03 -3.35e-02 -3.71e-02
## 89   2.57e-03 -6.17e-03 -5.57e-03 -3.93e-03  -5.29e-04 -8.26e-03 -1.68e-03
## 90  -2.87e-02 -4.94e-02 -4.22e-02 -4.74e-03  -9.50e-03 -2.00e-02 -5.50e-03
## 91   1.49e-02  1.83e-02  2.02e-02  5.53e-03  -7.50e-03  2.37e-02 -1.35e-02
## 92  -3.97e-05 -2.00e-04 -2.09e-04  2.08e-05  -8.29e-05 -1.69e-04 -1.21e-04
## 93   2.31e-03  6.97e-03  7.49e-03  2.34e-04   1.88e-03  6.91e-03  3.76e-03
## 94   1.07e-02  1.36e-02  1.15e-02  3.21e-03  -5.34e-03  2.65e-02 -2.09e-02
## 95   7.31e-03  7.29e-03  4.59e-03  5.93e-03  -3.72e-03  1.65e-02 -1.90e-02
## 96   9.88e-03  2.50e-02  1.63e-02 -5.72e-02   1.79e-02  2.77e-02 -1.57e-02
## 97  -2.67e-02 -8.46e-02 -3.27e-02 -1.84e-02  -3.47e-03 -1.08e-01  6.58e-02
## 98  -1.38e-02 -1.16e-02 -1.16e-02 -1.48e-02   7.11e-03 -1.44e-02  1.87e-02
## 99   1.47e-02  1.23e-02  1.24e-02  1.58e-02  -7.59e-03  1.54e-02 -1.98e-02
## 100  3.13e-03  7.51e-03  7.80e-03 -6.38e-03  -1.57e-03  1.68e-02 -8.80e-04
## 101 -1.77e-03 -2.19e-02 -1.07e-02 -2.15e-04  -1.32e-02 -3.42e-02  2.63e-02
## 102  1.51e-03 -1.16e-02 -9.97e-04  5.01e-04  -1.03e-02 -2.32e-02  2.56e-02
```

```
## 103  1.30e-03  4.41e-04 -7.51e-04  1.59e-03  -7.91e-04  6.78e-03 -3.23e-03
## 104 -3.11e-02 -3.27e-02 -3.68e-02  3.26e-03   1.09e-02  4.33e-03 -1.31e-02
## 105  1.90e-03  2.05e-03  2.38e-03 -6.01e-06  -7.39e-04  7.48e-04  7.33e-04
## 106  0.00e+00  0.00e+00  0.00e+00  0.00e+00   0.00e+00  0.00e+00  0.00e+00
## 107 -8.07e-03 -5.55e-03 -9.80e-03  5.60e-03   3.68e-03  8.71e-03 -1.71e-02
## 110 -2.25e-03 -2.28e-03 -2.10e-03  1.88e-03  -1.18e-03 -5.95e-04 -6.72e-03
## 111 -6.33e-03 -1.61e-02 -1.91e-02 -2.54e-02   1.20e-02  6.37e-03  5.45e-03
## 112  1.51e-05 -2.98e-04 -3.87e-04  1.20e-04  -6.72e-05 -8.53e-05 -5.35e-04
## 113  4.72e-04 -1.21e-03 -1.71e-03 -1.27e-03  -8.16e-04  1.49e-03 -4.81e-03
## 114 -3.87e-03 -3.27e-03 -5.32e-03 -1.76e-05   8.57e-03  6.58e-03  1.39e-02
## 115 -1.35e-03 -1.04e-03 -1.63e-03 -4.62e-04   2.40e-03  1.25e-03  3.60e-03
## 117  1.87e-03 -1.01e-04  1.35e-03  5.02e-03  -3.03e-03 -4.28e-03  1.35e-03
## 118 -1.37e-04  2.53e-06 -9.95e-05 -3.59e-04   2.14e-04  2.86e-04 -9.36e-05
## 120  1.41e-03 -5.69e-03  3.51e-03  7.68e-03  -2.17e-02 -9.80e-03 -4.24e-02
## 121  6.24e-04 -2.51e-03  1.55e-03  3.39e-03  -9.57e-03 -4.32e-03 -1.87e-02
## 122  1.59e-04 -1.18e-03 -7.98e-05  1.69e-03  -2.83e-03 -1.80e-03 -5.73e-03
## 123 -1.33e-02  3.13e-04 -6.24e-03 -4.80e-02   1.63e-02 -2.34e-02 -2.78e-03
## 125 -1.53e-03  2.49e-03  1.88e-03  1.30e-02   1.02e-03  6.01e-03  3.34e-03
## 126  2.99e-03 -2.30e-03 -5.14e-04 -8.26e-03   1.66e-03 -9.44e-03  1.86e-02
## 129 -2.20e-03 -1.16e-03 -1.16e-03 -4.90e-03   1.83e-03 -1.40e-03  6.74e-03
## 130  3.85e-03  3.13e-03  3.40e-03  6.64e-03  -3.16e-03  3.75e-03 -1.11e-02
## 131  1.68e-02  1.89e-02  2.20e-02  1.57e-02  -1.20e-02  2.55e-02 -2.98e-02
## 132 -1.23e-02 -1.24e-02 -1.56e-02  1.51e-03  -1.82e-02 -2.92e-02 -2.73e-02
## 133 -8.44e-03 -6.82e-03 -7.42e-03 -1.45e-02   6.87e-03 -8.27e-03  2.39e-02
## 134  3.89e-03  2.96e-03  3.31e-03  6.38e-03  -2.95e-03  4.04e-03 -8.88e-03
## 135 -6.67e-03 -1.10e-02 -9.54e-03  4.14e-03  -9.44e-04 -9.89e-04 -2.90e-04
## 136  1.39e-02  1.71e-02  2.12e-02  1.31e-01  -4.65e-02  2.92e-02 -5.44e-02
## 137  1.55e-03 -3.29e-03 -4.04e-03  3.75e-02  -9.64e-03 -2.61e-03 -1.48e-02
## 139 -5.54e-04 -2.82e-03 -2.05e-03  5.99e-03  -1.26e-04 -4.01e-03  1.87e-03
## 140 -7.29e-03 -7.25e-03 -1.07e-02  1.10e-02  -9.52e-03 -1.52e-02 -1.19e-02
## 141 -4.39e-04 -8.36e-04  6.82e-04  3.36e-03  -1.95e-04 -1.75e-03  3.37e-03
## 142  6.34e-03  3.95e-03  1.06e-02 -7.00e-03  -2.62e-03  7.97e-03  9.56e-03
## 144  1.10e-03  5.90e-04 -3.19e-04 -9.00e-04   1.05e-03  2.66e-03 -1.43e-03
## 145 -1.53e-02 -1.26e-02 -2.59e-02 -1.22e-02   1.07e-02  1.05e-02 -4.33e-02
## 149 -1.95e-02 -1.40e-02 -1.89e-02 -4.01e-03   1.81e-03 -8.74e-03 -2.58e-02
## 150  1.18e-03 -1.09e-03  1.95e-04  8.14e-03  -1.50e-03 -2.84e-03  4.41e-03
## 151  2.81e-03  3.93e-03  5.59e-03  1.34e-03  -1.77e-03  5.21e-03  3.46e-03
## 152 -4.55e-05  3.77e-04  1.18e-04 -1.56e-03   2.26e-04  9.36e-04 -1.01e-03
## 153 -7.06e-03 -1.10e-02 -1.44e-02 -4.89e-03   3.03e-03 -1.49e-02 -8.35e-03
## 154  4.30e-03  1.40e-02  1.10e-02 -7.53e-03   7.21e-03  2.85e-02  3.60e-03
## 155  1.04e-03 -6.82e-04 -2.93e-04  4.84e-03  -2.08e-03 -2.79e-03 -3.09e-03
## 156  9.99e-04  8.65e-03  6.07e-03 -7.77e-03   6.33e-03  1.77e-02  2.47e-03
## 157  1.06e-02 -7.44e-03 -6.77e-03  4.19e-02  -1.19e-02 -1.25e-02 -1.61e-02
## 158  3.54e-05  4.43e-04  4.37e-04 -9.48e-04   3.09e-04  1.09e-03  7.22e-04
## 159  9.74e-03  1.02e-02  1.11e-02  9.64e-03  -5.76e-03  1.43e-02 -1.01e-02
## 160  7.90e-04  7.07e-04  8.94e-04  1.59e-03  -5.85e-04  1.85e-03 -7.68e-04
## 161 -8.86e-05 -6.47e-03 -5.28e-04  7.34e-03  -7.66e-03 -2.40e-03  7.21e-03
## 162  7.12e-03  4.07e-02  1.38e-03  4.57e-02   1.44e-02  2.68e-02 -1.84e-01
## 163  2.70e-02  4.58e-02  3.22e-02 -4.81e-03   1.11e-02 -3.88e-03 -2.91e-02
## 164  4.17e-02  6.68e-02  4.81e-02 -2.13e-03   1.39e-02 -9.30e-04 -4.10e-02
## 165 -4.74e-03 -1.85e-02 -1.00e-02  9.25e-03  -1.54e-02 -1.77e-02 -6.09e-03
## 166  5.15e-03  1.56e-02  1.47e-02 -5.45e-02   9.48e-03  1.73e-02  8.30e-03
## 167  0.00e+00  0.00e+00  0.00e+00  0.00e+00   0.00e+00  0.00e+00  0.00e+00
## 168  5.31e-03  7.29e-03  1.02e-02  6.62e-03   1.65e-03  1.69e-02  2.16e-02
```

```
## 169  1.45e-03  2.53e-03  3.57e-03  1.77e-03   9.99e-04  5.86e-03  8.59e-03
## 170  5.37e-04  2.04e-03  2.95e-03  5.60e-04   1.51e-03  4.76e-03  8.73e-03
## 171  2.69e-03  4.14e-03  3.59e-03  3.42e-03   5.69e-04  7.77e-03 -1.14e-03
## 172 -5.25e-04 -8.09e-04 -7.01e-04 -6.67e-04  -1.11e-04 -1.52e-03  2.23e-04
## 173 -6.54e-05 -1.67e-04 -1.29e-04 -8.03e-05  -6.35e-05 -2.98e-04  5.69e-05
## 174 -2.50e-02  4.18e-03 -8.07e-03 -3.50e-03   1.44e-02  1.65e-03 -1.53e-02
## 175  1.53e-03  2.36e-03  1.87e-03  2.90e-03   7.63e-04  4.14e-03  6.25e-04
## 176  3.34e-03  5.14e-03  4.07e-03  6.31e-03   1.66e-03  9.02e-03  1.36e-03
## 177 -2.04e-03  8.40e-03 -6.44e-04  2.91e-02  -1.18e-03  8.56e-03 -1.80e-02
## 178  1.06e-02  7.77e-03  1.07e-02  1.35e-02  -3.83e-03  1.67e-02  1.23e-02
## 179  1.63e-02  1.19e-02  1.65e-02  2.07e-02  -5.88e-03  2.57e-02  1.89e-02
## 180  2.37e-03 -8.88e-03  1.06e-03 -7.10e-03   2.43e-04 -1.20e-02  2.32e-02
## 181 -1.32e-02 -2.00e-02 -1.18e-02 -1.01e-02   2.04e-03 -2.37e-02  2.84e-02
## 182  5.04e-03  7.74e-03  6.34e-03  6.11e-03  -8.07e-04  1.08e-02 -6.77e-03
## 183  7.49e-03 -3.23e-03  1.02e-03  3.22e-04  -1.08e-03 -5.88e-03  6.63e-03
## 184  3.31e-04 -3.83e-03 -1.57e-03  1.22e-03  -3.75e-03 -6.26e-03  4.86e-03
## 185 -8.19e-03 -1.66e-02 -8.63e-03  1.16e-02  -4.28e-03 -2.20e-02  6.81e-03
## 186  7.44e-04  1.43e-03 -5.85e-05  2.83e-03   5.28e-04  1.65e-03 -5.42e-03
## 187 -3.86e-03 -1.40e-03  2.75e-03 -1.13e-02   3.96e-03  1.70e-03  2.61e-02
## 188 -2.98e-03  6.42e-04 -1.26e-04  8.54e-03  -4.15e-03  2.71e-03 -1.62e-02
## 189 -2.98e-03  6.42e-04 -1.26e-04  8.54e-03  -4.15e-03  2.71e-03 -1.62e-02
## 190  3.44e-05  7.52e-05  2.42e-04 -6.36e-04  -1.64e-06  3.68e-05  3.43e-04
## 191 -6.67e-04 -2.38e-03 -8.53e-04 -5.67e-03   4.90e-04 -4.13e-03  3.52e-03
## 192 -6.39e-03 -1.92e-02 -1.87e-02 -1.46e-03   3.34e-03 -2.83e-02  3.42e-03
## 193 -1.44e-02 -8.03e-03 -1.45e-02  1.24e-02   4.46e-03 -1.26e-02  2.12e-03
## 194 -6.67e-03 -3.71e-03 -6.69e-03  5.73e-03   2.07e-03 -5.82e-03  9.83e-04
## 195 -8.82e-04  2.59e-03  2.56e-03 -1.91e-03   1.18e-04  3.23e-03  1.72e-03
## 196 -6.01e-04 -4.36e-03 -2.41e-03 -4.22e-03  -4.52e-04 -4.34e-03  4.58e-03
## 197 -2.23e-03 -4.44e-03 -3.18e-03 -5.64e-03   5.54e-04 -5.68e-03  3.62e-03
## 198 -5.27e-04 -1.55e-03 -6.02e-03  1.58e-02   1.13e-03 -3.53e-03 -9.53e-03
## 199  2.37e-03 -1.38e-05 -4.41e-03  2.10e-02  -3.06e-04 -5.77e-05 -1.03e-02
## 200 -6.84e-03  3.41e-03  5.72e-03 -1.55e-02  -5.40e-04  8.72e-03  1.36e-02
## 201 -6.45e-03 -3.66e-04  6.61e-04 -9.61e-03   2.12e-04  2.37e-03  9.21e-03
## 202 -8.26e-03 -6.25e-03 -4.27e-03  5.34e-03  -1.91e-03 -6.50e-03  4.78e-03
## 203  1.46e-03  1.13e-02  1.67e-02  6.23e-03  -1.28e-02  2.09e-02 -1.02e-02
## 204  2.16e-02  2.38e-02  2.28e-02 -8.78e-03  -4.52e-03  3.14e-02 -1.93e-02
## 206  3.30e-03  3.20e-03  2.64e-03  5.05e-03   1.93e-03  4.47e-03  1.58e-03
## 207  8.34e-03  1.24e-02  1.20e-02  5.27e-03   4.78e-03  1.63e-02  5.90e-03
## 208 -1.35e-03 -6.03e-04 -7.57e-04  1.22e-03   2.44e-04  1.43e-03  2.73e-03
## 209 -1.99e-03 -6.83e-04 -8.36e-04  5.45e-03  -2.07e-04  5.97e-03  7.34e-03
## 210 -1.61e-03 -5.84e-04 -1.71e-03 -1.64e-03  -1.61e-03 -3.03e-03 -4.22e-03
## 211  2.02e-04  2.43e-02  1.31e-02 -2.31e-02   1.23e-02 -3.43e-02 -1.89e-02
## 212 -1.17e-03  2.83e-03  1.96e-03  1.17e-03   1.37e-03  3.66e-03  4.04e-04
## 213  8.96e-04  1.94e-03  1.25e-03  3.05e-03  -9.82e-04  5.50e-03 -2.88e-03
## 214 -4.86e-04 -1.46e-03 -8.51e-04 -2.20e-03   6.81e-04 -4.24e-03  2.39e-03
## 215 -1.03e-03 -3.86e-03 -2.12e-03 -5.65e-03   1.72e-03 -1.13e-02  6.60e-03
## 216 -8.01e-04 -5.20e-04 -2.18e-04 -1.96e-03   5.70e-06 -1.22e-03  8.99e-04
## 217  1.51e-02  1.26e-02  1.58e-02  1.71e-02  -5.47e-03  2.58e-02  9.13e-03
## 218  1.99e-02  1.71e-02  2.28e-02  1.92e-02  -8.10e-03  3.44e-02  1.63e-02
## 219  1.02e-03  3.72e-03  2.45e-04 -1.23e-02   3.28e-03  3.77e-03  2.19e-03
## 220 -5.86e-04 -1.60e-03 -1.97e-03  8.95e-04   5.14e-04 -1.31e-03  1.63e-03
## 221  3.68e-06  2.86e-05  3.53e-05 -4.48e-05   1.16e-06  4.31e-05  3.25e-05
## 222  1.18e-04 -7.89e-06 -1.12e-04  6.35e-04   3.50e-04 -1.73e-04  3.74e-05
## 223 -1.35e-04  1.36e-04  2.88e-04  1.24e-03   6.75e-04  4.38e-05  1.81e-03
```

```
## 224  2.65e-04  5.37e-04  8.95e-04  2.92e-03   9.61e-04  7.35e-04  3.30e-03
## 225  7.22e-03  2.65e-03  8.23e-03  4.96e-03   1.01e-02  9.02e-03  1.94e-02
## 226  1.59e-04  3.15e-04  1.87e-03 -2.62e-03  -3.39e-04  1.70e-03  8.58e-03
## 227  1.82e-02  1.02e-02  9.68e-03  3.52e-02  -7.08e-04  2.10e-02  7.71e-04
## 228 -4.67e-03 -3.59e-03 -4.64e-03 -3.99e-03   4.00e-03 -8.55e-03  3.60e-04
## 229  4.83e-04  7.38e-04  1.15e-03 -2.87e-03   5.70e-04  1.53e-03  8.46e-04
## 230  2.05e-03 -5.85e-03 -7.43e-03 -1.16e-02   4.39e-03 -9.61e-03  1.14e-02
## 231  7.14e-04  8.14e-04  1.27e-03  3.21e-03  -1.07e-05  1.99e-03  2.36e-03
## 232 -1.36e-03 -1.55e-03 -2.43e-03 -6.12e-03   2.04e-05 -3.80e-03 -4.50e-03
## 233  1.33e-04  1.09e-03  1.18e-03 -3.34e-03  -2.50e-04  9.57e-04 -8.45e-04
## 234  5.31e-04  4.33e-03  4.72e-03 -1.33e-02  -9.96e-04  3.82e-03 -3.37e-03
## 235 -3.21e-02 -2.77e-02 -2.86e-02 -3.72e-02   2.01e-03 -4.47e-02  1.41e-03
## 236  1.23e-03  2.73e-03  3.18e-03 -7.80e-04  -1.32e-03  3.39e-03 -3.23e-03
## 237 -9.04e-04 -2.01e-03 -2.34e-03  5.73e-04   9.71e-04 -2.49e-03  2.37e-03
## 238 -5.06e-03 -1.19e-02 -1.10e-02  5.73e-04   1.98e-03 -1.58e-02  1.53e-02
## 241  5.11e-04  1.02e-03  6.09e-04 -9.18e-04   6.39e-04 -2.24e-04 -1.89e-04
## 242 -1.37e-03 -1.52e-03 -1.34e-03  6.64e-03  -8.25e-04 -2.97e-04 -1.17e-04
## 243  4.52e-03  5.02e-03  4.41e-03 -2.19e-02   2.72e-03  9.80e-04  3.85e-04
## 246 -8.99e-03  4.10e-03 -7.93e-03 -4.49e-03   1.70e-02 -1.45e-02 -9.75e-03
## 249 -1.51e-02 -1.06e-02 -1.72e-02 -5.28e-02   1.40e-02 -1.10e-02 -7.14e-03
## 250  1.87e-02  2.99e-02  3.83e-02 -1.83e-02  -4.87e-03  4.37e-02  1.81e-02
## 251  7.31e-03  8.12e-03  1.27e-02 -4.70e-03   4.80e-03  1.44e-02  1.24e-02
## 252  2.31e-03  5.99e-03  7.60e-03 -6.80e-03  -2.62e-04  7.86e-03  3.87e-03
## 253  4.06e-03 -6.19e-03 -6.09e-03  7.79e-03   1.01e-03 -1.16e-02 -4.35e-03
## 254 -4.08e-04 -7.03e-03 -8.37e-03  8.41e-03   1.14e-03 -8.93e-03 -7.10e-04
## 255  8.05e-04  2.01e-03  2.63e-03 -2.90e-03   1.87e-04  2.50e-03  1.91e-03
## 257  7.82e-03  1.71e-02  2.23e-02 -2.19e-02   8.54e-04  2.19e-02  1.56e-02
## 258  1.96e-03  4.27e-03  5.57e-03 -5.48e-03   2.14e-04  5.49e-03  3.89e-03
## 259 -6.58e-03  3.46e-03  2.95e-04  1.73e-02   1.18e-02  1.25e-02  2.63e-02
## 260  4.11e-03  1.38e-02  1.64e-02 -8.18e-03  -5.33e-04  2.03e-02  8.83e-03
## 261  3.85e-04 -2.74e-03 -3.18e-03  7.32e-03  -9.42e-04 -2.20e-03 -6.64e-04
## 262 -5.29e-04  2.52e-04  3.64e-04 -9.42e-04   3.65e-05  2.26e-04  5.26e-04
## 263 -6.38e-03 -5.80e-03 -1.02e-02  5.64e-03  -4.52e-03 -1.02e-02 -8.71e-03
## 264 -7.19e-03 -9.94e-03 -1.25e-02  6.98e-03   3.88e-03 -1.35e-02  2.02e-03
## 265  2.36e-03  1.20e-03  3.83e-04  1.66e-03  -4.41e-03 -2.03e-03 -5.04e-03
## 266 -6.10e-04  4.68e-05  2.90e-05 -1.63e-04   3.93e-04  1.56e-04  1.14e-03
## 267  7.40e-03  1.73e-03  4.59e-03  1.35e-02  -4.02e-03  4.21e-03  5.21e-03
## 268 -7.00e-03 -5.09e-03 -5.58e-03 -2.44e-02  -3.26e-03 -2.87e-03 -4.51e-04
## 269 -1.08e-02 -1.76e-02 -1.63e-02  1.14e-02   4.60e-03 -2.09e-02  2.99e-02
## 270  2.70e-02 -7.50e-03  7.47e-03  2.16e-02   3.12e-03 -1.51e-02  5.18e-02
## 271  3.79e-03  2.24e-03  5.48e-03 -1.53e-02   7.12e-03  1.06e-02  8.32e-03
## 272 -8.19e-03 -2.59e-02 -3.40e-02  4.06e-02  -3.22e-03 -3.91e-02 -1.60e-02
## 273 -1.47e-02 -3.28e-02 -4.30e-02  3.97e-02  -9.25e-04 -5.17e-02 -1.85e-02
## 274 -4.25e-04 -6.81e-04 -1.06e-03 -1.37e-03   9.21e-04 -8.29e-04 -2.10e-03
## 275 -1.08e-03 -1.21e-02 -1.33e-02  2.99e-02  -5.09e-03 -1.62e-02  8.75e-03
## 276 -7.26e-03 -1.48e-02 -5.34e-03  1.78e-02  -2.07e-02 -1.43e-02 -2.35e-02
## 277 -1.80e-03 -3.65e-03 -1.32e-03  4.39e-03  -5.11e-03 -3.54e-03 -5.82e-03
## 278 -5.36e-04 -1.09e-03 -3.94e-04  1.31e-03  -1.53e-03 -1.06e-03 -1.74e-03
## 279 -8.57e-03 -2.09e-02 -1.91e-02  2.09e-02  -8.69e-03 -2.56e-02 -1.72e-02
## 280 -2.27e-02 -4.47e-02 -3.51e-02  1.24e-02  -1.02e-02 -6.17e-04 -1.91e-02
## 281 -1.03e-03  4.86e-04  4.85e-03  1.08e-02  -8.50e-03 -9.80e-04 -3.21e-03
## 282 -3.10e-03 -3.26e-03 -5.41e-03  5.70e-03  -7.99e-03 -1.03e-02 -1.49e-02
## 283  4.43e-04 -3.39e-03 -1.67e-03  5.27e-03  -1.34e-03 -6.97e-03 -1.80e-03
## 284  6.48e-04 -5.23e-04  1.69e-03  9.47e-04  -1.30e-03 -3.34e-03 -5.26e-04
```

```
## 285  3.09e-04  6.14e-04  8.31e-04 -4.63e-04  -1.90e-04  8.96e-04  4.16e-04
## 286  3.09e-04  6.14e-04  8.31e-04 -4.63e-04  -1.90e-04  8.96e-04  4.16e-04
## 287  7.49e-03 -1.97e-03  3.03e-03  2.67e-02  -1.26e-02  2.49e-03  6.85e-03
## 288 -3.65e-03  4.65e-03 -2.06e-03  9.98e-03   3.85e-03  2.81e-03 -3.18e-03
## 289 -2.49e-03  1.84e-03 -1.52e-03  3.87e-03   2.24e-03  4.32e-04 -1.54e-03
## 290 -8.15e-03 -7.03e-04 -1.04e-02 -1.34e-02   1.45e-02 -1.11e-02  3.09e-03
## 292 -3.69e-03 -4.52e-03 -4.38e-03 -7.57e-03   1.74e-03 -8.03e-03  2.59e-03
## 294 -2.50e-03 -3.28e-03 -9.58e-03  1.94e-02   1.23e-03 -6.18e-03 -5.14e-03
## 298  4.51e-03  6.60e-03  1.31e-03  5.13e-03   5.03e-03  7.97e-03 -9.11e-04
## 299  5.65e-03  3.77e-03  4.77e-03  2.68e-04  -3.91e-04  6.67e-03  2.00e-03
## 300 -2.07e-01 -3.00e-02 -2.46e-02  5.93e-02  -1.82e-02 -3.55e-02  1.35e-03
## 301  3.83e-02  6.18e-03  5.45e-03 -8.61e-03   2.48e-03  8.22e-03 -2.33e-04
## 302  1.01e-02 -7.58e-04 -5.17e-04  6.03e-04  -2.02e-04 -1.46e-03  5.69e-04
## 303  1.18e-02  1.30e-05  4.98e-04  2.44e-05  -3.99e-04 -4.29e-04  9.57e-04
## 305  8.93e-02  5.73e-03  8.22e-03  4.04e-03  -2.03e-03  6.26e-03  4.52e-03
## 306  1.76e-01  1.13e-02  1.62e-02  8.06e-03  -4.04e-03  1.24e-02  8.88e-03
## 307  3.45e-02  4.68e-03  1.05e-03 -1.27e-03  -8.59e-04  4.39e-03 -5.41e-03
## 308 -1.82e-01 -1.50e-02 -1.35e-02 -2.51e-02  -4.97e-03 -2.22e-02 -1.65e-02
## 309  1.36e-01  2.46e-03  9.18e-04  4.13e-03   8.09e-04 -2.90e-03 -3.12e-03
## 310 -1.02e-01  2.64e-02  2.57e-02  2.99e-03  -4.54e-03  1.05e-02 -1.84e-03
## 311  1.53e-01 -3.53e-02 -3.33e-02  2.48e-03   3.87e-03 -8.60e-03  2.68e-03
## 312 -2.10e-01  1.80e-02  1.61e-02 -1.17e-02   5.54e-03  3.65e-02  9.89e-03
## 313 -2.94e-02  2.28e-03  1.96e-03 -2.08e-03   9.51e-04  4.60e-03  1.37e-03
## 314  5.26e-02 -1.32e-03 -1.28e-04  3.08e-03  -2.50e-03 -3.86e-03 -1.60e-03
## 316  2.31e-02 -8.70e-04 -1.08e-03  2.27e-03  -4.99e-04 -2.07e-03 -1.11e-03
## 317  9.38e-03  4.03e-01  1.32e-02  4.22e-03   1.08e-03  1.18e-02 -5.53e-03
## 318 -6.15e-03 -3.91e-01 -7.21e-03 -5.06e-03  -2.57e-03 -4.38e-03  6.77e-03
## 319  3.06e-04 -7.07e-03  4.02e-04  1.83e-04   7.23e-05  3.19e-04 -2.43e-04
## 320  2.06e-03 -3.05e-03 -5.47e-02 -1.79e-03  -2.20e-03 -2.31e-03  3.26e-03
## 322  8.86e-03  9.21e-03  2.14e-01  7.61e-03  -2.19e-03  7.71e-03  9.15e-04
## 323 -4.39e-03 -6.70e-03 -1.26e-01 -6.08e-03  -1.86e-03 -6.97e-03 -3.50e-03
## 324  1.38e-03  2.08e-03  3.89e-02  1.91e-03   5.55e-04  2.18e-03  1.08e-03
## 326 -7.51e-04 -1.33e-03  1.14e-02 -1.36e-04  -3.42e-04 -6.34e-05 -6.65e-05
## 327 -3.04e-03 -2.81e-02  1.47e-01 -1.69e-02  -2.76e-03 -1.95e-02  2.82e-02
## 328 -4.12e-03 -3.90e-04 -2.38e-01 -4.02e-03   3.16e-03  8.25e-03 -7.55e-04
## 329  8.02e-04  7.59e-05  4.62e-02  7.82e-04  -6.15e-04 -1.61e-03  1.47e-04
## 330  1.58e-03 -2.48e-03 -4.20e-02  4.18e-03  -4.38e-04  2.86e-04  7.50e-03
## 331  1.88e-02  4.16e-03  8.06e-03  4.10e-01   4.56e-03 -6.44e-04 -2.07e-03
## 332 -2.21e-03 -3.65e-03 -2.52e-03  1.23e-01  -1.14e-03 -4.48e-03  3.53e-03
## 333 -1.00e-02  6.39e-02  7.29e-02  7.34e-01   9.88e-03  7.93e-02  2.35e-02
## 334 -1.49e-03 -2.32e-03 -1.65e-03  7.60e-02  -6.36e-04 -2.93e-03  2.18e-03
## 335  1.27e-02  2.24e-02  2.73e-02 -3.84e-01  -3.01e-03  3.02e-02  1.03e-02
## 336  4.55e-03  7.82e-03  9.42e-03 -2.02e-01  -5.31e-04  9.97e-03  4.16e-03
## 337 -5.17e-02 -6.29e-02 -4.81e-02 -1.04e+00   1.42e-02 -9.74e-02  2.68e-02
## 338  1.67e-04  2.12e-04  1.80e-04  2.85e-04  -1.76e-02  3.67e-04 -8.05e-05
## 339  1.26e-02  6.30e-03  8.70e-03  1.50e-02   2.75e-01  1.49e-02 -5.63e-04
## 340  6.33e-03  2.80e-03  4.20e-03  6.88e-03   2.67e-01  6.95e-03 -5.67e-04
## 341  1.88e-03  2.39e-03  2.03e-03  3.23e-03  -1.99e-01  4.15e-03 -9.11e-04
## 342  4.26e-03  5.77e-04  2.96e-03  3.09e-03  -1.02e-01  3.74e-03  5.66e-03
## 343  2.74e-04 -3.55e-04 -6.28e-04  1.30e-03  -6.69e-02 -4.91e-04 -1.80e-03
## 344  8.04e-04  1.39e-03  1.24e-03 -3.72e-04  -1.64e-01  1.46e-03 -3.40e-03
## 345 -2.55e-03  1.10e-02 -1.29e-03 -2.99e-03   7.39e-03 -8.69e-01 -1.65e-02
## 346 -1.84e-02 -9.47e-03 -2.40e-02  1.66e-02  -3.51e-02  6.26e-01 -4.76e-02
## 347  8.25e-03  7.13e-03  1.07e-02  7.26e-03  -3.03e-03  2.16e-01  5.97e-03
```

```
## 348 -6.96e-04  3.01e-03 -3.51e-04 -8.15e-04   2.02e-03 -2.37e-01 -4.50e-03
## 349 -1.74e-03 -8.16e-04 -1.84e-03 -3.11e-03   1.07e-04 -1.72e-01  1.07e-04
## 350 -2.24e-05  9.69e-05 -1.13e-05 -2.62e-05   6.49e-05 -7.63e-03 -1.45e-04
## 351  5.02e-04  2.36e-04  5.31e-04  8.98e-04  -3.10e-05  4.98e-02 -3.08e-05
## 352 -1.82e-02  3.17e-03 -1.83e-02 -4.73e-02   4.16e-02  4.21e-01 -4.97e-03
## 353 -3.17e-03 -1.39e-03 -3.21e-03 -1.45e-03  -2.93e-03 -4.12e-03 -3.16e-01
## 354 -3.17e-03 -1.39e-03 -3.21e-03 -1.45e-03  -2.93e-03 -4.12e-03  3.06e-01
## 356 -9.04e-04 -9.44e-05 -9.68e-04  9.98e-05  -7.61e-04 -8.86e-04 -2.71e-03
## 357 -2.13e-04 -9.43e-04 -3.00e-04 -9.23e-04  -8.41e-04 -1.29e-03  1.95e-03
## 358  9.08e-03  1.02e-02  1.48e-03  5.37e-02  -1.49e-02  1.56e-02 -2.25e-02
## 359  4.49e-04 -8.54e-03 -2.07e-02  6.13e-02  -9.86e-03 -1.11e-02 -2.66e-02
## 360  2.62e-03 -2.14e-03 -1.67e-03  1.15e-02   5.01e-04 -5.44e-04  3.57e-03
## 361 -6.57e-05  3.54e-03  3.48e-03 -8.05e-03  -1.81e-03  3.76e-03 -3.52e-03
## 362 -1.07e-04 -9.92e-05 -1.50e-04  3.22e-05  -8.62e-05 -1.97e-04 -1.03e-04
## 363  6.05e-03  4.53e-03  6.42e-03  7.50e-03  -1.61e-03  9.21e-03  4.54e-03
## 364  1.17e-02  8.65e-03  1.22e-02  1.46e-02  -3.27e-03  1.77e-02  8.30e-03
## 365  6.54e-03 -1.10e-03  1.27e-05  1.93e-02  -9.38e-04  3.22e-03  4.76e-03
## 366 -9.28e-03 -1.25e-02 -1.42e-02 -1.13e-02   2.21e-03 -2.30e-02  1.14e-02
## 367 -1.98e-03 -2.66e-03 -3.03e-03 -2.42e-03   4.73e-04 -4.92e-03  2.45e-03
## 368  4.75e-03  6.13e-03  1.34e-03 -8.30e-03  -2.22e-03  2.96e-03 -1.19e-02
## 369  1.51e-03 -3.34e-03 -1.46e-03  8.91e-03  -1.81e-03 -1.59e-03  1.11e-03
## 370 -9.55e-04  8.22e-03  4.64e-03 -1.57e-02   2.64e-03  6.14e-03 -2.30e-03
## 371 -3.96e-03 -2.15e-03 -2.91e-03 -1.07e-02   1.49e-04 -7.09e-03 -2.67e-03
## 372 -1.14e-02 -4.59e-03 -8.55e-03 -4.08e-02   1.29e-02 -1.98e-02  6.15e-03
## 373 -3.80e-02 -3.27e-02 -2.49e-02 -9.75e-03   3.72e-04 -4.57e-02  4.22e-02
## 374  1.13e-03 -4.22e-04 -2.36e-04 -1.01e-04  -3.60e-04 -3.71e-04 -4.32e-04
## 375  6.47e-03  6.30e-03  8.47e-03  1.02e-02  -2.26e-03  1.01e-02  5.57e-03
## 376  1.67e-02  1.58e-02  2.12e-02  2.60e-02  -6.05e-03  2.59e-02  1.34e-02
## 377 -7.49e-05  1.13e-04  7.57e-05 -5.92e-04   4.25e-05  1.81e-04 -1.30e-04
## 378 -1.07e-03 -1.06e-03 -1.51e-03 -1.33e-03   5.39e-04 -1.59e-03 -8.22e-04
## 379 -3.86e-05  1.11e-03  9.86e-04 -3.59e-03  -1.50e-04  1.62e-03 -1.48e-03
## 380 -7.16e-03 -8.16e-03 -1.17e-02 -8.71e-03   2.81e-03 -1.24e-02 -9.71e-03
## 381  3.47e-03  3.81e-03  5.42e-03  4.25e-03  -1.40e-03  5.90e-03  4.36e-03
## 382  7.19e-03  6.55e-03  9.26e-03  9.04e-03  -3.65e-03  1.04e-02  4.51e-03
## 383 -2.55e-03 -4.40e-03 -1.94e-03 -1.17e-02   1.20e-03 -7.90e-03  3.27e-03
## 384  4.38e-03  1.15e-02  8.98e-03 -1.69e-03   4.21e-03  2.17e-02  1.12e-03
## 385  1.49e-03  4.46e-03  3.41e-03 -1.03e-03   1.83e-03  8.35e-03  4.49e-04
## 386  1.98e-03  5.95e-03  4.54e-03 -1.38e-03   2.44e-03  1.11e-02  5.98e-04
## 387  5.14e-04  2.10e-03  3.95e-03 -2.23e-03   4.86e-03  1.14e-02  3.01e-02
## 388  3.39e-03  4.48e-03  7.53e-03  3.41e-04   5.50e-03  1.96e-02  4.27e-02
## 389  1.84e-03  3.06e-03  5.33e-03 -8.37e-04   4.78e-03  1.44e-02  3.37e-02
## 390 -2.46e-03  3.06e-04 -1.14e-03 -1.39e-02   5.36e-03 -5.83e-03  8.85e-03
## 391  2.64e-02  3.41e-02  3.43e-02  2.11e-03   1.62e-03  4.93e-02  1.98e-02
## 392 -1.52e-03  2.38e-03 -1.56e-03  2.95e-03  -2.45e-03  5.05e-04 -1.41e-02
## 393 -1.08e-02  1.99e-03 -1.57e-02 -1.26e-01   3.65e-02 -1.41e-02 -2.77e-02
## 394  1.80e-02  2.57e-03  2.58e-03  4.38e-02  -1.21e-02  6.59e-03 -2.33e-02
## 395 -1.08e-02 -4.95e-03 -1.18e-02 -3.62e-02   1.24e-02 -2.57e-02 -1.33e-03
## 396 -8.06e-03 -7.07e-03 -5.06e-03 -5.38e-03  -5.67e-03 -9.79e-03 -1.73e-02
## 397  3.90e-02  4.82e-02  4.35e-02  2.49e-03  -2.47e-03 -2.53e-03 -8.30e-03
## 398  4.69e-03  6.00e-03  5.34e-03 -5.19e-05  -1.69e-04 -6.82e-04 -1.06e-03
## 402 -1.77e-04 -1.44e-04  7.86e-04 -1.93e-03  -1.08e-03 -3.92e-04  4.09e-03
## 403  9.09e-04 -5.30e-03 -4.42e-03  7.21e-03  -4.62e-03 -5.94e-03  8.94e-03
## 405 -1.02e-03 -2.48e-03 -3.75e-03  2.96e-03  -3.97e-04 -3.64e-03 -4.84e-04
## 406 -2.31e-03 -7.08e-03 -7.97e-03  5.57e-03   2.04e-03 -9.38e-03 -3.12e-03
```

```
## 407  1.20e-03  4.18e-03  2.30e-03  7.75e-04   2.24e-03  5.78e-03 -9.18e-03
## 408  1.37e-02  1.40e-02  7.46e-03  2.57e-02   2.73e-03  2.55e-02 -3.51e-02
## 409  6.92e-03  6.35e-03  7.63e-03  3.72e-03   3.19e-03  1.21e-02  1.75e-03
## 410  4.11e-03  6.89e-03  5.09e-03  3.04e-03  -1.16e-03  1.02e-02 -8.15e-03
## 411  3.05e-03 -5.86e-03  4.62e-04  5.21e-03  -3.65e-03 -4.12e-03  1.88e-02
## 412  3.41e-05  9.53e-04  1.35e-03 -9.30e-04  -3.35e-03  8.81e-04  1.32e-04
## 413  2.61e-03  1.92e-03  4.56e-03 -6.13e-04  -1.86e-03  4.03e-03  6.45e-03
## 416 -5.83e-03 -1.02e-02 -2.40e-03  5.96e-03  -1.94e-02 -1.29e-02 -1.90e-02
## 417 -2.44e-03  4.26e-03  6.65e-03  8.94e-03  -1.30e-04  1.12e-02 -1.88e-03
## 418 -4.01e-03 -3.94e-03 -2.85e-03  2.82e-02  -1.75e-04  3.99e-03 -7.08e-03
## 419  2.34e-03  2.83e-03  2.35e-03  1.84e-04   2.52e-04  4.11e-03  3.89e-04
## 420 -2.50e-02 -1.31e-02 -1.31e-02 -4.52e-03  -2.06e-03 -2.07e-02 -2.62e-03
## 421 -1.27e-02 -1.62e-02 -1.77e-02  2.58e-02  -6.17e-03 -1.79e-02 -9.04e-03
## 422 -1.05e-02 -1.31e-02 -1.60e-02 -1.81e-02   6.21e-03 -2.66e-02  6.77e-03
## 423  4.66e-03 -4.16e-03 -4.08e-03 -5.39e-03   5.18e-03 -7.65e-03  1.08e-02
## 424 -1.71e-03 -3.19e-03 -1.46e-03  8.82e-03  -1.06e-03 -1.04e-03  2.40e-03
## 425 -2.76e-04  2.26e-03  5.57e-03  3.71e-03  -1.90e-03  6.56e-03  4.97e-03
## 426  3.48e-03  2.98e-03  3.51e-03  1.10e-03   1.59e-03  5.44e-03  2.58e-03
## 427 -2.67e-04 -7.72e-04  2.99e-03  3.19e-03   7.79e-04  2.42e-03  6.40e-03
## 428  9.26e-03 -1.21e-03  3.72e-03  2.21e-02  -1.75e-02  3.88e-03 -2.10e-02
##     dfb.MdlSbr dfb.MdlSz  dfb.MdlT dfb.MdlVlk dfb.MdlVlv    dfb.HP
## 1    -1.72e-01 -1.70e-01 -2.08e-01  -1.93e-01  -1.91e-01 -3.47e-02
## 2    -2.80e-01 -2.77e-01 -3.39e-01  -3.15e-01  -3.11e-01 -5.79e-02
## 3     5.40e-01  5.42e-01  6.55e-01   5.31e-01   5.87e-01 -1.78e-02
## 4    -1.27e+00 -1.20e+00 -1.47e+00  -1.20e+00  -1.27e+00  6.44e-02
## 5     2.98e-01  3.15e-01  3.75e-01   3.35e-01   3.38e-01 -4.93e-02
## 6     4.06e-01  4.20e-01  5.11e-01   4.76e-01   4.84e-01 -8.81e-02
## 7     3.45e-01  3.51e-01  4.21e-01   3.82e-01   3.79e-01  1.61e-02
## 8    -3.12e-02  9.11e-03  1.03e-02   9.97e-03  -9.08e-03  5.53e-02
## 9    -2.29e-02  7.01e-04  4.21e-04   7.47e-03  -5.37e-03  5.90e-03
## 10    3.98e-02  4.70e-03  7.65e-03  -2.82e-02   7.63e-03 -4.85e-02
## 11    6.05e-03  1.20e-03  9.70e-05   7.24e-04   1.75e-03  2.80e-03
## 12    1.01e-02  2.30e-03  6.35e-04   3.48e-04   2.79e-03  2.72e-03
## 13   -2.25e-02  1.52e-03  8.14e-03  -1.81e-02  -8.31e-03 -4.87e-02
## 14    3.56e-02 -3.73e-03 -2.33e-03  -2.85e-02   8.36e-03 -1.05e-01
## 15   -2.14e-03 -1.94e-04 -2.72e-04   8.96e-04  -1.70e-04  1.40e-04
## 16   -9.52e-04  1.38e-04  3.33e-04  -1.13e-04  -4.57e-04  9.41e-04
## 17    8.99e-03  2.93e-03  2.19e-03   1.59e-03   2.68e-03  9.52e-03
## 18    1.09e-03  1.67e-04  1.94e-04  -2.02e-04   1.00e-04  1.51e-03
## 19    5.37e-03 -1.01e-03 -1.01e-03  -2.67e-03   5.14e-04 -1.06e-02
## 20   -1.20e-02  9.04e-03  5.41e-03   1.68e-02  -2.02e-03  3.73e-02
## 21   -6.64e-02 -3.18e-02 -1.34e-02  -4.58e-02  -2.09e-02 -1.80e-01
## 22    1.35e-02 -1.03e-03 -7.19e-03   2.73e-03   9.79e-03 -9.07e-02
## 23    5.84e-03 -4.67e-03 -7.32e-03  -3.00e-03   2.99e-03 -6.07e-02
## 24    3.27e-02 -3.13e-03 -6.43e-03  -1.10e-02   7.14e-03 -8.13e-02
## 25   -7.00e-03 -5.22e-03 -7.22e-03   9.63e-03  -1.60e-03 -7.09e-03
## 26    2.27e-03 -4.57e-06  5.60e-05  -5.86e-04   1.23e-03  4.97e-03
## 27   -1.05e-03  1.84e-03  1.41e-03   1.20e-03  -5.98e-04  7.46e-03
## 28    4.41e-03 -1.34e-03  2.44e-03  -1.70e-02   3.08e-04 -5.44e-02
## 29   -5.17e-03  6.48e-03  4.19e-03   6.88e-03  -1.78e-03  3.06e-02
## 30    7.43e-03  1.15e-03  3.24e-04   1.71e-03   3.26e-03  4.03e-03
## 31   -7.70e-03 -2.34e-03 -1.01e-03  -3.39e-03  -4.23e-03 -2.84e-03
## 32    2.96e-03 -6.31e-04  3.79e-04  -1.36e-03   6.38e-04  5.62e-03
## 33    9.69e-03  3.57e-03  9.27e-03  -1.91e-02   4.92e-04 -1.81e-02
```

```
## 34   -1.55e-04  3.29e-05 -1.98e-05   7.12e-05  -3.33e-05 -2.94e-04
## 35   -2.67e-02 -1.34e-03  2.04e-03  -2.91e-03  -1.25e-02  2.35e-02
## 36    1.02e-02 -8.47e-03 -1.54e-02   1.28e-02   5.16e-03 -7.46e-02
## 37    1.43e-02 -2.81e-03 -9.26e-03   1.81e-02   5.37e-03 -1.18e-02
## 38    2.35e-04  1.50e-04  1.22e-04   1.71e-04   3.84e-05  1.08e-03
## 39    1.04e-02  9.13e-03  7.97e-03   1.29e-03   6.96e-04  1.52e-02
## 40    7.95e-03  9.10e-03  6.88e-03   3.40e-03   1.76e-03  1.01e-02
## 41    3.11e-03 -2.30e-02 -1.61e-02  -8.70e-03  -1.88e-02 -3.84e-02
## 42    6.42e-03 -1.65e-02 -1.10e-03  -4.72e-02  -2.93e-02 -1.30e-01
## 43    1.32e-04  4.15e-04  4.58e-04  -3.54e-04   1.47e-05 -3.37e-04
## 44   -5.14e-03 -4.53e-03 -6.77e-03  -2.47e-03   3.72e-03 -7.79e-02
## 45   -6.19e-04  3.36e-03  4.61e-03   8.96e-04  -2.77e-03  3.39e-02
## 46    1.22e-03 -8.89e-04 -1.54e-03   2.37e-04   1.75e-03 -9.29e-03
## 47    2.73e-03  4.02e-03  4.11e-03   2.82e-03   1.86e-03  2.53e-02
## 48    1.88e-04 -1.03e-03 -7.70e-05  -7.63e-04   7.79e-04  3.59e-03
## 49   -2.32e-04  2.14e-03  7.86e-04   7.53e-05  -1.44e-03 -8.56e-03
## 50   -3.64e-03  3.97e-03 -1.22e-03   4.37e-03   3.20e-05 -4.18e-02
## 51    6.87e-04  1.29e-02  8.79e-03   4.08e-03  -6.25e-04  7.40e-03
## 52    1.15e-02  1.49e-03 -1.17e-03  -2.74e-03   1.69e-03 -2.13e-02
## 53   -1.30e-03 -3.40e-03 -4.02e-03  -4.00e-04   1.04e-03 -3.05e-02
## 54    1.04e-03 -1.99e-04 -4.64e-04   1.73e-03   1.30e-03 -4.01e-04
## 55   -8.94e-03  4.20e-03  3.53e-03   2.75e-03  -3.49e-03  1.02e-02
## 56    5.69e-02  1.15e-02 -5.35e-03   1.22e-02   8.72e-03  3.50e-02
## 57   -2.38e-03  8.50e-05 -8.10e-04   1.50e-03  -7.71e-04 -1.10e-03
## 58   -3.69e-03  1.80e-03  2.67e-04   3.51e-03  -1.58e-03  1.14e-02
## 60   -4.78e-02 -6.26e-03 -8.06e-03   2.66e-02  -2.48e-03  7.79e-02
## 61    1.35e-03  3.45e-03  2.07e-03  -9.60e-04  -6.89e-03 -9.84e-04
## 62   -6.87e-03  4.45e-03  4.83e-03  -4.53e-03  -4.53e-03 -2.63e-02
## 63   -5.39e-02  6.95e-03  9.91e-03   8.96e-03   5.85e-03 -1.07e-02
## 64    2.05e-02 -1.40e-03 -9.29e-04   9.06e-03   1.11e-02  3.28e-02
## 66    1.51e-02  2.72e-02  1.29e-02   3.18e-02   7.14e-03  5.15e-02
## 67   -4.06e-03  5.27e-03 -2.76e-03   2.01e-02   5.78e-03  9.12e-03
## 68    1.00e-02  1.43e-02  1.43e-02  -6.04e-03   5.64e-06  1.29e-02
## 69    1.61e-02  1.42e-02  1.28e-02  -8.15e-04  -6.61e-04  2.14e-02
## 70    9.48e-04  1.35e-03  1.36e-03  -5.73e-04   5.34e-07  1.22e-03
## 72   -9.62e-04  1.19e-02  9.00e-03   2.19e-02   5.32e-03  7.34e-02
## 73   -2.66e-03  3.31e-02  2.51e-02   6.08e-02   1.48e-02  2.04e-01
## 74    7.76e-04 -8.28e-04  5.61e-04  -1.17e-03   3.33e-05  1.65e-02
## 75   -2.99e-04  1.97e-03  2.56e-04   2.59e-03   1.31e-05 -9.58e-03
## 76    9.77e-04  3.70e-03  2.70e-03   2.19e-03  -1.22e-04  7.04e-03
## 77    4.84e-04  2.08e-04  1.14e-04   7.56e-04   1.26e-04  4.41e-03
## 78    1.67e-03 -3.59e-03 -5.46e-03   6.08e-03   1.56e-03 -1.78e-03
## 79   -9.90e-04  2.32e-03  3.53e-03  -4.07e-03  -9.95e-04  2.19e-04
## 80    4.40e-03  1.54e-03 -1.32e-03   9.21e-03   4.82e-03 -1.55e-03
## 81    1.95e-05 -4.86e-05  1.28e-04  -2.65e-04   1.29e-05  1.50e-03
## 82    4.22e-04  1.42e-03  4.03e-04   1.54e-03  -2.02e-04 -5.08e-03
## 86    1.23e-03  3.11e-04 -1.13e-04   8.35e-04   6.42e-04 -3.79e-04
## 87   -9.76e-04  4.79e-03  5.67e-03   1.49e-03  -2.94e-03  3.48e-03
## 88    4.54e-02 -4.84e-02 -3.51e-02  -4.39e-03   2.53e-02  9.70e-02
## 89   -2.51e-02 -3.70e-03 -3.66e-03   8.14e-04  -6.79e-03 -1.82e-02
## 90   -7.97e-03 -1.49e-02 -2.31e-02  -1.20e-02   4.81e-03  1.04e-02
## 91    5.33e-03  5.05e-03  1.55e-02  -2.05e-02  -4.71e-03  5.80e-02
## 92   -2.46e-04 -1.78e-04 -1.02e-04  -3.67e-04  -3.24e-06 -1.33e-03
## 93    7.71e-03  6.40e-03  4.53e-03   9.32e-03  -1.50e-04  3.96e-02
```

```
## 94    4.80e-03  3.05e-03  1.27e-02 -2.89e-02 -5.33e-03  8.28e-03
## 95    1.60e-03 -1.29e-03  6.33e-03 -2.60e-02 -4.39e-03 -2.68e-02
## 96   -1.28e-02  2.66e-03  1.10e-02 -8.90e-03  5.29e-03 -4.20e-02
## 97   -3.97e-02 -4.37e-02 -6.36e-02  6.23e-02  4.16e-02  1.50e-01
## 98   -4.85e-04  2.65e-03 -8.19e-03  2.84e-02  5.32e-03  1.59e-02
## 99    5.26e-04 -2.75e-03  8.78e-03 -3.03e-02 -5.66e-03 -1.72e-02
## 100   5.17e-03  8.74e-03  1.02e-02 -4.78e-03 -9.86e-04  4.04e-02
## 101  -3.04e-02 -7.75e-03 -5.39e-03 -7.99e-03  5.51e-03 -4.53e-02
## 102  -1.94e-02 -1.27e-03 -1.41e-04  1.25e-03  4.45e-03  3.71e-03
## 103   6.10e-04  2.16e-03  3.01e-03 -9.46e-03 -1.05e-03 -2.69e-02
## 104   2.77e-02 -3.40e-03 -2.30e-02  1.29e-02  3.56e-03 -2.27e-03
## 105  -1.00e-03  7.41e-04  1.79e-03 -1.06e-03 -2.53e-04  1.77e-03
## 106   0.00e+00  0.00e+00  0.00e+00  0.00e+00  0.00e+00  0.00e+00
## 107   1.71e-02 -2.46e-03 -6.47e-03 -3.96e-03 -1.10e-04 -1.31e-02
## 110   5.68e-03 -1.25e-03 -2.43e-03  8.10e-04  1.25e-04  1.32e-02
## 111  -4.78e-02  9.49e-04 -6.62e-03  1.41e-02 -1.52e-02  2.17e-02
## 112  -6.42e-04 -4.58e-04 -2.34e-04 -8.68e-04 -1.70e-04 -2.46e-03
## 113  -5.49e-03 -3.12e-03 -6.80e-04 -7.11e-03 -1.68e-03 -4.88e-03
## 114   1.68e-03  1.03e-02  6.45e-04  1.42e-02 -1.04e-03 -2.59e-02
## 115   3.92e-04  2.41e-03 -1.98e-04  4.33e-03 -1.81e-04 -5.23e-03
## 117   1.32e-03 -4.93e-04  5.57e-04 -3.23e-03  1.40e-03 -1.61e-02
## 118  -9.24e-05  2.85e-05 -4.70e-05  2.39e-04 -9.49e-05  1.15e-03
## 120  -8.83e-03 -2.54e-02 -1.29e-02 -3.73e-02 -4.93e-03  6.87e-02
## 121  -3.89e-03 -1.12e-02 -5.68e-03 -1.64e-02 -2.17e-03  3.03e-02
## 122  -1.45e-03 -3.69e-03 -2.06e-03 -5.45e-03 -6.80e-04  3.63e-03
## 123  -3.94e-02 -3.12e-02 -2.22e-02  3.12e-02 -2.44e-03  1.53e-01
## 125   2.29e-02  4.40e-03  1.90e-03 -2.31e-03  5.25e-03 -2.67e-02
## 126  -3.00e-02 -5.78e-03 -8.09e-04 -1.11e-03 -1.78e-03 -1.06e-02
## 129  -6.37e-04  2.57e-03  2.32e-04  6.10e-03  1.44e-03  1.20e-03
## 130   1.88e-03 -3.45e-03  5.88e-04 -8.98e-03 -2.38e-03  1.18e-02
## 131   1.08e-02 -8.60e-04  1.29e-02 -2.70e-02 -7.73e-03  9.57e-02
## 132  -1.66e-02 -2.17e-02 -1.43e-02 -1.54e-02 -9.36e-03  2.68e-02
## 133  -4.06e-03  7.32e-03 -1.43e-03  1.96e-02  5.16e-03 -2.47e-02
## 134   1.60e-03 -2.19e-03  1.32e-03 -8.71e-03 -2.11e-03  6.06e-03
## 135   4.34e-03 -2.42e-04 -4.66e-03 -7.47e-04  1.04e-03 -3.68e-03
## 136   6.15e-02 -7.76e-03  1.26e-02 -4.42e-02 -3.41e-02  3.01e-01
## 137   9.00e-03 -8.00e-03 -3.99e-03 -1.62e-02 -7.78e-03 -7.05e-03
## 139   1.18e-03 -3.94e-04 -2.30e-03  2.56e-03  1.07e-04 -1.14e-02
## 140  -3.82e-03 -6.70e-03 -7.04e-03 -6.42e-03 -7.01e-03 -2.40e-02
## 141   3.15e-03  1.73e-03 -5.09e-04  6.29e-03  3.22e-04  1.65e-02
## 142  -9.51e-04  1.09e-02  8.45e-03 -1.18e-03  2.96e-03  5.78e-03
## 144  -3.48e-03  4.95e-04  7.36e-04 -9.35e-04 -1.92e-03 -3.97e-03
## 145   5.04e-03 -1.39e-02 -1.52e-02 -6.29e-03 -5.71e-03 -1.27e-02
## 149   2.66e-02 -1.44e-02 -1.71e-02  9.74e-04  7.84e-03  1.55e-02
## 150   3.25e-03  2.82e-03  6.75e-04  1.80e-03  4.06e-04 -1.81e-02
## 151   3.97e-03  5.55e-03  5.31e-03  1.24e-03 -6.05e-05  2.25e-02
## 152  -7.15e-04 -4.85e-04  8.10e-05 -8.32e-04 -1.49e-04  3.19e-03
## 153  -1.29e-02 -1.52e-02 -1.35e-02 -5.07e-03  3.93e-04 -5.30e-02
## 154   1.02e-02  1.51e-02  1.30e-02  3.26e-03 -1.93e-03  3.13e-02
## 155   2.67e-04 -2.11e-03 -1.03e-03 -3.33e-03 -3.83e-04 -9.61e-03
## 156   6.93e-03  9.23e-03  6.94e-03  5.92e-03 -8.98e-04  2.80e-02
## 157  -4.02e-03 -1.09e-02 -4.35e-03 -3.78e-02 -3.99e-03 -1.73e-01
## 158   8.47e-05  7.56e-04  6.14e-04  4.53e-04  3.28e-05  2.95e-03
## 159   6.01e-03  3.75e-03  9.53e-03 -1.59e-02 -3.29e-03  1.10e-02
```

```
## 160   1.77e-03  1.11e-03  1.11e-03 -1.35e-03 -1.51e-04 -6.69e-04
## 161   6.81e-03  7.06e-03  3.57e-03 -2.15e-03  3.12e-03 -7.36e-04
## 162   5.55e-02 -6.99e-02 -3.93e-02 -5.15e-02 -2.60e-02 -2.13e-02
## 163  -1.94e-02 -2.05e-02  2.04e-03 -1.07e-03 -9.70e-03 -2.64e-02
## 164  -2.69e-02 -2.64e-02  6.61e-03 -8.19e-03 -1.46e-02 -5.23e-02
## 165   3.08e-03 -5.55e-03 -5.82e-03 -1.33e-02  4.98e-03 -9.44e-03
## 166  -1.11e-02  1.24e-02  1.46e-02  4.56e-03  8.54e-03  1.28e-02
## 167   0.00e+00  0.00e+00  0.00e+00  0.00e+00  0.00e+00  0.00e+00
## 168   1.56e-02  2.18e-02  1.43e-02  4.57e-03  3.57e-03 -2.72e-02
## 169   6.14e-03  8.20e-03  5.00e-03  3.06e-03  1.59e-03 -8.05e-03
## 170   6.13e-03  7.67e-03  4.10e-03  4.88e-03  1.85e-03 -4.22e-03
## 171   6.11e-03  3.87e-03  3.73e-03 -4.41e-03  2.22e-04 -1.64e-02
## 172  -1.19e-03 -7.56e-04 -7.29e-04  8.62e-04 -4.34e-05  3.20e-03
## 173  -2.94e-04 -1.44e-04 -1.14e-04  9.12e-05 -2.80e-05  5.26e-04
## 174   6.21e-02 -1.31e-02 -1.56e-02  1.20e-02  1.84e-02  2.37e-02
## 175   2.69e-03  3.15e-03  2.27e-03  1.15e-03 -1.09e-03 -2.41e-06
## 176   5.86e-03  6.87e-03  4.94e-03  2.50e-03 -2.37e-03 -5.26e-06
## 177   2.39e-02 -6.68e-03  4.31e-04  1.13e-03 -8.54e-03  9.03e-02
## 178   4.52e-03  1.68e-02  1.56e-02 -6.46e-03 -2.86e-03 -1.47e-02
## 179   6.94e-03  2.58e-02  2.40e-02 -9.92e-03 -4.40e-03 -2.26e-02
## 180  -1.70e-02  1.40e-04 -1.95e-03  1.19e-02  5.00e-03  2.90e-02
## 181   1.65e-02 -3.76e-03 -8.41e-03  1.29e-02  2.40e-02 -1.46e-02
## 182   7.60e-04  4.64e-03  4.70e-03 -2.58e-03 -6.54e-03  1.15e-02
## 183  -2.85e-02 -2.78e-03 -1.15e-03 -1.43e-03 -6.28e-03 -9.78e-03
## 184  -1.04e-02 -4.08e-05 -6.04e-04 -5.30e-04 -2.39e-03 -3.52e-03
## 185   9.05e-03 -6.96e-03 -1.34e-02  7.69e-03  8.30e-03 -5.37e-03
## 186  -6.13e-05 -1.22e-03 -9.35e-04 -1.78e-03 -2.30e-03 -7.20e-03
## 187   1.52e-02  1.17e-02  6.68e-03  1.62e-02  1.27e-02  3.01e-02
## 188   2.22e-02 -4.98e-03 -2.22e-03 -1.22e-02  4.54e-03  3.28e-04
## 189   2.22e-02 -4.98e-03 -2.22e-03 -1.22e-02  4.54e-03  3.28e-04
## 190  -3.36e-04  1.89e-04  1.23e-04  3.78e-04  3.43e-05  2.15e-03
## 191  -6.79e-03 -5.06e-04 -1.79e-03  3.30e-03  4.82e-04 -7.80e-04
## 192  -2.44e-02 -1.37e-02 -1.83e-02  7.57e-04  1.24e-03 -1.20e-01
## 193   2.35e-02 -5.28e-03 -9.53e-03  1.69e-02  4.46e-03  8.22e-03
## 194   1.09e-02 -2.44e-03 -4.41e-03  7.79e-03  2.06e-03  3.80e-03
## 195   5.67e-03  2.67e-03  2.44e-03  4.79e-03  6.59e-04  3.57e-02
## 196  -3.41e-03  4.03e-04 -1.09e-03 -4.23e-03  3.85e-03 -4.66e-02
## 197  -2.92e-03 -9.30e-04 -2.70e-03 -5.44e-05  3.49e-03 -2.95e-02
## 198  -2.24e-04 -7.29e-03 -5.62e-03 -1.80e-03 -5.72e-03 -1.73e-02
## 199   1.19e-04 -5.81e-03 -3.01e-03 -7.48e-03 -6.94e-03 -3.12e-02
## 200   3.07e-02  1.33e-02  9.84e-03  6.74e-03  1.49e-02  4.18e-02
## 201   2.14e-02  7.21e-03  4.19e-03  4.26e-03  1.13e-02  8.82e-03
## 202   2.19e-02  1.66e-03 -3.44e-03  5.61e-03  8.52e-03 -4.65e-04
## 203   4.30e-02  9.31e-03  1.41e-02 -1.59e-02  9.26e-03  9.74e-02
## 204  -2.33e-02  2.64e-03  1.88e-02 -2.55e-02 -1.45e-02  7.20e-02
## 206   2.39e-03  3.80e-03  2.50e-03  1.00e-03 -1.02e-03 -1.78e-02
## 207   8.97e-03  1.32e-02  1.00e-02  8.62e-03 -2.13e-03  1.12e-02
## 208   3.60e-03  2.70e-03  8.38e-04  1.31e-03  5.88e-04 -4.42e-03
## 209   9.89e-03  8.44e-03  4.00e-03  4.15e-04  1.17e-03 -1.89e-02
## 210  -2.64e-03 -2.74e-03 -1.64e-03 -1.38e-03 -1.52e-03  4.59e-03
## 211  -9.24e-03 -2.77e-02 -1.73e-02  3.76e-02 -6.88e-04  8.10e-02
## 212   1.07e-02  1.02e-03  1.03e-03 -5.72e-04  3.21e-03 -6.65e-04
## 213   4.28e-03  1.84e-03  2.41e-03 -5.21e-03 -6.30e-04 -5.49e-03
## 214  -3.53e-03 -1.34e-03 -1.73e-03  3.84e-03  4.59e-04  3.47e-03
```

```
## 215  -9.69e-03 -3.48e-03 -4.44e-03   1.00e-02   1.19e-03  8.25e-03
## 216  -6.10e-04 -3.05e-04 -4.58e-04   1.81e-03   3.86e-04  8.53e-03
## 217   8.88e-03  1.98e-02  2.08e-02  -1.69e-02  -2.87e-03 -3.11e-02
## 218   1.13e-02  2.85e-02  2.95e-02  -1.94e-02  -3.05e-03 -1.96e-02
## 219  -9.24e-03 -1.79e-04  3.54e-03  -3.56e-03  -3.77e-04 -1.33e-02
## 220   1.24e-03  4.13e-04 -4.67e-05   6.67e-04   1.06e-03 -1.12e-02
## 221   3.93e-05  4.23e-05  4.08e-05   4.61e-05   1.13e-05  3.49e-04
## 222  -6.41e-04 -4.59e-04 -4.59e-04  -7.27e-05  -2.66e-04 -2.64e-03
## 223  -1.13e-04  1.11e-03 -4.41e-04   1.90e-03  -5.12e-04 -4.87e-03
## 224  -1.42e-04  2.38e-03 -2.65e-04   2.49e-03  -1.06e-03 -1.10e-02
## 225   6.14e-03  9.08e-03  2.92e-03   1.31e-02   5.95e-03 -1.37e-02
## 226   2.63e-03  5.70e-03  4.28e-03   5.13e-03   1.99e-03  1.81e-02
## 227  -2.82e-03  7.25e-03  1.04e-02  -2.95e-02  -8.44e-03 -1.28e-01
## 228  -5.13e-03 -6.70e-03 -8.08e-03   8.77e-03   3.48e-05  8.70e-03
## 229   2.21e-04  1.56e-03  1.00e-03   3.61e-04   8.54e-04 -2.14e-03
## 230  -3.07e-02  4.49e-04 -7.13e-04   8.84e-03  -5.30e-03 -3.70e-02
## 231   2.82e-03  2.31e-03  1.28e-03  -9.42e-05   2.37e-04 -5.94e-03
## 232  -5.38e-03 -4.41e-03 -2.44e-03   1.80e-04  -4.53e-04  1.13e-02
## 233  -7.52e-04  6.27e-05  8.70e-04   8.76e-04  -1.56e-04  1.74e-02
## 234  -3.00e-03  2.50e-04  3.47e-03   3.49e-03  -6.21e-04  6.92e-02
## 235   1.16e-02 -1.59e-02 -2.32e-02   3.89e-02   1.80e-02  8.77e-02
## 236   1.51e-03 -3.83e-04  1.53e-03  -2.93e-03  -3.40e-04  1.99e-02
## 237  -1.11e-03  2.81e-04 -1.12e-03   2.15e-03   2.50e-04 -1.46e-02
## 238  -8.42e-03  3.58e-04 -5.59e-03   9.59e-03   2.53e-03 -5.60e-02
## 241  -7.98e-04 -3.47e-04  3.75e-07   3.92e-04  -3.44e-05 -2.75e-03
## 242   3.45e-03 -1.88e-04 -1.25e-03   1.90e-03  -1.27e-03  1.36e-02
## 243  -1.14e-02  6.21e-04  4.14e-03  -6.26e-03   4.20e-03 -4.48e-02
## 246  -8.89e-03 -2.05e-02 -1.96e-02   2.59e-02  -6.24e-03  3.01e-02
## 249  -2.66e-02 -1.74e-02 -1.53e-02   4.32e-03   6.39e-03 -1.83e-02
## 250  -8.25e-04  3.59e-02  3.37e-02   6.87e-03  -7.42e-03  1.46e-01
## 251   4.77e-03  1.11e-02  8.75e-03   9.58e-03   2.90e-03  4.32e-02
## 252   4.74e-04  6.75e-03  5.94e-03   5.12e-03  -9.71e-04  4.62e-02
## 253  -2.75e-02 -1.01e-02 -9.07e-03  -1.07e-03  -9.32e-03 -3.56e-02
## 254  -9.23e-03 -4.35e-03 -6.64e-03  -5.93e-03  -1.84e-03 -9.15e-02
## 255  -9.78e-04  2.70e-03  1.88e-03   2.54e-03  -6.55e-04  1.37e-02
## 257  -7.79e-03  2.29e-02  1.66e-02   1.82e-02  -5.64e-03  1.06e-01
## 258  -1.95e-03  5.72e-03  4.15e-03   4.55e-03  -1.41e-03  2.65e-02
## 259   4.85e-02  2.20e-02  8.24e-03   3.37e-02   1.01e-02  2.06e-02
## 260   1.54e-02  1.57e-02  1.53e-02   1.10e-02   1.35e-03  1.14e-01
## 261   1.40e-03 -1.87e-03 -9.85e-04  -6.03e-03   7.11e-04 -3.46e-02
## 262   1.68e-03  2.23e-04  3.31e-04   1.48e-03   6.28e-04  1.13e-02
## 263  -1.27e-03 -6.26e-03 -5.43e-03  -7.05e-03  -3.00e-03 -3.68e-02
## 264   4.23e-03 -6.45e-03 -9.78e-03   5.85e-03   3.48e-03 -5.05e-02
## 265  -1.67e-02 -1.38e-03  1.84e-04  -1.82e-03  -9.94e-03  1.90e-02
## 266   2.08e-03  6.30e-04  2.27e-04   1.96e-03   6.58e-04  6.48e-03
## 267  -6.09e-03  9.76e-04  4.30e-03  -1.47e-02  -2.39e-03 -3.40e-02
## 268   1.02e-02  1.19e-02  6.72e-03   1.18e-02   6.88e-03  2.22e-02
## 269   9.13e-03  4.43e-03 -7.08e-03   2.09e-02   9.27e-03 -6.89e-02
## 270  -9.58e-02  1.50e-02  1.81e-03   3.97e-02  -3.39e-02  1.72e-02
## 271   6.57e-03  1.25e-02  4.81e-03  -2.82e-03   1.03e-02 -1.01e-01
## 272  -2.05e-02 -3.10e-02 -2.69e-02  -1.96e-02  -8.60e-03 -1.74e-01
## 273  -2.42e-02 -3.94e-02 -3.65e-02  -1.25e-02  -8.55e-03 -1.78e-01
## 274  -2.71e-04 -1.44e-03 -1.57e-03  -1.13e-03   7.11e-04 -1.32e-02
## 275  -8.90e-03 -4.74e-03 -5.14e-03  -5.78e-03  -5.75e-03 -7.40e-02
```

```
## 276   6.40e-03 -1.61e-02 -1.28e-02  -2.30e-02  -7.45e-04  5.59e-02
## 277   1.58e-03 -3.97e-03 -3.17e-03  -5.70e-03  -1.84e-04  1.38e-02
## 278   4.72e-04 -1.19e-03 -9.47e-04  -1.70e-03  -5.50e-05  4.13e-03
## 279  -4.59e-03 -2.06e-02 -2.05e-02  -1.88e-02  -2.79e-04 -8.51e-02
## 280   6.27e-03 -9.64e-03 -2.09e-02  -2.16e-02   1.00e-03  9.78e-03
## 281   2.10e-02 -6.65e-03 -1.57e-04  -2.15e-02   1.01e-02 -6.48e-03
## 282  -6.83e-03 -8.23e-03 -5.68e-03  -9.60e-03  -6.23e-03 -1.08e-02
## 283  -3.44e-03 -4.09e-03 -4.47e-03  -6.03e-05  -5.40e-04 -1.05e-02
## 284  -1.42e-03 -1.54e-03 -1.83e-03   3.26e-03  -3.04e-04  2.14e-02
## 285   3.13e-04  6.92e-04  7.73e-04   1.89e-04   2.41e-06  5.09e-03
## 286   3.13e-04  6.92e-04  7.73e-04   1.89e-04   2.41e-06  5.09e-03
## 287   3.79e-03  8.82e-03  1.02e-02  -9.55e-03  -4.59e-03  9.88e-03
## 288   9.56e-03 -4.51e-03 -1.39e-03   6.41e-03  -3.64e-03  4.52e-02
## 289   4.54e-03 -2.70e-03 -1.43e-03   4.47e-03  -1.58e-03  2.49e-02
## 290  -1.99e-02 -1.34e-02 -1.22e-02   2.09e-02  -5.41e-03  2.16e-02
## 292  -6.10e-03 -4.35e-03 -5.03e-03   2.85e-03   2.30e-03 -1.19e-02
## 294   9.74e-04 -1.02e-02 -6.05e-03  -7.23e-03  -3.74e-03 -4.28e-02
## 298  -7.03e-03 -7.34e-04  2.57e-03  -4.14e-03  -5.87e-03 -2.55e-02
## 299  -5.59e-03  5.41e-03  5.40e-03  -2.06e-03  -3.02e-03 -4.68e-03
## 300   1.35e-02 -1.69e-02 -2.00e-02  -7.45e-03  -2.45e-03 -1.68e-02
## 301  -2.22e-03  4.06e-03  5.10e-03  -1.45e-03   6.67e-05 -3.23e-03
## 302  -1.12e-03 -4.47e-04 -5.54e-04   3.20e-04  -9.30e-05 -2.34e-03
## 303  -7.55e-04  3.15e-04  3.11e-04   6.80e-04  -1.28e-04  4.39e-03
## 305   5.49e-04  6.72e-03  6.67e-03   2.87e-03  -2.34e-03  3.18e-02
## 306   1.09e-03  1.33e-02  1.32e-02   5.48e-03  -4.63e-03  6.21e-02
## 307  -1.57e-03  1.07e-03  3.43e-03  -4.20e-03  -3.70e-03 -1.99e-03
## 308  -5.87e-02 -1.85e-02 -1.17e-02  -4.20e-03  -1.27e-02  2.28e-02
## 309   3.01e-02 -7.52e-03 -5.26e-03  -9.65e-04   1.10e-02  2.18e-02
## 310  -3.95e-03  3.66e-03  1.71e-02  -1.75e-02  -1.95e-03 -2.01e-02
## 311   6.35e-03 -1.59e-03 -1.93e-02   1.55e-02   1.52e-03  7.26e-03
## 312   2.99e-02  2.52e-02  2.02e-02   6.92e-03   4.12e-03  6.12e-02
## 313   4.09e-03  3.23e-03  2.42e-03   1.63e-03   6.59e-04  9.97e-03
## 314  -5.71e-03 -2.97e-03 -1.01e-03  -3.61e-03  -1.40e-03 -3.42e-03
## 316   3.44e-03 -2.55e-03 -1.66e-03  -2.82e-03   1.76e-03 -9.17e-03
## 317   5.50e-03  4.32e-03  7.98e-03  -2.06e-03  -3.02e-03  1.12e-02
## 318  -2.99e-03  3.75e-04 -2.22e-03   6.10e-04   2.50e-03  1.33e-02
## 319   1.67e-04  7.69e-05  2.00e-04  -5.25e-05  -1.09e-04 -4.56e-05
## 320  -1.26e-02  1.17e-03  1.18e-03  -5.91e-04  -3.20e-03 -1.13e-04
## 322   5.65e-03  5.79e-03  7.50e-03  -2.19e-03  -5.37e-04  1.16e-02
## 323  -8.52e-03 -7.12e-03 -4.80e-03  -5.35e-03   1.36e-04 -2.45e-03
## 324   2.62e-03  2.21e-03  1.51e-03   1.59e-03  -4.97e-05  6.25e-04
## 326   2.00e-04 -1.17e-04 -4.03e-04  -5.03e-04   2.50e-04  1.30e-03
## 327  -5.98e-02 -2.57e-03 -5.93e-03   4.76e-04  -6.38e-03 -2.99e-02
## 328   3.78e-03  3.77e-03  1.29e-03   9.63e-04  -1.23e-03  9.41e-04
## 329  -7.36e-04 -7.34e-04 -2.51e-04  -1.87e-04   2.39e-04 -1.83e-04
## 330   1.38e-03  3.02e-03  7.54e-04   1.85e-03   2.05e-03  6.31e-04
## 331  -6.46e-02 -1.19e-03 -3.60e-03   1.21e-02  -2.59e-02  1.30e-02
## 332   2.06e-04 -2.01e-04 -7.34e-04  -2.92e-04   3.20e-03 -1.00e-02
## 333   8.20e-02  6.05e-02  5.30e-02   1.00e-01   2.10e-02  7.58e-01
## 334   1.11e-04 -2.14e-04 -5.86e-04   5.89e-05   2.01e-03 -5.65e-03
## 335   3.04e-03  2.00e-02  2.20e-02   1.05e-02  -7.49e-03  1.68e-01
## 336  -6.62e-04  6.66e-03  7.00e-03   5.46e-03  -3.72e-03  6.21e-02
## 337  -5.51e-02 -1.95e-02 -4.65e-02   8.00e-02   4.48e-02  1.61e-02
## 338   1.16e-04  2.61e-04  3.08e-04  -3.99e-04  -1.47e-04 -5.47e-04
```

```
## 339   1.14e-03  6.42e-03  1.10e-02 -2.20e-02 -1.74e-03 -5.04e-02
## 340   3.92e-04  2.08e-03  4.54e-03 -1.03e-02 -2.37e-04 -2.42e-02
## 341   1.32e-03  2.95e-03  3.49e-03 -4.51e-03 -1.66e-03 -6.19e-03
## 342   1.67e-03  1.97e-03  1.51e-03  5.05e-04  2.87e-03 -1.40e-02
## 343  -1.09e-03 -9.82e-04 -1.83e-04 -3.12e-03 -6.11e-04 -8.08e-03
## 344  -1.13e-03 -4.76e-04  1.51e-03 -4.63e-03 -1.31e-03  7.68e-03
## 345  -7.09e-05 -2.72e-03 -1.30e-03 -1.07e-03 -8.99e-03 -2.05e-02
## 346  -9.83e-03 -1.16e-02 -5.24e-03 -4.32e-02 -2.35e-02 -6.63e-02
## 347   8.22e-03  1.18e-02  1.18e-02 -5.33e-03  2.00e-04  9.88e-03
## 348  -1.93e-05 -7.43e-04 -3.55e-04 -2.92e-04 -2.45e-03 -5.59e-03
## 349  -3.90e-03 -1.80e-03 -1.39e-03  6.39e-04 -7.63e-04  3.83e-04
## 350  -6.23e-07 -2.39e-05 -1.14e-05 -9.40e-06 -7.89e-05 -1.80e-04
## 351   1.12e-03  5.21e-04  4.02e-04 -1.85e-04  2.20e-04 -1.11e-04
## 352  -3.13e-02 -3.11e-02 -3.12e-02  4.22e-02 -1.98e-03 -5.39e-03
## 353  -2.59e-03 -2.73e-03 -1.87e-03 -2.37e-03 -2.26e-03  2.30e-03
## 354  -2.59e-03 -2.73e-03 -1.87e-03 -2.37e-03 -2.26e-03  2.30e-03
## 356   1.71e-02 -1.31e-03 -7.47e-04 -1.03e-03 -9.38e-04  1.90e-03
## 357  -2.73e-02  5.09e-04  2.70e-04 -2.24e-04  2.89e-04 -2.24e-03
## 358  -3.02e-01 -2.05e-03  1.16e-02 -3.22e-02 -1.73e-02  9.37e-03
## 359  -2.85e-01 -1.87e-02 -8.77e-03 -3.46e-02 -1.51e-02 -1.30e-01
## 360   1.71e-01 -1.79e-04 -2.58e-05 -3.43e-03  2.08e-04 -3.36e-02
## 361  -1.69e-01  1.97e-03  2.67e-03 -1.35e-03 -8.36e-04  2.26e-02
## 362   1.52e-03 -1.07e-04 -9.02e-05 -6.40e-05 -6.13e-05 -2.08e-04
## 363   1.34e-01  6.02e-03  7.46e-03 -4.43e-03 -4.55e-04  7.09e-03
## 364   2.45e-01  1.15e-02  1.43e-02 -9.31e-03 -9.94e-04  1.02e-02
## 365   2.28e-01  1.96e-03  3.19e-03 -1.03e-02 -4.95e-04 -5.75e-02
## 366  -2.23e-02 -3.72e-01 -1.11e-02  6.82e-03  5.94e-04 -3.81e-02
## 367  -4.77e-03 -7.95e-02 -2.36e-03  1.46e-03  1.27e-04 -8.14e-03
## 368  -2.71e-02  1.14e-01  2.62e-03 -5.58e-03 -1.40e-02  1.75e-02
## 369   3.43e-03  1.77e-01 -1.98e-04 -3.77e-03  1.33e-03 -3.15e-02
## 370  -6.91e-03 -3.69e-01  2.72e-03  3.76e-03 -3.33e-03  5.65e-02
## 371  -8.02e-03 -1.19e-01 -4.59e-03  2.66e-03 -7.44e-06  2.92e-02
## 372  -3.14e-02  2.42e-01 -1.57e-02  2.12e-02  2.33e-03  7.15e-02
## 373   4.76e-02  3.90e-01 -2.24e-02  2.40e-02  3.92e-02 -1.62e-02
## 374  -4.21e-03 -1.83e-04 -8.32e-03 -8.41e-04 -1.40e-03 -3.39e-03
## 375   8.76e-03  1.07e-02  8.62e-02  7.75e-05 -1.03e-03  6.91e-03
## 376   2.12e-02  2.67e-02  2.09e-01 -1.96e-03 -2.77e-03  1.18e-02
## 377  -1.62e-04 -8.49e-05 -4.37e-03 -4.89e-05  1.21e-05  1.64e-03
## 378  -1.24e-03 -1.63e-03 -1.49e-02  5.23e-05  1.52e-04 -3.35e-03
## 379  -1.07e-03 -6.24e-04 -2.40e-02 -1.22e-03 -7.54e-05  1.24e-02
## 380  -1.10e-02 -1.46e-02 -1.08e-01 -4.29e-03  5.86e-04 -3.15e-02
## 381   4.96e-03  6.73e-03  4.87e-02  1.43e-03 -3.29e-04  1.30e-02
## 382   6.97e-03  9.90e-03  8.30e-02 -2.83e-03 -1.17e-03  1.26e-02
## 383  -6.22e-03 -1.67e-03  2.98e-02  4.98e-03  3.66e-03 -9.98e-03
## 384   9.57e-03  1.15e-02 -9.88e-02 -1.32e-03 -1.62e-03  6.53e-03
## 385   3.80e-03  4.42e-03 -3.99e-02 -2.24e-05 -5.81e-04  3.76e-03
## 386   5.07e-03  5.88e-03 -5.32e-02 -2.99e-05 -7.74e-04  5.00e-03
## 387   5.16e-03  2.11e-02 -1.23e-01  1.28e-02  2.90e-03 -2.39e-02
## 388   7.64e-03  3.19e-02 -1.72e-01  1.32e-02  3.45e-03 -4.51e-02
## 389   5.92e-03  2.46e-02 -1.36e-01  1.20e-02  2.93e-03 -3.21e-02
## 390  -1.37e-02 -3.90e-03  4.33e-02  1.02e-02 -9.46e-05  2.21e-02
## 391  -3.71e-03  2.84e-02  1.29e-01 -1.55e-02 -8.32e-03  2.59e-02
## 392   2.07e-03 -3.79e-03  2.50e-02 -5.71e-03 -4.33e-03  1.75e-04
## 393  -5.36e-02 -2.79e-02  2.23e-01  1.22e-03  1.91e-02 -1.76e-01
```

```
## 394   3.33e-04 -5.27e-03  1.84e-01  -4.65e-02  -7.46e-03 -1.46e-01
## 395  -3.89e-02 -2.79e-02  8.34e-02   1.55e-02  -1.25e-03  4.42e-02
## 396   9.45e-03 -8.99e-03 -6.96e-02   2.23e-03   3.06e-03  6.41e-02
## 397  -3.00e-02 -9.40e-03 -1.57e-01  -1.97e-02  -8.42e-03 -5.34e-02
## 398  -3.86e-03 -1.40e-03 -2.03e-02  -1.98e-03  -1.00e-03 -5.63e-03
## 402  -1.41e-03  1.96e-03  1.60e-03  -4.03e-02   2.06e-04  9.37e-03
## 403  -9.21e-03  2.04e-03  1.68e-03  -2.09e-01  -1.35e-03 -6.32e-02
## 405  -3.16e-03 -1.81e-03 -2.00e-03  -1.01e-01  -1.05e-03 -3.12e-02
## 406  -2.36e-03 -7.11e-03 -8.00e-03   1.11e-01   1.27e-03 -5.14e-02
## 407   5.53e-03 -1.65e-03 -4.05e-04   6.98e-02  -8.43e-04  1.08e-02
## 408   1.63e-02 -4.20e-03  3.43e-03   2.19e-01  -5.99e-03 -8.12e-02
## 409   5.33e-03  4.78e-03  5.61e-03  -6.32e-02   1.08e-03 -9.34e-04
## 410   3.22e-03  1.71e-03  4.71e-03  -8.36e-02  -3.02e-03  2.84e-03
## 411  -3.88e-03  6.75e-03  4.27e-03   1.62e-01   3.78e-03 -2.71e-02
## 412  -7.25e-04  1.91e-03  2.65e-03   2.83e-02  -1.19e-03  1.33e-02
## 413   9.35e-04  5.31e-03  5.18e-03   4.59e-02   8.86e-04  1.80e-02
## 416   1.56e-02 -4.48e-03 -3.36e-03  -2.07e-01   2.77e-03  8.54e-02
## 417   3.83e-02  7.98e-03  3.73e-03   4.64e-03   2.29e-01  3.73e-02
## 418   4.70e-02  2.73e-03 -3.37e-03  -6.77e-03   3.22e-01 -6.85e-02
## 419  -1.99e-03  2.35e-03  2.77e-03  -1.03e-03  -3.32e-02  2.20e-04
## 420   4.08e-02 -7.17e-03 -1.53e-02   1.91e-02  -1.84e-01  5.80e-02
## 421   2.95e-02 -9.33e-03 -1.31e-02  -1.61e-02  -1.62e-01 -1.22e-01
## 422  -2.99e-02 -1.29e-02 -1.58e-02   1.93e-02  -1.57e-01 -5.84e-03
## 423  -3.11e-02 -2.01e-03 -2.60e-03   5.95e-03   1.17e-01 -3.89e-02
## 424   1.39e-02  1.99e-03 -7.10e-04  -1.17e-03   1.11e-01 -2.33e-02
## 425   1.93e-02  7.54e-03  5.03e-03   2.93e-03   1.24e-01  2.99e-02
## 426   3.30e-05  3.17e-03  3.15e-03   6.29e-05  -2.27e-02 -1.32e-03
## 427   1.54e-02  3.04e-03  1.24e-03   2.47e-03  -5.66e-02  9.69e-03
## 428   2.13e-03  5.32e-03  6.75e-03  -1.84e-02  -2.59e-01  6.02e-03
##         dfb.M     dfb.L     dfb.W dfb.TYPEM dfb.TYPESP dfb.TYPESU
## 1    4.11e-02  1.67e-02 -2.63e-02 -1.88e-02   1.64e-02  -2.48e-02
## 2    7.03e-02  2.57e-02 -4.38e-02 -3.19e-02   2.67e-02  -4.25e-02
## 3    1.45e-01  1.73e-02 -1.81e-01 -1.19e-02   4.75e-02  -1.49e-01
## 4   -2.05e-01  2.39e-01 -1.40e-01  2.38e-01   4.35e-01   2.51e-01
## 5    4.00e-02  4.59e-02 -1.87e-02 -2.37e-02   6.26e-02  -2.81e-03
## 6   -1.33e-02  1.02e-01 -6.72e-02  4.61e-02   1.05e-01   7.85e-02
## 7   -2.11e-02 -1.04e-02  4.70e-02 -1.01e-02   5.16e-03   9.70e-03
## 8   -5.20e-03  5.81e-03 -1.47e-02 -8.59e-04   1.13e-02  -3.35e-02
## 9   -1.59e-02  1.97e-02 -2.78e-04  2.24e-03   2.43e-02  -9.12e-03
## 10   1.12e-01 -6.22e-02 -3.29e-02 -3.49e-02  -3.73e-02  -3.15e-02
## 11  -3.08e-03  2.49e-04  6.59e-03 -7.58e-04   7.71e-03   5.69e-03
## 12  -5.83e-04 -1.54e-03  9.47e-03 -3.03e-03   1.27e-02   6.71e-03
## 13   9.66e-02 -2.98e-02 -5.76e-02 -2.87e-02  -2.42e-02  -6.93e-02
## 14   1.00e-01 -3.87e-02 -1.99e-02 -3.39e-02  -7.92e-03  -1.52e-02
## 15  -1.72e-03  6.19e-03 -4.69e-03  2.16e-03   9.29e-04   1.46e-03
## 16   6.20e-04 -2.34e-03  1.08e-03 -8.41e-04  -6.55e-04  -2.27e-03
## 17  -2.50e-03 -2.18e-02  2.01e-02 -7.50e-03  -1.19e-02  -6.97e-03
## 18  -1.38e-04 -2.88e-03  2.36e-03 -5.79e-04  -1.00e-03  -2.85e-04
## 19   2.64e-03 -1.47e-02  1.70e-02 -6.37e-03   1.91e-03  -1.75e-03
## 20  -2.68e-02  5.05e-02 -1.08e-02  1.14e-03  -8.57e-03  -2.19e-03
## 21   1.44e-01  5.07e-03 -1.52e-01  1.47e-03  -5.73e-02  -6.21e-02
## 22   9.53e-03  9.93e-03  3.50e-02 -2.60e-02   4.57e-02  -1.09e-03
## 23   5.17e-03  1.44e-02  1.70e-02 -9.13e-03   4.25e-02   1.21e-02
## 24   1.39e-02 -8.43e-02  1.16e-01 -4.58e-02   5.90e-02  -1.27e-02
```

```
## 25  -5.93e-02 -2.73e-02  8.81e-02 -4.32e-03   3.65e-02   4.14e-03
## 26   5.34e-03  2.26e-02 -3.06e-02  9.45e-03  -1.24e-02   1.13e-02
## 27  -5.09e-04 -1.09e-03  3.09e-03 -2.80e-03   6.79e-03  -3.23e-03
## 28   7.05e-02 -2.60e-02 -3.24e-02 -1.76e-02  -2.37e-02  -3.03e-02
## 29  -1.07e-02  6.96e-03  9.22e-03 -5.58e-03   3.16e-02  -4.63e-03
## 30  -2.83e-03  3.87e-03 -1.17e-03  5.12e-03  -3.57e-04   1.43e-02
## 31   2.74e-03 -1.05e-03 -1.94e-03 -1.51e-03   4.05e-03  -8.31e-03
## 32   1.08e-03 -5.94e-03 -4.70e-03  4.01e-03  -1.86e-02   1.12e-03
## 33   8.44e-02 -4.59e-02 -4.80e-02 -1.62e-02  -5.68e-02  -4.15e-02
## 34  -5.63e-05  3.10e-04  2.45e-04 -2.09e-04   9.74e-04  -5.87e-05
## 35  -2.43e-03 -1.94e-02  3.84e-03 -1.26e-02  -1.47e-02  -5.25e-02
## 36  -6.07e-02  5.80e-02  6.19e-02 -2.61e-03   2.21e-03   4.02e-02
## 37  -7.77e-02  4.85e-02  5.92e-02  7.30e-03  -2.50e-02   4.25e-02
## 38  -4.74e-04 -4.76e-05  2.82e-04  4.76e-05  -8.64e-04   6.23e-05
## 39   1.62e-02 -1.21e-02  1.02e-02 -1.92e-02  -2.66e-02  -2.07e-02
## 40   1.47e-02  1.01e-02 -5.25e-03 -1.35e-02  -1.32e-02  -1.22e-02
## 41  -6.59e-02 -7.37e-02  1.50e-01 -3.66e-02  -1.97e-01  -1.85e-02
## 42   1.04e-01 -1.78e-01  1.35e-01 -1.23e-01  -2.59e-01  -1.38e-01
## 43   2.32e-03 -8.32e-04 -1.12e-03 -9.24e-04  -4.75e-04  -2.65e-03
## 44  -7.64e-04  3.60e-02 -9.28e-03  4.97e-04   2.73e-02  -4.07e-02
## 45   2.24e-03  5.45e-03 -1.86e-02  1.53e-03  -4.37e-02  -5.51e-03
## 46  -3.45e-03 -6.01e-03  1.07e-02  5.23e-04   2.22e-02   3.10e-03
## 47   7.46e-03  5.05e-03 -2.00e-02  7.68e-03  -2.45e-03   2.01e-02
## 48   4.63e-03 -1.68e-03 -1.05e-02  6.93e-03  -8.49e-04   1.43e-02
## 49  -1.35e-03  6.17e-05  1.53e-02 -1.39e-02   1.34e-03  -2.73e-02
## 50   1.60e-03  4.44e-02  4.98e-03 -2.04e-02   3.76e-02  -2.54e-02
## 51   1.76e-02  2.39e-02 -8.52e-03 -2.51e-02   1.23e-02  -4.61e-02
## 52  -1.53e-04 -8.12e-04  2.27e-02 -1.72e-02   5.63e-03  -2.59e-02
## 53   3.60e-03  1.22e-02 -2.93e-04  4.26e-04   1.78e-02   1.65e-02
## 54   5.73e-05  6.49e-03 -4.44e-03  4.63e-03   5.10e-03   1.88e-02
## 55  -2.28e-03  6.36e-03  7.62e-04 -9.36e-03  -1.93e-03  -3.26e-02
## 56  -6.48e-02 -3.65e-03  1.48e-01 -5.11e-02   1.39e-01   5.42e-02
## 57  -6.39e-03  1.14e-02 -3.78e-05 -1.07e-03   4.63e-03  -4.30e-03
## 58  -1.28e-02  1.87e-02 -2.01e-03 -1.22e-03   2.66e-03  -1.03e-02
## 60  -1.13e-01  1.25e-01 -8.25e-02  8.33e-02   3.08e-02   1.94e-02
## 61  -1.09e-02 -2.98e-02  6.42e-02 -3.86e-02  -2.38e-02  -5.80e-02
## 62   2.83e-02 -2.27e-02  1.82e-02 -3.13e-02  -2.16e-03  -5.74e-02
## 63   3.08e-02 -1.40e-02 -6.84e-02  4.16e-02   1.72e-01  -3.83e-02
## 64  -4.41e-02  5.59e-02 -2.89e-02 -4.38e-02   2.06e-02   6.96e-02
## 66  -2.49e-02  7.44e-02  2.61e-02  7.80e-03   4.70e-02   3.49e-02
## 67  -3.82e-02  9.90e-02 -3.05e-02  3.07e-02   5.65e-02   5.24e-02
## 68   6.74e-02 -4.55e-02 -4.10e-03 -1.28e-02  -8.84e-03  -2.90e-02
## 69   3.61e-02 -6.19e-02  4.93e-02 -2.05e-02  -2.32e-02  -2.71e-02
## 70   6.39e-03 -4.31e-03 -3.89e-04 -1.21e-03  -8.38e-04  -2.75e-03
## 72  -5.16e-02  6.20e-04  2.73e-02  7.50e-03   2.24e-02   1.31e-02
## 73  -1.43e-01  1.34e-03  7.56e-02  2.05e-02   6.23e-02   3.58e-02
## 74  -1.05e-03 -1.46e-02 -2.67e-03  1.29e-02  -1.04e-02   6.86e-03
## 75  -2.59e-03  1.73e-02  3.18e-03 -1.42e-02   8.56e-03  -7.78e-03
## 76   4.70e-04  7.99e-03 -6.08e-04 -1.15e-02  -7.77e-04  -1.00e-02
## 77  -2.98e-03 -7.60e-04  1.80e-03  2.33e-03  -1.36e-03   2.39e-03
## 78  -3.06e-02  5.57e-03  2.66e-02  2.19e-02   8.87e-03   3.20e-02
## 79   2.06e-02 -4.26e-03 -1.68e-02 -1.41e-02  -5.40e-03  -2.07e-02
## 80  -2.07e-02 -2.01e-03  2.39e-02  5.24e-03  -5.38e-03   8.26e-03
## 81   7.68e-04 -1.54e-03 -1.15e-03  1.45e-03  -8.68e-04   5.85e-04
```

```
## 82  -2.24e-03  7.45e-03  6.11e-03 -1.12e-02   2.78e-03  -7.06e-03
## 86  -9.94e-04  4.11e-03 -5.32e-04  1.88e-05   2.41e-03   4.67e-03
## 87   1.43e-02 -2.54e-02  2.59e-02 -2.61e-02  -1.58e-02  -8.27e-03
## 88  -1.23e-01 -7.00e-03 -7.90e-02  1.60e-01  -5.51e-02   3.25e-01
## 89  -1.46e-02  1.72e-02 -2.59e-03  8.00e-03   1.40e-02  -4.43e-02
## 90   1.13e-02  3.03e-02 -1.17e-01  3.14e-01   1.02e-02   5.23e-02
## 91   6.72e-02 -1.01e-01 -3.00e-02 -3.02e-02  -7.35e-02  -5.79e-02
## 92   1.35e-03 -6.24e-05 -1.37e-03  7.05e-04   5.90e-04  -5.28e-05
## 93  -3.09e-02 -3.27e-03  3.72e-02 -2.43e-02  -1.95e-02  -4.46e-03
## 94   1.03e-01 -1.25e-01 -2.01e-02 -1.48e-03  -5.97e-02  -6.72e-02
## 95   8.90e-02 -9.63e-02 -1.28e-02 -4.11e-03  -3.44e-02  -5.32e-02
## 96   6.67e-02 -1.12e-01  1.59e-02 -3.74e-02   6.74e-02  -3.23e-02
## 97  -3.08e-01  3.55e-01 -2.94e-01  3.49e-01   2.31e-01   2.84e-01
## 98  -8.89e-02  9.65e-02  2.67e-02  4.38e-02   4.65e-02   6.25e-02
## 99   9.51e-02 -1.03e-01 -2.86e-02 -4.68e-02  -4.93e-02  -6.68e-02
## 100  3.45e-02 -4.18e-02 -1.16e-02  1.67e-02  -2.79e-02  -2.34e-02
## 101  6.20e-02  1.31e-01 -2.10e-01  4.38e-02   8.98e-02   4.21e-02
## 102  2.35e-02  1.08e-01 -1.50e-01  1.24e-02   5.51e-02   3.21e-02
## 103  4.74e-02 -2.74e-02 -7.38e-03  4.58e-03   2.04e-03  -2.30e-02
## 104 -7.98e-02 -3.07e-02  1.39e-01  2.26e-01  -1.58e-02   4.26e-02
## 105  6.75e-03 -8.47e-04 -7.77e-03 -1.13e-02  -7.45e-04  -4.23e-03
## 106  0.00e+00  0.00e+00  0.00e+00  0.00e+00   0.00e+00   0.00e+00
## 107 -1.18e-02 -5.86e-02  7.84e-02  5.33e-02  -2.60e-02  -7.63e-03
## 110 -2.45e-02 -9.74e-03  2.40e-02  1.21e-02  -1.29e-02  -9.20e-03
## 111 -3.48e-02 -2.32e-03  3.39e-02  1.64e-01  -9.42e-03  -3.84e-02
## 112  2.74e-03 -1.67e-03 -1.76e-03  1.81e-03   1.13e-04  -5.66e-04
## 113  2.17e-02 -1.98e-02 -1.89e-02  2.29e-02  -7.40e-03  -4.22e-03
## 114 -1.11e-02  2.15e-02  6.37e-02  8.70e-03   2.40e-02  -6.80e-03
## 115 -6.33e-03  7.05e-03  1.76e-02  3.62e-03   6.22e-03   3.27e-04
## 117  1.28e-02  1.22e-02 -1.87e-02 -2.63e-02   1.20e-02  -4.29e-03
## 118 -9.67e-04 -8.14e-04  1.32e-03  1.86e-03  -8.28e-04   3.45e-04
## 120  2.32e-02 -7.69e-02 -9.52e-02  8.49e-02   5.66e-02   3.42e-02
## 121  1.02e-02 -3.39e-02 -4.20e-02  3.74e-02   2.50e-02   1.51e-02
## 122  5.27e-03 -9.67e-03 -1.25e-02  9.92e-03   9.48e-03   3.74e-03
## 123 -1.85e-01  4.97e-02 -3.25e-02  1.35e-01  -5.35e-02   2.06e-01
## 125  2.77e-02 -1.02e-02  2.15e-02 -2.70e-02   5.97e-03   2.08e-02
## 126  4.20e-02  4.86e-02 -1.09e-01  2.61e-02   2.72e-02   5.66e-02
## 129 -8.73e-03  2.28e-02 -1.18e-03  4.87e-03   1.53e-02   1.27e-02
## 130  9.19e-03 -4.01e-02  2.20e-03 -5.39e-03  -3.18e-02  -2.00e-02
## 131  4.30e-02 -1.46e-01 -8.54e-03 -1.80e-02  -1.27e-01  -7.80e-02
## 132 -3.40e-02  4.02e-02 -6.39e-02  5.27e-02   1.50e-02   5.04e-02
## 133 -2.13e-02  8.70e-02 -4.24e-03  1.22e-02   6.85e-02   4.38e-02
## 134  1.54e-02 -3.56e-02 -7.98e-04 -7.48e-03  -2.56e-02  -2.08e-02
## 135  2.51e-04  1.32e-03  2.07e-03  6.34e-02   1.35e-03   2.88e-03
## 136 -2.40e-02 -2.02e-01  5.28e-02  1.06e-02  -4.90e-01  -5.39e-02
## 137  1.63e-02 -3.43e-02  1.43e-02 -1.01e-02  -7.71e-02  -1.57e-02
## 139 -1.20e-02  1.43e-02  1.29e-02 -9.33e-03   6.56e-03  -2.24e-03
## 140 -1.16e-02  3.52e-02  7.44e-03 -8.27e-03   3.14e-02   9.31e-03
## 141 -2.66e-02  1.49e-02  1.56e-02 -4.91e-03  -4.14e-03   1.00e-03
## 142  3.84e-02  3.02e-03 -2.91e-02 -1.81e-02   7.32e-02  -2.81e-02
## 144  4.90e-03 -1.09e-02  7.94e-03  2.37e-03  -7.60e-03  -1.42e-02
## 145 -5.68e-02 -1.22e-01  1.34e-01  1.39e-01  -1.16e-01  -5.06e-02
## 149 -7.77e-02 -2.82e-02  5.71e-02  9.68e-02  -4.48e-02   5.11e-02
## 150  1.39e-05  1.89e-02  9.52e-03 -3.00e-02   1.20e-02  -1.40e-02
```

```
## 151  4.15e-03 -3.02e-03 -1.82e-03 -1.33e-02  -1.03e-02  -1.35e-02
## 152  2.24e-03 -5.28e-03 -2.89e-03  5.97e-03  -2.75e-03   1.85e-03
## 153 -3.97e-03  1.13e-02 -1.72e-02  4.32e-02   2.74e-02   3.80e-02
## 154  2.89e-02 -6.09e-02  5.24e-02 -3.02e-03  -2.78e-02  -2.48e-02
## 155  2.83e-03 -1.38e-03 -2.48e-03 -1.22e-02  -1.46e-03  -7.97e-03
## 156  1.51e-03 -3.49e-02  4.47e-02  5.30e-03  -1.86e-02  -5.88e-03
## 157  1.25e-01 -2.83e-02 -3.31e-02 -9.85e-02   3.50e-02  -8.75e-02
## 158  1.03e-03 -9.01e-04 -2.35e-04  2.02e-03  -4.86e-04   4.72e-04
## 159  5.40e-02 -6.52e-02 -8.07e-03 -3.50e-02  -4.00e-02  -5.29e-02
## 160  5.67e-03 -6.46e-03  2.82e-03 -3.97e-03  -2.65e-03  -8.16e-03
## 161  2.03e-02  2.58e-02 -3.29e-02  4.21e-03   1.90e-02  -3.06e-02
## 162 -2.12e-01 -4.93e-01  5.33e-01 -1.56e-01  -3.34e-01  -1.11e-01
## 163 -6.60e-02 -6.40e-02  9.85e-02 -2.89e-01  -4.14e-02  -5.02e-03
## 164 -5.78e-02 -1.06e-01  1.28e-01 -4.22e-01  -5.88e-02  -2.84e-02
## 165  1.60e-02  3.05e-02 -8.15e-02  4.92e-02   2.32e-02  -2.64e-02
## 166  4.26e-02 -1.89e-02 -4.73e-02 -6.63e-03   7.90e-02  -1.28e-02
## 167  0.00e+00  0.00e+00  0.00e+00  0.00e+00   0.00e+00   0.00e+00
## 168  5.95e-02  1.08e-02  1.80e-02 -5.78e-02   4.82e-02  -3.26e-02
## 169  1.71e-02  7.14e-03  9.26e-03 -2.04e-02   1.92e-02  -9.03e-03
## 170  7.95e-03  1.13e-02  1.24e-02 -1.70e-02   1.96e-02  -3.55e-03
## 171  2.85e-02 -2.37e-02  1.38e-02 -2.09e-02   6.20e-03  -1.61e-02
## 172 -5.56e-03  4.63e-03 -2.69e-03  4.07e-03  -1.21e-03   3.14e-03
## 173 -7.36e-04  8.84e-04 -9.00e-04  7.67e-04  -3.13e-04   3.91e-04
## 174 -8.23e-02 -3.14e-02  9.94e-02  4.20e-02  -3.77e-02   2.02e-01
## 175  8.17e-04 -7.86e-03  1.98e-02 -1.38e-02  -8.89e-03  -1.42e-02
## 176  1.78e-03 -1.71e-02  4.32e-02 -3.02e-02  -1.94e-02  -3.10e-02
## 177 -6.79e-02 -6.49e-02  7.64e-02  3.35e-03  -2.46e-01   9.65e-03
## 178  7.63e-02 -1.75e-02 -9.41e-03 -5.26e-02  -9.17e-03  -7.00e-02
## 179  1.17e-01 -2.69e-02 -1.45e-02 -8.08e-02  -1.41e-02  -1.07e-01
## 180 -2.08e-02  6.71e-02 -7.95e-02  3.78e-02   2.99e-02   2.18e-02
## 181 -1.47e-02  1.04e-01 -1.19e-01  7.17e-02   2.41e-02   9.86e-02
## 182  4.70e-03 -3.59e-02  4.76e-02 -3.06e-02  -7.87e-03  -3.62e-02
## 183  1.22e-02  1.88e-02 -3.85e-02  2.06e-03   2.91e-02  -2.55e-02
## 184  7.15e-03  3.00e-02 -2.94e-02  3.91e-03   3.05e-02  -3.58e-04
## 185 -5.09e-02  6.92e-02 -1.76e-02  2.81e-02   6.42e-02   5.27e-02
## 186 -2.64e-03 -1.52e-02  2.41e-02 -9.78e-03  -2.03e-03  -9.27e-03
## 187 -7.12e-03  5.17e-02 -4.28e-02  1.92e-02  -9.73e-03   3.47e-02
## 188  1.32e-02 -4.57e-02  6.65e-03  5.46e-03  -2.33e-02   1.16e-02
## 189  1.32e-02 -4.57e-02  6.65e-03  5.46e-03  -2.33e-02   1.16e-02
## 190 -9.74e-04  9.68e-04 -9.49e-04  8.18e-04   1.40e-03   4.78e-04
## 191 -8.69e-03  2.01e-02 -1.06e-02  7.74e-03   3.34e-02   7.80e-03
## 192 -4.98e-03  7.49e-02 -1.36e-02  5.44e-03   1.33e-01   2.49e-02
## 193 -8.63e-02  4.39e-02  5.91e-02  1.48e-02  -9.34e-02   6.07e-02
## 194 -3.99e-02  2.03e-02  2.73e-02  6.82e-03  -4.32e-02   2.81e-02
## 195 -1.87e-02 -6.04e-04  5.76e-03  6.56e-03  -2.87e-02   8.01e-03
## 196  3.56e-02  1.90e-02 -3.18e-02 -2.14e-03   6.76e-02   1.61e-03
## 197  1.07e-02  2.26e-02 -1.96e-02  5.20e-03   5.37e-02   1.18e-02
## 198 -2.27e-02 -1.67e-02  4.62e-02 -1.19e-02  -6.01e-02  -8.31e-03
## 199  4.72e-03 -3.08e-02  4.08e-02 -2.45e-02  -6.55e-02  -2.66e-02
## 200  1.59e-02  1.84e-02 -4.15e-02  1.96e-02   4.52e-03   4.13e-02
## 201  1.17e-02  2.08e-02 -2.77e-02  1.34e-02   1.43e-02   3.43e-02
## 202 -2.08e-02  3.42e-02  3.76e-03  8.32e-03   2.05e-02   3.86e-02
## 203  4.70e-02 -7.36e-02 -4.78e-02  1.59e-02  -6.43e-02   4.88e-03
## 204  8.61e-02 -1.39e-01 -4.42e-02 -9.15e-03  -9.78e-02  -9.26e-02
```

```
## 206  6.48e-03 -8.76e-03  2.93e-02 -3.24e-02   2.87e-04  -2.36e-02
## 207 -7.77e-03 -2.50e-02  7.31e-02 -6.76e-02  -2.09e-02  -5.04e-02
## 208  4.46e-03  5.35e-03  6.05e-03  7.98e-04   7.11e-03   2.16e-03
## 209  2.86e-02  7.25e-03  1.10e-02 -4.37e-03   1.90e-02  -4.11e-03
## 210 -6.88e-03  2.95e-03 -3.38e-03  4.97e-03   1.44e-03   6.86e-03
## 211 -2.57e-01  6.85e-02  1.19e-01 -1.70e-01  -2.36e-02   1.25e-01
## 212  8.58e-03 -9.61e-03  4.81e-03 -5.92e-03  -2.48e-03   2.09e-02
## 213  2.31e-02 -2.07e-02  3.03e-03 -2.20e-03  -5.67e-03  -9.95e-03
## 214 -1.66e-02  1.61e-02 -3.34e-03  8.11e-04   4.69e-03   6.72e-03
## 215 -4.26e-02  4.30e-02 -1.02e-02  1.01e-03   1.29e-02   1.67e-02
## 216 -8.15e-03  6.17e-03 -3.80e-03  6.21e-03  -8.18e-05   6.58e-03
## 217  1.27e-01 -5.27e-02 -1.94e-02 -6.98e-02  -5.47e-03  -9.12e-02
## 218  1.63e-01 -5.89e-02 -4.06e-02 -8.41e-02  -8.37e-03  -1.15e-01
## 219  3.45e-02 -8.74e-03 -3.29e-02  7.04e-03  -9.63e-03   6.32e-03
## 220  1.22e-03  5.57e-03 -5.05e-04 -2.07e-03  -9.19e-03  -6.31e-03
## 221 -1.23e-04 -1.01e-05 -2.04e-05  5.82e-05  -2.73e-04  -3.28e-05
## 222  4.22e-04 -2.04e-04  1.59e-03 -8.50e-04   2.34e-03   2.14e-03
## 223 -2.52e-03  6.29e-03  1.12e-02 -6.65e-03   1.88e-02   4.15e-03
## 224  5.35e-04  9.23e-03  1.87e-02 -1.41e-02   3.41e-02   4.49e-03
## 225 -5.01e-03  4.86e-04  3.67e-02 -2.85e-02   1.91e-02  -1.30e-02
## 226 -2.00e-03  1.67e-02 -1.39e-02  1.92e-03  -1.38e-02  -5.43e-03
## 227  1.67e-01 -7.82e-02  9.41e-03 -9.78e-02   3.73e-02  -7.70e-02
## 228 -4.79e-02  2.37e-02  1.68e-02  1.95e-02   1.38e-02   4.43e-02
## 229  3.98e-03 -1.33e-03  4.34e-04 -2.31e-03   1.23e-02  -4.01e-03
## 230 -1.09e-02  4.96e-02 -1.38e-02 -3.05e-03   6.48e-03  -4.11e-02
## 231  8.90e-03  3.01e-04  4.75e-03 -9.23e-03   8.56e-03  -1.37e-03
## 232 -1.70e-02 -5.75e-04 -9.07e-03  1.76e-02  -1.63e-02   2.62e-03
## 233 -7.17e-03 -3.35e-03 -4.25e-03  7.08e-03  -1.15e-02   5.68e-05
## 234 -2.86e-02 -1.34e-02 -1.69e-02  2.83e-02  -4.57e-02   2.26e-04
## 235 -2.21e-01  1.45e-01 -1.56e-02  1.30e-01  -4.30e-02   1.11e-01
## 236  4.73e-03 -1.69e-02 -7.92e-03  5.72e-03  -1.10e-02   2.72e-03
## 237 -3.48e-03  1.24e-02  5.82e-03 -4.20e-03   8.09e-03  -1.99e-03
## 238 -1.13e-02  7.68e-02 -1.15e-02 -2.56e-03   5.04e-02   8.69e-03
## 241 -1.45e-03  9.11e-05  2.52e-03 -7.21e-03   2.15e-03   5.52e-04
## 242 -1.43e-02  1.49e-03  1.31e-02  8.61e-03  -1.90e-02   5.28e-03
## 243  4.72e-02 -4.91e-03 -4.31e-02 -2.84e-02   6.27e-02  -1.74e-02
## 246 -1.56e-01  1.92e-02  1.23e-01 -6.10e-03  -5.16e-02   1.14e-01
## 249 -2.31e-02  8.95e-03 -4.97e-02  1.35e-01   6.87e-02   9.39e-02
## 250  4.82e-02 -4.56e-02 -3.35e-03 -4.33e-02   3.66e-02  -7.12e-02
## 251 -5.45e-03 -1.66e-02  1.36e-02 -1.16e-02  -1.22e-02  -2.01e-02
## 252 -9.23e-03 -4.05e-03  3.47e-03 -1.86e-04   1.45e-03  -3.93e-03
## 253 -1.96e-02  1.14e-02  1.57e-02 -6.29e-03   1.93e-02  -2.32e-02
## 254  2.95e-02  1.79e-02  1.21e-02 -2.56e-02   6.89e-02  -1.15e-02
## 255 -4.41e-03  1.67e-03  4.43e-03 -2.03e-03   9.61e-03  -1.47e-03
## 257 -2.31e-02  8.03e-03  3.19e-02 -2.16e-02   7.80e-02  -1.96e-02
## 258 -5.77e-03  2.01e-03  7.98e-03 -5.39e-03   1.95e-02  -4.90e-03
## 259 -7.53e-02  3.53e-02  1.29e-01 -4.98e-02  -1.15e-01  -2.08e-03
## 260 -2.14e-02 -2.26e-02  7.07e-03  2.69e-03  -6.92e-02  -9.57e-03
## 261  2.54e-02 -2.74e-03 -1.09e-02 -7.37e-03  -6.22e-03  -8.88e-03
## 262 -6.98e-03  8.68e-04 -1.56e-03  4.87e-03  -1.09e-02   4.16e-03
## 263  7.62e-03  1.75e-02 -3.08e-03  9.15e-04   1.10e-02   1.23e-02
## 264 -2.92e-02  3.57e-02  2.38e-02  1.69e-03  -9.82e-04   2.36e-02
## 265 -9.21e-03  4.72e-03  3.91e-03 -3.88e-03   5.51e-03  -1.83e-02
## 266 -6.79e-03  2.66e-03  2.67e-03  1.68e-03  -8.12e-03   3.00e-03
```

```
## 267  8.11e-02 -1.42e-02 -5.28e-02 -1.69e-02   1.99e-02  -8.13e-03
## 268 -4.70e-02  3.44e-02  1.02e-02  7.71e-03  -2.51e-02  -7.67e-02
## 269 -3.24e-02  1.21e-01  1.68e-03 -7.13e-03   2.61e-02   3.60e-02
## 270 -8.80e-02  1.52e-01  4.69e-02 -7.29e-02   9.46e-02  -1.34e-01
## 271  7.27e-02 -9.29e-03  1.89e-02 -4.77e-02   1.65e-01  -3.72e-02
## 272  1.75e-02  4.23e-02 -4.45e-03 -5.99e-03  -1.86e-02   1.58e-02
## 273 -3.31e-02  7.16e-02  1.18e-02  1.40e-02  -2.09e-02   5.00e-02
## 274  1.95e-03 -3.48e-03  4.56e-03 -9.54e-04   1.34e-02   3.75e-04
## 275  3.07e-02  5.27e-02 -2.54e-02 -2.01e-02  -2.58e-02  -8.19e-03
## 276  4.30e-03 -1.33e-02 -7.58e-02  9.46e-02   4.96e-02   5.11e-02
## 277  1.06e-03 -3.30e-03 -1.88e-02  2.34e-02   1.23e-02   1.26e-02
## 278  3.17e-04 -9.84e-04 -5.60e-03  6.98e-03   3.66e-03   3.77e-03
## 279  1.66e-02  1.96e-02 -2.83e-02  3.74e-02   7.83e-02   3.36e-02
## 280  3.45e-02 -5.33e-02 -3.89e-02  3.04e-01   2.23e-02  -5.34e-04
## 281  7.99e-02 -2.14e-02 -9.98e-02  1.41e-02   2.31e-02   7.27e-02
## 282 -3.19e-03  6.52e-03 -3.41e-03 -4.30e-03   2.67e-02   4.38e-03
## 283 -1.44e-02  1.15e-02  3.43e-03 -7.46e-03   1.84e-02  -5.48e-05
## 284 -2.60e-02  8.30e-03  3.31e-03 -4.48e-04   4.76e-03   3.77e-03
## 285  4.09e-04 -1.03e-03 -1.57e-03  3.85e-04  -2.13e-03  -7.25e-04
## 286  4.09e-04 -1.03e-03 -1.57e-03  3.85e-04  -2.13e-03  -7.25e-04
## 287  4.61e-02  4.75e-03 -4.19e-02 -2.54e-02  -7.41e-02  -7.48e-02
## 288 -4.37e-02 -1.63e-02  3.79e-02  9.99e-03  -1.23e-01   4.10e-02
## 289 -2.84e-02 -4.74e-03  2.06e-02  7.69e-03  -5.96e-02   2.42e-02
## 290 -9.34e-02  3.45e-02  4.29e-02  3.63e-02  -5.41e-02   8.85e-02
## 292 -1.02e-02  2.61e-02 -1.86e-02  1.84e-02   3.56e-02   3.10e-02
## 294  1.31e-02 -8.29e-03  5.97e-03 -3.86e-03  -7.43e-02   2.27e-02
## 298  2.95e-02 -3.10e-02  1.98e-02 -2.23e-02  -3.85e-02  -8.09e-03
## 299  2.22e-02 -1.29e-02  3.72e-03 -2.02e-02   6.47e-03  -3.90e-02
## 300 -2.93e-02  8.73e-02 -4.58e-02  5.54e-02  -5.30e-02   6.63e-02
## 301  2.00e-02 -2.19e-02  3.46e-03 -1.57e-02   9.30e-03  -2.07e-02
## 302 -1.74e-03  4.74e-03 -1.81e-03 -9.76e-04   2.33e-03   9.11e-05
## 303 -2.29e-03  3.43e-03 -3.00e-03 -5.65e-04  -6.95e-04  -6.91e-04
## 305 -3.21e-03 -4.09e-03  6.23e-03 -2.60e-02  -1.95e-02  -2.83e-02
## 306 -5.43e-03 -8.42e-03  1.20e-02 -5.15e-02  -3.84e-02  -5.61e-02
## 307  1.44e-02 -1.73e-02  7.98e-03 -1.49e-02  -1.96e-02  -1.54e-02
## 308 -4.98e-02  1.84e-02 -6.57e-02  8.90e-02  -2.28e-03  -5.70e-02
## 309 -1.13e-02 -3.76e-03 -1.47e-02  1.22e-02  -1.34e-02   1.11e-01
## 310  8.61e-02 -4.10e-02 -5.11e-02 -1.53e-01  -6.27e-03  -4.02e-02
## 311 -7.27e-02  3.70e-02  5.74e-02  2.01e-01   8.62e-03   2.72e-02
## 312  3.70e-02 -5.64e-02  4.78e-02 -4.34e-03  -2.58e-02  -1.22e-02
## 313  1.55e-03 -6.26e-03  7.74e-03  8.01e-04  -3.53e-03   4.44e-04
## 314  4.87e-03  2.40e-03 -1.83e-02 -3.32e-03  -2.17e-03  -7.71e-03
## 316  8.04e-03 -6.75e-05 -1.05e-02  1.34e-03   2.95e-03   1.68e-02
## 317  5.81e-03 -4.22e-02  4.05e-02 -7.50e-02  -2.91e-02  -3.30e-02
## 318  7.71e-03  2.66e-02 -4.85e-02  7.02e-02   1.40e-02   2.01e-02
## 319 -3.99e-05 -1.35e-03  1.76e-03 -2.86e-03  -8.49e-04  -1.05e-03
## 320  7.42e-03  1.33e-02 -2.22e-02  9.91e-03   5.23e-03  -2.55e-02
## 322  1.35e-02 -2.06e-02  9.67e-03 -5.74e-02  -1.20e-02  -3.53e-02
## 323  9.16e-03  7.07e-03 -4.48e-02  4.96e-02   3.53e-03   2.37e-02
## 324 -2.51e-03 -2.31e-03  1.37e-02 -1.54e-02  -1.09e-03  -7.47e-03
## 326  1.60e-03 -3.38e-04 -3.85e-03  9.91e-03   1.53e-04   9.14e-04
## 327  5.12e-02  9.86e-02 -1.59e-01  1.46e-01   7.34e-02  -8.32e-03
## 328  8.88e-03 -1.72e-02  2.39e-02  3.19e-02  -1.03e-02   1.99e-03
## 329 -1.73e-03  3.35e-03 -4.66e-03 -6.21e-03   2.00e-03  -3.87e-04
```

```
## 330  6.21e-03  1.04e-02 -1.11e-02  4.33e-03   1.41e-02  -3.96e-03
## 331 -6.64e-02  5.56e-04  8.95e-02 -4.43e-02   8.11e-02  -1.05e-01
## 332  7.96e-03  1.93e-02 -2.73e-02  1.01e-02   1.73e-02   9.03e-03
## 333 -3.83e-01 -5.41e-02  9.89e-02  1.64e-01  -2.88e-01   1.29e-01
## 334  3.65e-03  1.25e-02 -1.65e-02  6.72e-03   1.07e-02   6.34e-03
## 335 -1.68e-02 -4.41e-02  5.69e-03 -6.20e-03  -8.60e-02  -2.98e-02
## 336 -1.42e-02 -1.22e-02  9.10e-03 -3.03e-03  -3.14e-02  -8.50e-03
## 337 -3.40e-01  3.76e-01 -1.35e-01  2.48e-01   4.53e-01   1.50e-01
## 338  2.10e-03 -9.14e-04 -1.50e-04 -1.14e-03   6.77e-05  -1.38e-03
## 339  1.13e-01 -5.81e-02 -3.73e-02 -4.19e-02  -8.50e-03  -6.95e-02
## 340  5.15e-02 -3.10e-02 -1.76e-02 -1.77e-02  -7.65e-03  -3.24e-02
## 341  2.38e-02 -1.03e-02 -1.70e-03 -1.29e-02   7.66e-04  -1.56e-02
## 342  1.34e-02 -1.10e-02 -7.76e-04 -9.11e-03  -6.75e-03  -1.50e-02
## 343  9.91e-03 -3.40e-03 -5.82e-03 -1.16e-03   2.11e-03  -3.06e-03
## 344  1.27e-02 -1.02e-02 -1.39e-02  3.10e-03  -5.64e-03  -3.74e-03
## 345 -8.88e-03 -4.72e-02  9.50e-02 -3.00e-02  -9.56e-03   1.42e-02
## 346  7.95e-02  3.26e-02 -3.76e-02 -1.41e-02   9.14e-02  -8.76e-03
## 347  4.92e-02 -2.86e-02 -9.24e-03 -2.93e-02  -1.60e-02  -4.92e-02
## 348 -2.42e-03 -1.29e-02  2.59e-02 -8.19e-03  -2.61e-03   3.87e-03
## 349 -3.40e-03  9.94e-03 -7.76e-03  7.58e-03   7.12e-03   1.44e-02
## 350 -7.80e-05 -4.14e-04  8.34e-04 -2.64e-04  -8.40e-05   1.25e-04
## 351  9.82e-04 -2.87e-03  2.24e-03 -2.19e-03  -2.06e-03  -4.16e-03
## 352 -1.90e-01  2.10e-02  1.47e-01  6.71e-02  -4.36e-03   2.07e-01
## 353 -3.88e-03  8.23e-03 -5.53e-03  7.47e-03   8.15e-03   1.07e-02
## 354 -3.88e-03  8.23e-03 -5.53e-03  7.47e-03   8.15e-03   1.07e-02
## 356 -2.80e-03 -1.44e-03  1.70e-03  2.14e-03  -3.18e-03   2.74e-03
## 357  5.24e-03  8.49e-03 -1.14e-02  1.88e-03   1.06e-02   1.65e-03
## 358  8.30e-02 -1.01e-01  5.30e-03 -4.68e-02  -2.45e-01  -7.63e-02
## 359  7.65e-02 -5.01e-02  2.51e-02 -5.14e-02  -1.56e-01  -5.04e-02
## 360  2.29e-02 -2.26e-03 -3.08e-03 -1.49e-02  -1.83e-02  -1.63e-02
## 361  2.58e-03 -8.65e-03 -4.96e-03  4.78e-03   1.78e-02   1.02e-03
## 362 -1.01e-04  4.82e-04 -2.65e-04  2.19e-04   1.97e-04   3.67e-04
## 363  3.50e-02 -2.15e-02 -1.39e-02 -1.58e-02  -3.35e-02  -2.87e-02
## 364  7.04e-02 -4.20e-02 -2.75e-02 -3.14e-02  -6.13e-02  -5.62e-02
## 365  6.11e-02 -1.63e-02 -1.39e-02 -3.18e-02  -2.45e-02  -4.01e-02
## 366 -1.43e-02  8.71e-02 -5.80e-02  3.83e-02   6.45e-02   7.45e-02
## 367 -3.06e-03  1.86e-02 -1.24e-02  8.18e-03   1.38e-02   1.59e-02
## 368  1.89e-03 -2.25e-02  6.97e-03 -4.97e-03  -1.42e-02  -3.85e-02
## 369  1.85e-02  1.82e-03 -2.43e-04 -1.51e-02   1.05e-02  -2.40e-02
## 370 -1.66e-02 -1.33e-02 -6.47e-03  2.30e-02  -2.22e-02   3.69e-02
## 371 -2.83e-02  1.40e-02 -2.56e-02  3.59e-02  -3.62e-03   3.88e-02
## 372 -1.01e-01  5.85e-02 -5.83e-02  1.08e-01  -1.44e-03   1.51e-01
## 373 -4.47e-02  2.12e-01 -1.61e-01  1.25e-01   1.32e-01   2.99e-01
## 374  2.44e-03 -5.70e-04 -1.77e-03 -8.14e-04   1.07e-03  -1.09e-02
## 375  1.98e-02 -1.17e-02  1.86e-02 -4.49e-02  -1.57e-02  -4.48e-02
## 376  5.92e-02 -3.31e-02  4.12e-02 -1.13e-01  -3.79e-02  -1.15e-01
## 377  4.22e-05 -7.30e-04 -1.12e-03  1.79e-03  -3.81e-04   1.18e-03
## 378 -2.82e-03  1.95e-03 -1.05e-03  6.00e-03   3.48e-03   6.71e-03
## 379  2.54e-03 -7.77e-03 -9.61e-03  1.13e-02  -5.12e-03   5.65e-03
## 380 -9.91e-03  4.91e-03 -1.80e-02  4.65e-02   2.27e-02   4.63e-02
## 381  7.09e-03 -3.35e-03  7.25e-03 -2.19e-02  -1.02e-02  -2.24e-02
## 382  2.89e-02 -1.65e-02  1.45e-03 -3.82e-02  -1.92e-02  -4.48e-02
## 383 -1.70e-02  3.12e-02 -1.27e-02  9.75e-03   6.92e-02   1.69e-02
## 384  3.70e-02 -4.99e-02  4.04e-02 -2.03e-02  -1.08e-02  -2.46e-02
```

```
## 385  1.21e-02 -1.88e-02  1.70e-02 -7.09e-03  -4.30e-03  -8.26e-03
## 386  1.62e-02 -2.51e-02  2.27e-02 -9.44e-03  -5.73e-03  -1.10e-02
## 387  4.20e-02  4.72e-02  5.00e-03 -2.25e-02   5.97e-02  -5.29e-03
## 388  8.62e-02  5.53e-02 -1.38e-03 -4.24e-02   8.43e-02  -2.35e-02
## 389  5.97e-02  4.73e-02  1.58e-03 -3.01e-02   6.66e-02  -1.35e-02
## 390 -2.83e-02  3.36e-02 -2.37e-02  2.32e-02   4.84e-03   5.34e-02
## 391  1.70e-01 -9.67e-02 -4.47e-02 -8.74e-02  -5.19e-02  -7.83e-02
## 392 -6.91e-03 -2.35e-02  2.90e-02 -9.52e-03  -1.24e-02  -6.07e-03
## 393 -1.58e-03 -3.21e-02 -2.40e-02  4.84e-02   2.39e-01   5.42e-02
## 394  1.60e-01 -9.90e-02 -1.97e-02 -1.04e-01  -1.87e-02  -1.33e-01
## 395 -9.75e-02  5.41e-02 -5.63e-02  9.18e-02  -5.50e-03   1.53e-01
## 396 -7.64e-02 -3.81e-03  8.04e-03  5.43e-02  -2.64e-02   1.58e-02
## 397  6.82e-02 -3.09e-02 -5.45e-02 -3.29e-01   8.44e-03  -4.00e-02
## 398  5.90e-03 -2.73e-03 -6.07e-03 -4.09e-02   1.10e-03  -3.42e-03
## 402  2.67e-03  1.25e-02 -1.53e-02  4.01e-03   5.38e-03   4.34e-03
## 403  6.67e-02  3.42e-02 -5.28e-02 -1.58e-02   5.05e-02  -9.55e-03
## 405  1.44e-02  8.70e-03 -2.57e-03 -6.57e-03   1.83e-02   7.99e-04
## 406 -4.47e-03  9.62e-03  1.14e-02 -2.23e-03   1.85e-02   3.44e-03
## 407 -1.43e-02 -3.70e-02  3.74e-02 -5.61e-03  -2.75e-02  -9.47e-03
## 408  8.11e-02 -1.68e-01  9.96e-02 -7.54e-02  -6.72e-02  -1.03e-01
## 409  2.37e-02 -3.97e-02  1.44e-02 -2.00e-02  -2.50e-02  -2.94e-02
## 410  2.80e-02 -4.49e-02  1.24e-02 -1.60e-02  -2.21e-02  -2.41e-02
## 411  4.52e-02  4.43e-02 -6.41e-02 -5.57e-03   3.55e-02  -1.47e-02
## 412  1.04e-02  3.50e-03 -1.76e-02  2.61e-03   1.58e-03  -1.77e-03
## 413  1.50e-02  3.35e-03 -2.27e-02 -8.62e-04  -2.92e-03  -9.30e-03
## 416 -5.51e-02  8.21e-03 -3.64e-02  4.45e-02  -3.04e-02  -2.63e-02
## 417 -2.30e-02 -2.98e-02  5.10e-02 -1.17e-02  -3.17e-02   4.36e-03
## 418  1.86e-02 -3.39e-02  7.04e-02 -4.26e-02   3.03e-03  -1.04e-02
## 419  1.07e-02 -9.21e-03  4.58e-03 -9.52e-03  -3.72e-03  -1.31e-02
## 420 -1.19e-01  7.31e-02  2.43e-02  6.30e-02   2.01e-02   1.35e-01
## 421  4.51e-02  2.47e-02 -2.56e-03 -1.30e-02   6.48e-02   4.05e-02
## 422 -8.93e-02  9.26e-02 -4.60e-03  4.60e-02   4.59e-02   6.53e-02
## 423 -1.50e-03  3.53e-02 -1.08e-02 -6.43e-03   2.68e-02  -2.38e-02
## 424  1.05e-02  5.49e-03  5.26e-03 -1.02e-02   1.12e-02   7.08e-04
## 425 -7.83e-04 -3.80e-03  2.33e-03 -3.37e-03  -1.19e-02   1.12e-03
## 426  1.12e-02 -1.25e-02  6.39e-03 -1.15e-02  -7.50e-03  -1.61e-02
## 427  1.30e-03 -6.71e-04 -9.65e-03  4.86e-03  -7.25e-03   1.25e-02
## 428  2.13e-02 -4.56e-02  2.06e-02 -4.11e-02  -2.97e-02  -1.45e-01
##     dfb.TYPEW  dfb.WDOT  dfb.WDRW    dffit  cov.r   cook.d    hat inf
## 1   -4.81e-03  2.07e-02  5.79e-03  0.25223 1.2993 1.30e-03 0.1539
## 2   -8.35e-03  3.46e-02  1.03e-02  0.41084 1.1956 3.45e-03 0.1544
## 3   -9.86e-03  1.54e-01  8.43e-02 -0.82480 0.8973 1.38e-02 0.1794
## 4    8.21e-02 -2.30e-01  2.31e-01  1.89265 0.1397 6.99e-02 0.1807   *
## 5   -5.18e-04 -1.45e-02  1.61e-02 -0.44320 1.1688 4.01e-03 0.1541
## 6    1.06e-02 -5.60e-02  2.35e-02 -0.62972 0.9915 8.06e-03 0.1527
## 7    2.41e-03 -2.31e-02 -1.70e-03 -0.48900 1.1090 4.87e-03 0.1473
## 8    1.19e-02 -9.70e-02 -7.25e-02 -0.23904 1.1259 1.17e-03 0.0741
## 9    8.48e-03 -6.75e-02 -4.72e-02 -0.14979 1.1917 4.59e-04 0.0704
## 10  -2.67e-02  1.40e-01  1.03e-01  0.28207 1.1072 1.62e-03 0.0821
## 11   9.02e-03  1.76e-02  5.02e-03 -0.06049 1.2241 7.49e-05 0.0626
## 12   1.42e-02  3.04e-02  9.40e-03 -0.10001 1.2070 2.05e-04 0.0624
## 13  -4.58e-02 -4.29e-02  2.21e-03  0.24532 1.1196 1.23e-03 0.0741
## 14  -2.70e-02  1.36e-01  1.06e-01  0.28999 1.1053 1.72e-03 0.0841
## 15  -1.53e-03 -6.26e-03 -1.88e-03  0.01761 1.2436 6.35e-06 0.0704
```

```
## 16   1.77e-05 -2.94e-03 -2.39e-03 -0.00857 1.2501 1.50e-06 0.0748
## 17  -3.69e-02  1.24e-02  5.90e-04 -0.06722 1.2842 9.25e-05 0.1043
## 18   9.10e-04  2.76e-03  5.84e-04 -0.00848 1.2466 1.47e-06 0.0722
## 19   4.17e-03  1.68e-02  5.51e-03 -0.05133 1.2442 5.39e-05 0.0747
## 20  -1.55e-02 -5.78e-02 -3.02e-02  0.18681 1.1756 7.13e-04 0.0755
## 21  -3.21e-02 -1.15e-01  3.89e-02 -0.42001 1.1845 3.60e-03 0.1529
## 22  -1.05e-01  2.87e-02  1.43e-02 -0.20181 1.2547 8.33e-04 0.1181
## 23   1.19e-02  3.01e-02  1.53e-02 -0.12141 1.2390 3.02e-04 0.0871
## 24  -8.06e-03  1.00e-01  1.48e-02  0.25195 1.2740 1.30e-03 0.1416
## 25  -6.82e-03 -3.77e-02 -5.77e-02  0.17417 1.2774 6.21e-04 0.1227
## 26   5.82e-03  1.02e-02  2.05e-02 -0.06968 1.2852 9.94e-05 0.1053
## 27   3.24e-03 -3.11e-03 -1.39e-02 -0.05271 1.2211 5.69e-05 0.0588
## 28  -2.14e-02  3.00e-02  6.37e-02  0.19258 1.1524 7.58e-04 0.0679
## 29   1.47e-02 -1.58e-02 -5.59e-02 -0.20637 1.1133 8.70e-04 0.0589
## 30   5.72e-03  1.68e-02  2.73e-02 -0.04910 1.2578 4.93e-05 0.0838
## 31   2.54e-02 -1.07e-02 -2.16e-02  0.04969 1.3028 5.05e-05 0.1146
## 32  -4.36e-03  5.56e-03  1.82e-02  0.07303 1.2128 1.09e-04 0.0581
## 33  -2.59e-02  3.99e-02  8.04e-02  0.25648 1.0774 1.34e-03 0.0649
## 34   2.28e-04 -2.90e-04 -9.49e-04 -0.00381 1.2281 2.98e-07 0.0581
## 35  -1.93e-02 -6.80e-02 -1.12e-01  0.19253 1.1920 7.58e-04 0.0846
## 36  -1.03e-02  4.24e-03  5.03e-02  0.29502 1.0553 1.78e-03 0.0711
## 37  -6.18e-03  2.20e-03  4.28e-02  0.28438 1.0439 1.65e-03 0.0649
## 38  -5.77e-05  1.51e-04  3.72e-04  0.00275 1.2421 1.55e-07 0.0687
## 39  -8.00e-03  1.66e-02  2.14e-02  0.10527 1.2168 2.27e-04 0.0697
## 40  -5.90e-03  1.30e-02  2.32e-02  0.11061 1.2164 2.50e-04 0.0710
## 41  -1.87e-02 -4.09e-02 -2.34e-02 -0.44851 0.9177 4.09e-03 0.0839
## 42  -5.33e-02  1.75e-04  1.50e-02 -0.58936 0.7336 7.03e-03 0.0847
## 43  -3.26e-04  9.05e-04  2.11e-03 -0.00641 1.2744 8.41e-07 0.0924
## 44  -2.09e-03  5.43e-03  8.36e-02 -0.29643 1.1068 1.79e-03 0.0867
## 45  -1.93e-04 -9.63e-03 -2.53e-03 -0.10391 1.2454 2.21e-04 0.0865
## 46   7.72e-04  6.04e-03  3.19e-04  0.06235 1.2457 7.96e-05 0.0776
## 47   5.36e-03  1.19e-03  9.28e-03 -0.34622 1.1398 2.45e-03 0.1139
## 48   2.22e-03  1.72e-04  7.44e-03 -0.20815 1.2413 8.86e-04 0.1131
## 49  -4.60e-03  1.49e-03 -1.07e-02  0.34262 1.1405 2.40e-03 0.1131
## 50  -3.45e-03 -1.78e-03 -1.14e-02  0.43008 1.0674 3.77e-03 0.1165
## 51  -4.40e-03  5.24e-03 -1.31e-02  0.47276 1.0195 4.55e-03 0.1155
## 52  -1.53e-03  4.11e-02  7.95e-03 -0.16274 1.3218 5.42e-04 0.1446
## 53   1.23e-03 -7.74e-04  8.04e-03 -0.19732 1.2527 7.96e-04 0.1158
## 54   3.41e-03 -6.24e-04  6.69e-03 -0.25176 1.2122 1.30e-03 0.1127
## 55  -6.29e-03 -2.58e-02 -2.58e-02 -0.10713 1.3383 2.35e-04 0.1442
## 56   5.30e-02  1.71e-01 -1.96e-01 -1.00484 0.7101 2.04e-02 0.1765
## 57  -2.03e-04 -4.86e-03 -1.32e-02  0.08616 1.3587 1.52e-04 0.1537
## 58   3.45e-05 -9.06e-03 -2.71e-02  0.17038 1.3351 5.94e-04 0.1536
## 60   6.88e-03 -1.34e-01 -5.78e-02 -0.44509 1.2668 4.04e-03 0.1916
## 61  -1.11e-02 -2.02e-03 -5.70e-02  0.35843 1.2366 2.62e-03 0.1552
## 62  -1.46e-02 -1.58e-02 -8.60e-03 -0.14578 1.3895 4.35e-04 0.1792
## 63  -7.10e-04 -1.31e-01  4.50e-02  0.89303 0.8207 1.61e-02 0.1769
## 64   2.36e-02  5.91e-02  3.61e-02 -0.18694 1.3049 7.15e-04 0.1407
## 66   3.56e-02 -1.85e-03  5.98e-03 -0.42477 0.8258 3.66e-03 0.0614
## 67   2.15e-02 -1.96e-02 -1.43e-03 -0.16042 1.2358 5.26e-04 0.0963
## 68   6.91e-03  2.43e-02  2.84e-02 -0.26872 1.0183 1.47e-03 0.0543
## 69   7.73e-03  2.33e-02  1.74e-02 -0.27637 1.0085 1.56e-03 0.0544
## 70   6.55e-04  2.31e-03  2.69e-03 -0.02547 1.2211 1.33e-05 0.0543
## 72   4.32e-03 -3.92e-02  1.18e-02  0.19831 1.2212 8.04e-04 0.1002
```

```
## 73   1.19e-02 -1.09e-01  3.29e-02  0.55115 0.8648 6.17e-03 0.1002
## 74   4.50e-03  1.01e-05  5.06e-03 -0.07392 1.2092 1.12e-04 0.0561
## 75  -4.83e-03 -6.76e-04 -8.07e-03  0.09216 1.1961 1.74e-04 0.0538
## 76  -3.80e-03  8.90e-04 -6.99e-03  0.07391 1.2050 1.12e-04 0.0535
## 77   1.38e-03 -5.08e-04  3.06e-05 -0.01524 1.2215 4.75e-06 0.0536
## 78   1.35e-02 -7.19e-03  4.42e-03 -0.16485 1.1322 5.55e-04 0.0510
## 79  -8.49e-03  4.94e-03 -2.19e-03  0.10039 1.1867 2.06e-04 0.0514
## 80  -7.60e-02 -1.54e-02 -4.06e-03 -0.12221 1.2445 3.06e-04 0.0906
## 81   4.99e-04  1.42e-04  9.02e-04 -0.00925 1.2235 1.75e-06 0.0548
## 82  -3.82e-03  2.11e-04 -6.12e-03  0.06421 1.2075 8.44e-05 0.0524
## 86   9.59e-04  2.63e-03  2.13e-03  0.01073 1.2876 2.36e-06 0.1018
## 87  -8.71e-03 -2.00e-02 -1.13e-02  0.10121 1.2466 2.10e-04 0.0866
## 88   4.92e-02  1.17e-01  1.32e-01  0.58850 0.8282 7.03e-03 0.1022
## 89  -6.40e-03 -5.90e-02 -4.21e-02 -0.15468 1.2018 4.89e-04 0.0769
## 90   1.32e-02  1.76e-02  3.87e-02  0.47297 0.9812 4.55e-03 0.1054
## 91  -2.38e-02  2.52e-02  1.18e-03  0.24951 1.1924 1.27e-03 0.1033
## 92   1.76e-04  1.01e-04  9.05e-04 -0.00596 1.2565 7.28e-07 0.0795
## 93  -6.50e-03 -2.48e-04 -2.50e-02  0.17584 1.1904 6.32e-04 0.0784
## 94  -4.35e-03  3.30e-02  4.19e-02 -0.30185 1.1227 1.86e-03 0.0937
## 95  -4.98e-03  2.69e-02  3.81e-02 -0.25053 1.1618 1.28e-03 0.0911
## 96  -2.84e-02 -3.75e-02  8.35e-02  0.45184 1.0531 4.16e-03 0.1188
## 97  -3.84e-01 -8.83e-02 -3.34e-01 -1.09687 0.6028 2.42e-02 0.1716
## 98   3.11e-02 -2.87e-02 -9.77e-03 -0.26591 1.1502 1.44e-03 0.0918
## 99  -3.32e-02  3.07e-02  1.06e-02  0.28220 1.1361 1.63e-03 0.0920
## 100  1.15e-02  1.14e-02  2.18e-02 -0.27599 1.0861 1.55e-03 0.0737
## 101 -1.09e-03 -1.80e-02  2.23e-02  0.28305 1.3072 1.64e-03 0.1657
## 102 -1.02e-02 -1.61e-02 -7.87e-03  0.40272 0.9636 3.30e-03 0.0811
## 103  5.87e-03  1.24e-02  2.71e-02 -0.23922 1.1190 1.17e-03 0.0718
## 104  5.85e-03  3.40e-02 -7.41e-03  0.52622 0.9862 5.63e-03 0.1220
## 105 -6.49e-04 -5.39e-04  8.76e-04 -0.02513 1.3344 1.29e-05 0.1337
## 106  0.00e+00  0.00e+00  0.00e+00      NaN    NaN      NaN 1.0000   *
## 107  2.14e-03  3.42e-02  1.24e-02  0.21905 1.3613 9.82e-04 0.1774
## 110  1.29e-03  1.36e-02 -5.11e-03 -0.10576 1.3570 2.29e-04 0.1551
## 111 -8.36e-03 -1.64e-01 -9.19e-02  0.48947 1.1722 4.89e-03 0.1689
## 112 -4.15e-04 -5.69e-04  7.86e-04 -0.01539 1.3254 4.85e-06 0.1275
## 113 -2.74e-03 -7.16e-03  5.29e-03 -0.15978 1.2875 5.22e-04 0.1247
## 114  8.74e-04 -2.30e-02 -1.89e-02 -0.41360 1.1138 3.49e-03 0.1261
## 115  7.52e-04 -6.93e-03 -5.72e-03 -0.10702 1.3090 2.34e-04 0.1264
## 117 -1.42e-03  1.60e-02  9.08e-03  0.21807 1.2435 9.72e-04 0.1171
## 118  1.10e-04 -1.13e-03 -6.49e-04 -0.01513 1.3100 4.68e-06 0.1172
## 120  6.64e-02  7.42e-02 -1.44e-01 -0.55852 0.8314 6.33e-03 0.0952
## 121  2.93e-02  3.27e-02 -6.35e-02 -0.24632 1.1755 1.24e-03 0.0952
## 122  8.19e-03  1.01e-02 -1.79e-02 -0.07240 1.2674 1.07e-04 0.0940
## 123  1.63e-03 -1.72e-01 -9.42e-02  0.47446 0.9973 4.58e-03 0.1100
## 125 -3.49e-03  5.85e-02  2.99e-02  0.13794 1.2555 3.89e-04 0.1011
## 126 -1.65e-02 -7.31e-02 -1.88e-02  0.27295 1.1452 1.52e-03 0.0922
## 129  9.42e-03 -7.15e-03  4.60e-03 -0.07178 1.2345 1.05e-04 0.0720
## 130 -1.50e-02  1.12e-02 -1.01e-02  0.12411 1.2121 3.15e-04 0.0727
## 131 -4.47e-02  4.06e-02 -3.09e-02  0.38609 0.9813 3.04e-03 0.0803
## 132  1.91e-01  2.02e-02 -1.53e-02  0.31726 1.1290 2.05e-03 0.1009
## 133  3.25e-02 -2.45e-02  2.14e-02 -0.26717 1.0926 1.46e-03 0.0727
## 134 -1.32e-02  1.12e-02 -6.17e-03  0.10032 1.2265 2.06e-04 0.0740
## 135 -2.02e-03  1.40e-02  5.39e-04  0.12175 1.2748 3.03e-04 0.1086
## 136  5.41e-02  1.47e-01 -1.55e-01 -1.06456 0.2537 2.24e-02 0.0916   *
```

```
## 137  6.71e-03  3.56e-02 -2.43e-02 -0.22402 1.1651 1.03e-03 0.0836
## 139 -7.58e-03  2.34e-03 -1.42e-02  0.09308 1.2137 1.77e-04 0.0643
## 140  1.34e-01  2.67e-02 -1.51e-02  0.22592 1.1942 1.04e-03 0.0965
## 141 -6.53e-03  5.41e-04 -2.17e-02  0.11210 1.2042 2.57e-04 0.0645
## 142 -3.84e-03  2.07e-02 -3.51e-02  0.16251 1.2474 5.40e-04 0.1032
## 144 -4.49e-03 -1.23e-02 -1.60e-03 -0.09013 1.8135 1.66e-04 0.3635   *
## 145 -1.76e-02 -2.59e-02  7.53e-02  0.76604 1.7305 1.20e-02 0.4092   *
## 149  1.49e-02  5.90e-02  7.13e-02 -0.58801 1.6796 7.06e-03 0.3683   *
## 150 -2.10e-03  1.21e-02 -5.32e-03  0.18414 1.1527 6.93e-04 0.0652
## 151 -6.06e-04  8.13e-03 -3.71e-03  0.08758 1.2274 1.57e-04 0.0712
## 152  1.40e-04 -2.12e-03  1.75e-03 -0.04208 1.2331 3.62e-05 0.0654
## 153  2.28e-03 -2.24e-02  1.31e-02 -0.23009 1.1272 1.08e-03 0.0715
## 154 -3.25e-03 -3.60e-03  3.97e-03 -0.42325 0.8512 3.64e-03 0.0651
## 155 -2.47e-03  8.14e-03 -5.73e-04  0.12907 1.1895 3.41e-04 0.0624
## 156  5.08e-04 -8.25e-03 -1.59e-03 -0.30628 1.0148 1.91e-03 0.0646
## 157 -2.96e-02  6.05e-02  3.10e-02  0.54343 0.7033 5.97e-03 0.0699
## 158  3.20e-04 -1.18e-03  3.97e-04 -0.02731 1.2330 1.53e-05 0.0633
## 159 -1.23e-02  2.94e-02  8.37e-03  0.17548 1.1888 6.30e-04 0.0776
## 160 -1.25e-03  5.96e-03  1.57e-03 -0.01546 1.3046 4.89e-06 0.1136
## 161  1.49e-03  3.90e-02  1.40e-02 -0.15645 1.2324 5.01e-04 0.0933
## 162 -5.35e-02  9.06e-02 -7.78e-02  1.36343 0.0939 3.61e-02 0.0919   *
## 163 -3.20e-02 -7.76e-02 -5.79e-02 -0.60430 0.8699 7.41e-03 0.1152
## 164 -5.06e-02 -9.96e-02 -7.33e-02 -0.85064 0.5807 1.46e-02 0.1143
## 165  4.21e-03  6.13e-02  3.16e-02 -0.29629 1.1254 1.79e-03 0.0929
## 166  2.28e-03 -2.83e-02  7.72e-02  0.34474 1.1071 2.43e-03 0.1023
## 167  0.00e+00  0.00e+00  0.00e+00      NaN    NaN      NaN 1.0000   *
## 168  3.21e-04  3.92e-02  9.20e-03 -0.55452 0.8097 6.24e-03 0.0900
## 169  1.13e-03  1.37e-02  2.08e-03 -0.22009 1.1825 9.90e-04 0.0895
## 170  2.57e-03  1.13e-02 -1.44e-04 -0.22318 1.1791 1.02e-03 0.0891
## 171 -2.70e-03  1.91e-02  7.14e-03 -0.24798 1.1505 1.26e-03 0.0859
## 172  5.27e-04 -3.73e-03 -1.39e-03  0.04840 1.2609 4.80e-05 0.0859
## 173  3.10e-05 -7.55e-04 -1.91e-04  0.01223 1.2641 3.06e-06 0.0851
## 174  4.19e-02  1.13e-01  1.07e-01  0.51680 0.9981 5.44e-03 0.1225
## 175 -3.19e-03  8.42e-04 -3.91e-03  0.11437 1.2445 2.68e-04 0.0886
## 176 -6.95e-03  1.84e-03 -8.52e-03  0.24926 1.1563 1.27e-03 0.0886
## 177 -1.91e-02 -4.24e-03  5.05e-02 -0.45864 1.0690 4.29e-03 0.1256
## 178 -1.45e-02  1.72e-02  8.24e-03  0.31307 1.1146 2.00e-03 0.0946
## 179 -2.23e-02  2.65e-02  1.27e-02  0.48099 0.9262 4.70e-03 0.0946
## 180 -8.57e-02 -4.90e-02 -4.92e-02 -0.26576 1.3420 1.44e-03 0.1781
## 181 -1.03e-01  3.61e-02  1.30e-01 -0.36950 1.3325 2.79e-03 0.1988
## 182  2.51e-02  1.52e-03 -4.70e-02 -0.22950 1.2886 1.08e-03 0.1427
## 183 -3.45e-02 -6.35e-02 -8.04e-02  0.22412 1.3251 1.03e-03 0.1600
## 184  2.58e-02 -1.09e-02 -2.90e-02 -0.17662 1.3085 6.38e-04 0.1402
## 185 -2.01e-02  4.25e-02 -5.32e-02  0.34551 1.2457 2.44e-03 0.1552
## 186  6.83e-03 -5.30e-05 -1.44e-02 -0.07220 1.3596 1.07e-04 0.1528
## 187 -5.20e-02  1.18e-02  8.01e-02  0.45250 1.1112 4.18e-03 0.1371
## 188  4.80e-03  7.25e-02  4.33e-02 -0.52592 2.3036 5.66e-03 0.5165   *
## 189  4.80e-03  7.25e-02  4.33e-02  0.52592 2.3036 5.66e-03 0.5165   *
## 190  4.62e-04 -8.86e-04 -1.85e-03 -0.00882 1.2828 1.59e-06 0.0984
## 191  4.85e-03 -1.23e-02 -2.27e-02 -0.12019 1.2497 2.96e-04 0.0932
## 192  5.83e-03 -2.99e-02 -4.26e-02 -0.31581 1.1639 2.04e-03 0.1131
## 193  1.93e-03  1.30e-02  7.99e-02  0.57194 0.8058 6.63e-03 0.0936
## 194  8.93e-04  6.02e-03  3.70e-02  0.26454 1.1562 1.43e-03 0.0936
## 195  2.20e-03  1.51e-03  7.70e-03  0.08851 1.2864 1.60e-04 0.1092
```

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## 196  3.94e-03  1.51e-02  1.30e-02  0.14665 1.2798 4.40e-04 0.1172
## 197  5.77e-03  7.01e-03  6.13e-03  0.11322 1.2824 2.62e-04 0.1113
## 198 -1.17e-02 -1.66e-02 -6.74e-03 -0.19567 1.2377 7.83e-04 0.1077
## 199 -1.71e-02 -9.75e-03 -2.59e-04 -0.21096 1.2256 9.10e-04 0.1063
## 200  1.70e-02  7.49e-02  1.18e-01 -0.25006 1.2490 1.28e-03 0.1291
## 201  1.21e-02  5.51e-02  9.05e-02 -0.18405 1.2752 6.93e-04 0.1240
## 202  1.52e-02  6.09e-02  3.30e-02  0.33516 1.7445 2.30e-03 0.3563   *
## 203  1.34e-02  1.32e-01  7.49e-02 -1.12675 1.2387 2.58e-02 0.3436
## 204 -2.82e-02 -5.57e-02 -2.75e-02  0.83729 1.5015 1.43e-02 0.3583   *
## 206 -1.52e-02  4.76e-06 -7.84e-03  0.15362 1.2643 4.83e-04 0.1102
## 207 -3.26e-02 -4.65e-03 -2.82e-02  0.37615 1.0964 2.89e-03 0.1088
## 208  1.06e-02  8.77e-03  5.07e-03 -0.14143 1.2611 4.09e-04 0.1052
## 209  2.60e-02  2.83e-02  1.76e-02 -0.38155 1.0811 2.97e-03 0.1057
## 210  2.87e-02 -6.81e-04 -9.41e-04  0.05700 1.3413 6.65e-05 0.1401
## 211  4.20e-02 -8.10e-02 -8.67e-02 -0.65199 1.0598 8.65e-03 0.1786
## 212 -6.88e-04  2.41e-02  2.11e-02  0.09403 1.3222 1.81e-04 0.1325
## 213  7.76e-03  1.57e-02  1.09e-02 -0.15682 1.2532 5.03e-04 0.1048
## 214 -6.84e-03 -1.23e-02 -8.40e-03  0.12991 1.2644 3.45e-04 0.1043
## 215 -1.93e-02 -3.31e-02 -2.24e-02  0.35802 1.0994 2.62e-03 0.1040
## 216  1.95e-03 -3.13e-03 -1.76e-03 -0.27469 1.6990 1.54e-03 0.3339   *
## 217 -1.88e-02  4.14e-02  2.33e-02 -0.59406 1.6290 7.21e-03 0.3536   *
## 218 -2.18e-02  5.17e-02  2.91e-02  0.87658 1.4451 1.57e-02 0.3498   *
## 219  3.88e-03 -2.84e-02  5.21e-02 -0.20486 1.2575 8.58e-04 0.1204
## 220 -1.15e-02 -4.31e-04  2.31e-02  0.13676 1.2523 3.83e-04 0.0990
## 221 -7.34e-05 -2.42e-05  1.51e-04  0.00130 1.2938 3.44e-08 0.1059
## 222 -9.30e-04 -1.79e-03 -5.18e-03  0.02195 1.3059 9.87e-06 0.1147
## 223  9.61e-03  8.14e-04 -2.09e-02 -0.11698 1.2666 2.80e-04 0.1026
## 224  1.67e-02  2.92e-03 -3.67e-02 -0.21264 1.2166 9.24e-04 0.1025
## 225 -1.33e-01 -1.71e-02 -5.21e-02 -0.27045 1.2507 1.50e-03 0.1358
## 226 -9.60e-03 -1.97e-03  2.26e-02  0.15513 1.2507 4.92e-04 0.1030
## 227 -4.10e-02  2.45e-02 -4.05e-02  0.37047 1.2216 2.80e-03 0.1526
## 228  3.35e-03 -2.48e-02 -3.82e-02  0.12385 1.3161 3.14e-04 0.1337
## 229 -1.12e-03  2.29e-03  2.80e-04  0.03708 1.3123 2.81e-05 0.1198
## 230 -1.85e-02 -9.26e-02  7.01e-03 -0.25222 1.3343 1.30e-03 0.1711
## 231  9.40e-04  8.55e-03 -5.91e-03 -0.12392 1.2884 3.14e-04 0.1172
## 232 -1.80e-03 -1.63e-02  1.13e-02  0.23657 1.2322 1.14e-03 0.1172
## 233  9.22e-05 -5.09e-03  2.23e-03  0.07681 1.3106 1.21e-04 0.1228
## 234  3.68e-04 -2.03e-02  8.90e-03  0.30630 1.1961 1.92e-03 0.1228
## 235  2.65e-02 -8.60e-03  1.38e-01 -0.64022 1.0285 8.34e-03 0.1661
## 236  1.58e-03  6.02e-03 -4.73e-03 -0.11599 1.3013 2.75e-04 0.1234
## 237 -1.16e-03 -4.42e-03  3.47e-03  0.08515 1.3097 1.48e-04 0.1234
## 238  3.00e-04 -2.00e-02  1.29e-02  0.26875 1.2449 1.48e-03 0.1326
## 241 -6.22e-04 -2.95e-03 -2.77e-04 -0.02416 1.5529 1.20e-05 0.2553   *
## 242  1.57e-03  2.71e-03 -1.54e-02 -0.13178 1.4758 3.55e-04 0.2231   *
## 243 -5.19e-03 -8.95e-03  5.08e-02  0.43488 1.3527 3.86e-03 0.2231
## 246  9.43e-03 -9.27e-02 -8.57e-02  0.53224 1.3685 5.78e-03 0.2521
## 249  1.72e-02 -7.30e-02  5.70e-02 -0.76342 1.1068 1.19e-02 0.2226
## 250  6.53e-02 -7.83e-04 -1.20e-01 -0.54785 0.5714 6.05e-03 0.0540
## 251 -7.58e-02 -1.41e-02 -3.26e-02 -0.13057 1.2403 3.49e-04 0.0904
## 252  1.52e-02 -4.76e-03 -2.75e-02 -0.10650 1.1979 2.32e-04 0.0593
## 253 -2.22e-02 -6.61e-02 -9.50e-02  0.15687 1.2210 5.03e-04 0.0874
## 254  1.10e-02 -1.01e-03 -1.90e-02 -0.16375 1.1796 5.48e-04 0.0694
## 255  9.81e-03 -3.56e-03 -1.75e-02 -0.06824 1.2013 9.53e-05 0.0495
## 257  7.78e-02 -2.53e-02 -1.39e-01 -0.55352 0.5189 6.16e-03 0.0494   *
```

```
## 258  1.95e-02 -6.33e-03 -3.48e-02 -0.13847 1.1531 3.92e-04 0.0494
## 259 -7.63e-02  3.37e-02  1.00e-01  0.65381 0.3776 8.54e-03 0.0500   *
## 260 -7.09e-03  7.27e-03  5.66e-03  0.15471 1.2765 4.90e-04 0.1173
## 261 -1.62e-02  1.00e-02  2.85e-02  0.09697 1.1926 1.92e-04 0.0534
## 262 -3.25e-03 -4.11e-05  5.89e-03  0.03722 1.2139 2.83e-05 0.0507
## 263  8.02e-02  1.85e-02  3.15e-02  0.13374 1.2279 3.66e-04 0.0842
## 264 -2.02e-02 -1.92e-04  3.36e-02  0.18763 1.1188 7.19e-04 0.0544
## 265  6.14e-02 -3.15e-02 -6.47e-02  0.11951 1.2721 2.92e-04 0.1065
## 266 -3.49e-03  4.61e-04  5.48e-03  0.03585 1.2105 2.63e-05 0.0479
## 267 -1.59e-02  8.19e-03 -2.05e-02  0.15845 1.2465 5.14e-04 0.1016
## 268  3.17e-02  2.12e-02  1.42e-01 -0.48705 0.8024 4.81e-03 0.0724
## 269 -3.22e-02  1.55e-03  6.14e-02  0.35447 0.9112 2.56e-03 0.0577
## 270 -7.88e-02 -2.80e-01 -4.45e-01  0.68954 0.6281 9.59e-03 0.0891
## 271 -2.25e-02  4.87e-02  7.18e-03  0.32995 1.0125 2.22e-03 0.0711
## 272 -6.20e-04 -2.61e-02  2.73e-02 -0.29877 1.1525 1.82e-03 0.1034
## 273  7.34e-03 -4.50e-02  1.87e-02 -0.34428 1.1125 2.42e-03 0.1040
## 274 -2.01e-03  2.78e-03  6.74e-04  0.03091 1.2622 1.96e-05 0.0849
## 275  3.52e-03 -1.48e-02  1.66e-02 -0.21850 1.1525 9.76e-04 0.0768
## 276  8.03e-02  9.41e-02 -1.01e-01 -0.76880 0.7451 1.20e-02 0.1291
## 277  1.99e-02  2.33e-02 -2.50e-02 -0.19016 1.2818 7.40e-04 0.1291
## 278  5.93e-03  6.95e-03 -7.48e-03 -0.05675 1.3240 6.59e-05 0.1291
## 279  3.67e-02  4.86e-02 -4.21e-02 -0.41182 1.1396 3.46e-03 0.1343
## 280 -1.12e-02  6.32e-02 -5.04e-02  0.71770 0.9617 1.05e-02 0.1685
## 281 -6.62e-05  9.72e-02  4.79e-02  0.35048 1.2741 2.51e-03 0.1687
## 282  9.53e-02  1.74e-02 -2.77e-02  0.20575 1.3268 8.66e-04 0.1567
## 283 -9.13e-03 -7.70e-04 -3.50e-02  0.17227 1.2811 6.07e-04 0.1242
## 284 -5.85e-03 -3.07e-03 -3.75e-02  0.16190 1.2885 5.36e-04 0.1258
## 285  1.82e-04  2.31e-04 -2.36e-04 -0.13136 2.3124 3.53e-04 0.5010   *
## 286  1.82e-04  2.31e-04 -2.36e-04  0.13136 2.3124 3.53e-04 0.5010   *
## 287 -1.97e-02  2.08e-02  2.59e-02  0.50767 1.0609 5.25e-03 0.1378
## 288 -5.65e-03 -2.29e-02  3.03e-02 -0.40705 1.1788 3.38e-03 0.1469
## 289 -1.64e-03 -1.31e-02  1.29e-02 -0.19781 1.3144 8.00e-04 0.1483
## 290  1.60e-03 -1.12e-01 -2.26e-02  0.42138 1.1938 3.62e-03 0.1568
## 292  7.43e-03 -1.07e-02 -2.64e-03 -0.12268 1.3369 3.08e-04 0.1458
## 294 -1.30e-02 -1.21e-02  4.58e-02 -0.35674 1.2159 2.60e-03 0.1462
## 298 -1.38e-02 -3.61e-02  5.06e-03  0.23557 1.3079 1.13e-03 0.1540
## 299 -7.44e-03 -1.16e-02 -1.80e-02 -0.08456 1.3914 1.46e-04 0.1728
## 300  2.99e-02  6.34e-02 -3.56e-02 -0.43695 1.0218 3.89e-03 0.1055
## 301 -7.55e-03 -7.12e-03  9.88e-03  0.08015 1.2930 1.31e-04 0.1120
## 302 -1.06e-03 -2.07e-03 -2.84e-03  0.01962 1.2537 7.88e-06 0.0780
## 303 -9.49e-04 -2.13e-03 -3.80e-03  0.02235 1.2536 1.02e-05 0.0781
## 305 -1.18e-02 -5.18e-03 -2.84e-02  0.16198 1.1982 5.37e-04 0.0776
## 306 -2.34e-02 -9.93e-03 -5.56e-02  0.31830 1.0522 2.07e-03 0.0776
## 307  3.60e-02 -3.03e-03  2.33e-02  0.08552 1.3285 1.50e-04 0.1352
## 308  9.24e-04 -1.30e-01 -6.24e-02 -0.41536 1.0488 3.52e-03 0.1065
## 309  1.03e-02  7.41e-02  5.15e-02  0.30581 1.1144 1.91e-03 0.0922
## 310 -8.93e-03  1.24e-02  3.11e-02 -0.30166 1.2032 1.86e-03 0.1243
## 311  5.08e-03 -3.31e-03 -3.26e-02  0.42419 1.0772 3.67e-03 0.1176
## 312  2.58e-02  4.64e-02  5.12e-02 -0.42049 0.9420 3.60e-03 0.0814
## 313  4.10e-03  5.41e-03  6.22e-03 -0.05794 1.2514 6.87e-05 0.0808
## 314 -7.73e-03 -6.45e-03 -1.01e-02  0.09827 1.2333 1.98e-04 0.0776
## 316  4.01e-04  1.38e-02  1.26e-02  0.05390 1.2811 5.95e-05 0.1005
## 317 -1.04e-02  4.29e-03 -1.21e-02  0.48193 1.6530 4.75e-03 0.3440   *
## 318  9.12e-03  9.23e-04  1.30e-02 -0.47323 1.6575 4.58e-03 0.3442   *
```

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## 319 -3.86e-04  6.56e-05 -4.96e-04 -0.00983 1.8488 1.98e-06 0.3743   *
## 320  5.80e-05 -2.62e-02 -1.46e-02 -0.09719 1.3562 1.93e-04 0.1535
## 322 -2.73e-02  1.53e-02 -1.88e-02  0.32186 1.1705 2.12e-03 0.1176
## 323  1.56e-02 -9.70e-03  1.97e-02 -0.19872 1.2760 8.08e-04 0.1282
## 324 -4.86e-03  3.07e-03 -5.98e-03  0.06112 1.3219 7.64e-05 0.1282
## 326 -3.54e-04  1.75e-03  1.32e-03  0.02278 1.3699 1.06e-05 0.1559
## 327 -1.92e-02 -1.29e-01 -4.69e-02  0.36089 1.3801 2.66e-03 0.2172
## 328  2.49e-02 -8.63e-04  2.00e-02 -0.37300 1.1262 2.84e-03 0.1176
## 329 -4.85e-03  1.68e-04 -3.89e-03  0.07257 1.3034 1.08e-04 0.1176
## 330 -3.29e-02  4.52e-03 -2.14e-02 -0.08571 1.4040 1.50e-04 0.1801
## 331 -1.47e-02 -1.70e-01 -3.17e-01  0.69593 1.0347 9.85e-03 0.1832
## 332  2.79e-03  8.81e-03  2.64e-02  0.19351 1.3183 7.66e-04 0.1494
## 333  8.02e-02  1.01e-02  3.82e-03  1.49693 0.3887 4.47e-02 0.1975   *
## 334  1.91e-03  5.08e-03  1.60e-02  0.11937 1.3437 2.92e-04 0.1493
## 335  1.74e-03 -2.79e-02 -8.42e-02 -0.60059 1.0483 7.34e-03 0.1608
## 336  8.33e-04 -1.76e-02 -4.39e-02 -0.31132 1.2629 1.98e-03 0.1530
## 337  8.47e-02 -9.32e-02  7.55e-02 -1.54874 0.3565 4.77e-02 0.1979   *
## 338  1.60e-03  9.87e-04  4.84e-04 -0.02503 1.3524 1.28e-05 0.1451
## 339 -4.88e-02  2.72e-02  2.69e-02  0.41641 1.1948 3.54e-03 0.1557
## 340 -3.82e-02  9.93e-03  1.21e-02  0.38745 1.1940 3.06e-03 0.1468
## 341  1.81e-02  1.12e-02  5.48e-03 -0.28314 1.2632 1.64e-03 0.1451
## 342 -7.30e-02 -6.03e-03 -1.12e-04 -0.16790 1.3796 5.77e-04 0.1774
## 343  5.76e-03  3.03e-03  3.75e-03 -0.09505 1.3446 1.85e-04 0.1463
## 344  1.65e-02  5.16e-03  4.82e-03 -0.23223 1.2925 1.10e-03 0.1454
## 345  9.10e-02 -1.58e-02 -1.01e-02 -1.35619 0.2168 3.63e-02 0.1270   *
## 346  4.95e-01  1.20e-01  5.41e-02  1.12710 0.5288 2.55e-02 0.1607   *
## 347 -2.94e-02  2.40e-02  7.39e-03  0.31671 1.2098 2.05e-03 0.1317
## 348  2.48e-02 -4.32e-03 -2.75e-03 -0.36999 1.1553 2.79e-03 0.1270
## 349  2.05e-02 -8.26e-03 -2.13e-05 -0.26115 1.2365 1.39e-03 0.1265
## 350  7.99e-04 -1.39e-04 -8.86e-05 -0.01191 1.3248 2.90e-06 0.1270
## 351 -5.93e-03  2.39e-03  6.14e-06  0.07540 1.3167 1.16e-04 0.1265
## 352 -2.78e-02 -1.98e-01 -6.74e-02  0.77989 0.9086 1.23e-02 0.1708
## 353  5.45e-02  5.15e-03  2.81e-03 -0.37071 2.3213 2.81e-03 0.5111   *
## 354  5.45e-02  5.15e-03  2.81e-03  0.37071 2.3213 2.81e-03 0.5111   *
## 356  1.49e-02  1.38e-03  1.34e-03  0.03330 1.3288 2.27e-05 0.1304
## 357  6.62e-03  6.76e-04  6.82e-04 -0.04587 1.3018 4.31e-05 0.1136
## 358  2.27e-02  3.12e-02  9.30e-02 -0.60578 0.9283 7.46e-03 0.1294
## 359  1.63e-02  2.24e-02  9.46e-02 -0.55989 0.9936 6.38e-03 0.1336
## 360 -4.51e-02 -1.18e-03  1.45e-02  0.29279 1.1623 1.75e-03 0.1051
## 361  4.07e-02  8.27e-03 -8.26e-03 -0.28825 1.1645 1.70e-03 0.1045
## 362  1.42e-03  8.08e-05  1.94e-04  0.00310 1.3318 1.97e-07 0.1315
## 363 -3.59e-02  5.85e-03  1.25e-02  0.22639 1.2180 1.05e-03 0.1074
## 364 -6.67e-02  1.25e-02  2.43e-02  0.41464 1.0546 3.50e-03 0.1080
## 365 -6.45e-02  7.11e-03  2.66e-02  0.39206 1.0751 3.13e-03 0.1071
## 366  4.92e-02 -4.77e-02  2.17e-03 -0.55638 0.9912 6.30e-03 0.1320
## 367  1.05e-02 -1.02e-02  4.64e-04 -0.11891 1.3147 2.89e-04 0.1320
## 368  7.29e-02 -6.27e-02 -4.53e-02  0.20998 1.3727 9.02e-04 0.1814
## 369 -2.29e-02  1.85e-02  6.59e-03  0.26838 1.2397 1.47e-03 0.1301
## 370  4.45e-02 -3.25e-02 -8.51e-03 -0.55975 0.9788 6.37e-03 0.1296
## 371  1.91e-02 -2.21e-02 -3.64e-03 -0.17961 1.3130 6.60e-04 0.1434
## 372 -4.69e-03 -1.22e-01 -2.55e-02  0.45551 1.1990 4.23e-03 0.1687
## 373  3.44e-02  1.39e-01  1.62e-01  0.70296 0.9917 1.00e-02 0.1728
## 374 -2.03e-03 -8.97e-03 -6.93e-03 -0.02463 1.2449 1.24e-05 0.0719
## 375 -1.41e-02  1.93e-02 -5.77e-03  0.18269 1.1012 6.82e-04 0.0474
```

```
## 376 -3.57e-02  4.96e-02 -1.12e-02  0.44152 0.6907 3.94e-03 0.0477
## 377  6.67e-04 -5.25e-04  3.21e-04 -0.01026 1.2117 2.16e-06 0.0456
## 378  2.18e-03 -2.86e-03  9.37e-04 -0.03115 1.2086 1.99e-05 0.0457
## 379  3.46e-03 -2.47e-03  2.59e-03 -0.05980 1.2051 7.32e-05 0.0497
## 380  1.39e-02 -1.92e-02  1.15e-02 -0.22920 1.0442 1.07e-03 0.0480
## 381 -6.62e-03  9.35e-03 -4.52e-03  0.10291 1.1788 2.17e-04 0.0482
## 382 -1.40e-02  1.94e-02 -1.89e-03  0.17221 1.1109 6.06e-04 0.0467
## 383  7.81e-03 -2.96e-03 -2.32e-02  0.10699 1.2387 2.34e-04 0.0832
## 384  5.62e-03  1.08e-02  6.18e-03 -0.25781 0.9974 1.35e-03 0.0470
## 385  2.66e-03  3.58e-03  1.83e-03 -0.10307 1.1755 2.17e-04 0.0466
## 386  3.55e-03  4.77e-03  2.44e-03 -0.13729 1.1471 3.85e-04 0.0466
## 387  1.62e-02  1.48e-03  7.24e-03 -0.34171 0.9110 2.38e-03 0.0544
## 388  1.90e-02  9.61e-03  1.67e-02 -0.48843 0.6787 4.82e-03 0.0553
## 389  1.63e-02  5.21e-03  1.11e-02 -0.38412 0.8466 3.00e-03 0.0549
## 390  2.75e-03 -5.37e-02 -1.36e-02  0.13620 1.2059 3.79e-04 0.0731
## 391 -3.35e-02 -2.40e-02  1.07e-02  0.33193 1.1351 2.25e-03 0.1077
## 392  5.36e-02  1.39e-02 -9.06e-04  0.08882 1.2618 1.61e-04 0.0934
## 393 -2.00e-02 -1.25e-01  1.91e-01  0.81134 0.5112 1.32e-02 0.0941   *
## 394 -5.63e-02  6.35e-02  3.68e-02  0.44898 0.7243 4.08e-03 0.0530
## 395  8.13e-03 -1.34e-01 -2.91e-02  0.33335 1.0719 2.27e-03 0.0878
## 396  1.75e-02  3.10e-02 -3.35e-03 -0.20292 1.2026 8.42e-04 0.0929
## 397 -2.34e-02 -5.03e-02 -2.33e-02 -0.58697 0.7927 6.98e-03 0.0948
## 398 -2.57e-03 -7.21e-03 -3.65e-03 -0.07464 1.2669 1.14e-04 0.0941
## 402  1.02e-02 -1.82e-03  6.03e-04 -0.07529 1.2662 1.16e-04 0.0937
## 403  3.50e-02  7.28e-03  2.05e-02 -0.35774 1.0600 2.61e-03 0.0920
## 405  1.75e-02  1.08e-03  5.30e-03 -0.17078 1.2141 5.96e-04 0.0882
## 406 -2.46e-02 -1.54e-03  2.57e-03  0.20346 1.2027 8.46e-04 0.0931
## 407 -1.67e-02  3.55e-03 -5.59e-03  0.13187 1.2562 3.56e-04 0.0999
## 408 -8.07e-02  4.67e-02  1.63e-02  0.47140 0.9728 4.52e-03 0.1029
## 409 -6.76e-02  1.35e-04 -3.94e-04 -0.12771 1.3023 3.34e-04 0.1263
## 410  8.18e-03  1.18e-02  5.11e-03 -0.13702 1.2466 3.84e-04 0.0958
## 411 -3.31e-02  5.47e-03  1.27e-02  0.29203 1.1291 1.74e-03 0.0927
## 412  3.11e-02  7.21e-03  3.96e-03  0.06634 1.3338 9.01e-05 0.1363
## 413 -8.82e-03  3.40e-03  2.25e-03  0.08651 1.2782 1.53e-04 0.1035
## 416  4.98e-02  8.13e-02  6.79e-03 -0.42027 1.1093 3.60e-03 0.1267
## 417 -3.20e-02  8.38e-02  3.02e-02  0.38468 1.0295 3.02e-03 0.0919
## 418 -5.58e-02  1.28e-01  6.17e-02  0.54343 0.8367 5.99e-03 0.0925
## 419  2.45e-03 -6.53e-03 -5.11e-03 -0.05641 1.2764 6.51e-05 0.0976
## 420  8.17e-02  1.01e-01  5.22e-02 -0.38685 1.0960 3.05e-03 0.1120
## 421  4.36e-02  1.25e-01  8.74e-02 -0.33822 1.1533 2.34e-03 0.1163
## 422  3.94e-02 -9.07e-02 -4.58e-02 -0.28833 1.1663 1.70e-03 0.1052
## 423 -3.58e-02 -8.90e-02 -4.71e-02  0.23007 1.2120 1.08e-03 0.1058
## 424 -1.73e-02  4.17e-02  2.28e-02  0.18442 1.2124 6.95e-04 0.0917
## 425 -1.60e-02  4.55e-02  1.91e-02  0.20807 1.1981 8.85e-04 0.0925
## 426 -2.58e-02 -6.61e-03 -4.75e-03 -0.04804 1.3393 4.72e-05 0.1381
## 427 -5.57e-02  3.26e-02  2.22e-02 -0.13032 1.2963 3.48e-04 0.1232
## 428  2.59e-02  5.01e-02 -2.78e-02 -0.47748 0.9947 4.64e-03 0.1102
```

```
order(pii.vec, decreasing= TRUE)
```

```
##   [1] 100 149 170 171 318 319 259 260 130 286 131 129 186 184 198 199 285
##  [18] 284 185 197 220 223 221 222 224 292 163 302 298  59 296 332   4 295
##  [35]   3  61 192 162 307 101  62  56 337 268  91 211 317 103 255 336 254
##  [52] 216  95 300 311 165 264 256 291 304 167  60 102   2   5 267   1  57
##  [69]  58 287 301  21 168   6 208 297 299 263   7 262 305 308 266 265 309
```

```
##  [86] 303 306  52  55 335 164  24  63 166 191 384 261 169 372 206 275 253
## [103] 209  99 323 219 193 330 331 312 326 320 333 334 322 250 251 252 182
## [120] 289 290 104 310 313 315 374 314 316 107 369 106 258 159 105 278 257
## [137] 183 217 218 385 214 215  25 156  98 200 210  90  22 279 293 294 288
## [154] 234 178 212 213 109 108  50 379  53  51 145 203  31 146  47 142 321
## [171] 174  48  49  54 378 270 179 386 187 113 177 188 122 328 355 180 327
## [188] 329 276 239 181 202 381 190 269  84  26 380 189 324 194 325  17 195
## [205] 196 247 373 246  85 128 207 368 204 205 148  82  80 241 114 119 283
## [222]  69  70 367 201 172 377 126  65 370 110 111 361 160 161 357 362 112
## [239]  88 363 175 176 356 143 173 366 360 147 371 383 376  43 277 115 364
## [256]  93 144 375  92 382 123  89  77 226 150 151 152 244 157 158 365 359
## [273] 228  23  44  81  45 153 154 155 248  42  35 237  14  41  30 124 347
## [290]  10 280  96 281 118  86  87 272 271 282  46 273 141 274  83 249  20
## [307]  16  19   8  13 121  94 354 120 117 242  18 116 338  97 135 133 245
## [324]  36  40   9  15 139  39 229  38  28 134 132 136  37  33 138 127 125
## [341] 140  11  12 137  64 227  29  27  32  34 243  71 352 353  78 351  67
## [358] 238  66  68 225  72  74  73 235 358  79  76  75 236 233 343 230 231
## [375] 232 345 344 240 340 339 348 346 349 350 342 341
```

```
order(abs(sres), decreasing=TRUE)
```

```
##   [1] 144   4 310 123 302 298 233 311 357 231  91 146 225 244  56 352 250
##  [18] 139 340  42  62 358 361 175   3 150  82 242 110 317 376 145  64  70
##  [35] 136 254 353 322 185 337 161   6  41 296 334 216 243 330 224 323 351
##  [52] 280  98 192 368 156  84 300 386  96 113  51 118 269 261  90 159 375
##  [69] 276 199 245 328  50   7 138 279 348  67 169 329 364  66 186 190 374
##  [86] 274 378 106 103  37 188 359  36 196 253   5 293 148 344 336 247  21
## [103] 262  94 264  33 313 304 160  47  44   2  49 277  14 355 120 119  10
## [120]  88 305 379 147 130 223  59 371  93 174 288 246 208  13 266  97 115
## [137] 324   8 325 380  92  60 135  29 176 339 215 312 222 153 167 198 278
## [154] 158  89 238 346 255 131 111 249 163 124  85 301 152  28  75  54 151
## [171] 132 333 126 219 306 314 292 206 381 284  20 285 327 383 182 213  95
## [188] 366 360  35 205 350  24 181 232 141  87 229 108  69   1  48 382 162
## [205] 180 309 164 273 211 200 267  22 365  53   9  83 289 165 170 171 228
## [222] 137 251  65 183 143 354 128 256 263 101 241 349  25  63 297 194 207
## [239] 257 345 184 332 117 237 335 166 187  76 258 127 234 227 105 370 226
## [256] 201 189 114 235 178  40  58 367  52  23 197  12  77  72  39 195 173
## [273] 157 319 318 307 347 125 121 122 385 239 204 212 282  45 369  81 179
## [290] 133 209  61  73 217 331  71 230 265  32 299 107 356  79 343  55 116
## [307] 373 177 102 221 193 363  11 362 308 287 218 270 112 275  46  27 214
## [324]  26  57 294 316  17 281 268 295  19 377 168 372  30 283 236 240 290
## [341] 134 154 252 342 191  31 259 260 321 384 129  68 140 248 210 338 320
## [358] 272 271  74  15  99 203 303 291 341 142 109 220 104 155  78  80 315
## [375]  18  16 172  86  43  34 286  38 326 202 100 149
```

```
im = influence.measures(cars.lm)
summary(im)
```

```
## Potentially influential observations of
##   lm(formula = (Price^(-0.2) - 1)/(-0.2) ~ Model + HP + M + L +      W + TYPE + WD, data = cars.new.c
##
##     dfb.1_ dfb.MdlA dfb.MBMW dfb.MdlB dfb.MdlCd dfb.MdlChv dfb.MdlChr
## 4    0.35  -1.37_*  -1.51_*  -1.20_*  -1.19_*   -1.45_*    -1.36_*
## 106  0.00   0.00     0.00     0.00     0.00      0.00       0.00
## 136  0.08  -0.01     0.09     0.01     0.01      0.02       0.02
```

```
## 144  0.00   0.00     0.00     0.00     0.00      0.00       0.00
## 145 -0.04   0.00    -0.03     0.01     0.02     -0.01      -0.01
## 149 -0.03   0.02     0.00     0.00     0.01     -0.01      -0.01
## 162 -0.17  -0.01     0.04     0.02     0.09     -0.01       0.01
## 167  0.00   0.00     0.00     0.00     0.00      0.00       0.00
## 188  0.02   0.01     0.00     0.01     0.00      0.00       0.00
## 189  0.02   0.01     0.00     0.01     0.00      0.00       0.00
## 202 -0.03   0.02     0.01    -0.01    -0.01     -0.01       0.00
## 204  0.15  -0.04    -0.03     0.04     0.01      0.03       0.02
## 216  0.00   0.00     0.00     0.00     0.00      0.00       0.00
## 217  0.03  -0.01    -0.01     0.01    -0.01      0.02       0.00
## 218  0.04  -0.02    -0.01     0.01    -0.01      0.02       0.00
## 241  0.00   0.00     0.00     0.00     0.00      0.00       0.00
## 242 -0.02   0.00     0.01     0.00     0.00      0.00       0.00
## 257 -0.06  -0.02     0.03     0.00    -0.01      0.01       0.01
## 259 -0.19   0.03     0.00    -0.03    -0.02     -0.01      -0.01
## 285  0.00   0.00     0.00     0.00     0.00      0.00       0.00
## 286  0.00   0.00     0.00     0.00     0.00      0.00       0.00
## 317 -0.02  -0.01     0.00     0.00     0.00      0.01       0.01
## 318  0.04   0.00     0.00     0.00     0.00      0.00       0.00
## 319  0.00   0.00     0.00     0.00     0.00      0.00       0.00
## 333 -0.05   0.02     0.02     0.06    -0.02      0.04       0.07
## 337 -0.03   0.04    -0.02     0.00     0.02     -0.04      -0.03
## 345 -0.08  -0.01     0.00    -0.01     0.00      0.00       0.00
## 346 -0.01  -0.01     0.01    -0.01    -0.02     -0.01      -0.03
## 353  0.00   0.00     0.00     0.00     0.00      0.00       0.00
## 354  0.00   0.00     0.00     0.00     0.00      0.00       0.00
## 393  0.10   0.00    -0.11     0.04     0.02      0.00       0.00
##     dfb.MCMC dfb.MdlD dfb.MdlF dfb.MGMC dfb.MdlHn dfb.MdlHm dfb.MdlHy
## 4   -0.53    -1.21_*  -1.46_*  -0.91    -1.39_*   -0.46     -1.28_*
## 106  0.00     0.00     0.00     0.00     0.00      0.00      0.00
## 136 -0.02     0.02    -0.33     0.05     0.01     -0.01      0.01
## 144  0.00     0.00     0.00    -0.07     0.00      0.00      0.00
## 145  0.01    -0.03    -0.01     0.56    -0.03      0.00     -0.01
## 149  0.00    -0.01    -0.01    -0.44    -0.02      0.03     -0.02
## 162  0.00    -0.02     0.01     0.14     0.49      0.00     -0.08
## 167  0.00     0.00     0.00     0.00     0.00      0.00      0.00
## 188 -0.01     0.00     0.00     0.00     0.00      0.00     -0.01
## 189 -0.01     0.00     0.00     0.00     0.00      0.00     -0.01
## 202 -0.01     0.00     0.00     0.00     0.00      0.01      0.00
## 204  0.02     0.03     0.03     0.02     0.01     -0.03      0.02
## 216  0.00     0.00     0.00     0.00     0.00      0.00      0.00
## 217 -0.01     0.01     0.01    -0.01     0.02     -0.04      0.02
## 218 -0.01     0.02     0.02    -0.02     0.03     -0.05      0.02
## 241  0.00     0.00     0.00     0.00     0.00      0.00      0.00
## 242  0.00     0.00     0.00     0.00     0.00      0.00      0.00
## 257  0.00     0.01     0.02     0.01     0.02     -0.01      0.02
## 259 -0.02    -0.02    -0.01    -0.01     0.01      0.01      0.01
## 285  0.00     0.00     0.00     0.00     0.00      0.00      0.00
## 286  0.00     0.00     0.00     0.00     0.00      0.00      0.00
## 317  0.00     0.01     0.01     0.01     0.01     -0.01      0.00
## 318  0.00     0.00     0.00    -0.01     0.00      0.01      0.00
## 319  0.00     0.00     0.00     0.00     0.00      0.00      0.00
## 333  0.03     0.08     0.10     0.09     0.05      0.10      0.09
```

```
## 337  0.09    -0.03    -0.06     0.06    -0.04      0.21     -0.04
## 345 -0.02    -0.01    -0.01    -0.01     0.00     -0.03      0.00
## 346 -0.02     0.00    -0.03    -0.02     0.01     -0.01      0.00
## 353  0.00     0.00     0.00     0.00     0.00      0.00      0.00
## 354  0.00     0.00     0.00     0.00     0.00      0.00      0.00
## 393  0.03     0.00    -0.05     0.00    -0.03      0.01     -0.02
##     dfb.MdlIn dfb.MdlIs dfb.MdlJg dfb.MdlJp dfb.MdlK dfb.MdlLnd dfb.MdlLx
## 4   -1.26_*   -0.79     -1.44_*   -0.90     -1.21_*  -0.91      -1.36_*
## 106  0.00      0.00      0.00      0.00      0.00     0.00       0.00
## 136  0.00      0.02      0.10     -0.01     -0.01     0.03       0.07
## 144  0.00      0.00      0.00      0.00      0.00     0.00       0.00
## 145 -0.02      0.03      0.00     -0.01     -0.02     0.01      -0.01
## 149  0.00      0.01      0.01     -0.01     -0.02     0.02       0.01
## 162  0.07      0.09      0.17     -0.05     -0.07     0.04       0.10
## 167  0.00      0.00      0.00      0.00      0.00     0.00       0.00
## 188  0.01     -0.44      0.01     -0.01     -0.01     0.01       0.00
## 189  0.01      0.45      0.01     -0.01     -0.01     0.01       0.00
## 202  0.01      0.00      0.01      0.27      0.00     0.01       0.01
## 204 -0.02      0.01     -0.01      0.64      0.01    -0.01      -0.02
## 216  0.00      0.00      0.00      0.00      0.00    -0.22       0.00
## 217  0.00      0.00     -0.01      0.01      0.01    -0.47      -0.01
## 218 -0.01      0.00     -0.01      0.02      0.02     0.69      -0.01
## 241  0.00      0.00      0.00      0.00      0.00     0.00       0.00
## 242  0.00      0.00      0.01      0.00      0.00     0.00       0.01
## 257  0.01      0.01      0.01      0.02      0.03     0.01       0.03
## 259 -0.02      0.01     -0.01      0.03      0.02     0.02       0.00
## 285  0.00      0.00      0.00      0.00      0.00     0.00       0.00
## 286  0.00      0.00      0.00      0.00      0.00     0.00       0.00
## 317  0.00      0.01      0.01      0.00      0.01     0.00       0.01
## 318 -0.01     -0.01     -0.01      0.00      0.00     0.00      -0.01
## 319  0.00      0.00      0.00      0.00      0.00     0.00       0.00
## 333 -0.09      0.05     -0.06      0.05      0.11     0.08       0.04
## 337 -0.01      0.03     -0.09      0.07     -0.01     0.09       0.01
## 345  0.00     -0.01      0.01     -0.02      0.00    -0.02       0.00
## 346 -0.03     -0.01      0.01      0.02     -0.03     0.01      -0.01
## 353  0.00      0.00      0.00      0.00      0.00     0.00       0.00
## 354  0.00      0.00      0.00      0.00      0.00     0.00       0.00
## 393 -0.02      0.00     -0.08     -0.04     -0.02    -0.03      -0.07
##     dfb.MdlLnc dfb.MdlMz dfb.MM-B dfb.MdlMr dfb.MdlMn dfb.MdlMt dfb.MdlN
## 4   -1.27_*    -1.18_*   -1.50_*  -1.24_*   -0.63     -1.25_*   -1.41_*
## 106  0.00       0.00      0.00     0.00      0.00      0.00      0.00
## 136  0.09       0.10      0.07     0.08     -0.09      0.07      0.01
## 144  0.00       0.00      0.00     0.00      0.00      0.00      0.00
## 145 -0.01      -0.04     -0.01    -0.02     -0.06      0.03     -0.02
## 149  0.01      -0.02      0.01    -0.01     -0.02      0.01     -0.02
## 162  0.11      -0.02      0.14     0.06     -0.24      0.07      0.01
## 167  0.00       0.00      0.00     0.00      0.00      0.00      0.00
## 188  0.01       0.00      0.00     0.01     -0.02      0.00      0.00
## 189  0.01       0.00      0.00     0.01     -0.02      0.00      0.00
## 202  0.00       0.00      0.01    -0.01      0.01      0.00     -0.01
## 204  0.02       0.01     -0.04     0.05     -0.05      0.02      0.02
## 216  0.00       0.00      0.00     0.00      0.00      0.00      0.00
## 217 -0.01       0.02     -0.02     0.01     -0.01      0.00      0.02
## 218 -0.02       0.03     -0.03     0.01      0.00      0.01      0.02
```

```
## 241  0.00      -0.02      0.00     0.00      0.00      0.00      0.00
## 242  0.00      -0.09      0.01     0.00      0.00      0.00      0.00
## 257  0.03       0.03     -0.19     0.02      0.02     -0.01      0.01
## 259 -0.06       0.02      0.26    -0.05      0.02      0.03     -0.01
## 285  0.00       0.00      0.00     0.00     -0.11      0.00      0.00
## 286  0.00       0.00      0.00     0.00      0.11      0.00      0.00
## 317  0.00       0.01      0.01     0.01     -0.01      0.01      0.01
## 318  0.00      -0.01     -0.01     0.00      0.01      0.00     -0.01
## 319  0.00       0.00      0.00     0.00      0.00      0.00      0.00
## 333  0.06       0.07     -0.02     0.08      0.01      0.09     -0.01
## 337  0.02      -0.12     -0.01    -0.05      0.11     -0.05     -0.05
## 345 -0.01       0.00      0.01    -0.01     -0.01      0.00      0.00
## 346 -0.01       0.01     -0.02    -0.03      0.02     -0.02     -0.02
## 353  0.00       0.00      0.00     0.00      0.00      0.00      0.00
## 354  0.00       0.00      0.00     0.00      0.00      0.00      0.00
## 393 -0.04      -0.11     -0.09    -0.01     -0.02     -0.03     -0.01
##     dfb.Mdl0 dfb.MdlPn dfb.MdlPr dfb.ModlSb dfb.MdlSt dfb.MdlSc dfb.MdlSbr
## 4   -0.90    -1.24_*   -1.38_*   -1.12_*    -1.20_*   -0.71     -1.27_*
## 106  0.00     0.00      0.00      0.00       0.00      0.00      0.00
## 136  0.02     0.02      0.13     -0.05       0.03     -0.05      0.06
## 144  0.00     0.00      0.00      0.00       0.00      0.00      0.00
## 145 -0.01    -0.03     -0.01      0.01       0.01     -0.04      0.01
## 149 -0.01    -0.02      0.00      0.00      -0.01     -0.03      0.03
## 162  0.04     0.00      0.05      0.01       0.03     -0.18      0.06
## 167  0.00     0.00      0.00      0.00       0.00      0.00      0.00
## 188  0.00     0.00      0.01      0.00       0.00     -0.02      0.02
## 189  0.00     0.00      0.01      0.00       0.00     -0.02      0.02
## 202 -0.01     0.00      0.01      0.00      -0.01      0.00      0.02
## 204  0.02     0.02     -0.01      0.00       0.03     -0.02     -0.02
## 216  0.00     0.00      0.00      0.00       0.00      0.00      0.00
## 217  0.01     0.02      0.02     -0.01       0.03      0.01      0.01
## 218  0.02     0.02      0.02     -0.01       0.03      0.02      0.01
## 241  0.00     0.00      0.00      0.00       0.00      0.00      0.00
## 242  0.00     0.00      0.01      0.00       0.00      0.00      0.00
## 257  0.02     0.02     -0.02      0.00       0.02      0.02     -0.01
## 259  0.00     0.00      0.02      0.01       0.01      0.03      0.05
## 285  0.00     0.00      0.00      0.00       0.00      0.00      0.00
## 286  0.00     0.00      0.00      0.00       0.00      0.00      0.00
## 317  0.40     0.01      0.00      0.00       0.01     -0.01      0.01
## 318 -0.39    -0.01     -0.01      0.00       0.00      0.01      0.00
## 319 -0.01     0.00      0.00      0.00       0.00      0.00      0.00
## 333  0.06     0.07      0.73      0.01       0.08      0.02      0.08
## 337 -0.06    -0.05     -1.04_*    0.01      -0.10      0.03     -0.06
## 345  0.01     0.00      0.00      0.01      -0.87     -0.02      0.00
## 346 -0.01    -0.02      0.02     -0.04       0.63     -0.05     -0.01
## 353  0.00     0.00      0.00      0.00       0.00     -0.32      0.00
## 354  0.00     0.00      0.00      0.00       0.00      0.31      0.00
## 393  0.00    -0.02     -0.13      0.04      -0.01     -0.03     -0.05
##     dfb.MdlSz dfb.MdlT dfb.MdlVlk dfb.MdlVlv dfb.HP dfb.M dfb.L dfb.W
## 4   -1.20_*   -1.47_*  -1.20_*    -1.27_*     0.06  -0.20  0.24 -0.14
## 106  0.00      0.00     0.00       0.00       0.00   0.00  0.00  0.00
## 136 -0.01      0.01    -0.04      -0.03       0.30  -0.02 -0.20  0.05
## 144  0.00      0.00     0.00       0.00       0.00   0.00 -0.01  0.01
## 145 -0.01     -0.02    -0.01      -0.01      -0.01  -0.06 -0.12  0.13
```

```
## 149 -0.01     -0.02     0.00       0.01       0.02  -0.08 -0.03  0.06
## 162 -0.07     -0.04    -0.05      -0.03      -0.02  -0.21 -0.49  0.53
## 167  0.00      0.00     0.00       0.00       0.00   0.00  0.00  0.00
## 188  0.00      0.00    -0.01       0.00       0.00   0.01 -0.05  0.01
## 189  0.00      0.00    -0.01       0.00       0.00   0.01 -0.05  0.01
## 202  0.00      0.00     0.01       0.01       0.00  -0.02  0.03  0.00
## 204  0.00      0.02    -0.03      -0.01       0.07   0.09 -0.14 -0.04
## 216  0.00      0.00     0.00       0.00       0.01  -0.01  0.01  0.00
## 217  0.02      0.02    -0.02       0.00      -0.03   0.13 -0.05 -0.02
## 218  0.03      0.03    -0.02       0.00      -0.02   0.16 -0.06 -0.04
## 241  0.00      0.00     0.00       0.00       0.00   0.00  0.00  0.00
## 242  0.00      0.00     0.00       0.00       0.01  -0.01  0.00  0.01
## 257  0.02      0.02     0.02      -0.01       0.11  -0.02  0.01  0.03
## 259  0.02      0.01     0.03       0.01       0.02  -0.08  0.04  0.13
## 285  0.00      0.00     0.00       0.00       0.01   0.00  0.00  0.00
## 286  0.00      0.00     0.00       0.00       0.01   0.00  0.00  0.00
## 317  0.00      0.01     0.00       0.00       0.01   0.01 -0.04  0.04
## 318  0.00      0.00     0.00       0.00       0.01   0.01  0.03 -0.05
## 319  0.00      0.00     0.00       0.00       0.00   0.00  0.00  0.00
## 333  0.06      0.05     0.10       0.02       0.76  -0.38 -0.05  0.10
## 337 -0.02     -0.05     0.08       0.04       0.02  -0.34  0.38 -0.13
## 345  0.00      0.00     0.00      -0.01      -0.02  -0.01 -0.05  0.09
## 346 -0.01     -0.01    -0.04      -0.02      -0.07   0.08  0.03 -0.04
## 353  0.00      0.00     0.00       0.00       0.00   0.00  0.01 -0.01
## 354  0.00      0.00     0.00       0.00       0.00   0.00  0.01 -0.01
## 393 -0.03      0.22     0.00       0.02      -0.18   0.00 -0.03 -0.02
##     dfb.TYPEM dfb.TYPESP dfb.TYPESU dfb.TYPEW dfb.WDOT dfb.WDRW dffit
## 4    0.24      0.44       0.25       0.08     -0.23     0.23     1.89_*
## 106  0.00      0.00       0.00       0.00      0.00     0.00      NaN
## 136  0.01     -0.49      -0.05       0.05      0.15    -0.15    -1.06
## 144  0.00     -0.01      -0.01       0.00     -0.01     0.00    -0.09
## 145  0.14     -0.12      -0.05      -0.02     -0.03     0.08     0.77
## 149  0.10     -0.04       0.05       0.01      0.06     0.07    -0.59
## 162 -0.16     -0.33      -0.11      -0.05      0.09    -0.08     1.36_*
## 167  0.00      0.00       0.00       0.00      0.00     0.00      NaN
## 188  0.01     -0.02       0.01       0.00      0.07     0.04    -0.53
## 189  0.01     -0.02       0.01       0.00      0.07     0.04     0.53
## 202  0.01      0.02       0.04       0.02      0.06     0.03     0.34
## 204 -0.01     -0.10      -0.09      -0.03     -0.06    -0.03     0.84
## 216  0.01      0.00       0.01       0.00      0.00     0.00    -0.27
## 217 -0.07     -0.01      -0.09      -0.02      0.04     0.02    -0.59
## 218 -0.08     -0.01      -0.11      -0.02      0.05     0.03     0.88
## 241 -0.01      0.00       0.00       0.00      0.00     0.00    -0.02
## 242  0.01     -0.02       0.01       0.00      0.00    -0.02    -0.13
## 257 -0.02      0.08      -0.02       0.08     -0.03    -0.14    -0.55
## 259 -0.05     -0.11       0.00      -0.08      0.03     0.10     0.65
## 285  0.00      0.00       0.00       0.00      0.00     0.00    -0.13
## 286  0.00      0.00       0.00       0.00      0.00     0.00     0.13
## 317 -0.08     -0.03      -0.03      -0.01      0.00    -0.01     0.48
## 318  0.07      0.01       0.02       0.01      0.00     0.01    -0.47
## 319  0.00      0.00       0.00       0.00      0.00     0.00    -0.01
## 333  0.16     -0.29       0.13       0.08      0.01     0.00     1.50_*
## 337  0.25      0.45       0.15       0.08     -0.09     0.08    -1.55_*
## 345 -0.03     -0.01       0.01       0.09     -0.02    -0.01    -1.36_*
```

```
## 346 -0.01      0.09      -0.01       0.50      0.12     0.05     1.13
## 353  0.01      0.01       0.01       0.05      0.01     0.00    -0.37
## 354  0.01      0.01       0.01       0.05      0.01     0.00     0.37
## 393  0.05      0.24       0.05      -0.02     -0.12     0.19     0.81
##     cov.r   cook.d hat
## 4    0.14_*  0.07   0.18
## 106   NaN     NaN   1.00_*
## 136  0.25_*  0.02   0.09
## 144  1.81_*  0.00   0.36
## 145  1.73_*  0.01   0.41_*
## 149  1.68_*  0.01   0.37
## 162  0.09_*  0.04   0.09
## 167   NaN     NaN   1.00_*
## 188  2.30_*  0.01   0.52_*
## 189  2.30_*  0.01   0.52_*
## 202  1.74_*  0.00   0.36
## 204  1.50_*  0.01   0.36
## 216  1.70_*  0.00   0.33
## 217  1.63_*  0.01   0.35
## 218  1.45_*  0.02   0.35
## 241  1.55_*  0.00   0.26
## 242  1.48_*  0.00   0.22
## 257  0.52_*  0.01   0.05
## 259  0.38_*  0.01   0.05
## 285  2.31_*  0.00   0.50_*
## 286  2.31_*  0.00   0.50_*
## 317  1.65_*  0.00   0.34
## 318  1.66_*  0.00   0.34
## 319  1.85_*  0.00   0.37
## 333  0.39_*  0.04   0.20
## 337  0.36_*  0.05   0.20
## 345  0.22_*  0.04   0.13
## 346  0.53_*  0.03   0.16
## 353  2.32_*  0.00   0.51_*
## 354  2.32_*  0.00   0.51_*
## 393  0.51_*  0.01   0.09
```

```
cars.new.df[c(4,144,100),]
```

```
##     Model Price Disp Cyli  HP HMPG    M WBL   L  W   TYPE      WD
## 4   Acura 89765  3.2    6 290   24 3153 100 174 71 SPORTS     RWD
## 162 Honda 19110  2.0    3  73   66 1850  95 155 67 COMMON OTHERWD
## 106   CMC 35725  4.8    8 285   19 5042 116 199 79    SUV OTHERWD
```

We found that 4 and 144 are both influential outliers, so we decide to delete them. 100 is influential but not an outlier, and deleting 100 will lead to linear dependency problem. So I decide to keep it.

```
cars.new.df = cars.new.df[-c(4, 144),]
leaps.out = regsubsets((Price^(-0.2) - 1) / (-0.2)~., data = cars.new.df, nbest = 1, nvmax = NULL, metho
summary(leaps.out)
```

```
## Subset selection object
## Call: regsubsets.formula((Price^(-0.2) - 1)/(-0.2) ~ ., data = cars.new.df,
##     nbest = 1, nvmax = NULL, method = "forward")
## 52 Variables  (and intercept)
##                    Forced in Forced out
```

```
## ModelAudi              FALSE      FALSE
## ModelBMW               FALSE      FALSE
## ModelBuick             FALSE      FALSE
## ModelCadillac          FALSE      FALSE
## ModelChevrolet         FALSE      FALSE
## ModelChrysler          FALSE      FALSE
## ModelCMC               FALSE      FALSE
## ModelDodge             FALSE      FALSE
## ModelFord              FALSE      FALSE
## ModelGMC               FALSE      FALSE
## ModelHonda             FALSE      FALSE
## ModelHummer            FALSE      FALSE
## ModelHyundai           FALSE      FALSE
## ModelInfiniti          FALSE      FALSE
## ModelIsuzu             FALSE      FALSE
## ModelJaguar            FALSE      FALSE
## ModelJeep              FALSE      FALSE
## ModelKia               FALSE      FALSE
## ModelLand              FALSE      FALSE
## ModelLexus             FALSE      FALSE
## ModelLincoln           FALSE      FALSE
## ModelMazda             FALSE      FALSE
## ModelMercedes-Benz     FALSE      FALSE
## ModelMercury           FALSE      FALSE
## ModelMini              FALSE      FALSE
## ModelMitsubishi        FALSE      FALSE
## ModelNissan            FALSE      FALSE
## ModelOldsmobile        FALSE      FALSE
## ModelPontiac           FALSE      FALSE
## ModelPorsche           FALSE      FALSE
## ModelSaab              FALSE      FALSE
## ModelSaturn            FALSE      FALSE
## ModelScion             FALSE      FALSE
## ModelSubaru            FALSE      FALSE
## ModelSuzuki            FALSE      FALSE
## ModelToyota            FALSE      FALSE
## ModelVolkswagen        FALSE      FALSE
## ModelVolvo             FALSE      FALSE
## Disp                   FALSE      FALSE
## Cyli                   FALSE      FALSE
## HP                     FALSE      FALSE
## HMPG                   FALSE      FALSE
## M                      FALSE      FALSE
## WBL                    FALSE      FALSE
## L                      FALSE      FALSE
## W                      FALSE      FALSE
## TYPEMINIVAN            FALSE      FALSE
## TYPESPORTS             FALSE      FALSE
## TYPESUV                FALSE      FALSE
## TYPEWAGON              FALSE      FALSE
## WDOTHERWD              FALSE      FALSE
## WDRWD                  FALSE      FALSE
## 1 subsets of each size up to 52
## Selection Algorithm: forward
```

```
##           ModelAudi ModelBMW ModelBuick ModelCadillac ModelChevrolet
## 1  ( 1 )  " "       " "      " "        " "           " "
## 2  ( 1 )  " "       " "      " "        " "           " "
## 3  ( 1 )  " "       " "      " "        " "           " "
## 4  ( 1 )  " "       " "      " "        " "           " "
## 5  ( 1 )  " "       " "      " "        " "           " "
## 6  ( 1 )  " "       " "      " "        " "           " "
## 7  ( 1 )  " "       " "      " "        " "           " "
## 8  ( 1 )  " "       " "      " "        " "           " "
## 9  ( 1 )  " "       " "      " "        " "           " "
## 10  ( 1 ) " "       " "      " "        " "           " "
## 11  ( 1 ) " "       "*"      " "        " "           " "
## 12  ( 1 ) " "       "*"      " "        " "           " "
## 13  ( 1 ) "*"       "*"      " "        " "           " "
## 14  ( 1 ) "*"       "*"      " "        " "           " "
## 15  ( 1 ) "*"       "*"      " "        " "           " "
## 16  ( 1 ) "*"       "*"      " "        "*"           " "
## 17  ( 1 ) "*"       "*"      " "        "*"           " "
## 18  ( 1 ) "*"       "*"      " "        "*"           " "
## 19  ( 1 ) "*"       "*"      " "        "*"           " "
## 20  ( 1 ) "*"       "*"      "*"        "*"           " "
## 21  ( 1 ) "*"       "*"      "*"        "*"           " "
## 22  ( 1 ) "*"       "*"      "*"        "*"           " "
## 23  ( 1 ) "*"       "*"      "*"        "*"           " "
## 24  ( 1 ) "*"       "*"      "*"        "*"           " "
## 25  ( 1 ) "*"       "*"      "*"        "*"           " "
## 26  ( 1 ) "*"       "*"      "*"        "*"           " "
## 27  ( 1 ) "*"       "*"      "*"        "*"           " "
## 28  ( 1 ) "*"       "*"      "*"        "*"           " "
## 29  ( 1 ) "*"       "*"      "*"        "*"           " "
## 30  ( 1 ) "*"       "*"      "*"        "*"           " "
## 31  ( 1 ) "*"       "*"      "*"        "*"           " "
## 32  ( 1 ) "*"       "*"      "*"        "*"           " "
## 33  ( 1 ) "*"       "*"      "*"        "*"           " "
## 34  ( 1 ) "*"       "*"      "*"        "*"           " "
## 35  ( 1 ) "*"       "*"      "*"        "*"           "*"
## 36  ( 1 ) "*"       "*"      "*"        "*"           "*"
## 37  ( 1 ) "*"       "*"      "*"        "*"           "*"
## 38  ( 1 ) "*"       "*"      "*"        "*"           "*"
## 39  ( 1 ) "*"       "*"      "*"        "*"           "*"
## 40  ( 1 ) "*"       "*"      "*"        "*"           "*"
## 41  ( 1 ) "*"       "*"      "*"        "*"           "*"
## 42  ( 1 ) "*"       "*"      "*"        "*"           "*"
## 43  ( 1 ) "*"       "*"      "*"        "*"           "*"
## 44  ( 1 ) "*"       "*"      "*"        "*"           "*"
## 45  ( 1 ) "*"       "*"      "*"        "*"           "*"
## 46  ( 1 ) "*"       "*"      "*"        "*"           "*"
## 47  ( 1 ) "*"       "*"      "*"        "*"           "*"
## 48  ( 1 ) "*"       "*"      "*"        "*"           "*"
## 49  ( 1 ) "*"       "*"      "*"        "*"           "*"
## 50  ( 1 ) "*"       "*"      "*"        "*"           "*"
## 51  ( 1 ) "*"       "*"      "*"        "*"           "*"
## 52  ( 1 ) "*"       "*"      "*"        "*"           "*"
##           ModelChrysler ModelCMC ModelDodge ModelFord ModelGMC ModelHonda
```

```
## 1  ( 1 )  " "           " "       " "         " "        " "       " "
## 2  ( 1 )  " "           " "       " "         " "        " "       " "
## 3  ( 1 )  " "           " "       " "         " "        " "       " "
## 4  ( 1 )  " "           " "       " "         " "        " "       " "
## 5  ( 1 )  " "           " "       " "         " "        " "       " "
## 6  ( 1 )  " "           " "       " "         " "        " "       " "
## 7  ( 1 )  " "           " "       " "         " "        " "       " "
## 8  ( 1 )  " "           " "       " "         " "        " "       " "
## 9  ( 1 )  " "           " "       " "         " "        " "       " "
## 10  ( 1 ) " "           " "       " "         " "        " "       " "
## 11  ( 1 ) " "           " "       " "         " "        " "       " "
## 12  ( 1 ) " "           " "       " "         " "        " "       " "
## 13  ( 1 ) " "           " "       " "         " "        " "       " "
## 14  ( 1 ) " "           " "       " "         " "        " "       " "
## 15  ( 1 ) " "           " "       " "         " "        " "       " "
## 16  ( 1 ) " "           " "       " "         " "        " "       " "
## 17  ( 1 ) " "           " "       " "         " "        " "       " "
## 18  ( 1 ) " "           " "       " "         " "        " "       " "
## 19  ( 1 ) " "           " "       " "         " "        " "       " "
## 20  ( 1 ) " "           " "       " "         " "        " "       " "
## 21  ( 1 ) " "           " "       " "         " "        " "       " "
## 22  ( 1 ) " "           " "       " "         " "        " "       " "
## 23  ( 1 ) " "           " "       " "         " "        " "       " "
## 24  ( 1 ) "*"           " "       " "         " "        " "       " "
## 25  ( 1 ) "*"           " "       " "         " "        " "       " "
## 26  ( 1 ) "*"           " "       " "         " "        "*"       " "
## 27  ( 1 ) "*"           " "       " "         " "        "*"       " "
## 28  ( 1 ) "*"           " "       " "         " "        "*"       " "
## 29  ( 1 ) "*"           " "       " "         "*"        "*"       " "
## 30  ( 1 ) "*"           " "       " "         "*"        "*"       " "
## 31  ( 1 ) "*"           " "       " "         "*"        "*"       " "
## 32  ( 1 ) "*"           " "       " "         "*"        "*"       " "
## 33  ( 1 ) "*"           " "       " "         "*"        "*"       " "
## 34  ( 1 ) "*"           " "       "*"         "*"        "*"       " "
## 35  ( 1 ) "*"           " "       "*"         "*"        "*"       " "
## 36  ( 1 ) "*"           " "       "*"         "*"        "*"       " "
## 37  ( 1 ) "*"           " "       "*"         "*"        "*"       " "
## 38  ( 1 ) "*"           " "       "*"         "*"        "*"       " "
## 39  ( 1 ) "*"           " "       "*"         "*"        "*"       " "
## 40  ( 1 ) "*"           " "       "*"         "*"        "*"       " "
## 41  ( 1 ) "*"           " "       "*"         "*"        "*"       " "
## 42  ( 1 ) "*"           " "       "*"         "*"        "*"       "*"
## 43  ( 1 ) "*"           "*"       "*"         "*"        "*"       "*"
## 44  ( 1 ) "*"           "*"       "*"         "*"        "*"       "*"
## 45  ( 1 ) "*"           "*"       "*"         "*"        "*"       "*"
## 46  ( 1 ) "*"           "*"       "*"         "*"        "*"       "*"
## 47  ( 1 ) "*"           "*"       "*"         "*"        "*"       "*"
## 48  ( 1 ) "*"           "*"       "*"         "*"        "*"       "*"
## 49  ( 1 ) "*"           "*"       "*"         "*"        "*"       "*"
## 50  ( 1 ) "*"           "*"       "*"         "*"        "*"       "*"
## 51  ( 1 ) "*"           "*"       "*"         "*"        "*"       "*"
## 52  ( 1 ) "*"           "*"       "*"         "*"        "*"       "*"
##           ModelHummer ModelHyundai ModelInfiniti ModelIsuzu ModelJaguar
## 1  ( 1 )  " "         " "         " "           " "        " "
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## 2  ( 1 )  " "         " "          " "           " "         " "
## 3  ( 1 )  " "         " "          " "           " "         " "
## 4  ( 1 )  " "         " "          " "           " "         " "
## 5  ( 1 )  " "         " "          " "           " "         " "
## 6  ( 1 )  " "         " "          " "           " "         " "
## 7  ( 1 )  " "         " "          " "           " "         " "
## 8  ( 1 )  " "         " "          " "           " "         " "
## 9  ( 1 )  " "         " "          " "           " "         " "
## 10  ( 1 ) " "         " "          " "           " "         " "
## 11  ( 1 ) " "         " "          " "           " "         " "
## 12  ( 1 ) " "         " "          " "           " "         " "
## 13  ( 1 ) " "         " "          " "           " "         " "
## 14  ( 1 ) " "         " "          " "           " "         "*"
## 15  ( 1 ) " "         " "          " "           " "         "*"
## 16  ( 1 ) " "         " "          " "           " "         "*"
## 17  ( 1 ) " "         " "          " "           " "         "*"
## 18  ( 1 ) " "         " "          " "           " "         "*"
## 19  ( 1 ) " "         " "          " "           " "         "*"
## 20  ( 1 ) " "         " "          " "           " "         "*"
## 21  ( 1 ) " "         " "          " "           " "         "*"
## 22  ( 1 ) " "         "*"          " "           " "         "*"
## 23  ( 1 ) " "         "*"          " "           " "         "*"
## 24  ( 1 ) " "         "*"          " "           " "         "*"
## 25  ( 1 ) " "         "*"          " "           " "         "*"
## 26  ( 1 ) " "         "*"          " "           " "         "*"
## 27  ( 1 ) " "         "*"          " "           " "         "*"
## 28  ( 1 ) " "         "*"          " "           " "         "*"
## 29  ( 1 ) " "         "*"          " "           " "         "*"
## 30  ( 1 ) " "         "*"          " "           " "         "*"
## 31  ( 1 ) " "         "*"          " "           "*"         "*"
## 32  ( 1 ) " "         "*"          " "           "*"         "*"
## 33  ( 1 ) " "         "*"          " "           "*"         "*"
## 34  ( 1 ) " "         "*"          " "           "*"         "*"
## 35  ( 1 ) " "         "*"          " "           "*"         "*"
## 36  ( 1 ) " "         "*"          " "           "*"         "*"
## 37  ( 1 ) " "         "*"          " "           "*"         "*"
## 38  ( 1 ) " "         "*"          " "           "*"         "*"
## 39  ( 1 ) " "         "*"          " "           "*"         "*"
## 40  ( 1 ) "*"         "*"          " "           "*"         "*"
## 41  ( 1 ) "*"         "*"          " "           "*"         "*"
## 42  ( 1 ) "*"         "*"          " "           "*"         "*"
## 43  ( 1 ) "*"         "*"          " "           "*"         "*"
## 44  ( 1 ) "*"         "*"          " "           "*"         "*"
## 45  ( 1 ) "*"         "*"          "*"           "*"         "*"
## 46  ( 1 ) "*"         "*"          "*"           "*"         "*"
## 47  ( 1 ) "*"         "*"          "*"           "*"         "*"
## 48  ( 1 ) "*"         "*"          "*"           "*"         "*"
## 49  ( 1 ) "*"         "*"          "*"           "*"         "*"
## 50  ( 1 ) "*"         "*"          "*"           "*"         "*"
## 51  ( 1 ) "*"         "*"          "*"           "*"         "*"
## 52  ( 1 ) "*"         "*"          "*"           "*"         "*"
##           ModelJeep ModelKia ModelLand ModelLexus ModelLincoln ModelMazda
## 1  ( 1 )  " "       " "      " "       " "        " "          " "
## 2  ( 1 )  " "       " "      " "       " "        " "          " "
```

```
## 3  ( 1 )  " "       " "      " "       " "        " "          " "
## 4  ( 1 )  " "       " "      " "       " "        " "          " "
## 5  ( 1 )  " "       " "      " "       " "        " "          " "
## 6  ( 1 )  " "       " "      " "       " "        " "          " "
## 7  ( 1 )  " "       "*"      " "       " "        " "          " "
## 8  ( 1 )  " "       "*"      " "       " "        " "          " "
## 9  ( 1 )  " "       "*"      " "       " "        " "          " "
## 10  ( 1 ) " "       "*"      " "       " "        " "          " "
## 11  ( 1 ) " "       "*"      " "       " "        " "          " "
## 12  ( 1 ) " "       "*"      " "       " "        " "          " "
## 13  ( 1 ) " "       "*"      " "       " "        " "          " "
## 14  ( 1 ) " "       "*"      " "       " "        " "          " "
## 15  ( 1 ) " "       "*"      " "       "*"        " "          " "
## 16  ( 1 ) " "       "*"      " "       "*"        " "          " "
## 17  ( 1 ) " "       "*"      " "       "*"        " "          " "
## 18  ( 1 ) " "       "*"      "*"       "*"        " "          " "
## 19  ( 1 ) " "       "*"      "*"       "*"        "*"          " "
## 20  ( 1 ) " "       "*"      "*"       "*"        "*"          " "
## 21  ( 1 ) " "       "*"      "*"       "*"        "*"          " "
## 22  ( 1 ) " "       "*"      "*"       "*"        "*"          " "
## 23  ( 1 ) " "       "*"      "*"       "*"        "*"          "*"
## 24  ( 1 ) " "       "*"      "*"       "*"        "*"          "*"
## 25  ( 1 ) " "       "*"      "*"       "*"        "*"          "*"
## 26  ( 1 ) " "       "*"      "*"       "*"        "*"          "*"
## 27  ( 1 ) " "       "*"      "*"       "*"        "*"          "*"
## 28  ( 1 ) " "       "*"      "*"       "*"        "*"          "*"
## 29  ( 1 ) " "       "*"      "*"       "*"        "*"          "*"
## 30  ( 1 ) " "       "*"      "*"       "*"        "*"          "*"
## 31  ( 1 ) " "       "*"      "*"       "*"        "*"          "*"
## 32  ( 1 ) " "       "*"      "*"       "*"        "*"          "*"
## 33  ( 1 ) " "       "*"      "*"       "*"        "*"          "*"
## 34  ( 1 ) " "       "*"      "*"       "*"        "*"          "*"
## 35  ( 1 ) " "       "*"      "*"       "*"        "*"          "*"
## 36  ( 1 ) " "       "*"      "*"       "*"        "*"          "*"
## 37  ( 1 ) " "       "*"      "*"       "*"        "*"          "*"
## 38  ( 1 ) " "       "*"      "*"       "*"        "*"          "*"
## 39  ( 1 ) " "       "*"      "*"       "*"        "*"          "*"
## 40  ( 1 ) " "       "*"      "*"       "*"        "*"          "*"
## 41  ( 1 ) " "       "*"      "*"       "*"        "*"          "*"
## 42  ( 1 ) " "       "*"      "*"       "*"        "*"          "*"
## 43  ( 1 ) " "       "*"      "*"       "*"        "*"          "*"
## 44  ( 1 ) " "       "*"      "*"       "*"        "*"          "*"
## 45  ( 1 ) " "       "*"      "*"       "*"        "*"          "*"
## 46  ( 1 ) " "       "*"      "*"       "*"        "*"          "*"
## 47  ( 1 ) " "       "*"      "*"       "*"        "*"          "*"
## 48  ( 1 ) " "       "*"      "*"       "*"        "*"          "*"
## 49  ( 1 ) "*"       "*"      "*"       "*"        "*"          "*"
## 50  ( 1 ) "*"       "*"      "*"       "*"        "*"          "*"
## 51  ( 1 ) "*"       "*"      "*"       "*"        "*"          "*"
## 52  ( 1 ) "*"       "*"      "*"       "*"        "*"          "*"
##           ModelMercedes-Benz ModelMercury ModelMini ModelMitsubishi
## 1  ( 1 )  " "                " "           " "       " "
## 2  ( 1 )  " "                " "           " "       " "
## 3  ( 1 )  " "                " "           " "       " "
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## 4  ( 1 )  " "               " "          " "       " "
## 5  ( 1 )  " "               " "          " "       " "
## 6  ( 1 )  " "               " "          " "       " "
## 7  ( 1 )  " "               " "          " "       " "
## 8  ( 1 )  " "               " "          " "       " "
## 9  ( 1 )  " "               " "          " "       " "
## 10  ( 1 ) "*"               " "          " "       " "
## 11  ( 1 ) "*"               " "          " "       " "
## 12  ( 1 ) "*"               " "          " "       " "
## 13  ( 1 ) "*"               " "          " "       " "
## 14  ( 1 ) "*"               " "          " "       " "
## 15  ( 1 ) "*"               " "          " "       " "
## 16  ( 1 ) "*"               " "          " "       " "
## 17  ( 1 ) "*"               " "          " "       " "
## 18  ( 1 ) "*"               " "          " "       " "
## 19  ( 1 ) "*"               " "          " "       " "
## 20  ( 1 ) "*"               " "          " "       " "
## 21  ( 1 ) "*"               " "          " "       " "
## 22  ( 1 ) "*"               " "          " "       " "
## 23  ( 1 ) "*"               " "          " "       " "
## 24  ( 1 ) "*"               " "          " "       " "
## 25  ( 1 ) "*"               " "          " "       " "
## 26  ( 1 ) "*"               " "          " "       " "
## 27  ( 1 ) "*"               " "          "*"       " "
## 28  ( 1 ) "*"               " "          "*"       " "
## 29  ( 1 ) "*"               " "          "*"       " "
## 30  ( 1 ) "*"               " "          "*"       " "
## 31  ( 1 ) "*"               " "          "*"       " "
## 32  ( 1 ) "*"               " "          "*"       " "
## 33  ( 1 ) "*"               " "          "*"       " "
## 34  ( 1 ) "*"               " "          "*"       " "
## 35  ( 1 ) "*"               " "          "*"       " "
## 36  ( 1 ) "*"               "*"          "*"       " "
## 37  ( 1 ) "*"               "*"          "*"       " "
## 38  ( 1 ) "*"               "*"          "*"       " "
## 39  ( 1 ) "*"               "*"          "*"       " "
## 40  ( 1 ) "*"               "*"          "*"       " "
## 41  ( 1 ) "*"               "*"          "*"       "*"
## 42  ( 1 ) "*"               "*"          "*"       "*"
## 43  ( 1 ) "*"               "*"          "*"       "*"
## 44  ( 1 ) "*"               "*"          "*"       "*"
## 45  ( 1 ) "*"               "*"          "*"       "*"
## 46  ( 1 ) "*"               "*"          "*"       "*"
## 47  ( 1 ) "*"               "*"          "*"       "*"
## 48  ( 1 ) "*"               "*"          "*"       "*"
## 49  ( 1 ) "*"               "*"          "*"       "*"
## 50  ( 1 ) "*"               "*"          "*"       "*"
## 51  ( 1 ) "*"               "*"          "*"       "*"
## 52  ( 1 ) "*"               "*"          "*"       "*"
##           ModelNissan ModelOldsmobile ModelPontiac ModelPorsche ModelSaab
## 1  ( 1 )  " "         " "             " "          " "          " "
## 2  ( 1 )  " "         " "             " "          " "          " "
## 3  ( 1 )  " "         " "             " "          " "          " "
## 4  ( 1 )  " "         " "             " "          " "          " "
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## 5  ( 1 )  " "         " "             " "          "*"          " "
## 6  ( 1 )  " "         " "             " "          "*"          " "
## 7  ( 1 )  " "         " "             " "          "*"          " "
## 8  ( 1 )  " "         " "             " "          "*"          " "
## 9  ( 1 )  " "         " "             " "          "*"          "*"
## 10  ( 1 ) " "         " "             " "          "*"          "*"
## 11  ( 1 ) " "         " "             " "          "*"          "*"
## 12  ( 1 ) " "         " "             " "          "*"          "*"
## 13  ( 1 ) " "         " "             " "          "*"          "*"
## 14  ( 1 ) " "         " "             " "          "*"          "*"
## 15  ( 1 ) " "         " "             " "          "*"          "*"
## 16  ( 1 ) " "         " "             " "          "*"          "*"
## 17  ( 1 ) " "         " "             " "          "*"          "*"
## 18  ( 1 ) " "         " "             " "          "*"          "*"
## 19  ( 1 ) " "         " "             " "          "*"          "*"
## 20  ( 1 ) " "         " "             " "          "*"          "*"
## 21  ( 1 ) " "         " "             " "          "*"          "*"
## 22  ( 1 ) " "         " "             " "          "*"          "*"
## 23  ( 1 ) " "         " "             " "          "*"          "*"
## 24  ( 1 ) " "         " "             " "          "*"          "*"
## 25  ( 1 ) " "         " "             " "          "*"          "*"
## 26  ( 1 ) " "         " "             " "          "*"          "*"
## 27  ( 1 ) " "         " "             " "          "*"          "*"
## 28  ( 1 ) " "         " "             " "          "*"          "*"
## 29  ( 1 ) " "         " "             " "          "*"          "*"
## 30  ( 1 ) "*"         " "             " "          "*"          "*"
## 31  ( 1 ) "*"         " "             " "          "*"          "*"
## 32  ( 1 ) "*"         " "             " "          "*"          "*"
## 33  ( 1 ) "*"         " "             " "          "*"          "*"
## 34  ( 1 ) "*"         " "             " "          "*"          "*"
## 35  ( 1 ) "*"         " "             " "          "*"          "*"
## 36  ( 1 ) "*"         " "             " "          "*"          "*"
## 37  ( 1 ) "*"         " "             " "          "*"          "*"
## 38  ( 1 ) "*"         " "             "*"          "*"          "*"
## 39  ( 1 ) "*"         " "             "*"          "*"          "*"
## 40  ( 1 ) "*"         " "             "*"          "*"          "*"
## 41  ( 1 ) "*"         " "             "*"          "*"          "*"
## 42  ( 1 ) "*"         " "             "*"          "*"          "*"
## 43  ( 1 ) "*"         " "             "*"          "*"          "*"
## 44  ( 1 ) "*"         " "             "*"          "*"          "*"
## 45  ( 1 ) "*"         " "             "*"          "*"          "*"
## 46  ( 1 ) "*"         " "             "*"          "*"          "*"
## 47  ( 1 ) "*"         "*"             "*"          "*"          "*"
## 48  ( 1 ) "*"         "*"             "*"          "*"          "*"
## 49  ( 1 ) "*"         "*"             "*"          "*"          "*"
## 50  ( 1 ) "*"         "*"             "*"          "*"          "*"
## 51  ( 1 ) "*"         "*"             "*"          "*"          "*"
## 52  ( 1 ) "*"         "*"             "*"          "*"          "*"
##           ModelSaturn ModelScion ModelSubaru ModelSuzuki ModelToyota
## 1  ( 1 )  " "         " "         " "         " "         " "
## 2  ( 1 )  " "         " "         " "         " "         " "
## 3  ( 1 )  " "         " "         " "         " "         " "
## 4  ( 1 )  " "         " "         " "         " "         " "
## 5  ( 1 )  " "         " "         " "         " "         " "
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## 6  ( 1 )  " "         " "         " "          " "          " "
## 7  ( 1 )  " "         " "         " "          " "          " "
## 8  ( 1 )  " "         " "         " "          " "          " "
## 9  ( 1 )  " "         " "         " "          " "          " "
## 10  ( 1 ) " "         " "         " "          " "          " "
## 11  ( 1 ) " "         " "         " "          " "          " "
## 12  ( 1 ) " "         " "         " "          " "          " "
## 13  ( 1 ) " "         " "         " "          " "          " "
## 14  ( 1 ) " "         " "         " "          " "          " "
## 15  ( 1 ) " "         " "         " "          " "          " "
## 16  ( 1 ) " "         " "         " "          " "          " "
## 17  ( 1 ) " "         " "         " "          " "          " "
## 18  ( 1 ) " "         " "         " "          " "          " "
## 19  ( 1 ) " "         " "         " "          " "          " "
## 20  ( 1 ) " "         " "         " "          " "          " "
## 21  ( 1 ) " "         " "         " "          "*"          " "
## 22  ( 1 ) " "         " "         " "          "*"          " "
## 23  ( 1 ) " "         " "         " "          "*"          " "
## 24  ( 1 ) " "         " "         " "          "*"          " "
## 25  ( 1 ) " "         " "         " "          "*"          " "
## 26  ( 1 ) " "         " "         " "          "*"          " "
## 27  ( 1 ) " "         " "         " "          "*"          " "
## 28  ( 1 ) "*"         " "         " "          "*"          " "
## 29  ( 1 ) "*"         " "         " "          "*"          " "
## 30  ( 1 ) "*"         " "         " "          "*"          " "
## 31  ( 1 ) "*"         " "         " "          "*"          " "
## 32  ( 1 ) "*"         " "         " "          "*"          " "
## 33  ( 1 ) "*"         " "         " "          "*"          " "
## 34  ( 1 ) "*"         " "         " "          "*"          " "
## 35  ( 1 ) "*"         " "         " "          "*"          " "
## 36  ( 1 ) "*"         " "         " "          "*"          " "
## 37  ( 1 ) "*"         " "         " "          "*"          " "
## 38  ( 1 ) "*"         " "         " "          "*"          " "
## 39  ( 1 ) "*"         " "         " "          "*"          "*"
## 40  ( 1 ) "*"         " "         " "          "*"          "*"
## 41  ( 1 ) "*"         " "         " "          "*"          "*"
## 42  ( 1 ) "*"         " "         " "          "*"          "*"
## 43  ( 1 ) "*"         " "         " "          "*"          "*"
## 44  ( 1 ) "*"         " "         " "          "*"          "*"
## 45  ( 1 ) "*"         " "         " "          "*"          "*"
## 46  ( 1 ) "*"         "*"         " "          "*"          "*"
## 47  ( 1 ) "*"         "*"         " "          "*"          "*"
## 48  ( 1 ) "*"         "*"         "*"          "*"          "*"
## 49  ( 1 ) "*"         "*"         "*"          "*"          "*"
## 50  ( 1 ) "*"         "*"         "*"          "*"          "*"
## 51  ( 1 ) "*"         "*"         "*"          "*"          "*"
## 52  ( 1 ) "*"         "*"         "*"          "*"          "*"
##           ModelVolkswagen ModelVolvo Disp Cyli HP  HMPG M   WBL L   W
## 1  ( 1 )  " "             " "         " "  " "  "*" " "  " " " " " " " " "
## 2  ( 1 )  " "             " "         " "  " "  "*" " "  " " " " " " " " "
## 3  ( 1 )  " "             " "         " "  " "  "*" " "  "*" " " " " " " "
## 4  ( 1 )  " "             " "         " "  " "  "*" " "  "*" " " " " " " "
## 5  ( 1 )  " "             " "         " "  " "  "*" " "  "*" " " " " " " "
## 6  ( 1 )  " "             " "         " "  " "  "*" " "  "*" " " " " " "*"
```

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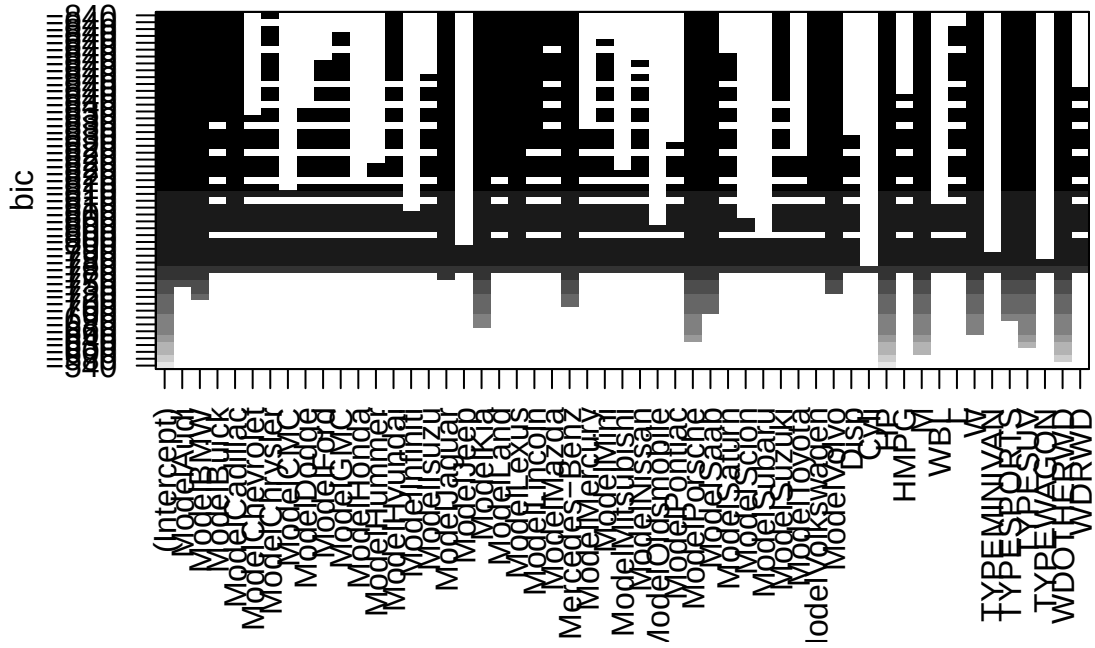

```
## 8  ( 1 )  " "         "*"         "*"      " "         "*"         " "
## 9  ( 1 )  " "         "*"         "*"      " "         "*"         " "
## 10  ( 1 ) " "         "*"         "*"      " "         "*"         " "
## 11  ( 1 ) " "         "*"         "*"      " "         "*"         " "
##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

```
plot(leaps.out, main = "BIC")
```

BIC



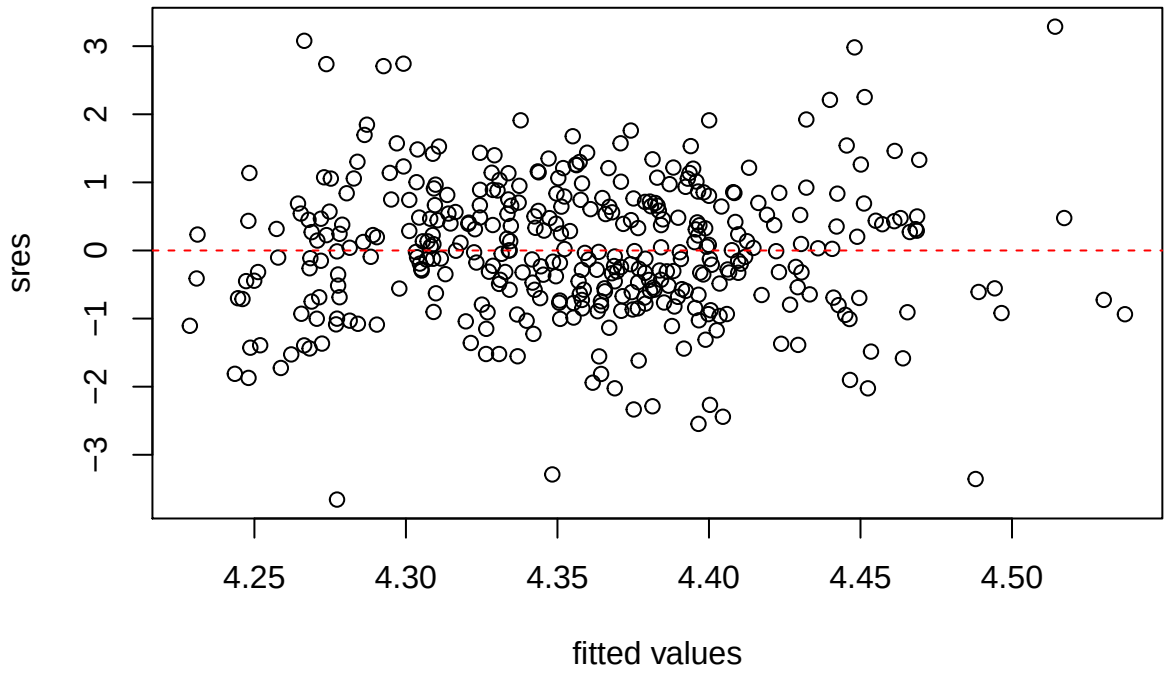

```
cars.lm = lm((Price^(-0.2) - 1) / (-0.2)~Model+HP+M+L+W+TYPE+WD+HMPG, data = cars.new.df)
summary(cars.lm)
```

```
##
## Call:
## lm(formula = (Price^(-0.2) - 1)/(-0.2) ~ Model + HP + M + L +
##     W + TYPE + WD + HMPG, data = cars.new.df)
##
## Residuals:
##       Min        1Q    Median        3Q       Max
## -0.054815 -0.009663 -0.000096  0.009868  0.047151
##
## Coefficients:
##                      Estimate Std. Error t value Pr(>|t|)
## (Intercept)         4.178e+00  3.577e-02 116.798  < 2e-16 ***
## ModelAudi           1.186e-02  7.769e-03   1.527 0.127661
## ModelBMW            1.267e-02  7.928e-03   1.598 0.111054
## ModelBuick         -1.806e-02  8.614e-03  -2.097 0.036779 *
## ModelCadillac      -1.234e-03  9.056e-03  -0.136 0.891665
## ModelChevrolet     -3.701e-02  7.519e-03  -4.922 1.35e-06 ***
## ModelChrysler      -2.513e-02  7.841e-03  -3.206 0.001478 **
## ModelCMC           -4.872e-02  1.769e-02  -2.754 0.006211 **
## ModelDodge         -4.174e-02  8.678e-03  -4.810 2.29e-06 ***
## ModelFord          -4.546e-02  7.723e-03  -5.886 9.64e-09 ***
## ModelGMC           -6.341e-02  1.181e-02  -5.370 1.48e-07 ***
## ModelHonda         -3.010e-02  7.944e-03  -3.788 0.000180 ***
## ModelHummer        -5.420e-02  1.861e-02  -2.913 0.003822 **
## ModelHyundai       -4.933e-02  8.191e-03  -6.022 4.53e-09 ***
## ModelInfiniti      -2.625e-02  9.041e-03  -2.904 0.003931 **
## ModelIsuzu         -5.894e-02  1.344e-02  -4.386 1.55e-05 ***
```

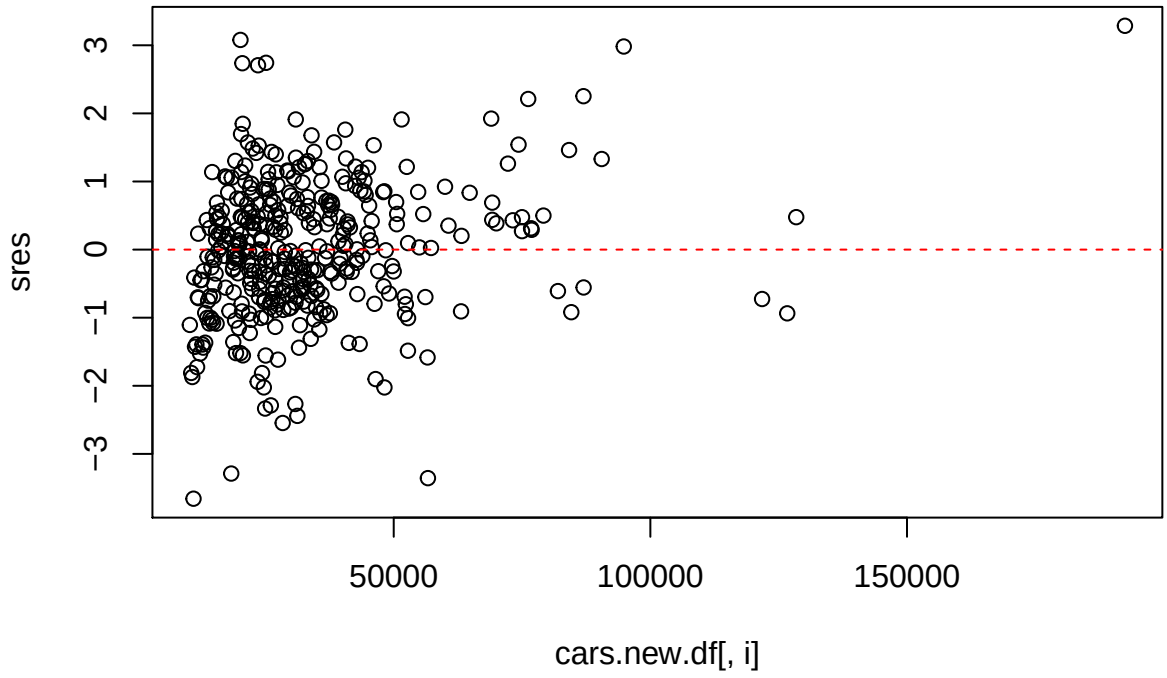
```
## ModelJaguar          1.395e-02  8.633e-03   1.616 0.107072
## ModelJeep           -1.649e-02  1.176e-02  -1.402 0.161719
## ModelKia            -6.890e-02  8.480e-03  -8.125 8.76e-15 ***
## ModelLand            5.415e-03  1.172e-02   0.462 0.644321
## ModelLexus           6.519e-03  8.529e-03   0.764 0.445190
## ModelLincoln        -1.557e-02  8.945e-03  -1.741 0.082619 .
## ModelMazda          -1.481e-02  1.019e-02  -1.453 0.147068
## ModelMercedes-Benz   1.909e-02  7.977e-03   2.394 0.017233 *
## ModelMercury        -4.079e-02  8.889e-03  -4.588 6.33e-06 ***
## ModelMini            1.232e-03  1.413e-02   0.087 0.930533
## ModelMitsubishi     -3.396e-02  8.906e-03  -3.814 0.000163 ***
## ModelNissan         -4.505e-02  7.894e-03  -5.707 2.54e-08 ***
## ModelOldsmobile     -2.276e-02  1.163e-02  -1.957 0.051194 .
## ModelPontiac        -3.537e-02  8.682e-03  -4.074 5.79e-05 ***
## ModelPorsche         4.479e-02  9.574e-03   4.678 4.21e-06 ***
## ModelSaab            1.853e-02  8.983e-03   2.063 0.039890 *
## ModelSaturn         -4.765e-02  9.080e-03  -5.247 2.75e-07 ***
## ModelScion          -3.423e-02  1.364e-02  -2.510 0.012558 *
## ModelSubaru         -2.338e-02  8.921e-03  -2.621 0.009179 **
## ModelSuzuki         -5.379e-02  8.873e-03  -6.063 3.62e-09 ***
## ModelToyota         -3.239e-02  7.548e-03  -4.292 2.33e-05 ***
## ModelVolkswagen     -8.644e-03  8.237e-03  -1.049 0.294771
## ModelVolvo           1.024e-02  8.087e-03   1.266 0.206320
## HP                   2.860e-04  2.590e-05  11.044  < 2e-16 ***
## M                    2.998e-05  4.304e-06   6.966 1.74e-11 ***
## L                    5.807e-04  1.743e-04   3.331 0.000964 ***
## W                   -9.297e-04  6.529e-04  -1.424 0.155396
## TYPEMINIVAN         -3.536e-03  5.222e-03  -0.677 0.498739
## TYPESPORTS           3.030e-02  4.213e-03   7.192 4.22e-12 ***
## TYPESUV             -8.767e-03  4.898e-03  -1.790 0.074355 .
## TYPEWAGON            1.221e-03  3.405e-03   0.358 0.720230
## WDOTHERWD            1.184e-03  3.308e-03   0.358 0.720720
## WDRWD                9.861e-03  3.886e-03   2.538 0.011608 *
## HMPG                -5.866e-04  3.681e-04  -1.594 0.111934
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.01604 on 334 degrees of freedom
## Multiple R-squared:  0.9403, Adjusted R-squared:  0.9316
## F-statistic: 107.4 on 49 and 334 DF,  p-value: < 2.2e-16
```

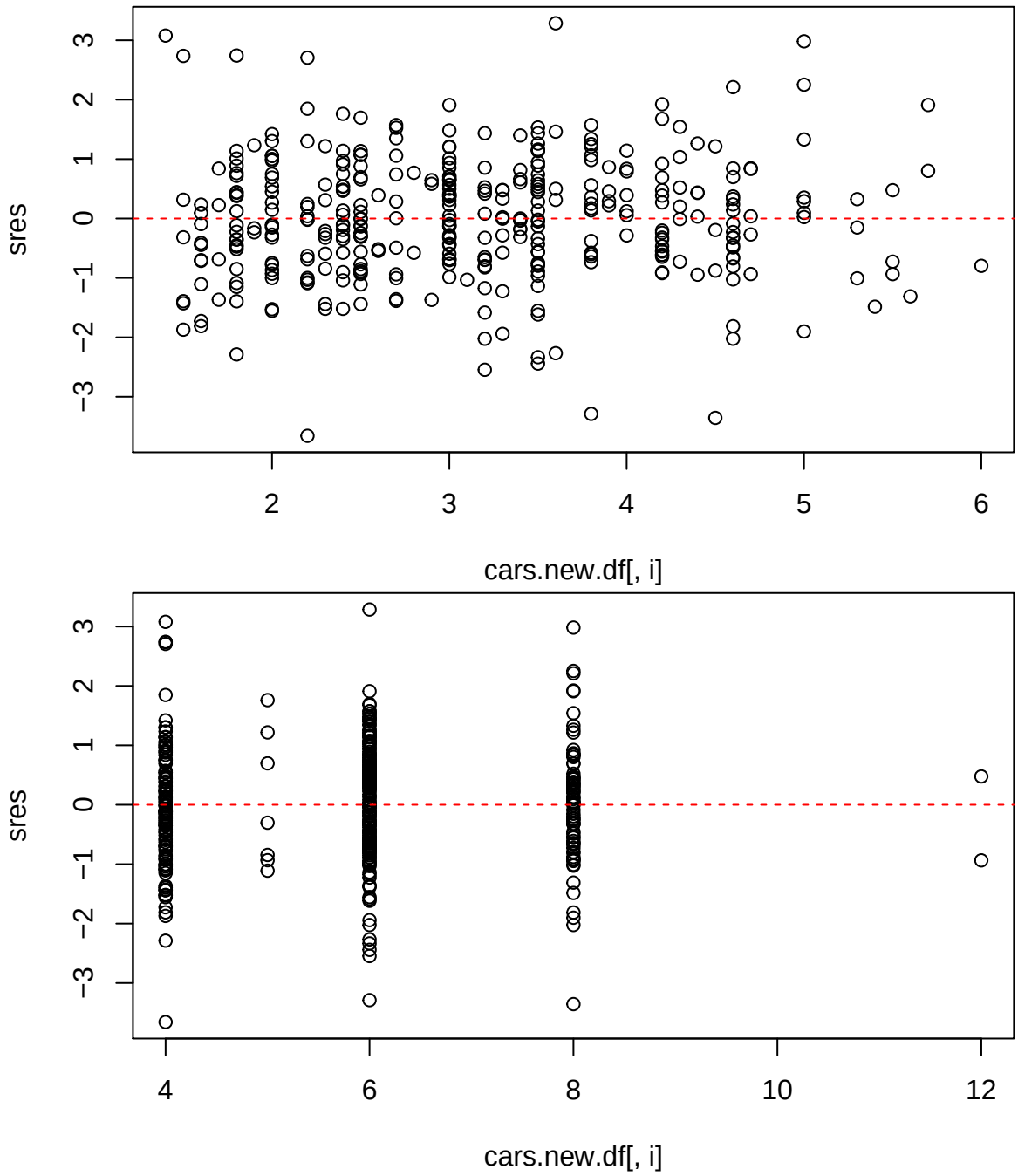
Then we do all the diagnostics again. Firstly, we check the assumptions of linear regression.

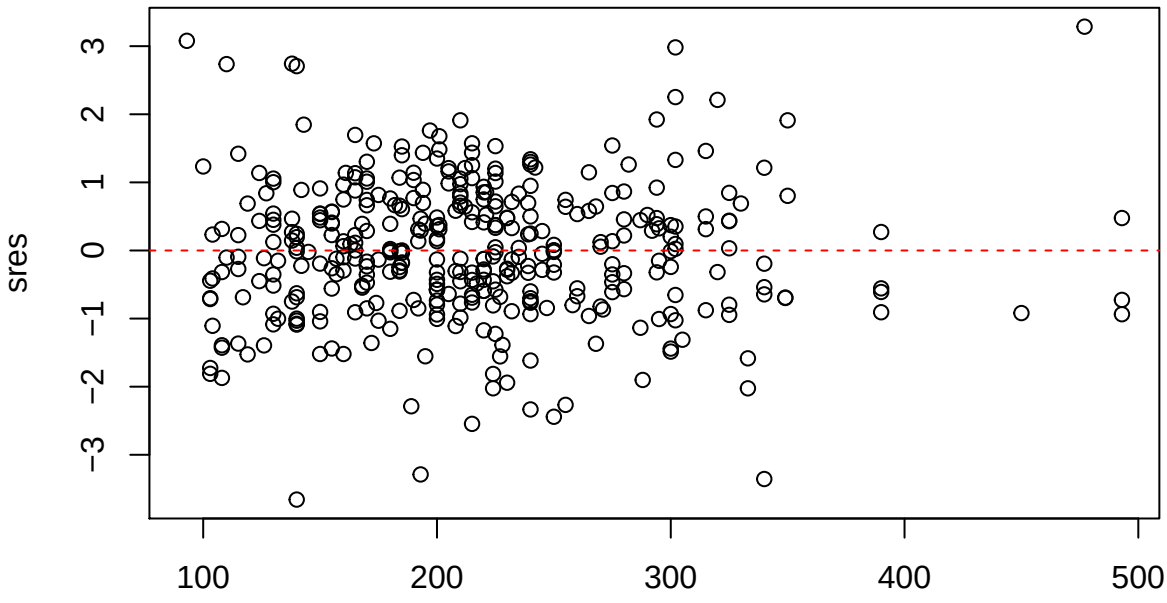
```
fvs = fitted.values(cars.lm)
res = residuals(cars.lm)
sres = rstandard(cars.lm)
plot(fvs, sres, xlab = "fitted values", ylab = "sres")
abline(a = 0, b = 0, col = 'red', lty = 2)
```

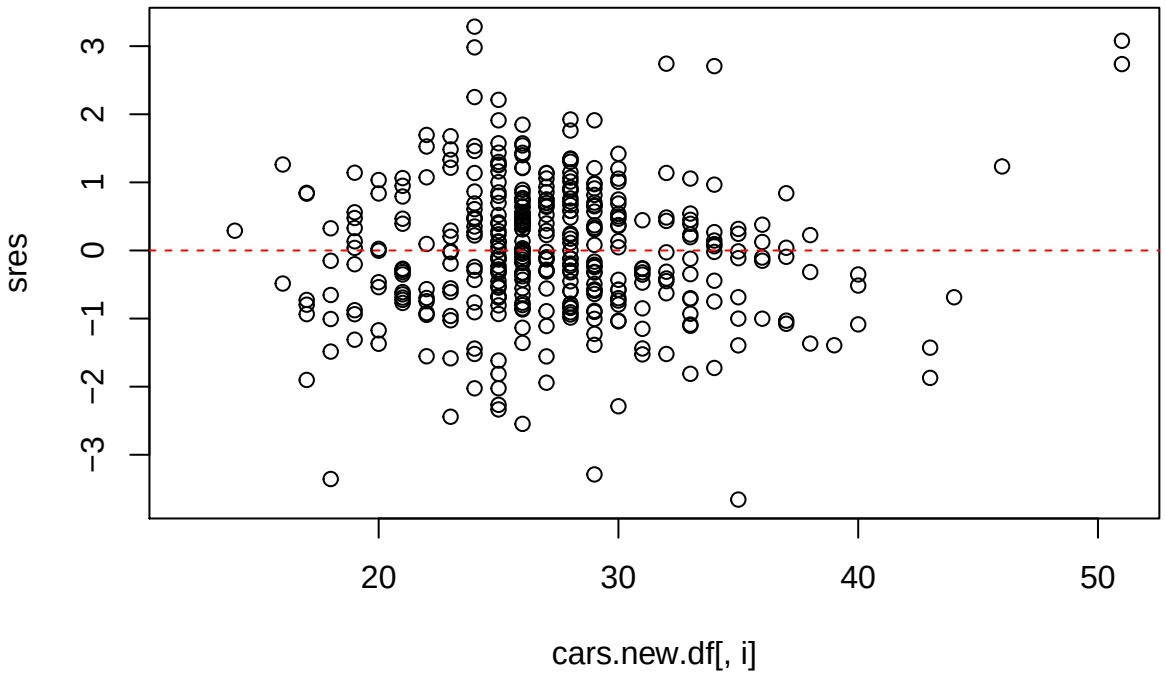


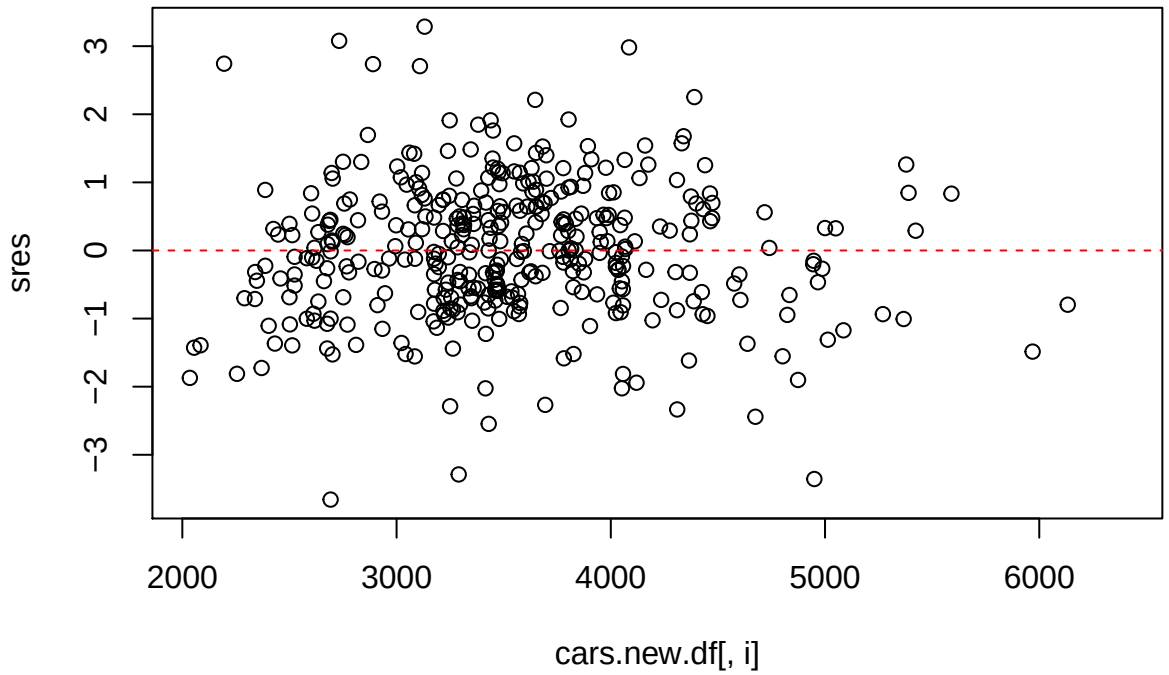

```
for (i in 2:10){
    plot(cars.new.df[,i], sres)
    abline(a = 0, b= 0, col = 'red', lty = 2)
}
```

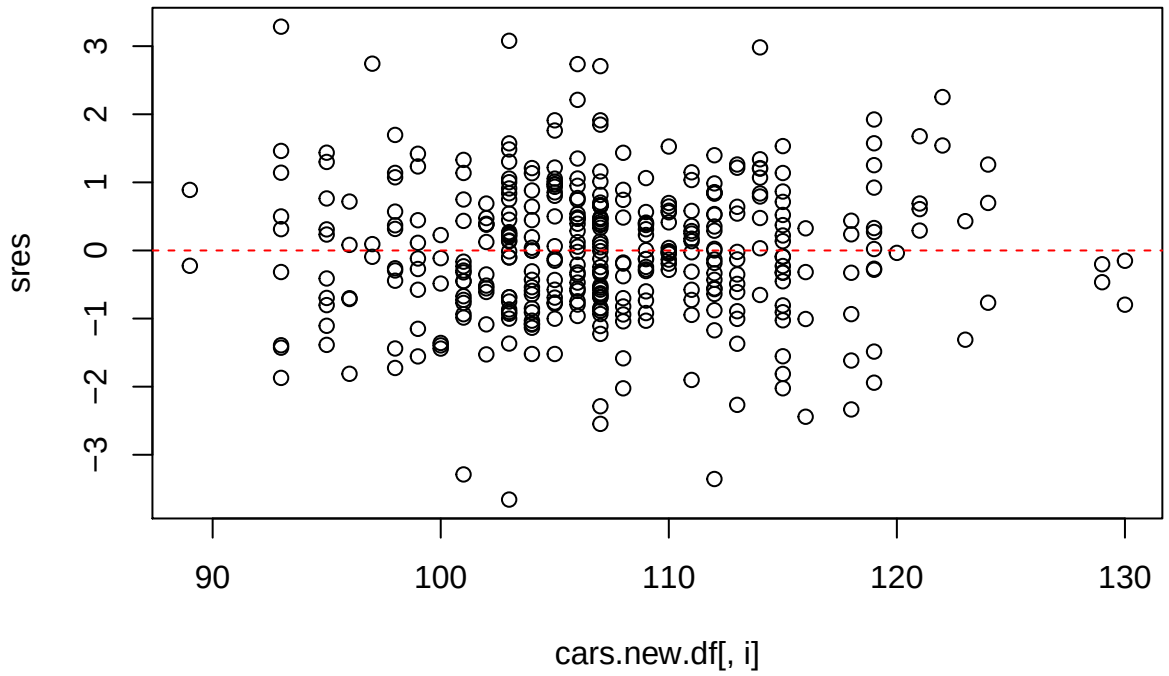


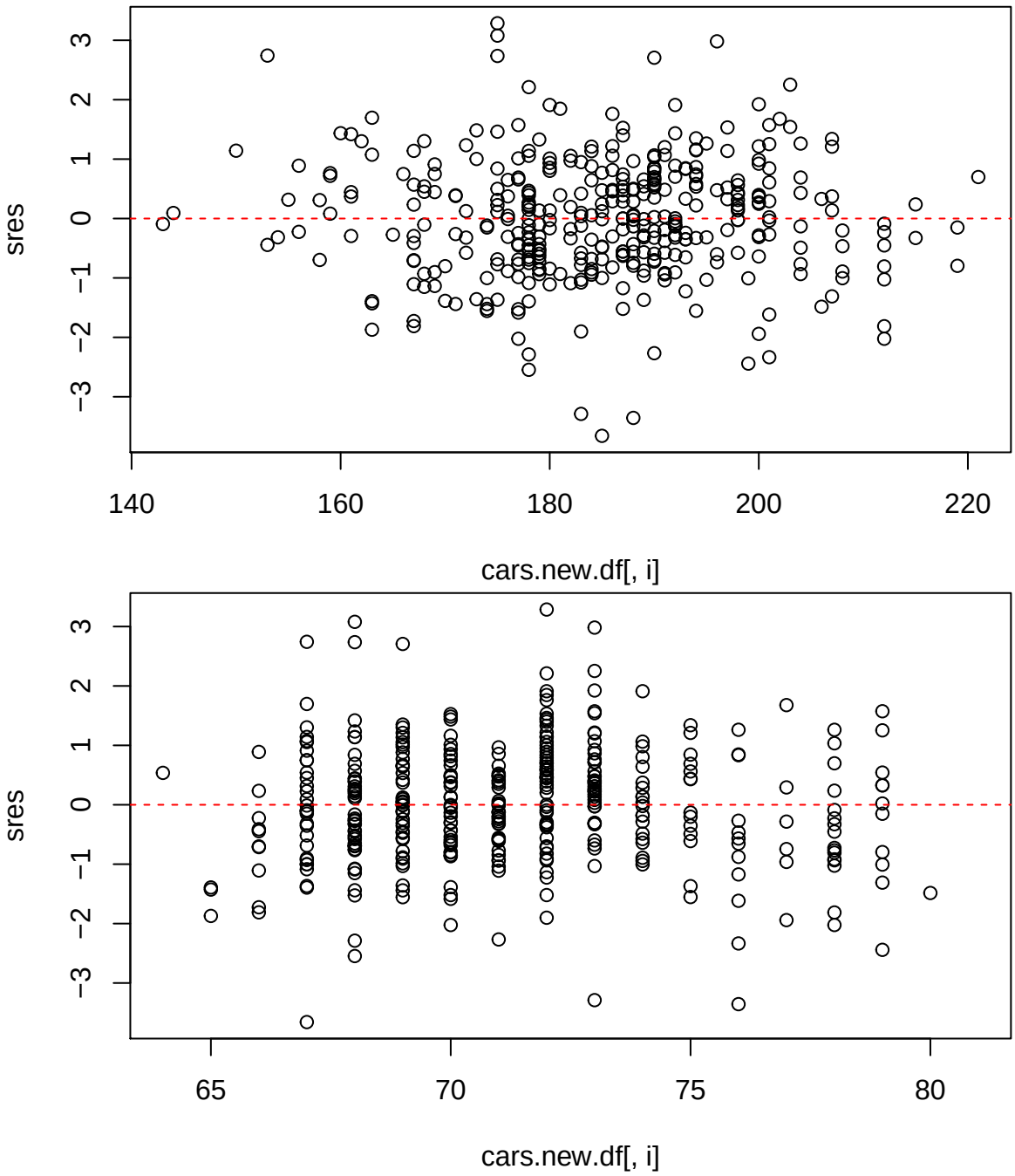

sres
3
2
1
0
−1
−2
−3
2
3
4
5
6
cars.new.df[, i]
sres
3
2
1
0
−1
−2
−3
4
6
8
10
12
cars.new.df[, i]


sres
3
2
1
0
−1
−2
−3
100
200
300
400
500
cars.new.df[, i]


sres
3
2
1
0
−1
−2
−3
20
30
40
50
cars.new.df[, i]

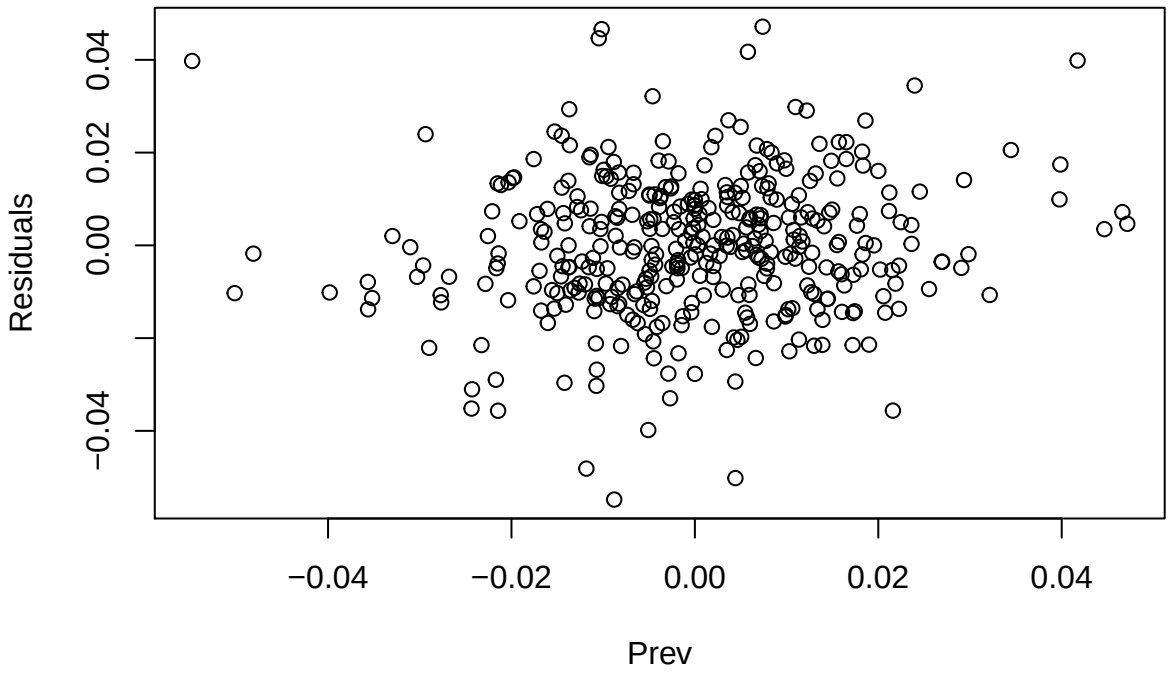

sres
3
2
1
0
−1
−2
−3
2000
3000
4000
5000
6000
cars.new.df[, i]


sres
3
2
1
0
−1
−2
−3
90
100
110
120
130
cars.new.df[, i]

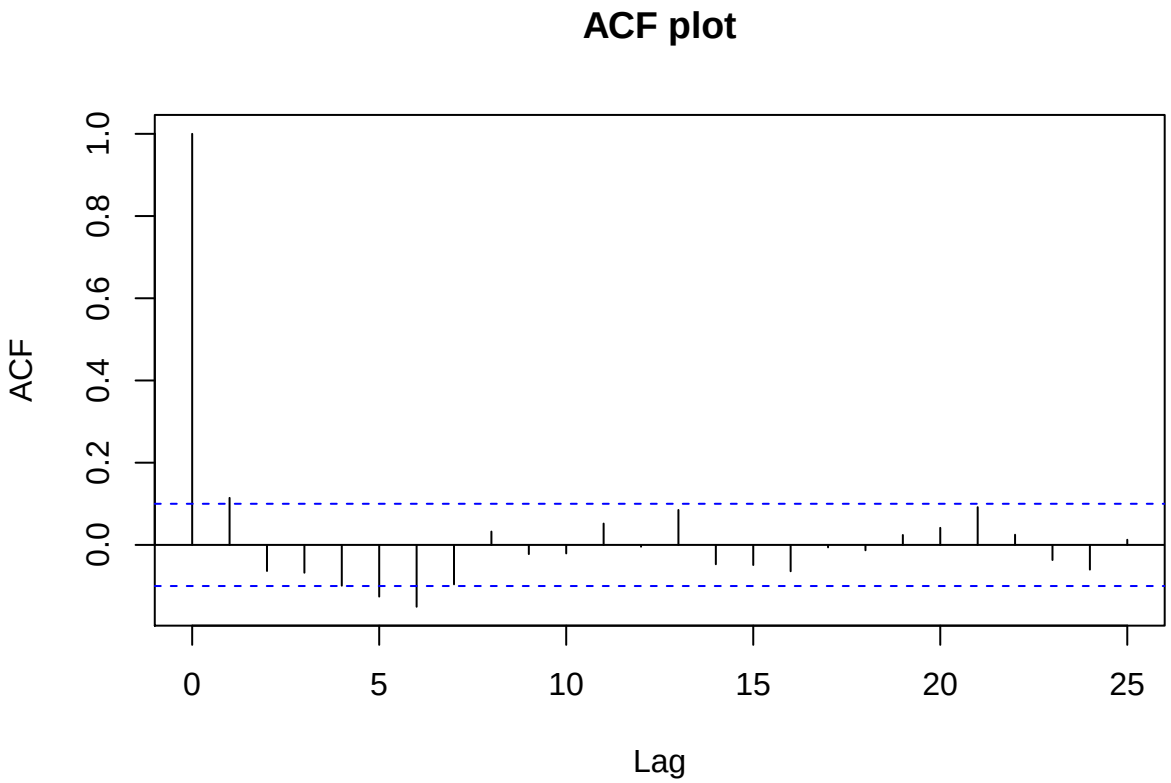


All above seem OK.

```
sz = length(cars.lm$residuals)
plot(cars.lm$residuals[-sz], cars.lm$residuals[-1], xlab = "Prev", ylab = "Residuals")
```

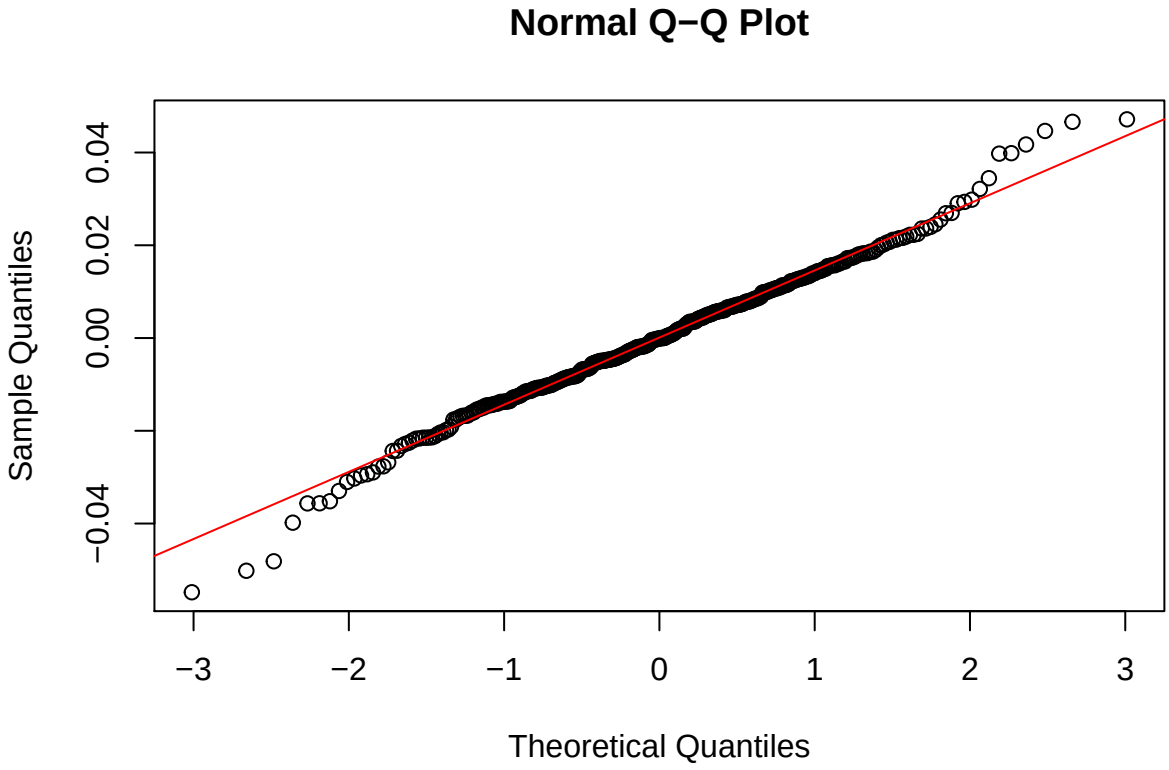



```
acf(cars.lm$residuals, main = "ACF plot")
```



No multicolinearity problem.

```
qqnorm(cars.lm$residuals)
qqline(cars.lm$residuals, col = 2)
```




```
shapiro.test(cars.lm$residuals)
```

```
##
##  Shapiro-Wilk normality test
##
## data:  cars.lm$residuals
## W = 0.9897, p-value = 0.008451
```

Normality seems OK. Check VIF

```
X_minus_cat = cars.new.df[,-c(1,2,11,12)]
VIF = diag(solve(cor(X_minus_cat)))
VIF
```

```
##     Disp     Cyli       HP     HMPG        M      WBL        L        W
## 9.474707 6.634555 3.050633 3.729275 7.467118 5.565510 4.876842 3.978444
```

VIF OK. So we take this as our final explantory model.

```
summary(cars.lm)
```

```
##
## Call:
## lm(formula = (Price^(-0.2) - 1)/(-0.2) ~ Model + HP + M + L +
##     W + TYPE + WD + HMPG, data = cars.new.df)
##
## Residuals:
##       Min        1Q    Median        3Q       Max
## -0.054815 -0.009663 -0.000096  0.009868  0.047151
##
## Coefficients:
##                      Estimate Std. Error t value Pr(>|t|)
```

```
## (Intercept)         4.178e+00  3.577e-02 116.798  < 2e-16 ***
## ModelAudi           1.186e-02  7.769e-03   1.527 0.127661
## ModelBMW            1.267e-02  7.928e-03   1.598 0.111054
## ModelBuick         -1.806e-02  8.614e-03  -2.097 0.036779 *
## ModelCadillac      -1.234e-03  9.056e-03  -0.136 0.891665
## ModelChevrolet     -3.701e-02  7.519e-03  -4.922 1.35e-06 ***
## ModelChrysler      -2.513e-02  7.841e-03  -3.206 0.001478 **
## ModelCMC           -4.872e-02  1.769e-02  -2.754 0.006211 **
## ModelDodge         -4.174e-02  8.678e-03  -4.810 2.29e-06 ***
## ModelFord          -4.546e-02  7.723e-03  -5.886 9.64e-09 ***
## ModelGMC           -6.341e-02  1.181e-02  -5.370 1.48e-07 ***
## ModelHonda         -3.010e-02  7.944e-03  -3.788 0.000180 ***
## ModelHummer        -5.420e-02  1.861e-02  -2.913 0.003822 **
## ModelHyundai       -4.933e-02  8.191e-03  -6.022 4.53e-09 ***
## ModelInfiniti      -2.625e-02  9.041e-03  -2.904 0.003931 **
## ModelIsuzu         -5.894e-02  1.344e-02  -4.386 1.55e-05 ***
## ModelJaguar         1.395e-02  8.633e-03   1.616 0.107072
## ModelJeep          -1.649e-02  1.176e-02  -1.402 0.161719
## ModelKia           -6.890e-02  8.480e-03  -8.125 8.76e-15 ***
## ModelLand           5.415e-03  1.172e-02   0.462 0.644321
## ModelLexus          6.519e-03  8.529e-03   0.764 0.445190
## ModelLincoln       -1.557e-02  8.945e-03  -1.741 0.082619 .
## ModelMazda         -1.481e-02  1.019e-02  -1.453 0.147068
## ModelMercedes-Benz  1.909e-02  7.977e-03   2.394 0.017233 *
## ModelMercury       -4.079e-02  8.889e-03  -4.588 6.33e-06 ***
## ModelMini           1.232e-03  1.413e-02   0.087 0.930533
## ModelMitsubishi    -3.396e-02  8.906e-03  -3.814 0.000163 ***
## ModelNissan        -4.505e-02  7.894e-03  -5.707 2.54e-08 ***
## ModelOldsmobile    -2.276e-02  1.163e-02  -1.957 0.051194 .
## ModelPontiac       -3.537e-02  8.682e-03  -4.074 5.79e-05 ***
## ModelPorsche        4.479e-02  9.574e-03   4.678 4.21e-06 ***
## ModelSaab           1.853e-02  8.983e-03   2.063 0.039890 *
## ModelSaturn        -4.765e-02  9.080e-03  -5.247 2.75e-07 ***
## ModelScion         -3.423e-02  1.364e-02  -2.510 0.012558 *
## ModelSubaru        -2.338e-02  8.921e-03  -2.621 0.009179 **
## ModelSuzuki        -5.379e-02  8.873e-03  -6.063 3.62e-09 ***
## ModelToyota        -3.239e-02  7.548e-03  -4.292 2.33e-05 ***
## ModelVolkswagen    -8.644e-03  8.237e-03  -1.049 0.294771
## ModelVolvo          1.024e-02  8.087e-03   1.266 0.206320
## HP                  2.860e-04  2.590e-05  11.044  < 2e-16 ***
## M                   2.998e-05  4.304e-06   6.966 1.74e-11 ***
## L                   5.807e-04  1.743e-04   3.331 0.000964 ***
## W                  -9.297e-04  6.529e-04  -1.424 0.155396
## TYPEMINIVAN        -3.536e-03  5.222e-03  -0.677 0.498739
## TYPESPORTS          3.030e-02  4.213e-03   7.192 4.22e-12 ***
## TYPESUV            -8.767e-03  4.898e-03  -1.790 0.074355 .
## TYPEWAGON           1.221e-03  3.405e-03   0.358 0.720230
## WDOTHERWD           1.184e-03  3.308e-03   0.358 0.720720
## WDRWD               9.861e-03  3.886e-03   2.538 0.011608 *
## HMPG               -5.866e-04  3.681e-04  -1.594 0.111934
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.01604 on 334 degrees of freedom
```

```
## Multiple R-squared:  0.9403, Adjusted R-squared:  0.9316
## F-statistic: 107.4 on 49 and 334 DF,  p-value: < 2.2e-16
```

Part 4

We go back to original cars dataframe.

```
str(cars.nonull.df)
```

```
## 'data.frame':    387 obs. of  21 variables:
##  $ Model  : Factor w/ 39 levels "Acura","Audi",..: 1 1 1 1 1 1 1 2 2 2 ...
##  $ Common : int  1 1 0 0 1 1 1 1 1 1 ...
##  $ Sports : int  0 0 0 1 0 0 0 0 0 0 ...
##  $ SUV    : int  0 0 1 0 0 0 0 0 0 0 ...
##  $ Wagon  : int  0 0 0 0 0 0 0 0 0 0 ...
##  $ Minivan: int  0 0 0 0 0 0 0 0 0 0 ...
##  $ Pickup : int  0 0 0 0 0 0 0 0 0 0 ...
##  $ AWD    : int  0 0 1 0 0 0 0 0 0 0 ...
##  $ RWD    : int  0 0 0 1 0 0 0 0 0 0 ...
##  $ Price  : int  43755 46100 36945 89765 23820 33195 26990 25940 31840 42490 ...
##  $ Cost   : int  39014 41100 33337 79978 21761 30299 24647 23508 28846 38325 ...
##  $ Disp   : num  3.5 3.5 3.5 3.2 2 3.2 2.4 1.8 3 3 ...
##  $ Cyli   : int  6 6 6 6 4 6 4 4 6 6 ...
##  $ HP     : int  225 225 265 290 200 270 200 170 220 220 ...
##  $ CMPG   : num  18 18 17 17 24 20 22 22 20 20 ...
##  $ HMPG   : num  24 24 23 24 31 28 29 31 28 27 ...
##  $ M      : num  3880 3893 4451 3153 2778 ...
##  $ WBL    : num  115 115 106 100 101 108 105 104 104 105 ...
##  $ L      : num  197 197 189 174 172 186 183 179 179 180 ...
##  $ W      : num  72 72 77 71 68 72 69 70 70 70 ...
##  $ birth  : Factor w/ 6 levels "GEM","JP","KOR",..: 2 2 2 2 2 2 2 1 1 1 ...
```

```
neg_price = which(cars.nonull.df$Price < 0)
cars.nonull.df$Price[neg_price] = -cars.nonull.df$Price[neg_price]
large_disp = which(cars.nonull.df$Disp == 20)
large_cyli = which(cars.nonull.df$Cyli == 12)
cars.nonull.df = cars.nonull.df[-c(large_disp),]
reg.out = regsubsets(Price~.,data = cars.nonull.df[-c(1, 21)], nvmax = NULL, nbest = 1, method = "exhaus
```

```
## Warning in leaps.setup(x, y, wt = wt, nbest = nbest, nvmax = nvmax,
## force.in = force.in, : 2 linear dependencies found
```

```
## Reordering variables and trying again:
```

```
summary(reg.out)
```

```
## Subset selection object
## Call: regsubsets.formula(Price ~ ., data = cars.nonull.df[-c(1, 21)],
##     nvmax = NULL, nbest = 1, method = "exhaustive")
## 18 Variables  (and intercept)
##         Forced in Forced out
## Common      FALSE      FALSE
## Sports      FALSE      FALSE
## SUV         FALSE      FALSE
## Wagon       FALSE      FALSE
## AWD         FALSE      FALSE
```

```
## RWD         FALSE      FALSE
## Cost        FALSE      FALSE
## Disp        FALSE      FALSE
## Cyli        FALSE      FALSE
## HP          FALSE      FALSE
## CMPG        FALSE      FALSE
## HMPG        FALSE      FALSE
## M           FALSE      FALSE
## WBL         FALSE      FALSE
## L           FALSE      FALSE
## W           FALSE      FALSE
## Minivan     FALSE      FALSE
## Pickup      FALSE      FALSE
## 1 subsets of each size up to 16
## Selection Algorithm: exhaustive
##           Common Sports SUV Wagon Minivan Pickup AWD RWD Cost Disp Cyli
## 1  ( 1 )  " "    " "    " " " "   " "     " "    " " " " "*"  " "  " "
## 2  ( 1 )  " "    " "    " " " "   " "     " "    " " " " "*"  " "  " "
## 3  ( 1 )  " "    "*"    " " " "   " "     " "    " " " " "*"  " "  " "
## 4  ( 1 )  " "    " "    " " " "   " "     " "    " " " " "*"  "*"  " "
## 5  ( 1 )  " "    "*"    " " " "   " "     " "    " " " " "*"  "*"  " "
## 6  ( 1 )  " "    "*"    " " " "   " "     " "    "*" " " "*"  "*"  " "
## 7  ( 1 )  " "    "*"    " " " "   " "     " "    "*" " " "*"  "*"  " "
## 8  ( 1 )  " "    "*"    " " " "   " "     " "    "*" " " "*"  "*"  " "
## 9  ( 1 )  "*"    " "    " " "*"   " "     " "    "*" " " "*"  "*"  " "
## 10  ( 1 ) "*"    " "    " " "*"   " "     " "    "*" "*" "*"  "*"  " "
## 11  ( 1 ) "*"    " "    " " "*"   " "     " "    "*" "*" "*"  "*"  " "
## 12  ( 1 ) "*"    " "    " " "*"   " "     " "    "*" "*" "*"  "*"  " "
## 13  ( 1 ) "*"    " "    " " "*"   " "     " "    "*" "*" "*"  "*"  "*"
## 14  ( 1 ) "*"    "*"    " " "*"   " "     " "    "*" "*" "*"  "*"  "*"
## 15  ( 1 ) "*"    "*"    " " "*"   " "     " "    "*" "*" "*"  "*"  "*"
## 16  ( 1 ) "*"    "*"    "*" "*"   " "     " "    "*" "*" "*"  "*"  "*"
##           HP  CMPG HMPG M   WBL L   W
## 1  ( 1 )  " " " "  " "  " " " " " " " "
## 2  ( 1 )  " " " "  " "  " " " " " " "*"
## 3  ( 1 )  " " " "  " "  " " " " " " "*"
## 4  ( 1 )  " " " "  " "  " " "*" " " "*"
## 5  ( 1 )  " " " "  " "  " " "*" " " "*"
## 6  ( 1 )  " " " "  " "  " " "*" " " "*"
## 7  ( 1 )  " " " "  " "  " " "*" "*" "*"
## 8  ( 1 )  " " " "  "*"  " " "*" "*" "*"
## 9  ( 1 )  " " " "  "*"  " " "*" "*" "*"
## 10  ( 1 ) " " " "  "*"  " " "*" "*" "*"
## 11  ( 1 ) "*" " "  "*"  " " "*" "*" "*"
## 12  ( 1 ) "*" "*"  "*"  " " "*" "*" "*"
## 13  ( 1 ) "*" "*"  "*"  " " "*" "*" "*"
## 14  ( 1 ) "*" "*"  "*"  " " "*" "*" "*"
## 15  ( 1 ) "*" "*"  "*"  "*" "*" "*" "*"
## 16  ( 1 ) "*" "*"  "*"  "*" "*" "*" "*"
```

Getting the needed data

```
cars_1.df = cbind(cars.nonull.df[c(10)], cars.nonull.df[c(11)])
cars_2.df = cbind(cars.nonull.df[c(10)], cars.nonull.df[c(11, 20)])
cars_3.df = cbind(cars.nonull.df[c(10)], cars.nonull.df[c(11, 20, 18)])
```

```
cars_4.df = cbind(cars.nonull.df[c(10)], cars.nonull.df[c(11, 20, 18, 12)])
cars_5.df = cbind(cars.nonull.df[c(10)], cars.nonull.df[c(11, 20, 18, 12, 9)])
cars_6.df = cbind(cars.nonull.df[c(10)], cars.nonull.df[c(11, 20, 18, 12, 9, 19)])
cars_7.df = cbind(cars.nonull.df[c(10)], cars.nonull.df[c(11, 20, 18, 12, 9, 19, 3)])
cars_8.df = cbind(cars.nonull.df[c(10)], cars.nonull.df[c(11, 20, 18, 12, 9, 19, 3, 2)])
cars_9.df = cbind(cars.nonull.df[c(10)], cars.nonull.df[c(11, 20, 18, 12, 9, 19, 3, 2, 5)])
cars_10.df = cbind(cars.nonull.df[c(10)], cars.nonull.df[c(11, 20, 18, 12, 9, 19, 3, 2, 5, 16)])
cars_11.df = cbind(cars.nonull.df[c(10)], cars.nonull.df[c(11, 20, 18, 12, 9, 19, 3, 2, 5, 16, 10)])
cars_12.df = cbind(cars.nonull.df[c(10)], cars.nonull.df[c(11, 20, 18, 12, 9, 19, 3, 2, 5, 16, 10, 14)])
cars_13.df = cbind(cars.nonull.df[c(10)], cars.nonull.df[c(11, 20, 18, 12, 9, 19, 3, 2, 5, 16, 10, 14,
cars_14.df = cbind(cars.nonull.df[c(10)], cars.nonull.df[c(11, 20, 18, 12, 9, 19, 3, 2, 5, 16, 10, 14,
cars_15.df = cbind(cars.nonull.df[c(10)], cars.nonull.df[c(11, 20, 18, 12, 9, 19, 3, 2, 5, 16, 10, 14,
cars_16.df = cbind(cars.nonull.df[c(10)], cars.nonull.df[c(11, 20, 18, 12, 9, 19, 3, 2, 5, 16, 10, 14,
```

```
library(boot)
my.func = function(formula, data, indices){
  d = data[indices,]
  fit = lm(formula, data = data)
  return(sum(residuals(fit)^2) / df.residual(fit))

}
results = rep(0, 16)
bootobj = boot(data=cars_1.df, statistic = my.func, R = 1000, formula=Price~.)
results[1] = bootobj$t0
bootobj = boot(data=cars_2.df, statistic = my.func, R = 1000, formula=Price~.)
results[2] = bootobj$t0
bootobj = boot(data=cars_3.df, statistic = my.func, R = 1000, formula=Price~.)
results[3] = bootobj$t0
bootobj = boot(data=cars_4.df, statistic = my.func, R = 1000, formula=Price~.)
results[4] = bootobj$t0
bootobj = boot(data=cars_5.df, statistic = my.func, R = 1000, formula=Price~.)
results[5] = bootobj$t0
bootobj = boot(data=cars_6.df, statistic = my.func, R = 1000, formula=Price~.)
results[6] = bootobj$t0
bootobj = boot(data=cars_7.df, statistic = my.func, R = 1000, formula=Price~.)
results[7] = bootobj$t0
bootobj = boot(data=cars_8.df, statistic = my.func, R = 1000, formula=Price~.)
results[8] = bootobj$t0
bootobj = boot(data=cars_9.df, statistic = my.func, R = 1000, formula=Price~.)
results[9] = bootobj$t0
bootobj = boot(data=cars_10.df, statistic = my.func, R = 1000, formula=Price~.)
results[10] = bootobj$t0
bootobj = boot(data=cars_11.df, statistic = my.func, R = 1000, formula=Price~.)
results[11] = bootobj$t0
bootobj = boot(data=cars_12.df, statistic = my.func, R = 1000, formula=Price~.)
results[12] = bootobj$t0
bootobj = boot(data=cars_13.df, statistic = my.func, R = 1000, formula=Price~.)
results[13] = bootobj$t0
bootobj = boot(data=cars_14.df, statistic = my.func, R = 1000, formula=Price~.)
results[14] = bootobj$t0
bootobj = boot(data=cars_15.df, statistic = my.func, R = 1000, formula=Price~.)
results[15] = bootobj$t0
bootobj = boot(data=cars_16.df, statistic = my.func, R = 1000, formula=Price~.)
results[16] = bootobj$t0
```

```
order(results, decreasing = FALSE)
```

```
##  [1] 10 11  9 12  7 13  8 14 15  4 16  5  6  3  2  1
```

```
results
```

```
##  [1] 682540.9 659991.0 633267.2 622827.0 624421.3 624847.0 619531.5
##  [8] 620637.7 618162.9 617273.2 617273.2 618265.2 619758.9 621081.1
## [15] 621694.4 623341.6
```

We use cars_10 model

```
us_id = which(cars.nonull.df$birth == "US")
other_id = which(cars.nonull.df$birth != "US")
us_data = cars_10.df[us_id,]
other_data = cars_10.df[other_id,]
us_lm = lm(Price~., data = us_data)
other_lm = lm(Price~., data = other_data)
summary(us_lm)
```

```
##
## Call:
## lm(formula = Price ~ ., data = us_data)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -954.07 -155.44  -29.95  102.37 1584.07
##
## Coefficients:
##               Estimate Std. Error t value Pr(>|t|)
## (Intercept) -2.476e+03  1.341e+03  -1.846   0.0674 .
## Cost         1.078e+00  6.531e-03 165.092  < 2e-16 ***
## W           -2.058e+01  2.178e+01  -0.945   0.3466
## WBL          3.007e+01  1.427e+01   2.107   0.0373 *
## Disp         5.002e+02  8.346e+01   5.993 2.42e-08 ***
## RWD         -2.430e+02  1.192e+02  -2.038   0.0438 *
## L           -7.073e+00  6.897e+00  -1.025   0.3073
## Sports       2.631e+02  2.636e+02   0.998   0.3203
## Common      -1.963e+02  1.557e+02  -1.261   0.2100
## Wagon        7.887e+00  2.087e+02   0.038   0.9699
## HMPG         2.786e+01  1.573e+01   1.771   0.0792 .
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 393.2 on 115 degrees of freedom
## Multiple R-squared:  0.9988, Adjusted R-squared:  0.9987
## F-statistic:  9695 on 10 and 115 DF,  p-value: < 2.2e-16
```

```
summary(other_lm)
```

```
##
## Call:
## lm(formula = Price ~ ., data = other_data)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -2883.1  -474.3    -1.0   369.5  4236.8
```

```
##
## Coefficients:
##               Estimate Std. Error t value Pr(>|t|)
## (Intercept) -6.355e+03  2.153e+03  -2.952 0.003461 **
## Cost         1.086e+00  4.358e-03 249.184  < 2e-16 ***
## W            1.468e+02  4.037e+01   3.638 0.000334 ***
## WBL         -9.904e+01  1.997e+01  -4.958 1.32e-06 ***
## Disp         1.654e+02  1.156e+02   1.430 0.153867
## RWD          4.072e+02  1.710e+02   2.381 0.018016 *
## L            3.095e+01  1.102e+01   2.808 0.005381 **
## Sports       9.285e+01  2.846e+02   0.326 0.744528
## Common      -3.198e+01  2.186e+02  -0.146 0.883817
## Wagon       -2.160e+02  2.655e+02  -0.813 0.416797
## HMPG         1.683e+01  1.424e+01   1.182 0.238246
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 877.9 on 249 degrees of freedom
## Multiple R-squared:  0.9985, Adjusted R-squared:  0.9985
## F-statistic: 1.677e+04 on 10 and 249 DF,  p-value: < 2.2e-16
```

Finally, Looking at the R^2 statistics at these two Models, We can argue that the American brand matters. (It should be mentioned that since we include the cost column, so any minor difference would be taken as evidence).