SST Paper generation

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Contents

This file just generates the stuf that goes into the final paper. # Prep

```r
library(tidyverse)
```

```
## -- Attaching packages --------------------------------------- tidyverse 1.3.1 --
## v ggplot2 3.3.6      v purrr   0.3.4
## v tibble  3.1.7      v dplyr   1.0.9
## v tidyr   1.2.0      v stringr 1.4.0
## v readr   2.1.2      v forcats 0.5.1
## -- Conflicts ------------------------------------------ tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()    masks stats::lag()
```

```r
Sys.setenv(R_CONFIG_ACTIVE = Sys.info()["nodename"])
print(Sys.info()["nodename"])
```

```
##                         nodename
## "Benjamins-MacBook-Pro-3.local"
```

```r
library(stargazer)
```

```
##
## Please cite as:

##  Hlavac, Marek (2022). stargazer: Well-Formatted Regression and Summary Statistics Tables.

##  R package version 5.2.3. https://CRAN.R-project.org/package=stargazer
```

```r
library(tidyverse)
source("preprocessing.R")
```

```r
dropbbox_dir <- config::get("dev_analysis_data_dir")
```

```r
cache_filepath <- paste0(dropbbox_dir,"/sst_paper_generation.Rdata")
loaded_from_cache<-FALSE
if (file.exists(cache_filepath)){
  load(cache_filepath)
  loaded_from_cache<-TRUE
} else
{
  time_points <- readr::read_csv(paste0(dropbbox_dir,"/SST_roi_by_time_point.csv"))
}
```

```r
if(!loaded_from_cache){
  roi_cols <- colnames(time_points)[grepl("harvardoxford",colnames(time_points))]
time_points$tr_roi_mean <- rowMeans(time_points[,roi_cols])
time_points<-
  time_points %>% group_by(subid,wave) %>%
  mutate(run_mean_across_rois = mean(tr_roi_mean, na.rm = TRUE))

#now mean-center the ROIs
time_points_c<-time_points
for (roi_col in roi_cols){
  time_points_c[,roi_col]<-time_points_c[,roi_col]-time_points_c$run_mean_across_rois
}


roi_detect_pattern<-"((?<=harvardoxford-.{0,3}cortical_prob_)(.*))|(CueFollowing\\(CS\\>FS\\).*)"

roi_cols_vec <- colnames(time_points_c) %>% stringr::str_detect(pattern = roi_detect_pattern)
new_roi_cols <- colnames(time_points_c) %>% stringr::str_extract_all(pattern = roi_detect_pattern) %>% u
unique(new_roi_cols)
colnames(time_points_c)[roi_cols_vec] <- new_roi_cols

}
```

We need to group by subject, wave, and trial, select just the FailedStop trials, and just the high trial numbers, then get the min and max accumbens activity. We could even do a long transform across the ROIs, then also group by ROI and get the min and max for ROIs

So let's first long transform the ROIs

Then do the grouping and summarizing.

We define a peak period and trough period based on the previously observed shape of the accumbens response in the FS trial. This will put a peak around 2-6 seconds and a trough around 7-10 seconds. These values were chosen subjectively to try to encompass the peak and trough allowing for as much variability as possible without grabbing unrelated data from other time points. With a TR of 2.0 we should always have one or two images to grab from within these ranges, too.

```r
if(!loaded_from_cache){
  tpc_long<-time_points_c %>% pivot_longer(cols=all_of(new_roi_cols),names_to="ROI",values_to="value")

  trial_summary_data <- tpc_long %>%
    #filter(condition=="FailedStop") %>%
    group_by(subid,wave,trial_n,ROI, condition) %>%
    summarise(
      peak=max(value[offset>=4.0 & offset <=11.0],na.rm = TRUE),
      trough = min(value[offset>=4.0 & offset <=11.0],na.rm = TRUE),
      peak_time = offset[offset>=4.0 & offset <=11.0][value[offset>=4.0 & offset <=11.0]==max(value[off
      trough_time = offset[offset>=4.0 & offset <=11.0][value[offset>=4.0 & offset <=11.0]==min(value[o
      med_post_trial = median(value[offset>=4.0 & offset <=10.0],na.rm = TRUE),
      med_post_trial_1_5 = median(value[offset>=1.0 & offset <=5.0],na.rm = TRUE)


    )


  trial_summary_data$response_amplitude <-trial_summary_data$peak-trial_summary_data$trough
}
```

OK. So now, let's try to merge in that with post-pre RTs. Where do we get those from?

get the SST Post-pre data

```r
source(paste0(config::get("ben_dev_data_analysis"),"SST_processing.R"))

dropbox_file_dir = config::get("dev_analysis_data_dir")

sst_all_data_filepath <- paste0(dropbox_file_dir,"sst_behavioral_data_all.csv")

if(!loaded_from_cache){

  sst_all_data_raw <- readr::read_csv(sst_all_data_filepath)
  sst_all_data<-clean_sst_data(sst_all_data_raw)
  sst_all_data <- get_expected_tone_time(sst_all_data)

  sst_all_data<-calculate_response_latency(sst_all_data)
  sst_all_data<-calculate_rpe(sst_all_data)

  sst_all_data<-get_more_sst_stats(sst_all_data)

  #remove subjects with too many incorrect trials--theyre' probably not paying attention


  sst_all_data <- sst_all_data %>% filter(stop_prop_correct>0.2 & stop_prop_correct<0.8)
```

```
    readr::write_csv(sst_all_data,file=paste0(dropbox_file_dir,"sst_behavioral_data_all_with_analysis.csv

    post_pre_rt_data <- sst_all_data%>% filter(condition!="Cue")
}
```

Prepare neural data

```
if(!loaded_from_cache){
  trial_summary_data$ROI_delateralized <-  trial_summary_data$ROI %>% str_replace_all("(Left|Right)\\s"


  trial_summary_data_delat <- trial_summary_data %>%
    #filter(ROI %in% c("Left Accumbens","Right Accumbens")) %>%
    group_by(subid,wave,trial_n, ROI_delateralized,condition) %>%
    summarize(peak=mean(peak),
              trough=mean(trough),
              peak_time=mean(peak_time),
              trough_time=mean(trough_time),
              response_amplitude=mean(response_amplitude),
              med_post_trial=mean(med_post_trial),
              med_post_trial_1_5 = mean(med_post_trial_1_5)
              )
}
```

Merge the datasets

```
if(!loaded_from_cache){

  trial_summary_data_delat_pp <- merge(trial_summary_data_delat,post_pre_rt_data,by.x = c("subid","wave

  trial_summary_data_delat_pp$trial_n_c<-128-trial_summary_data_delat_pp$trial_n

}
```

Preparing regressors

```
if(!loaded_from_cache){
  trial_neural_behav_data_not_na<-trial_summary_data_delat_pp[
    #rowSums(is.na(trial_summary_data_delat_pp[,c("response_amplitude","post_pre_rt_change")]))==0 & #n
    is.na(trial_summary_data_delat_pp[,c("post_pre_rt_change")])==FALSE & #no NA values in correlation
      #is.finite(trial_summary_data_delat_pp$response_amplitude) #&
      is.finite(trial_summary_data_delat_pp$post_pre_rt_change) & #no infinite values
      (is.finite(trial_summary_data_delat_pp$med_post_trial) |
       is.finite(trial_summary_data_delat_pp$med_post_trial_1_5)
      )
        ,]

  trial_neural_behav_data_not_na$trial_n_c<-128-trial_neural_behav_data_not_na$trial_n
```

```
trial_neural_behav_roi <- trial_neural_behav_data_not_na %>% filter(ROI_delateralized=="CueFollowing(C

trial_neural_behav_roi$condition<-(
  factor(trial_neural_behav_roi$condition,
         levels=c("CorrectGo","CorrectStop","FailedGo","FailedStop"),
         ordered=FALSE))


trial_neural_behav_roi$trial_n_s<-scale(trial_neural_behav_roi$trial_n_c)
trial_neural_behav_roi$peak_z<-scale(trial_neural_behav_roi$peak)
trial_neural_behav_roi$post_pre_rt_change_z<-scale(trial_neural_behav_roi$post_pre_rt_change)
trial_neural_behav_roi$P_stop_trial_change_z<-scale(trial_neural_behav_roi$P_stop_trial_change)
trial_neural_behav_roi$trial_n_z<-scale(trial_neural_behav_roi$trial_n)
trial_neural_behav_roi$med_post_trial_z<-scale(trial_neural_behav_roi$med_post_trial)

}
```

Prepare time series data

```
if(!loaded_from_cache){
df_offset<-get_df_offset(time_points_c)
}
```

Save cache

```
if (!loaded_from_cache){
  save.image(paste0(dropbbox_dir,"/sst_paper_generation.Rdata"))
}

#load(paste0(dropbbox_dir,"/sst_paper_generation.Rdata"))
```

Basic Striatal cluster mixed effects models

All trial types, with P_Stop

I think if you're going to do P_stop

- P_stop_trial seems mostly irrelevant and P_stop_trial_post is a more relevant measure; P_stop_trial_change is more relevant still.
- measuring P_stop_trial rather than P_stop_trial_change doesn't make much sense, but
- If you're only measuring FS, neither P_stop_trial_post nor P_stop_trial_change are necessarily going to measure what you think because the data is censored to just FS trials, which are *always* going to move in a particular direction
- so while measuring `P_stop_trial`, it's best to do a model with all kinds of trials

Table 1: stop conditions, with condition

Modeled in more detail in `modeling_t_5_10_activity_as_learning.Rmd`.

```
model_full_effects <- lme4::lmer(
    med_post_trial_z ~ trial_n_s+ condition + P_stop_trial_change+ post_pre_rt_change + (1 +post_pre_rt_c
  trial_neural_behav_roi %>% filter(trial_n>50 & condition %in% c("CorrectStop","FailedStop"))
  )
```

```
## boundary (singular) fit: see help('isSingular')
```

```
summary(model_full_effects)
```

```
## Linear mixed model fit by REML ['lmerMod']
## Formula: med_post_trial_z ~ trial_n_s + condition + P_stop_trial_change +
##      post_pre_rt_change + (1 + post_pre_rt_change + P_stop_trial_change |
##      subid)
##    Data: trial_neural_behav_roi %>% filter(trial_n > 50 & condition %in%
##      c("CorrectStop", "FailedStop"))
##
## REML criterion at convergence: 19175.2
##
## Scaled residuals:
##      Min       1Q   Median       3Q      Max
## -10.1216  -0.5907   0.0303   0.6086   4.0506
##
## Random effects:
##  Groups    Name                   Variance Std.Dev. Corr
##  subid     (Intercept)             0.00000 0.0000
##            post_pre_rt_change      0.05978 0.2445      NaN
##            P_stop_trial_change    50.98112 7.1401      NaN -0.27
##  Residual                          0.99678 0.9984
## Number of obs: 6739, groups:  subid, 271
##
## Fixed effects:
##                      Estimate Std. Error t value
## (Intercept)          -0.33834    0.07635  -4.431
## trial_n_s            -0.20398    0.03802  -5.364
## conditionFailedStop  -0.42969    0.02497 -17.207
## P_stop_trial_change  37.24173    5.24663   7.098
## post_pre_rt_change   -0.24719    0.08361  -2.956
##
## Correlation of Fixed Effects:
##             (Intr) trl_n_ cndtFS P_st__
## trial_n_s    0.919
## cndtnFldStp -0.097  0.038
## P_stp_trl_c -0.971 -0.909 -0.038
## pst_pr_rt_c -0.004  0.023 -0.137 -0.022
## optimizer (nloptwrap) convergence code: 0 (OK)
## boundary (singular) fit: see help('isSingular')
```

```
model_no_rt<- lme4::lmer(
    med_post_trial_z ~ trial_n_s+ condition + P_stop_trial_change + (1 +post_pre_rt_change  + P_stop_tria
  trial_neural_behav_roi %>% filter(trial_n>50 & condition %in% c("CorrectStop","FailedStop"))
  )
```

```
## boundary (singular) fit: see help('isSingular')
anova(model_full_effects,model_no_rt)

## refitting model(s) with ML (instead of REML)

## Data: trial_neural_behav_roi %>% filter(trial_n > 50 & condition %in%  ...
## Models:
## model_no_rt: med_post_trial_z ~ trial_n_s + condition + P_stop_trial_change + (1 + post_pre_rt_change
## model_full_effects: med_post_trial_z ~ trial_n_s + condition + P_stop_trial_change + post_pre_rt_chan
##                      npar   AIC   BIC   logLik deviance  Chisq Df Pr(>Chisq)
## model_no_rt            11 19189 19264 -9583.5    19167
## model_full_effects    12 19182 19264 -9579.2    19158 8.5413  1   0.003472 **
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

model_no_p_stop<- lme4::lmer(
  med_post_trial_z ~ trial_n_s+ condition + post_pre_rt_change + (1 +post_pre_rt_change  + P_stop_trial
  trial_neural_behav_roi %>% filter(trial_n>50 & condition %in% c("CorrectStop","FailedStop"))
  )

anova(model_full_effects,model_no_p_stop)

## refitting model(s) with ML (instead of REML)

## Data: trial_neural_behav_roi %>% filter(trial_n > 50 & condition %in%  ...
## Models:
## model_no_p_stop: med_post_trial_z ~ trial_n_s + condition + post_pre_rt_change + (1 + post_pre_rt_ch
## model_full_effects: med_post_trial_z ~ trial_n_s + condition + P_stop_trial_change + post_pre_rt_chan
##                      npar   AIC   BIC   logLik deviance  Chisq Df Pr(>Chisq)
## model_no_p_stop       11 19217 19292 -9597.5    19195
## model_full_effects    12 19182 19264 -9579.2    19158 36.689  1  1.385e-09 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Looking at CS and FS trials separately.

Table 2: Just FS Trials

Modeled in more detail in `modeling_t_5_10_activity_as_learning.Rmd`.

median

```
model_P_stop_trial_w_change <- lme4::lmer(
  med_post_trial_z ~ trial_n_z + post_pre_rt_change_z + P_stop_trial_change_z +(1+ post_pre_rt_change_
  trial_neural_behav_roi %>% filter(trial_n>50 & condition %in% c("FailedStop"))
  )
summary(model_P_stop_trial_w_change)

## Linear mixed model fit by REML ['lmerMod']
## Formula:
## med_post_trial_z ~ trial_n_z + post_pre_rt_change_z + P_stop_trial_change_z +
##     (1 + post_pre_rt_change_z + P_stop_trial_change_z | subid)
##    Data: trial_neural_behav_roi %>% filter(trial_n > 50 & condition %in%
```

```
##     c("FailedStop"))
##
## REML criterion at convergence: 8253
##
## Scaled residuals:
##    Min     1Q Median     3Q    Max
## -6.9854 -0.5686  0.0173  0.5949  3.6953
##
## Random effects:
##  Groups   Name                  Variance  Std.Dev. Corr
##  subid    (Intercept)           0.1968959 0.44373
##           post_pre_rt_change_z  0.0005407 0.02325  -0.55
##           P_stop_trial_change_z 1.1279540 1.06205  -0.89  0.57
##  Residual                       0.9332085 0.96603
## Number of obs: 2915, groups:  subid, 269
##
## Fixed effects:
##                       Estimate Std. Error t value
## (Intercept)           -1.06280    0.12014  -8.846
## trial_n_z              0.38489    0.05576   6.903
## post_pre_rt_change_z  -0.03786    0.01747  -2.167
## P_stop_trial_change_z  2.26969    0.33086   6.860
##
## Correlation of Fixed Effects:
##            (Intr) trl_n_ ps____
## trial_n_z  -0.898
## pst_pr_rt__ -0.088 -0.005
## P_stp_trl__ -0.977  0.890  0.019
## optimizer (nloptwrap) convergence code: 0 (OK)
## Model failed to converge with max|grad| = 0.00236936 (tol = 0.002, component 1)
```

```r
#ignoring post_pre_rt_change_z
model_P_stop_trial_w_change_no_rt <- lme4::lmer(
  med_post_trial_z ~ trial_n_z  + P_stop_trial_change_z +(1+ post_pre_rt_change_z + P_stop_trial_change
  trial_neural_behav_roi %>% filter(trial_n>50 & condition %in% c("FailedStop"))
  )
#summary(model_P_stop_trial_w_change_no_rt)

anova(model_P_stop_trial_w_change,model_P_stop_trial_w_change_no_rt)
```

```
## refitting model(s) with ML (instead of REML)
```

```
## Data: trial_neural_behav_roi %>% filter(trial_n > 50 & condition %in%  ...
## Models:
## model_P_stop_trial_w_change_no_rt: med_post_trial_z ~ trial_n_z + P_stop_trial_change_z + (1 + post_p
## model_P_stop_trial_w_change: med_post_trial_z ~ trial_n_z + post_pre_rt_change_z + P_stop_trial_chang
##                                   npar    AIC    BIC  logLik deviance  Chisq Df
## model_P_stop_trial_w_change_no_rt   10 8259.6 8319.4 -4119.8   8239.6
## model_P_stop_trial_w_change         11 8257.1 8322.8 -4117.5   8235.1 4.5551  1
##                                   Pr(>Chisq)
## model_P_stop_trial_w_change_no_rt
## model_P_stop_trial_w_change          0.03282 *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```
#ignoring P_stop_trial_change_z
model_P_stop_trial_w_change_no_p_stop_d <- lme4::lmer(
  med_post_trial_z ~ trial_n_z +  post_pre_rt_change_z +(1+ post_pre_rt_change_z + P_stop_trial_change_
  trial_neural_behav_roi %>% filter(trial_n>50 & condition %in% c("FailedStop"))
  )
```

```
## boundary (singular) fit: see help('isSingular')
```

```
#summary(model_P_stop_trial_w_change_no_p_stop_d)
```

```
anova(model_P_stop_trial_w_change, model_P_stop_trial_w_change_no_p_stop_d)
```

```
## refitting model(s) with ML (instead of REML)
```

```
## Data: trial_neural_behav_roi %>% filter(trial_n > 50 & condition %in%  ...
## Models:
## model_P_stop_trial_w_change_no_p_stop_d: med_post_trial_z ~ trial_n_z + post_pre_rt_change_z + (1 + p
## model_P_stop_trial_w_change: med_post_trial_z ~ trial_n_z + post_pre_rt_change_z + P_stop_trial_chang
##                                         npar    AIC    BIC  logLik deviance
## model_P_stop_trial_w_change_no_p_stop_d   10 8301.2 8361.0 -4140.6   8281.2
## model_P_stop_trial_w_change               11 8257.1 8322.8 -4117.5   8235.1
##                                         Chisq Df Pr(>Chisq)
## model_P_stop_trial_w_change_no_p_stop_d
## model_P_stop_trial_w_change             46.127  1  1.109e-11 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```
table_normed <- stargazer(model_P_stop_trial_w_change, model_P_stop_trial_w_change_no_rt, model_P_stop_
```

% Table created by stargazer v.5.2.3 by Marek Hlavac, Social Policy Institute. E-mail: marek.hlavac at gmail.com % Date and time: Tue, May 16, 2023 - 09:50:15

median, all trials

```
model_P_stop_trial_w_change <- lme4::lmer(
  med_post_trial_z ~ trial_n_z + post_pre_rt_change_z + P_stop_trial_change_z +(1+ post_pre_rt_change_z
  trial_neural_behav_roi %>% filter(condition %in% c("FailedStop"))
  )
summary(model_P_stop_trial_w_change)
```

```
## Linear mixed model fit by REML ['lmerMod']
## Formula:
## med_post_trial_z ~ trial_n_z + post_pre_rt_change_z + P_stop_trial_change_z +
##     (1 + post_pre_rt_change_z + P_stop_trial_change_z | subid)
##    Data: trial_neural_behav_roi %>% filter(condition %in% c("FailedStop"))
##
## REML criterion at convergence: 12653.6
##
## Scaled residuals:
##     Min      1Q  Median      3Q     Max
## -6.7894 -0.5989  0.0176  0.6119  4.0321
##
## Random effects:
##  Groups   Name                Variance Std.Dev. Corr
```

Table 1: asis Markdown

	Dependent variable:		
	med_post_trial_z		
	(1)	(2)	(3)
trial_n_z	0.385***	0.385***	0.051*
	(0.056)	(0.056)	(0.026)
post_pre_rt_change_z	−0.038**		−0.041**
	(0.017)		(0.018)
P_stop_trial_change_z	2.270***	2.288***	
	(0.331)	(0.331)	
Constant	−1.063***	−1.087***	−0.262***
	(0.120)	(0.120)	(0.026)
Observations	2,915	2,915	2,915
Log Likelihood	−4,126.480	−4,125.638	−4,149.301
Akaike Inf. Crit.	8,274.959	8,271.277	8,318.603
Bayesian Inf. Crit.	8,340.713	8,331.053	8,378.379

Note: *p<0.1; **p<0.05; ***p<0.01

```
##  subid    (Intercept)          0.040121 0.20030
##           post_pre_rt_change_z  0.002984 0.05463  -0.42
##           P_stop_trial_change_z 0.003573 0.05977  -0.08  0.45
##  Residual                       0.970441 0.98511
## Number of obs: 4432, groups:  subid, 270
##
## Fixed effects:
##                    Estimate Std. Error t value
## (Intercept)         -0.21311    0.02309  -9.231
## trial_n_z           -0.01024    0.01725  -0.593
## post_pre_rt_change_z  -0.01510    0.01510  -1.000
## P_stop_trial_change_z -0.07673    0.01170  -6.559
##
## Correlation of Fixed Effects:
##           (Intr) trl_n_ ps____
## trial_n_z  -0.101
## pst_pr_rt__ -0.380 -0.004
## P_stp_trl__ -0.422  0.509  0.174
```

```
#ignoring post_pre_rt_change_z
model_P_stop_trial_w_change_no_rt <- lme4::lmer(
  med_post_trial_z ~ trial_n_z  + P_stop_trial_change_z +(1+ post_pre_rt_change_z + P_stop_trial_change
  trial_neural_behav_roi %>% filter(condition %in% c("FailedStop"))
  )
summary(model_P_stop_trial_w_change_no_rt)
```

```
## Linear mixed model fit by REML ['lmerMod']
## Formula:
## med_post_trial_z ~ trial_n_z + P_stop_trial_change_z + (1 + post_pre_rt_change_z +
```

```
##      P_stop_trial_change_z | subid)
##    Data: trial_neural_behav_roi %>% filter(condition %in% c("FailedStop"))
##
## REML criterion at convergence: 12648.1
##
## Scaled residuals:
##     Min      1Q  Median      3Q     Max
## -6.7528 -0.6023  0.0214  0.6108  4.0399
##
## Random effects:
##  Groups   Name                  Variance Std.Dev. Corr
##  subid    (Intercept)           0.039837 0.19959
##           post_pre_rt_change_z  0.003186 0.05645  -0.43
##           P_stop_trial_change_z 0.003515 0.05929  -0.08  0.46
##  Residual                       0.970608 0.98519
## Number of obs: 4432, groups:  subid, 270
##
## Fixed effects:
##                       Estimate Std. Error t value
## (Intercept)           -0.22191    0.02131 -10.414
## trial_n_z             -0.01025    0.01725  -0.594
## P_stop_trial_change_z -0.07466    0.01149  -6.496
##
## Correlation of Fixed Effects:
##             (Intr) trl_n_
## trial_n_z   -0.110
## P_stp_trl__ -0.389  0.518
```
```r
anova(model_P_stop_trial_w_change,model_P_stop_trial_w_change_no_rt)
```
```
## refitting model(s) with ML (instead of REML)
```
```
## Data: trial_neural_behav_roi %>% filter(condition %in% c("FailedStop"))
## Models:
## model_P_stop_trial_w_change_no_rt: med_post_trial_z ~ trial_n_z + P_stop_trial_change_z + (1 + post_p
## model_P_stop_trial_w_change: med_post_trial_z ~ trial_n_z + post_pre_rt_change_z + P_stop_trial_chang
##                                   npar   AIC   BIC  logLik deviance  Chisq Df
## model_P_stop_trial_w_change_no_rt   10 12648 12712 -6314.2    12628
## model_P_stop_trial_w_change         11 12649 12720 -6313.7    12627 0.9884  1
##                                   Pr(>Chisq)
## model_P_stop_trial_w_change_no_rt
## model_P_stop_trial_w_change           0.3201
```
```r
#ignoring P_stop_trial_change_z
model_P_stop_trial_w_change_no_p_stop_d <- lme4::lmer(
  med_post_trial_z ~ trial_n_z +  post_pre_rt_change_z +(1+ post_pre_rt_change_z + P_stop_trial_change_
  trial_neural_behav_roi %>% filter(condition %in% c("FailedStop"))
  )
summary(model_P_stop_trial_w_change_no_p_stop_d)
```
```
## Linear mixed model fit by REML ['lmerMod']
## Formula:
## med_post_trial_z ~ trial_n_z + post_pre_rt_change_z + (1 + post_pre_rt_change_z +
##     P_stop_trial_change_z | subid)
##    Data: trial_neural_behav_roi %>% filter(condition %in% c("FailedStop"))
##
```

```
## REML criterion at convergence: 12685.8
##
## Scaled residuals:
##     Min     1Q  Median     3Q    Max
## -6.7535 -0.5987  0.0185  0.6161  3.9794
##
## Random effects:
##  Groups   Name                  Variance Std.Dev. Corr
##  subid    (Intercept)           0.042901 0.20713
##           post_pre_rt_change_z  0.002759 0.05252  -0.46
##           P_stop_trial_change_z 0.007649 0.08746  -0.26  0.58
##  Residual                       0.971911 0.98586
## Number of obs: 4432, groups:  subid, 270
##
## Fixed effects:
##                      Estimate Std. Error t value
## (Intercept)         -0.275816   0.020905 -13.194
## trial_n_z            0.039625   0.015158   2.614
## post_pre_rt_change_z 0.000387   0.014861   0.026
##
## Correlation of Fixed Effects:
##            (Intr) trl_n_
## trial_n_z   0.146
## pst_pr_rt__ -0.340 -0.109
## optimizer (nloptwrap) convergence code: 0 (OK)
## Model failed to converge with max|grad| = 0.005174 (tol = 0.002, component 1)
```

```r
anova(model_P_stop_trial_w_change, model_P_stop_trial_w_change_no_p_stop_d)
```

```
## refitting model(s) with ML (instead of REML)

## Data: trial_neural_behav_roi %>% filter(condition %in% c("FailedStop"))
## Models:
## model_P_stop_trial_w_change_no_p_stop_d: med_post_trial_z ~ trial_n_z + post_pre_rt_change_z + (1 + p
## model_P_stop_trial_w_change: med_post_trial_z ~ trial_n_z + post_pre_rt_change_z + P_stop_trial_chang
##                                         npar   AIC   BIC  logLik deviance
## model_P_stop_trial_w_change_no_p_stop_d   10 12687 12751 -6333.3    12667
## model_P_stop_trial_w_change               11 12649 12720 -6313.7    12627
##                                          Chisq Df Pr(>Chisq)
## model_P_stop_trial_w_change_no_p_stop_d
## model_P_stop_trial_w_change             39.313  1  3.611e-10 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```r
# plot a ggplot2 point graph of trial_neural_behav_roi filtered by FailedStop, plotting med_post_trial_
# coloring points by whether trial_n is <50 or not

ggplot(data = trial_neural_behav_roi %>%
         filter(condition=="FailedStop"),
       aes(x = med_post_trial_z,
           y = post_pre_rt_change_z,
           color = trial_n < 50)) +
  geom_point(alpha=0.1)
```
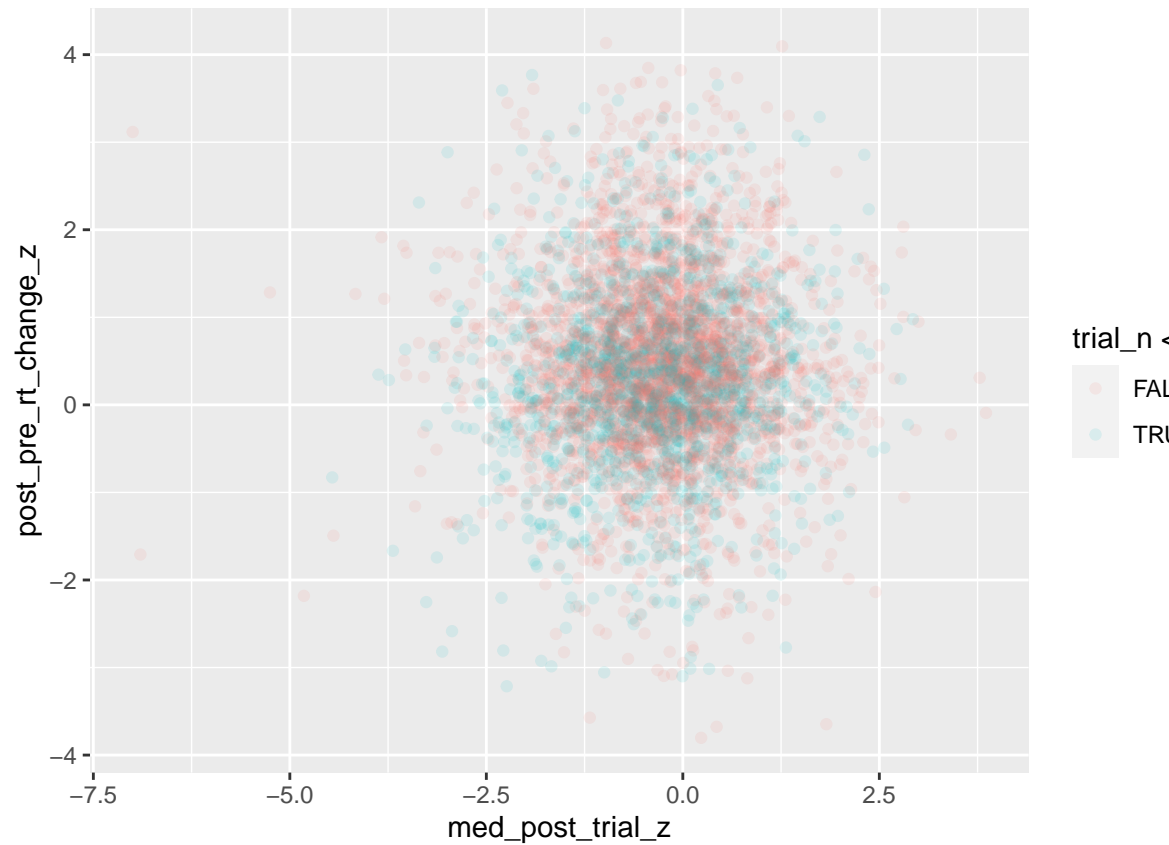
distribution thereof

Table 3: Post-Fail Spike

This is modeled in more detail in `modeling_t_1_5_activity_as_learning.Rmd`. ## Just FS Trials

```
count_subs <- function(ds){length(unique(ds$subid))}

count_subs(trial_summary_data)
```

```
## [1] 282
```

```
count_subs(trial_summary_data_delat)
```

```
## [1] 282
```

```
count_subs(trial_summary_data_delat_pp)
```

```
## [1] 282
```

```
count_subs(trial_neural_behav_data_not_na)
```

```
## [1] 271
```

```
subjects_in_table_3_analysis <- unique(trial_neural_behav_roi$subid)
length(subjects_in_table_3_analysis)
```

```
## [1] 271
```

```
print(subjects_in_table_3_analysis)
```

```
##    [1] "DEV004" "DEV005" "DEV006" "DEV007" "DEV008" "DEV010" "DEV011" "DEV012"
##    [9] "DEV013" "DEV014" "DEV015" "DEV016" "DEV018" "DEV019" "DEV020" "DEV021"
##   [17] "DEV022" "DEV023" "DEV024" "DEV026" "DEV027" "DEV028" "DEV029" "DEV030"
##   [25] "DEV031" "DEV033" "DEV034" "DEV035" "DEV036" "DEV037" "DEV038" "DEV039"
##   [33] "DEV040" "DEV041" "DEV042" "DEV043" "DEV044" "DEV045" "DEV046" "DEV047"
##   [41] "DEV048" "DEV049" "DEV050" "DEV051" "DEV052" "DEV053" "DEV054" "DEV056"
##   [49] "DEV057" "DEV058" "DEV059" "DEV060" "DEV062" "DEV063" "DEV064" "DEV065"
##   [57] "DEV066" "DEV067" "DEV068" "DEV069" "DEV070" "DEV071" "DEV072" "DEV073"
##   [65] "DEV074" "DEV075" "DEV076" "DEV077" "DEV078" "DEV079" "DEV080" "DEV081"
##   [73] "DEV082" "DEV083" "DEV084" "DEV085" "DEV086" "DEV087" "DEV088" "DEV089"
##   [81] "DEV090" "DEV091" "DEV093" "DEV094" "DEV095" "DEV096" "DEV097" "DEV098"
##   [89] "DEV099" "DEV100" "DEV101" "DEV102" "DEV103" "DEV104" "DEV105" "DEV106"
##   [97] "DEV107" "DEV108" "DEV109" "DEV110" "DEV111" "DEV112" "DEV113" "DEV114"
##  [105] "DEV115" "DEV116" "DEV117" "DEV118" "DEV119" "DEV120" "DEV121" "DEV122"
##  [113] "DEV123" "DEV124" "DEV125" "DEV126" "DEV127" "DEV128" "DEV129" "DEV130"
##  [121] "DEV131" "DEV132" "DEV133" "DEV134" "DEV135" "DEV137" "DEV138" "DEV139"
##  [129] "DEV140" "DEV141" "DEV144" "DEV145" "DEV147" "DEV149" "DEV150" "DEV151"
##  [137] "DEV152" "DEV153" "DEV154" "DEV155" "DEV156" "DEV157" "DEV158" "DEV159"
##  [145] "DEV161" "DEV163" "DEV164" "DEV166" "DEV167" "DEV168" "DEV169" "DEV170"
##  [153] "DEV171" "DEV172" "DEV173" "DEV174" "DEV176" "DEV177" "DEV178" "DEV179"
##  [161] "DEV180" "DEV181" "DEV182" "DEV183" "DEV185" "DEV186" "DEV187" "DEV188"
##  [169] "DEV189" "DEV190" "DEV191" "DEV192" "DEV193" "DEV194" "DEV195" "DEV196"
##  [177] "DEV197" "DEV198" "DEV199" "DEV200" "DEV201" "DEV202" "DEV203" "DEV204"
##  [185] "DEV205" "DEV206" "DEV208" "DEV209" "DEV210" "DEV211" "DEV215" "DEV216"
##  [193] "DEV217" "DEV218" "DEV219" "DEV220" "DEV222" "DEV223" "DEV224" "DEV225"
##  [201] "DEV228" "DEV230" "DEV232" "DEV233" "DEV235" "DEV236" "DEV237" "DEV238"
##  [209] "DEV239" "DEV240" "DEV241" "DEV244" "DEV246" "DEV249" "DEV250" "DEV251"
##  [217] "DEV252" "DEV253" "DEV254" "DEV255" "DEV256" "DEV257" "DEV258" "DEV259"
##  [225] "DEV260" "DEV261" "DEV262" "DEV263" "DEV264" "DEV265" "DEV266" "DEV267"
##  [233] "DEV268" "DEV269" "DEV270" "DEV271" "DEV272" "DEV273" "DEV274" "DEV275"
##  [241] "DEV276" "DEV277" "DEV278" "DEV282" "DEV283" "DEV284" "DEV285" "DEV286"
##  [249] "DEV290" "DEV291" "DEV292" "DEV293" "DEV294" "DEV295" "DEV296" "DEV297"
##  [257] "DEV298" "DEV299" "DEV300" "DEV301" "DEV302" "DEV303" "DEV304" "DEV305"
##  [265] "DEV306" "DEV307" "DEV308" "DEV309" "DEV310" "DEV311" "DEV312"
```

```r
model_P_stop_trial_w_change <- lme4::lmer(
  med_post_trial_1_5 ~ trial_n_z + post_pre_rt_change_z + P_stop_trial_change_z +(1+ post_pre_rt_change
  trial_neural_behav_roi %>% filter(trial_n>50 & condition %in% c("FailedStop"))
  )
```

```
## boundary (singular) fit: see help('isSingular')
```

```r
summary(model_P_stop_trial_w_change)
```

```
## Linear mixed model fit by REML ['lmerMod']
## Formula:
## med_post_trial_1_5 ~ trial_n_z + post_pre_rt_change_z + P_stop_trial_change_z +
##     (1 + post_pre_rt_change_z + P_stop_trial_change_z | subid)
##    Data: trial_neural_behav_roi %>% filter(trial_n > 50 & condition %in%
##     c("FailedStop"))
##
## REML criterion at convergence: 3857.6
##
## Scaled residuals:
##     Min      1Q  Median      3Q     Max
```

```
## -7.8102 -0.5339  0.0519  0.5924  3.0895
##
## Random effects:
##  Groups   Name                    Variance Std.Dev. Corr
##  subid    (Intercept)             0.000000 0.00000
##           post_pre_rt_change_z  0.004661 0.06827     NaN
##           P_stop_trial_change_z 0.071016 0.26649     NaN -0.41
##  Residual                         0.208433 0.45654
## Number of obs: 2915, groups:  subid, 269
##
## Fixed effects:
##                       Estimate Std. Error t value
## (Intercept)          -0.095024   0.054880  -1.731
## trial_n_z             0.044034   0.026153   1.684
## post_pre_rt_change_z  0.009189   0.009515   0.966
## P_stop_trial_change_z 0.455637   0.153220   2.974
##
## Correlation of Fixed Effects:
##             (Intr) trl_n_ ps____
## trial_n_z   -0.924
## pst_pr_rt__ -0.064 -0.009
## P_stp_trl__ -0.975  0.902 -0.022
## optimizer (nloptwrap) convergence code: 0 (OK)
## boundary (singular) fit: see help('isSingular')
```

```r
#ignoring post_pre_rt_change_z
model_P_stop_trial_w_change_no_rt <- lme4::lmer(
  med_post_trial_1_5 ~ trial_n_z  + P_stop_trial_change_z +(1+ post_pre_rt_change_z + P_stop_trial_cha
  trial_neural_behav_roi %>% filter(trial_n>50 & condition %in% c("FailedStop"))
  )
```

```
## boundary (singular) fit: see help('isSingular')
```

```r
#summary(model_P_stop_trial_w_change_no_rt)

anova(model_P_stop_trial_w_change,model_P_stop_trial_w_change_no_rt)
```

```
## refitting model(s) with ML (instead of REML)

## Data: trial_neural_behav_roi %>% filter(trial_n > 50 & condition %in%  ...
## Models:
## model_P_stop_trial_w_change_no_rt: med_post_trial_1_5 ~ trial_n_z + P_stop_trial_change_z + (1 + pos
## model_P_stop_trial_w_change: med_post_trial_1_5 ~ trial_n_z + post_pre_rt_change_z + P_stop_trial_cha
##                                   npar    AIC    BIC  logLik deviance  Chisq Df
## model_P_stop_trial_w_change_no_rt   10 3854.6 3914.4 -1917.3   3834.6
## model_P_stop_trial_w_change         11 3855.7 3921.4 -1916.8   3833.7 0.9372  1
##                                   Pr(>Chisq)
## model_P_stop_trial_w_change_no_rt
## model_P_stop_trial_w_change            0.333
```

```r
#ignoring P_stop_trial_change_z
model_P_stop_trial_w_change_no_p_stop_d <- lme4::lmer(
  med_post_trial_1_5 ~ trial_n_z +  post_pre_rt_change_z +(1+ post_pre_rt_change_z + P_stop_trial_chang
  trial_neural_behav_roi %>% filter(trial_n>50 & condition %in% c("FailedStop"))
  )
```

```
## boundary (singular) fit: see help('isSingular')
```

```
anova(model_P_stop_trial_w_change, model_P_stop_trial_w_change_no_p_stop_d)
```

```
## refitting model(s) with ML (instead of REML)

## Data: trial_neural_behav_roi %>% filter(trial_n > 50 & condition %in%  ...
## Models:
## model_P_stop_trial_w_change_no_p_stop_d: med_post_trial_1_5 ~ trial_n_z + post_pre_rt_change_z + (1 ·
## model_P_stop_trial_w_change: med_post_trial_1_5 ~ trial_n_z + post_pre_rt_change_z + P_stop_trial_cha
##                                         npar    AIC    BIC  logLik deviance
## model_P_stop_trial_w_change_no_p_stop_d   10 3862.5 3922.3 -1921.2   3842.5
## model_P_stop_trial_w_change               11 3855.7 3921.4 -1916.8   3833.7
##                                         Chisq Df Pr(>Chisq)
## model_P_stop_trial_w_change_no_p_stop_d
## model_P_stop_trial_w_change            8.8034  1   0.003007 **
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```
table_normed <- stargazer(model_P_stop_trial_w_change, model_P_stop_trial_w_change_no_rt, model_P_stop_t
```

% Table created by stargazer v.5.2.3 by Marek Hlavac, Social Policy Institute. E-mail: marek.hlavac at gmail.com % Date and time: Tue, May 16, 2023 - 09:50:32

Table 2: Post-Fail Spike

	Dependent variable:		
	med_post_trial_1_5		
	(1)	(2)	(3)
trial_n_z	0.044*	0.044*	−0.026**
	(0.026)	(0.026)	(0.011)
post_pre_rt_change_z	0.009		0.010
	(0.010)		(0.010)
P_stop_trial_change_z	0.456***	0.459***	
	(0.153)	(0.153)	
Constant	−0.095*	−0.092*	0.064***
	(0.055)	(0.055)	(0.012)
Observations	2,915	2,915	2,915
Log Likelihood	−1,928.816	−1,925.545	−1,932.245
Akaike Inf. Crit.	3,879.632	3,871.090	3,884.491
Bayesian Inf. Crit.	3,945.386	3,930.866	3,944.267
Note:			*p<0.1; **p<0.05; ***p<0.01

```
#
```

Time series figures

Setup

get the delay to next trial

```
behavioral_data_w_tone_data <- readr::read_csv(paste0(dropbbox_dir,"/sst_behavioral_data_all_w_class_typ
```

```
## New names:
## Rows: 285696 Columns: 30
## -- Column specification
## ---------------------------------------------------------- Delimiter: "," chr
## (4): subid, go_no_go_condition_label, condition, health_condition_label dbl
## (25): ...1, trial_n, numchunks_reciprocal, go_no_go_condition, arrow_pr... dttm
## (1): rundatetime
## i Use `spec()` to retrieve the full column specification for this data. i
## Specify the column types or set `show_col_types = FALSE` to quiet this message.
## * `` -> `...1`
# I want to know: what is the time delay from the tone sound to the PERIOD of the next trial?
```

```
#so I want to match each trial up with the _next_ trial
#grab the set of next trials-we want their onset and their duration
#then match that back onto n+1 of their prior trial
trial_df <- behavioral_data_w_tone_data %>% filter(condition!="Cue") %>%
  arrange(trial_n) %>%
  group_by(subid,waveid,runid) %>%
  mutate(next_trial_n = lead(trial_n,1)) %>%
  ungroup()


next_trial_df <- behavioral_data_w_tone_data %>%
  filter(condition!="Cue") %>%
  select(trial_n,condition,onset,trial_duration,subid,waveid,runid)


trials_with_next<-merge(
  trial_df,next_trial_df,
  by.x = c("subid","waveid","runid", "next_trial_n"),
  by.y=c("subid","waveid","runid","trial_n"),
  suffixes = c("","_next"))
```

now, mark for each trial the start and end time point of the next trial, and get measures of how long after each trial the next one appears

```
trials_with_next$trial_end_next <- trials_with_next$onset_next+trials_with_next$trial_duration_next
trials_with_next$class_type_reveal_onset_to_next_trial_start<-trials_with_next$onset_next-trials_with_ne
trials_with_next$class_type_reveal_onset_to_next_trial_end<-trials_with_next$trial_end_next-trials_with_
```

```r
next_trial_median <- data.frame(
  "next_trial_start_median" = median(trials_with_next$class_type_reveal_onset_to_next_trial_start),
  "next_trial_end_median" = median(trials_with_next$class_type_reveal_onset_to_next_trial_end)
  )

quantiles <- (1:10)/10
# next_trial_gradient <- data.frame(
#   "quantiles" = quantiles,
#   "next_trial_start" = quantile(trials_with_next$class_type_reveal_onset_to_next_trial_start,(1:10)/10
#   "next_trial_end" = quantile(trials_with_next$class_type_reveal_onset_to_next_trial_end,(1:10)/10)
#   )

gradient_range = seq(floor(min(trials_with_next$class_type_reveal_onset_to_next_trial_start)),ceiling(m

in_range_by_gradient <- sapply(gradient_range,function(tp){
  time_point_is_after_start <- tp > trials_with_next$class_type_reveal_onset_to_next_trial_start
  time_point_is_before_end <- tp < trials_with_next$class_type_reveal_onset_to_next_trial_end
  number_of_trials <- length(trials_with_next$class_type_reveal_onset_to_next_trial_start)
  return(sum(time_point_is_after_start & time_point_is_before_end)/number_of_trials)
})

next_trial_gradient <- data.frame("tp"=gradient_range,"pct_in_range"=in_range_by_gradient)
next_trial_gradient$hrf_tp<-next_trial_gradient$tp+5
```

do graphs

```r
subj_count <- length(unique(time_points_c$subid))
#df_offset_long<-df_offset# %>% pivot_longer(cols=roi_cols,names_to="ROI_fullname",values_to="value")
# df_offset_long$ROI<-stringr::str_extract_all(df_offset_long$ROI_fullname,pattern = "(?<=harvardoxford

# unique_rois<-sort(unique(df_offset_long$ROI))
# unique_rois_ordered <- unique_rois[order(unique_rois %>% str_extract("(?<=.{3,5}\\s)(.*)"))]

# df_offset_long$ROI<-factor(df_offset_long$ROI,levels = unique_rois_ordered, ordered=TRUE)

ggplot_time_points_extras <- list(
  geom_vline(xintercept = 0,linetype="dashed"),
  geom_hline(yintercept = 0,linetype="dotted"),
  labs(
    x="time from tone sound or expected time of tone (s)",
    y="mean BOLD activity (no HRF convolution)",
    #title="Stop Signal Task Activity",
    subtitle=paste0("Across ", as.character(subj_count)," subjects with 128 trials each"),
    caption="0 point is the moment of tone sound (Stop trials)\n or expected tone sound based on prior t
  )

df_offset
```

```
##            ...1       tr        offset
## 1     876.7458 185.6470 -9.4866148409
## 2     885.3224 187.5950 -9.4055626649
```

```
## 3      892.1198 189.0820 -9.3224833576
## 4      881.8552 186.8873 -9.2143348192
## 5      879.4396 186.5450 -9.1197131382
## 6      885.7155 188.0943 -9.0127506915
## 7      886.1294 188.3900 -8.8943489287
## 8      905.5577 192.9181 -8.8012255283
## 9      908.5186 193.6946 -8.6886857396
## 10     948.9545 202.7157 -8.5760873748
## 11     950.1965 203.1372 -8.4715448303
## 12     937.2874 200.3649 -8.3901428182
## 13     926.9300 198.2375 -8.3068549704
## 14     932.7790 199.6539 -8.1987398168
## 15     932.6967 199.6103 -8.1056797929
## 16     919.9908 196.8335 -7.9984464231
## 17     920.3351 196.9210 -7.8821322548
## 18     901.4956 192.6920 -7.7950240292
## 19     898.8600 192.1819 -7.6910971531
## 20     861.9878 184.1426 -7.5858118608
## 21     860.7260 183.8974 -7.4913724518
## 22     870.2768 186.0589 -7.4109838068
## 23     880.2318 188.2420 -7.3272998345
## 24     874.5073 187.0471 -7.2178397422
## 25     874.0258 187.1297 -7.1228981944
## 26     886.7155 190.0943 -7.0127506915
## 27     887.1294 190.3900 -6.8943489287
## 28     906.5577 194.9181 -6.8012255283
## 29     909.5186 195.6946 -6.6886857396
## 30     949.9545 204.7157 -6.5760873748
## 31     951.1965 205.1372 -6.4715448303
## 32     938.2874 202.3649 -6.3901428182
## 33     927.9300 200.2375 -6.3068549704
## 34     933.7790 201.6539 -6.1987398168
## 35     933.6967 201.6103 -6.1056797929
## 36     920.9908 198.8335 -5.9984464231
## 37     921.3351 198.9210 -5.8821322548
## 38     902.4956 194.6920 -5.7950240292
## 39     899.8600 194.1819 -5.6910971531
## 40     862.9878 186.1426 -5.5858118608
## 41     861.7260 185.8974 -5.4913724518
## 42     871.2768 188.0589 -5.4109838068
## 43     881.2318 190.2420 -5.3272998345
## 44     875.5073 189.0471 -5.2178397422
## 45     874.8234 189.0854 -5.1227888821
## 46     887.5070 192.0486 -5.0126659593
## 47     887.9248 192.3451 -4.8942934633
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## 51     928.5480 201.9271 -4.4666487454
## 52     916.8140 199.4120 -4.3873981003
## 53     906.8924 197.3769 -4.3061348154
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## 55     912.9330 198.8077 -4.1096336209
## 56     900.8236 196.1619 -4.0048399365
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## 59       881.9882 192.0716 -3.6826022527
## 60       846.0024 184.2255 -3.5795624040
## 61       844.9050 184.0161 -3.4869613877
## 62       853.6048 185.9905 -3.4081335223
## 63       863.1879 188.0923 -3.3262319897
## 64       857.6085 186.9278 -3.2191332338
## 65       856.7357 186.9209 -3.1261678579
## 66       868.8589 189.7574 -3.0185297007
## 67       869.6357 190.1279 -2.9026159896
## 68       888.1342 194.4464 -2.8117953267
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## 71       929.5480 203.9271 -2.4666487454
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## 73       907.8924 199.3769 -2.3061348154
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## 75       913.9330 200.8077 -2.1096336209
## 76       901.8236 198.1619 -2.0048399365
## 77       901.7718 198.1618 -1.8913980743
## 78       883.8763 194.1427 -1.8060862186
## 79       882.9882 194.0716 -1.6826022527
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## 81       845.9050 186.0161 -1.4869613877
## 82       854.6048 187.9905 -1.4081335223
## 83       864.1879 190.0923 -1.3262319897
## 84       858.6085 188.9278 -1.2191332338
## 85       857.7357 188.9209 -1.1261678579
## 86       869.8589 191.7574 -1.0185297007
## 87       870.6357 192.1279 -0.9026159896
## 88       889.1342 196.4464 -0.8117953267
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## 91       930.5480 205.9271 -0.4666487454
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## 823    908.8150 213.9238 14.4855657612
## 824    918.2069 216.0237 14.5724441060
## 825    930.3804 218.7243 14.6571888697
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## 827    961.5665 226.0300 14.8640218131
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## 831   1062.3554 249.1507 15.3325187568
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## 836   1023.0366 240.8925 15.7931631726
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## 841    920.4227 218.1422 16.3225814237
## 842    909.7484 215.8631 16.3992732491
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## 867    963.5665 230.0300 18.8640218131
## 868    981.5495 234.2566 18.9815537193
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## 906   1030.7607 223.0557 -6.2979574870
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## 12                                        -2.148075e-02
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## 14                                        -3.679505e-02
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## 17                                        -2.946633e-02
## 18                                        -2.768425e-02
## 19                                        -1.146626e-02
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## 25                                         1.189345e-02
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## 1163                                           1.193730e-02
## 1164                                           1.146884e-02
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## 7                                              4.360690e-03
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## 11                                            -1.804428e-02
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## 13                                            -2.876494e-02
## 14                                            -3.621278e-02
## 15                                            -3.256850e-02
## 16                                            -3.158737e-02
## 17                                            -2.957001e-02
## 18                                            -2.772019e-02
## 19                                            -1.166133e-02
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## 37                                            -1.964773e-02
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## 40                                            -5.982490e-03
## 41                                            -9.760989e-03
## 42                                            -1.151261e-02
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## 45                                            -2.664075e-03
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## 47                                            -1.245879e-02
## 48                                            -1.045875e-02
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## 1115                                          -3.129568e-02
## 1116                                          -2.850060e-02
## 1117                                          -1.958838e-02
## 1118                                          -2.650770e-02
## 1119                                          -1.985710e-02
## 1120                                          -1.686527e-02
## 1121                                          -4.955640e-03
## 1122                                           2.541510e-02
## 1123                                           1.540817e-02
## 1124                                           1.892122e-02
## 1125                                           2.036461e-02
## 1126                                           2.552174e-02
## 1127                                           2.118510e-02
## 1128                                           2.780287e-02
```

```
## 1129                                                       2.255417e-02
## 1130                                                       9.634990e-03
## 1131                                                       8.143470e-03
## 1132                                                      -2.027854e-02
## 1133                                                      -1.629963e-02
## 1134                                                      -2.313925e-02
## 1135                                                      -3.016407e-02
## 1136                                                      -3.028934e-02
## 1137                                                      -2.026341e-02
## 1138                                                      -1.725299e-02
## 1139                                                      -2.072770e-02
## 1140                                                      -7.887828e-03
## 1141                                                      -9.747021e-03
## 1142                                                       2.645047e-02
## 1143                                                       3.296033e-02
## 1144                                                       4.367352e-02
## 1145                                                       4.900817e-02
## 1146                                                       4.478938e-02
## 1147                                                       3.052527e-02
## 1148                                                       3.035056e-02
## 1149                                                       4.063148e-02
## 1150                                                       3.142714e-02
## 1151                                                       2.833590e-02
## 1152                                                       4.401155e-03
## 1153                                                       7.091839e-03
## 1154                                                      -8.682239e-04
## 1155                                                      -1.230053e-02
## 1156                                                      -9.136158e-03
## 1157                                                       1.401595e-03
## 1158                                                       1.812643e-03
## 1159                                                      -5.098576e-03
## 1160                                                       2.513711e-03
## 1161                                                       3.292329e-03
## 1162                                                       1.980347e-02
## 1163                                                       1.242674e-02
## 1164                                                       1.234002e-02
##      CueFollowing.CS.FS.striatal_cluster_combined Frontal.Orbital.Cortex
## 1                                     2.671029e-03          -3.868149e-02
## 2                                    -1.811689e-03          -4.152340e-02
## 3                                     5.427955e-03          -3.933242e-02
## 4                                     9.436848e-03          -3.732795e-02
## 5                                     5.019031e-03          -3.725690e-02
## 6                                     3.180116e-03          -3.196124e-02
## 7                                     3.217041e-03          -2.455674e-02
## 8                                    -1.567010e-03          -1.901566e-02
## 9                                    -8.628600e-03          -1.705486e-02
## 10                                   -1.772363e-02          -2.145084e-02
## 11                                   -1.949285e-02          -2.242329e-02
## 12                                   -2.148075e-02          -2.215146e-02
## 13                                   -2.987756e-02          -1.985963e-02
## 14                                   -3.679505e-02          -2.402833e-02
## 15                                   -3.278888e-02          -2.053636e-02
## 16                                   -3.222200e-02          -2.006055e-02
## 17                                   -2.946633e-02          -2.359171e-02
```

```
## 18                          -2.768425e-02         -3.092524e-02
## 19                          -1.146626e-02         -2.748376e-02
## 20                           4.184628e-03         -1.919805e-02
## 21                           2.633058e-03         -1.634362e-02
## 22                           3.579307e-03         -1.720905e-02
## 23                           9.701500e-03         -2.093141e-02
## 24                           1.353892e-02         -1.379569e-02
## 25                           1.189345e-02         -1.454849e-02
## 26                           1.297373e-02         -1.747751e-02
## 27                           1.114236e-02         -1.826985e-02
## 28                           1.074071e-02         -1.101297e-02
## 29                          -2.986678e-03         -1.545082e-02
## 30                          -1.565162e-02         -2.012493e-02
## 31                          -1.029918e-02         -2.333867e-02
## 32                          -8.562752e-03         -2.272586e-02
## 33                          -1.518060e-02         -2.297686e-02
## 34                          -1.646310e-02         -3.149129e-02
## 35                          -1.829225e-02         -3.239865e-02
## 36                          -2.030467e-02         -3.149521e-02
## 37                          -1.903969e-02         -3.128477e-02
## 38                          -1.811066e-02         -3.619239e-02
## 39                          -5.249580e-03         -3.024418e-02
## 40                          -6.711913e-03         -3.028658e-02
## 41                          -1.047778e-02         -2.864461e-02
## 42                          -1.214966e-02         -2.967331e-02
## 43                          -5.043224e-03         -2.769652e-02
## 44                          -5.119637e-03         -2.069279e-02
## 45                          -2.971898e-03         -1.891712e-02
## 46                          -2.020497e-03         -1.840670e-02
## 47                          -1.285386e-02         -2.111792e-02
## 48                          -1.178368e-02         -1.653665e-02
## 49                          -3.628450e-02         -2.587419e-02
## 50                          -3.312553e-02         -2.604309e-02
## 51                          -2.744807e-02         -2.732405e-02
## 52                          -2.107165e-02         -2.376576e-02
## 53                          -2.578355e-02         -2.182417e-02
## 54                          -2.564637e-02         -2.454033e-02
## 55                          -2.560858e-02         -2.733269e-02
## 56                          -1.880692e-02         -2.404083e-02
## 57                          -9.384875e-03         -2.115280e-02
## 58                          -9.135160e-03         -2.451549e-02
## 59                           1.403792e-03         -2.002092e-02
## 60                          -5.827647e-03         -1.886115e-02
## 61                          -1.423261e-02         -1.643259e-02
## 62                          -2.111101e-02         -1.857210e-02
## 63                          -2.017269e-02         -1.992938e-02
## 64                          -2.447347e-02         -1.804510e-02
## 65                          -3.124310e-02         -1.788878e-02
## 66                          -3.754713e-02         -1.706191e-02
## 67                          -4.327464e-02         -1.822111e-02
## 68                          -4.765664e-02         -2.009876e-02
## 69                          -5.472769e-02         -3.404921e-02
## 70                          -5.096102e-02         -3.883806e-02
## 71                          -4.680225e-02         -4.397218e-02
```

```
## 72                            -3.935014e-02           -4.112525e-02
## 73                            -3.865095e-02           -4.281752e-02
## 74                            -3.372316e-02           -4.665892e-02
## 75                            -2.390244e-02           -4.527249e-02
## 76                            -1.771977e-02           -4.585369e-02
## 77                            -3.212599e-03           -4.352758e-02
## 78                             3.353382e-03           -4.129277e-02
## 79                             1.427859e-02           -3.238558e-02
## 80                             6.145847e-03           -2.973885e-02
## 81                             6.431510e-03           -2.999403e-02
## 82                             5.437803e-04           -3.331576e-02
## 83                            -2.053392e-03           -3.276294e-02
## 84                            -7.744212e-03           -2.894597e-02
## 85                            -1.742388e-02           -3.174054e-02
## 86                            -2.329096e-02           -3.581440e-02
## 87                            -4.002211e-02           -3.711325e-02
## 88                            -4.988660e-02           -3.608058e-02
## 89                            -4.714867e-02           -3.926835e-02
## 90                            -4.243398e-02           -3.689456e-02
## 91                            -3.907098e-02           -3.571666e-02
## 92                            -3.548182e-02           -3.270981e-02
## 93                            -3.593343e-02           -3.286521e-02
## 94                            -3.140771e-02           -3.359073e-02
## 95                            -2.987019e-02           -2.979611e-02
## 96                            -3.150340e-02           -2.907426e-02
## 97                            -3.018567e-02           -2.859143e-02
## 98                            -3.478018e-02           -3.183329e-02
## 99                            -2.948110e-02           -2.664880e-02
## 100                           -4.101603e-02           -3.722460e-02
## 101                           -4.528001e-02           -4.395008e-02
## 102                           -4.726506e-02           -5.053807e-02
## 103                           -4.235743e-02           -5.536862e-02
## 104                           -3.513623e-02           -6.015374e-02
## 105                           -2.406544e-02           -6.762525e-02
## 106                           -1.206254e-02           -6.549321e-02
## 107                           -2.157788e-03           -6.919390e-02
## 108                            1.175728e-02           -6.125472e-02
## 109                            2.670360e-02           -5.707079e-02
## 110                            5.782008e-02           -4.408295e-02
## 111                            7.751987e-02           -3.038188e-02
## 112                            9.300229e-02           -2.031459e-02
## 113                            1.081635e-01           -1.179051e-02
## 114                            1.182237e-01           -2.705923e-03
## 115                            1.286845e-01            9.724266e-03
## 116                            1.372335e-01            1.152456e-02
## 117                            1.520530e-01            2.101982e-02
## 118                            1.659960e-01            2.250408e-02
## 119                            1.793209e-01            3.476484e-02
## 120                            1.789962e-01            3.855167e-02
## 121                            1.794097e-01            3.696036e-02
## 122                            1.788348e-01            3.938057e-02
## 123                            1.753032e-01            4.106771e-02
## 124                            1.790926e-01            4.509692e-02
## 125                            1.769543e-01            4.432082e-02
```

```
## 126                                     1.754142e-01              5.852193e-02
## 127                                     1.615919e-01              6.138564e-02
## 128                                     1.510468e-01              6.831545e-02
## 129                                     1.211804e-01              6.900750e-02
## 130                                     1.171211e-01              7.653379e-02
## 131                                     1.035762e-01              8.426472e-02
## 132                                     9.800488e-02              8.861245e-02
## 133                                     9.292088e-02              9.501800e-02
## 134                                     7.363826e-02              9.988679e-02
## 135                                     5.934498e-02              1.036808e-01
## 136                                     4.107395e-02              9.875654e-02
## 137                                     3.386167e-02              1.014019e-01
## 138                                     2.899633e-02              9.649486e-02
## 139                                     3.459247e-02              1.030899e-01
## 140                                     1.803281e-02              1.023553e-01
## 141                                     1.450619e-02              1.014961e-01
## 142                                     6.384606e-03              9.698399e-02
## 143                                     1.323702e-03              9.468826e-02
## 144                                    -2.741670e-03              9.265696e-02
## 145                                    -8.753209e-03              9.187059e-02
## 146                                    -1.044676e-02              9.427489e-02
## 147                                    -1.960176e-02              9.503696e-02
## 148                                    -3.043997e-02              9.636656e-02
## 149                                    -6.212410e-02              8.813473e-02
## 150                                    -6.565968e-02              8.393836e-02
## 151                                    -7.621071e-02              8.814912e-02
## 152                                    -8.080863e-02              9.202965e-02
## 153                                    -8.990380e-02              8.993804e-02
## 154                                    -9.940066e-02              8.595897e-02
## 155                                    -1.089334e-01              8.240689e-02
## 156                                    -1.211061e-01              7.645938e-02
## 157                                    -1.254205e-01              7.337182e-02
## 158                                    -1.271463e-01              6.574084e-02
## 159                                    -1.135627e-01              6.424865e-02
## 160                                    -1.176884e-01              5.992745e-02
## 161                                    -1.158004e-01              5.114049e-02
## 162                                    -1.188490e-01              4.307507e-02
## 163                                    -1.172091e-01              4.300732e-02
## 164                                    -1.154095e-01              4.180994e-02
## 165                                    -1.125516e-01              4.093992e-02
## 166                                    -1.090937e-01              4.254880e-02
## 167                                    -1.117058e-01              3.637911e-02
## 168                                    -1.143923e-01              3.699126e-02
## 169                                    -1.429375e-01              2.723934e-02
## 170                                    -1.404092e-01              2.635512e-02
## 171                                    -1.498296e-01              2.862203e-02
## 172                                    -1.436238e-01              3.353335e-02
## 173                                    -1.519146e-01              2.745669e-02
## 174                                    -1.579147e-01              2.271097e-02
## 175                                    -1.586897e-01              1.992805e-02
## 176                                    -1.593695e-01              1.501422e-02
## 177                                    -1.614980e-01              1.531554e-02
## 178                                    -1.572863e-01              1.799534e-02
## 179                                    -1.286623e-01              2.172881e-02
```

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## 180                              -1.409266e-01          1.876503e-02
## 181                              -1.258230e-01          1.990796e-02
## 182                              -1.319832e-01          1.303861e-02
## 183                              -1.271688e-01          1.324034e-02
## 184                              -1.199019e-01          1.690461e-02
## 185                              -1.143930e-01          1.836614e-02
## 186                              -1.126741e-01          1.979212e-02
## 187                              -1.046561e-01          1.751701e-02
## 188                              -1.027116e-01          1.506022e-02
## 189                              -1.225597e-01          5.413732e-03
## 190                              -1.074047e-01          7.925757e-03
## 191                              -1.125635e-01          1.965459e-03
## 192                              -1.106641e-01          6.257196e-03
## 193                              -1.111320e-01          8.790384e-03
## 194                              -1.178220e-01          4.997674e-04
## 195                              -1.167005e-01         -4.896791e-03
## 196                              -1.132865e-01         -1.075488e-02
## 197                              -1.153736e-01         -1.173031e-02
## 198                              -1.148614e-01         -1.302815e-02
## 199                              -9.765363e-02         -8.639487e-03
## 200                              -1.012413e-01         -1.415216e-02
## 201                              -1.042812e-01         -1.032183e-02
## 202                              -1.041296e-01         -1.502545e-02
## 203                              -9.975818e-02         -1.875475e-02
## 204                              -9.188936e-02         -1.117758e-02
## 205                              -9.510426e-02         -1.054457e-02
## 206                              -9.195108e-02         -4.137743e-03
## 207                              -8.483343e-02         -2.183082e-03
## 208                              -8.300379e-02          8.003812e-04
## 209                              -7.752144e-02          6.940159e-03
## 210                              -6.923093e-02          1.191693e-02
## 211                              -6.338855e-02          1.010268e-02
## 212                              -6.106940e-02          1.125334e-02
## 213                              -5.938608e-02          1.292064e-02
## 214                              -6.034021e-02          6.288675e-03
## 215                              -5.498062e-02          3.547256e-03
## 216                              -5.429672e-02         -6.078979e-03
## 217                              -5.414151e-02         -1.114365e-02
## 218                              -4.981491e-02         -1.329088e-02
## 219                              -4.981449e-02         -1.944256e-02
## 220                              -5.608747e-02         -2.442238e-02
## 221                              -5.895200e-02         -2.654835e-02
## 222                              -5.794073e-02         -2.937528e-02
## 223                              -5.641988e-02         -3.259737e-02
## 224                              -5.473069e-02         -3.086204e-02
## 225                              -5.482547e-02         -2.798888e-02
## 226                              -5.748375e-02         -2.569388e-02
## 227                              -5.734345e-02         -2.306504e-02
## 228                              -5.815468e-02         -2.320567e-02
## 229                              -7.178845e-02         -1.486919e-02
## 230                              -6.226157e-02         -1.359261e-02
## 231                              -5.688253e-02         -1.426126e-02
## 232                              -5.476952e-02         -8.963158e-03
## 233                              -5.442298e-02         -6.407098e-03
```

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## 235                                    -5.191491e-02        -3.633734e-03
## 236                                    -4.553597e-02        -7.253994e-03
## 237                                    -4.415992e-02        -1.111702e-02
## 238                                    -3.980540e-02        -1.288708e-02
## 239                                    -3.131016e-02        -2.321113e-02
## 240                                    -3.208279e-02        -2.932961e-02
## 241                                    -2.939035e-02        -3.228441e-02
## 242                                    -3.059115e-02        -3.946664e-02
## 243                                    -2.546509e-02        -3.808603e-02
## 244                                    -2.062915e-02        -4.071821e-02
## 245                                    -1.758562e-02        -4.642873e-02
## 246                                    -1.888016e-02        -4.410760e-02
## 247                                    -1.767838e-02        -4.400733e-02
## 248                                    -1.990202e-02        -4.432149e-02
## 249                                    -2.250405e-02        -4.268687e-02
## 250                                    -2.011177e-02        -3.564567e-02
## 251                                    -2.167922e-02        -3.139443e-02
## 252                                    -2.275451e-02        -3.254640e-02
## 253                                    -2.743443e-02        -3.388676e-02
## 254                                    -3.299116e-02        -3.199489e-02
## 255                                    -3.702518e-02        -3.248000e-02
## 256                                    -3.211806e-02        -3.100205e-02
## 257                                    -3.431282e-02        -2.925770e-02
## 258                                    -2.764239e-02        -2.840527e-02
## 259                                    -1.871304e-02        -2.855863e-02
## 260                                    -1.515396e-02        -3.057254e-02
## 261                                    -8.692345e-03        -2.837016e-02
## 262                                    -4.219838e-03        -2.805821e-02
## 263                                     1.269093e-04        -2.681250e-02
## 264                                     5.967417e-03        -2.712576e-02
## 265                                     9.795606e-03        -2.163688e-02
## 266                                     5.126840e-03        -2.090664e-02
## 267                                     9.840000e-03        -1.913001e-02
## 268                                     6.188373e-03        -2.047628e-02
## 269                                    -9.169196e-03        -2.213060e-02
## 270                                    -1.037652e-02        -1.976168e-02
## 271                                    -1.411819e-02        -2.324053e-02
## 272                                    -1.587281e-02        -2.067169e-02
## 273                                    -1.895187e-02        -2.520832e-02
## 274                                    -1.981269e-02        -2.523150e-02
## 275                                    -2.234985e-02        -2.715779e-02
## 276                                    -1.991343e-02        -3.336308e-02
## 277                                    -2.065656e-02        -3.902233e-02
## 278                                    -1.472489e-02        -3.799492e-02
## 279                                     4.451415e-03        -3.571978e-02
## 280                                     2.025184e-03        -3.438830e-02
## 281                                    -1.850074e-03        -3.209220e-02
## 282                                     1.748687e-04        -3.514149e-02
## 283                                     3.044944e-03        -3.395972e-02
## 284                                     2.284870e-03        -3.276445e-02
## 285                                     8.823118e-03        -3.162688e-02
## 286                                     9.646704e-03        -2.591629e-02
## 287                                     7.821717e-03        -2.233780e-02
```

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## 288                                       -2.484123e-04          -2.086859e-02
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## 290                                        1.981082e-03          -3.162361e-02
## 291                                        6.862182e-03          -3.222545e-02
## 292                                       -2.706014e-03           4.951658e-03
## 293                                       -1.577925e-03           4.200458e-03
## 294                                        3.446444e-03           6.097135e-03
## 295                                        4.398746e-03           4.581472e-03
## 296                                        3.406330e-03           5.582021e-03
## 297                                        2.268648e-03           4.861194e-03
## 298                                       -2.180989e-03           3.340337e-03
## 299                                       -6.036183e-03           3.793703e-03
## 300                                       -6.162684e-04           6.504168e-03
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## 302                                       -1.977066e-03           4.173267e-03
## 303                                       -5.896660e-03           2.985171e-03
## 304                                       -7.762828e-03           8.416806e-04
## 305                                       -2.455806e-03           5.702737e-03
## 306                                       -2.355257e-03           7.158347e-03
## 307                                       -9.539838e-04           7.567849e-03
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## 316                                       -6.655488e-03           4.377970e-03
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## 339                                       -6.107786e-03          -6.382580e-03
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## 382                                    6.943826e-03          1.182787e-02
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## 587                              8.723599e-03       -1.547281e-02
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## 657                               2.639292e-02        -1.945354e-02
## 658                               3.716787e-02        -1.230933e-02
## 659                               4.350516e-02        -5.871132e-03
## 660                               5.185829e-02         1.553297e-03
## 661                               5.040378e-02         1.090192e-03
## 662                               5.099862e-02         2.754758e-03
## 663                               4.912291e-02         4.652903e-03
## 664                               4.707583e-02         6.497538e-03
## 665                               5.336489e-02         1.262304e-02
```

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## 666                            5.068749e-02          1.595199e-02
## 667                            4.860056e-02          1.918483e-02
## 668                            4.479932e-02          1.909760e-02
## 669                            4.345527e-02          1.720468e-02
## 670                            3.983320e-02          1.407732e-02
## 671                            4.933632e-02          2.059264e-02
## 672                            5.700351e-02          2.857865e-02
## 673                            6.245767e-02          3.036167e-02
## 674                            6.750478e-02          3.441364e-02
## 675                            6.564191e-02          3.576920e-02
## 676                            6.438331e-02          3.782355e-02
## 677                            6.467742e-02          3.911740e-02
## 678                            5.989692e-02          4.331835e-02
## 679                            5.105443e-02          4.812393e-02
## 680                            4.386676e-02          4.819176e-02
## 681                            3.509631e-02          4.201131e-02
## 682                            2.714810e-02          3.489274e-02
## 683                            1.881038e-02          3.331626e-02
## 684                            9.987202e-03          2.844000e-02
## 685                            5.943181e-03          2.403478e-02
## 686                            3.838119e-03          2.232340e-02
## 687                           -3.233750e-03          1.526468e-02
## 688                           -1.368168e-03          1.029198e-02
## 689                            1.932339e-03          3.228195e-04
## 690                            4.267709e-03         -6.272502e-04
## 691                            9.887606e-04          3.854220e-03
## 692                            4.158167e-03          8.901022e-03
## 693                            1.095891e-02          1.650367e-02
## 694                            1.558784e-02          2.047673e-02
## 695                            1.749896e-02          2.333996e-02
## 696                            1.897229e-02          2.460484e-02
## 697                            2.390662e-02          2.953917e-02
## 698                            2.011471e-02          3.137105e-02
## 699                            2.296116e-02          3.735506e-02
## 700                            2.764857e-02          4.229735e-02
## 701                            3.818356e-02          4.725968e-02
## 702                            4.414960e-02          4.945095e-02
## 703                            4.642845e-02          5.059301e-02
## 704                            5.111862e-02          5.374418e-02
## 705                            5.505568e-02          5.776235e-02
## 706                            5.933230e-02          6.377236e-02
## 707                            5.860866e-02          6.930958e-02
## 708                            6.420565e-02          7.570504e-02
## 709                            6.637934e-02          8.358275e-02
## 710                            6.209487e-02          8.528659e-02
## 711                            5.246426e-02          9.181349e-02
## 712                            5.128824e-02          1.015356e-01
## 713                            5.038451e-02          1.025198e-01
## 714                            5.171338e-02          1.094616e-01
## 715                            4.693429e-02          1.057669e-01
## 716                            4.404180e-02          1.056698e-01
## 717                            4.448863e-02          1.106634e-01
## 718                            4.103102e-02          1.128123e-01
## 719                            4.044811e-02          1.146329e-01
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## 722                          5.782588e-02          1.078456e-01
## 723                          6.563655e-02          1.078484e-01
## 724                          7.041839e-02          1.047553e-01
## 725                          7.966166e-02          1.116766e-01
## 726                          8.888819e-02          1.141586e-01
## 727                          9.190389e-02          1.102413e-01
## 728                          9.800261e-02          1.067996e-01
## 729                          9.963051e-02          9.915648e-02
## 730                          9.820169e-02          9.862629e-02
## 731                          9.208707e-02          9.809704e-02
## 732                          9.267436e-02          9.698236e-02
## 733                          8.811934e-02          9.383033e-02
## 734                          9.304264e-02          9.645786e-02
## 735                          9.637822e-02          9.171084e-02
## 736                          9.766145e-02          9.029497e-02
## 737                          9.820801e-02          8.798890e-02
## 738                          9.992709e-02          9.053219e-02
## 739                          1.073463e-01          9.422602e-02
## 740                          1.125913e-01          9.131951e-02
## 741                          1.155163e-01          9.061061e-02
## 742                          1.144551e-01          8.983483e-02
## 743                          1.184665e-01          8.875597e-02
## 744                          1.169320e-01          8.521467e-02
## 745                          1.145989e-01          8.639576e-02
## 746                          1.099583e-01          8.219653e-02
## 747                          1.106459e-01          7.694136e-02
## 748                          1.058000e-01          6.479547e-02
## 749                          9.911174e-02          5.644294e-02
## 750                          8.503842e-02          5.063104e-02
## 751                          8.283533e-02          4.998373e-02
## 752                          8.311492e-02          4.575746e-02
## 753                          7.099633e-02          4.125626e-02
## 754                          6.618119e-02          4.137973e-02
## 755                          6.661499e-02          3.802076e-02
## 756                          7.067109e-02          3.536085e-02
## 757                          6.440672e-02          3.828683e-02
## 758                          6.700971e-02          4.398447e-02
## 759                          6.925315e-02          4.582820e-02
## 760                          7.769964e-02          5.252968e-02
## 761                          7.711915e-02          5.230609e-02
## 762                          7.565650e-02          5.225346e-02
## 763                          8.365323e-02          5.592289e-02
## 764                          8.362701e-02          4.998878e-02
## 765                          7.750698e-02          5.140677e-02
## 766                          7.279588e-02          5.355936e-02
## 767                          7.900757e-02          4.736961e-02
## 768                          7.876821e-02          4.265707e-02
## 769                          7.167283e-02          3.829967e-02
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## 771                          6.923374e-02          2.409596e-02
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## 773                          5.808689e-02          2.927957e-02
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## 776                            5.243635e-02               1.899080e-02
## 777                            4.758538e-02               1.975785e-02
## 778                            4.279537e-02               1.509315e-02
## 779                            4.241075e-02               1.281952e-02
## 780                            4.418950e-02               1.680191e-02
## 781                            3.577120e-02               1.414582e-02
## 782                            3.642507e-02               8.430998e-03
## 783                            3.750073e-02               5.522748e-03
## 784                            4.299602e-02               6.041856e-03
## 785                            3.841899e-02               1.067845e-02
## 786                            3.175788e-02               1.261430e-02
## 787                            3.242179e-02               8.519479e-03
## 788                            3.921638e-02               9.959589e-03
## 789                            3.924266e-02               1.305310e-02
## 790                            3.698510e-02               8.955768e-03
## 791                            4.151626e-02               1.207922e-02
## 792                            3.898387e-02               1.623316e-02
## 793                            3.324918e-02               1.416638e-02
## 794                            2.546783e-02               1.047481e-02
## 795                            2.349342e-02               5.472602e-03
## 796                            3.033611e-02               4.588264e-03
## 797                            2.241189e-02               3.815189e-03
## 798                            2.266951e-02               3.500582e-03
## 799                            2.270536e-02              -1.643699e-03
## 800                            2.181526e-02              -1.329699e-03
## 801                            1.938732e-02              -5.699091e-03
## 802                            1.555455e-02              -1.259365e-02
## 803                            2.218832e-02              -1.292632e-02
## 804                            2.152341e-02              -1.179123e-02
## 805                            2.325104e-02              -8.116532e-03
## 806                            1.445533e-02              -1.041100e-02
## 807                            1.745567e-02              -8.875096e-03
## 808                            9.745071e-03              -1.049899e-02
## 809                           -3.100912e-03              -1.345627e-02
## 810                           -5.774499e-03              -1.882066e-02
## 811                           -1.023662e-02              -1.539209e-02
## 812                           -4.839814e-03              -1.060305e-02
## 813                           -9.265944e-03              -1.023963e-02
## 814                           -8.684264e-03              -1.203819e-02
## 815                           -5.964561e-03              -1.566015e-02
## 816                           -5.472014e-05              -1.225924e-02
## 817                            4.783625e-04              -1.536204e-02
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## 820                            1.228152e-02              -5.178492e-03
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## 824                            1.863155e-02              -1.111274e-02
## 825                            1.298414e-02              -1.171910e-02
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## 827                            6.918216e-03              -1.317665e-02
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## 829                                    2.730792e-03          -2.172115e-02
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## 831                                   -6.314743e-03          -2.922233e-02
## 832                                   -3.909197e-03          -2.457320e-02
## 833                                   -9.488842e-03          -2.848813e-02
## 834                                   -1.209099e-02          -3.322827e-02
## 835                                   -7.724601e-03          -2.987517e-02
## 836                                   -8.247061e-04          -2.501223e-02
## 837                                   -1.145665e-03          -2.616680e-02
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## 842                                    1.297267e-04          -2.039740e-02
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## 844                                    5.137445e-03          -1.330799e-02
## 845                                    4.291367e-03          -1.497648e-02
## 846                                   -2.297509e-03          -1.588089e-02
## 847                                    9.479061e-04          -1.476212e-02
## 848                                    5.016352e-03          -1.507088e-02
## 849                                    3.213994e-03          -1.607106e-02
## 850                                    1.503750e-03          -1.872833e-02
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## 852                                   -1.709957e-04          -1.954881e-02
## 853                                   -6.763077e-03          -2.429959e-02
## 854                                   -1.111174e-02          -2.802253e-02
## 855                                   -1.305977e-02          -3.215373e-02
## 856                                   -1.296766e-02          -3.212518e-02
## 857                                   -2.269203e-02          -3.654543e-02
## 858                                   -2.602275e-02          -3.785991e-02
## 859                                   -2.443637e-02          -3.669115e-02
## 860                                   -2.517676e-02          -3.373179e-02
## 861                                   -2.370290e-02          -2.971167e-02
## 862                                   -2.604751e-02          -3.098923e-02
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## 872                                   -3.534362e-03          -2.996178e-02
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## 881                                   -7.328143e-03           2.280993e-03
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## 885                                      1.581726e-02       -3.196625e-03
## 886                                      1.525527e-02       -2.323649e-03
## 887                                      5.150912e-03       -1.410451e-02
## 888                                      1.249401e-02       -1.752448e-02
## 889                                      5.134449e-03       -1.560462e-02
## 890                                      8.559324e-03       -1.281502e-02
## 891                                      1.633999e-02       -1.727842e-03
## 892                                      5.550233e-03       -9.120434e-03
## 893                                     -1.776569e-03       -1.570840e-02
## 894                                      7.535838e-03       -7.137480e-03
## 895                                      1.902088e-03       -9.233137e-03
## 896                                     -1.446315e-03       -1.085096e-02
## 897                                      2.865999e-04       -5.147490e-03
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## 899                                     -2.577325e-04        6.149269e-03
## 900                                     -7.834345e-03        9.496994e-03
## 901                                     -7.629456e-03        7.294109e-04
## 902                                      3.006954e-03        9.503405e-03
## 903                                      5.649394e-03        1.521578e-02
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## 905                                      1.798946e-03        1.315044e-02
## 906                                      6.946828e-03        1.594393e-02
## 907                                      1.942492e-03        1.022010e-02
## 908                                     -3.578166e-04        3.030795e-03
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## 912                                      9.826105e-04       -9.339142e-03
## 913                                     -1.916703e-03       -7.858383e-03
## 914                                     -1.076027e-03       -5.241124e-03
## 915                                     -1.270712e-03       -1.785460e-03
## 916                                     -5.825365e-03       -3.341223e-03
## 917                                     -1.448155e-02       -1.273773e-02
## 918                                     -1.038151e-02       -6.865653e-03
## 919                                     -1.687220e-02       -4.586799e-03
## 920                                     -1.486269e-02       -6.126466e-04
## 921                                     -1.010142e-02        3.070339e-04
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## 927                                      1.808085e-02        1.534174e-02
## 928                                      1.190923e-02        1.504872e-02
## 929                                      2.052449e-02        8.872520e-03
## 930                                      2.260626e-02        4.962763e-03
## 931                                      2.714750e-02        4.669608e-03
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## 948                               1.475157e-02       -9.702705e-03
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## 961                               4.302112e-03       -7.359054e-03
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## 965                               2.113375e-02        2.421793e-02
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## 967                               7.794819e-03        1.852415e-02
## 968                               2.989135e-03        8.745369e-03
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## 973                              -1.427018e-03       -9.015193e-03
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## 987                               6.512484e-03        1.962459e-03
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## 995                            5.847045e-02           1.656133e-02
## 996                            6.088143e-02           2.011857e-02
## 997                            6.330987e-02           1.725456e-02
## 998                            5.967947e-02           1.976303e-02
## 999                            5.767557e-02           1.819332e-02
## 1000                           4.517892e-02           2.349525e-02
## 1001                           4.999847e-02           2.789799e-02
## 1002                           2.434167e-02           2.088806e-02
## 1003                           2.365240e-02           2.137727e-02
## 1004                           2.436781e-02           2.328724e-02
## 1005                           2.587407e-02           3.184459e-02
## 1006                           1.658778e-02           2.968379e-02
## 1007                           3.608169e-03           2.797098e-02
## 1008                           2.413320e-03           2.257437e-02
## 1009                           4.133788e-03           2.186351e-02
## 1010                           1.698981e-02           1.836212e-02
## 1011                           4.982447e-03           1.585681e-02
## 1012                           5.555349e-03           2.024595e-02
## 1013                           3.597251e-03           2.253700e-02
## 1014                           2.686252e-03           2.677412e-02
## 1015                           3.135039e-03           2.420547e-02
## 1016                           2.368111e-03           2.393819e-02
## 1017                           3.270810e-03           2.603596e-02
## 1018                          -6.449968e-04           2.970074e-02
## 1019                          -1.562769e-02           2.457238e-02
## 1020                          -3.440572e-02           2.058196e-02
## 1021                          -2.854600e-02           1.917372e-02
## 1022                          -3.245382e-02           1.422108e-02
## 1023                          -2.419649e-02           1.668454e-02
## 1024                          -2.451233e-02           1.960039e-02
## 1025                          -2.907605e-02           2.431094e-02
## 1026                          -2.625637e-02           2.862846e-02
## 1027                          -2.865628e-02           2.295926e-02
## 1028                          -2.716557e-02           1.933559e-02
## 1029                          -1.343962e-02           2.954187e-02
## 1030                           4.133572e-04           4.077082e-02
## 1031                          -3.490140e-03           4.399809e-02
## 1032                          -2.303064e-02           3.909592e-02
## 1033                          -3.328131e-02           3.492811e-02
## 1034                          -3.690422e-02           3.320390e-02
## 1035                          -3.323325e-02           2.921986e-02
## 1036                          -3.896463e-02           2.595563e-02
## 1037                          -2.709624e-02           3.110939e-02
## 1038                          -2.324794e-02           3.475880e-02
## 1039                          -3.168724e-02           2.850349e-02
## 1040                          -3.655115e-02           2.304635e-02
## 1041                          -5.203292e-02           9.322762e-03
## 1042                          -3.534092e-02           8.872859e-03
## 1043                          -2.668262e-02           1.273527e-02
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```
## 1044                                    -2.480888e-02          1.470853e-02
## 1045                                    -3.397962e-02          1.102396e-02
## 1046                                    -2.536399e-02          1.698050e-02
## 1047                                    -3.894634e-02          9.834867e-03
## 1048                                    -3.639112e-02          1.071348e-02
## 1049                                    -2.964349e-02          1.621290e-02
## 1050                                    -2.248529e-02          2.082459e-02
## 1051                                    -9.702186e-03          3.169356e-02
## 1052                                    -3.558279e-02          3.352591e-02
## 1053                                    -4.392970e-02          2.288162e-02
## 1054                                    -4.323770e-02          1.958436e-02
## 1055                                    -3.950762e-02          1.555275e-02
## 1056                                    -4.533452e-02          1.015058e-02
## 1057                                    -3.535604e-02          1.759473e-02
## 1058                                    -3.664297e-02          1.688813e-02
## 1059                                    -3.950857e-02          1.355592e-02
## 1060                                    -4.253229e-02          6.547645e-03
## 1061                                    -4.062673e-02          7.490431e-03
## 1062                                    -2.003940e-02         -6.095874e-04
## 1063                                    -9.331960e-03          1.113172e-02
## 1064                                    -1.810656e-02          6.569697e-03
## 1065                                    -2.654292e-02          1.127242e-02
## 1066                                    -2.605877e-02          1.174852e-02
## 1067                                    -3.498740e-02          1.052308e-02
## 1068                                    -3.270791e-02          7.311888e-03
## 1069                                    -2.993600e-02          5.177369e-03
## 1070                                    -2.363458e-02          7.215122e-03
## 1071                                    -2.744004e-02          4.316993e-03
## 1072                                    -4.011744e-02          8.632848e-03
## 1073                                    -4.331512e-02          5.217463e-03
## 1074                                    -3.964254e-02          8.151051e-03
## 1075                                    -2.425974e-02          8.230967e-03
## 1076                                    -2.846430e-02          1.096592e-02
## 1077                                    -2.380932e-02          1.037974e-02
## 1078                                    -2.908599e-02          1.671776e-02
## 1079                                    -3.201054e-02          1.512757e-02
## 1080                                    -3.810195e-02          1.225765e-02
## 1081                                    -4.210157e-02          1.506662e-02
## 1082                                    -2.055588e-02          1.866766e-02
## 1083                                    -1.481134e-02          2.630115e-02
## 1084                                    -2.103692e-02          2.589893e-02
## 1085                                    -3.166443e-02          2.323044e-02
## 1086                                    -2.611820e-02          2.184738e-02
## 1087                                    -2.816786e-02          1.852037e-02
## 1088                                    -2.466029e-02          8.877968e-03
## 1089                                    -2.856205e-02          7.411693e-03
## 1090                                    -2.360776e-02          1.660761e-02
## 1091                                    -2.616698e-02          7.441118e-03
## 1092                                    -3.694636e-02          6.388490e-03
## 1093                                    -3.856021e-02         -3.225011e-03
## 1094                                    -3.134756e-02         -5.805996e-03
## 1095                                    -1.884082e-02         -2.048333e-03
## 1096                                    -1.764104e-02         -1.491712e-03
## 1097                                    -1.076879e-02         -2.758902e-03
```

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## 1098                              -1.206300e-02           9.897534e-04
## 1099                              -5.792422e-03          -6.906098e-05
## 1100                              -5.978004e-03          -8.774998e-03
## 1101                              -2.720078e-03          -5.391782e-03
## 1102                               1.268387e-02          -1.235720e-02
## 1103                               6.496722e-03           2.526717e-03
## 1104                               9.879862e-03           9.957016e-03
## 1105                               1.995891e-03           1.309919e-02
## 1106                               1.857631e-04           1.656684e-02
## 1107                              -7.806024e-03           1.630516e-02
## 1108                              -3.720555e-03           1.222981e-02
## 1109                              -6.356742e-03           8.030282e-03
## 1110                              -1.077945e-02           1.026496e-02
## 1111                              -1.420789e-02           7.010819e-03
## 1112                              -3.627431e-02           1.032131e-02
## 1113                              -3.279952e-02           1.693357e-03
## 1114                              -3.505355e-02          -3.924890e-03
## 1115                              -3.100221e-02          -9.720396e-03
## 1116                              -2.890449e-02          -1.184593e-02
## 1117                              -2.096917e-02          -1.093331e-02
## 1118                              -2.707286e-02          -1.012857e-02
## 1119                              -2.100236e-02          -2.243821e-03
## 1120                              -1.708138e-02          -2.739020e-03
## 1121                              -5.184921e-03           4.650604e-03
## 1122                               2.412008e-02           4.493326e-03
## 1123                               1.323156e-02           6.409996e-03
## 1124                               1.767535e-02           8.223190e-03
## 1125                               1.773135e-02           1.607752e-02
## 1126                               2.270931e-02           1.795546e-02
## 1127                               1.952454e-02           2.228970e-02
## 1128                               2.595081e-02           2.050352e-02
## 1129                               2.142612e-02           2.109284e-02
## 1130                               8.193400e-03           2.214201e-02
## 1131                               6.796350e-03           1.495269e-02
## 1132                              -2.031186e-02           8.463826e-03
## 1133                              -1.587670e-02           5.601839e-03
## 1134                              -2.342323e-02           7.174361e-03
## 1135                              -2.915506e-02           8.887834e-04
## 1136                              -2.794559e-02           3.489367e-04
## 1137                              -1.785061e-02          -1.999958e-03
## 1138                              -1.357262e-02           7.958559e-03
## 1139                              -1.793586e-02           8.705098e-03
## 1140                              -4.666368e-03           7.631892e-03
## 1141                              -5.899983e-03           1.554422e-02
## 1142                               2.944994e-02           2.018865e-02
## 1143                               3.562939e-02           1.783009e-02
## 1144                               4.744837e-02           1.995203e-02
## 1145                               4.982478e-02           1.987753e-02
## 1146                               4.511575e-02           2.034818e-02
## 1147                               3.097866e-02           1.637414e-02
## 1148                               3.018834e-02           7.397772e-03
## 1149                               4.130593e-02           5.989639e-03
## 1150                               3.219783e-02           5.518549e-03
## 1151                               2.883586e-02          -7.400380e-04
```

```
## 1152                                                    2.946967e-03         -4.811898e-04
## 1153                                                    5.508426e-03          6.908347e-03
## 1154                                                   -2.782689e-03          6.250193e-03
## 1155                                                   -1.261395e-02          3.284974e-03
## 1156                                                   -1.051167e-02         -3.559155e-03
## 1157                                                    9.398100e-05          1.435299e-03
## 1158                                                    2.367537e-04          4.990531e-04
## 1159                                                   -6.594458e-03         -2.950523e-03
## 1160                                                    4.056317e-05          2.305165e-05
## 1161                                                    1.335864e-03          9.714252e-03
## 1162                                                    1.957497e-02          9.257348e-03
## 1163                                                    1.193730e-02          7.901491e-03
## 1164                                                    1.146884e-02          3.262025e-03
##       Cingulate.Gyrus..anterior.division  Left.Caudate Right.Accumbens
## 1                         -2.420535e-02 -1.591114e-02    1.969235e-03
## 2                         -2.618260e-02 -2.383896e-02    2.605865e-03
## 3                         -2.279213e-02 -2.077722e-02    1.663301e-02
## 4                         -1.893779e-02 -1.751470e-02    1.404261e-02
## 5                         -1.546810e-02 -2.104074e-02    8.290997e-03
## 6                         -1.128538e-02 -1.980444e-02    5.851080e-03
## 7                         -5.097541e-03 -1.812912e-02    6.371603e-03
## 8                         -3.082655e-03 -1.929722e-02    4.538368e-03
## 9                         -4.528758e-03 -2.426411e-02   -1.670373e-03
## 10                        -1.075273e-02 -3.044034e-02   -8.602034e-03
## 11                        -1.255147e-02 -3.195959e-02   -9.084514e-03
## 12                        -1.801185e-02 -3.492678e-02   -1.323601e-02
## 13                        -1.884008e-02 -3.511230e-02   -2.430675e-02
## 14                        -2.334156e-02 -3.930101e-02   -2.907753e-02
## 15                        -2.332160e-02 -3.489113e-02   -2.450240e-02
## 16                        -2.195126e-02 -3.041486e-02   -2.113425e-02
## 17                        -2.484226e-02 -2.870451e-02   -2.116989e-02
## 18                        -2.430086e-02 -2.491965e-02   -1.615212e-02
## 19                        -1.914515e-02 -1.207589e-02   -9.084529e-03
## 20                        -4.070290e-03  7.573734e-03    1.326724e-04
## 21                        -1.664446e-03  7.158051e-03    3.016268e-03
## 22                         2.071681e-03  1.023570e-02    1.913408e-03
## 23                        -1.870649e-03  9.937702e-03    9.738707e-03
## 24                         2.640211e-04  1.210247e-02    1.377666e-02
## 25                         4.307790e-03  1.129674e-02    1.264594e-02
## 26                         5.425460e-03  7.594351e-03    1.330627e-02
## 27                         7.027442e-03  6.050491e-03    1.184701e-02
## 28                         6.188771e-03 -1.283891e-03    6.341831e-03
## 29                         3.178738e-03 -1.671872e-02   -1.736917e-03
## 30                        -9.310667e-03 -3.578195e-02   -1.099458e-02
## 31                        -1.106167e-02 -3.463618e-02   -1.386198e-02
## 32                        -1.376467e-02 -3.325257e-02   -1.356605e-02
## 33                        -1.358996e-02 -3.858129e-02   -2.660468e-02
## 34                        -1.354476e-02 -4.058424e-02   -3.031712e-02
## 35                        -2.114969e-02 -4.543082e-02   -3.429013e-02
## 36                        -2.963447e-02 -4.808459e-02   -3.408879e-02
## 37                        -3.635996e-02 -4.962669e-02   -3.768870e-02
## 38                        -3.857660e-02 -4.230398e-02   -3.728625e-02
## 39                        -3.523793e-02 -2.826364e-02   -2.092557e-02
## 40                        -3.083573e-02 -2.213027e-02   -1.944332e-02
```

```
## 41                          -3.133258e-02 -2.263480e-02  -2.196996e-02
## 42                          -3.218695e-02 -2.338823e-02  -2.228545e-02
## 43                          -3.009824e-02 -1.903668e-02  -1.322798e-02
## 44                          -2.786970e-02 -1.632093e-02  -1.081242e-02
## 45                          -2.089895e-02 -1.287389e-02  -1.287887e-04
## 46                          -1.476113e-02 -1.518447e-02   3.473223e-03
## 47                          -1.726264e-02 -2.158208e-02  -2.670641e-03
## 48                          -1.386658e-02 -2.622030e-02   1.917136e-03
## 49                          -2.362949e-02 -4.545005e-02  -1.493339e-02
## 50                          -2.738200e-02 -5.092472e-02  -1.652744e-02
## 51                          -2.378377e-02 -4.572717e-02  -3.762058e-03
## 52                          -1.600728e-02 -4.057083e-02   2.200914e-03
## 53                          -1.684892e-02 -4.042624e-02  -1.467894e-03
## 54                          -1.840998e-02 -4.116917e-02   6.682919e-04
## 55                          -2.501431e-02 -4.311612e-02  -2.875528e-03
## 56                          -2.328920e-02 -3.668200e-02  -4.761824e-03
## 57                          -2.213233e-02 -3.273420e-02   4.558039e-03
## 58                          -2.500351e-02 -2.997435e-02   1.474089e-03
## 59                          -2.069164e-02 -1.748410e-02   1.237210e-02
## 60                          -1.859832e-02 -1.962049e-02   6.237019e-03
## 61                          -2.032828e-02 -2.574418e-02  -5.385627e-03
## 62                          -2.537017e-02 -2.969387e-02  -1.130246e-02
## 63                          -2.591397e-02 -3.049327e-02  -9.540313e-03
## 64                          -2.673468e-02 -3.451698e-02  -1.627094e-02
## 65                          -2.246196e-02 -3.276830e-02  -1.759056e-02
## 66                          -2.475948e-02 -3.887488e-02  -1.851465e-02
## 67                          -2.296845e-02 -4.042824e-02  -2.502809e-02
## 68                          -2.540175e-02 -4.729845e-02  -2.515319e-02
## 69                          -3.868448e-02 -6.391980e-02  -3.943264e-02
## 70                          -4.289257e-02 -6.305758e-02  -3.487235e-02
## 71                          -4.661485e-02 -6.273720e-02  -2.466016e-02
## 72                          -4.397667e-02 -6.117614e-02  -1.858172e-02
## 73                          -4.402249e-02 -6.243944e-02  -1.842173e-02
## 74                          -4.230071e-02 -5.842608e-02  -9.723287e-03
## 75                          -4.093700e-02 -5.775199e-02  -8.088478e-03
## 76                          -3.702106e-02 -4.718587e-02  -7.247978e-03
## 77                          -3.004806e-02 -3.725624e-02   4.939679e-03
## 78                          -2.463962e-02 -2.848028e-02   8.703509e-03
## 79                          -1.401217e-02 -1.886256e-02   2.313945e-02
## 80                          -1.191259e-02 -2.329422e-02   1.723759e-02
## 81                          -8.643497e-03 -2.452051e-02   7.946208e-03
## 82                          -1.133483e-02 -2.629234e-02   4.434377e-03
## 83                          -1.253413e-02 -2.554666e-02   1.363803e-03
## 84                          -1.719209e-02 -2.726668e-02  -1.324935e-02
## 85                          -2.282640e-02 -3.042538e-02  -2.047389e-02
## 86                          -2.886309e-02 -3.780539e-02  -2.385152e-02
## 87                          -3.850573e-02 -5.101632e-02  -3.892068e-02
## 88                          -4.259132e-02 -6.287407e-02  -4.583072e-02
## 89                          -4.954042e-02 -6.680502e-02  -5.370902e-02
## 90                          -5.338106e-02 -6.663144e-02  -4.860736e-02
## 91                          -6.085291e-02 -6.581496e-02  -3.906122e-02
## 92                          -6.096470e-02 -6.565483e-02  -3.757767e-02
## 93                          -6.487930e-02 -7.133959e-02  -4.163446e-02
## 94                          -6.279476e-02 -7.275133e-02  -3.364910e-02
```

```
## 95                     -6.693736e-02 -7.762825e-02  -2.998064e-02
## 96                     -6.808574e-02 -7.767115e-02  -3.418167e-02
## 97                     -7.289720e-02 -7.829892e-02  -3.091864e-02
## 98                     -8.041105e-02 -8.173807e-02  -3.584733e-02
## 99                     -7.682900e-02 -7.277526e-02  -3.403086e-02
## 100                    -9.170407e-02 -8.633505e-02  -5.348373e-02
## 101                    -9.861912e-02 -9.152893e-02  -6.541668e-02
## 102                    -1.044277e-01 -9.435870e-02  -7.279239e-02
## 103                    -1.053491e-01 -9.061724e-02  -6.474843e-02
## 104                    -1.110148e-01 -9.413098e-02  -6.778662e-02
## 105                    -1.100856e-01 -8.737639e-02  -6.568908e-02
## 106                    -1.082631e-01 -8.096798e-02  -6.331457e-02
## 107                    -1.085694e-01 -7.811327e-02  -6.468347e-02
## 108                    -9.756055e-02 -6.878737e-02  -5.972546e-02
## 109                    -8.161980e-02 -5.952634e-02  -4.731202e-02
## 110                    -5.699620e-02 -3.063625e-02  -2.058727e-02
## 111                    -3.811884e-02 -1.511406e-02  -4.560740e-03
## 112                    -2.346688e-02  1.045678e-04   6.991173e-03
## 113                    -1.203428e-02  1.108615e-02   1.021013e-02
## 114                     5.462973e-03  2.846167e-02   2.530456e-02
## 115                     1.981885e-02  4.126626e-02   3.214743e-02
## 116                     2.660042e-02  5.210050e-02   4.216298e-02
## 117                     4.461267e-02  6.994668e-02   5.649046e-02
## 118                     5.375674e-02  8.429745e-02   7.448299e-02
## 119                     6.774488e-02  1.018626e-01   9.140930e-02
## 120                     6.906153e-02  1.031455e-01   8.506551e-02
## 121                     7.020141e-02  1.110279e-01   8.699416e-02
## 122                     7.192808e-02  1.130242e-01   8.470758e-02
## 123                     7.219223e-02  1.138824e-01   8.788662e-02
## 124                     7.291616e-02  1.172986e-01   9.000062e-02
## 125                     7.293677e-02  1.171775e-01   8.222147e-02
## 126                     8.503272e-02  1.213970e-01   7.832088e-02
## 127                     8.220899e-02  1.154533e-01   7.354531e-02
## 128                     8.301269e-02  1.116193e-01   6.157212e-02
## 129                     7.570499e-02  9.729717e-02   3.489789e-02
## 130                     8.624133e-02  1.045751e-01   3.963608e-02
## 131                     9.098514e-02  9.819417e-02   3.333055e-02
## 132                     9.182400e-02  9.801338e-02   3.260110e-02
## 133                     1.002041e-01  1.010520e-01   2.467083e-02
## 134                     1.044243e-01  9.726021e-02   9.164411e-03
## 135                     1.059774e-01  9.411362e-02   3.612564e-03
## 136                     9.965414e-02  8.787997e-02  -9.064561e-04
## 137                     1.079869e-01  9.085704e-02  -1.221673e-02
## 138                     1.042347e-01  9.014742e-02  -1.469623e-02
## 139                     1.112974e-01  1.008421e-01  -7.568448e-03
## 140                     1.021141e-01  8.930254e-02  -2.459148e-02
## 141                     1.002933e-01  9.475825e-02  -2.814843e-02
## 142                     1.008117e-01  9.174620e-02  -3.311869e-02
## 143                     9.803002e-02  9.158721e-02  -3.127069e-02
## 144                     9.203061e-02  9.015708e-02  -3.178602e-02
## 145                     9.417616e-02  8.788703e-02  -3.119339e-02
## 146                     9.978482e-02  8.462739e-02  -3.363669e-02
## 147                     9.692522e-02  7.989495e-02  -3.541633e-02
## 148                     9.772356e-02  7.637213e-02  -4.557676e-02
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## 150                          9.053473e-02  4.627892e-02  -6.435049e-02
## 151                          9.194130e-02  3.606168e-02  -7.335661e-02
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## 155                          7.232102e-02  1.085537e-02  -8.907289e-02
## 156                          6.092504e-02  2.763649e-03  -9.458240e-02
## 157                          5.631881e-02 -3.382401e-03  -9.457867e-02
## 158                          5.172502e-02 -1.056185e-02  -9.325687e-02
## 159                          5.197900e-02 -1.820690e-03  -8.438090e-02
## 160                          4.378750e-02 -7.954756e-03  -9.007831e-02
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## 163                          2.975621e-02 -1.315437e-02  -9.093249e-02
## 164                          2.959726e-02 -1.315719e-02  -9.735325e-02
## 165                          2.967296e-02 -1.598735e-02  -9.927690e-02
## 166                          3.427684e-02 -1.573716e-02  -1.028097e-01
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## 169                          1.034567e-02 -3.549432e-02  -1.244333e-01
## 170                          8.998268e-03 -3.262714e-02  -1.188946e-01
## 171                          3.800488e-03 -4.297669e-02  -1.151285e-01
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## 177                         -2.304122e-02 -6.311930e-02  -1.178488e-01
## 178                         -1.890994e-02 -6.025957e-02  -1.093866e-01
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## 180                         -1.602488e-02 -5.341649e-02  -1.038249e-01
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## 183                         -6.082199e-03 -4.102033e-02  -9.975604e-02
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## 192                         -1.932936e-02 -4.655185e-02  -7.785717e-02
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## 200                         -4.199740e-02 -6.037807e-02  -9.379599e-02
## 201                         -3.568812e-02 -5.197655e-02  -1.004786e-01
## 202                         -3.658277e-02 -5.879237e-02  -9.698534e-02
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## 204                         -3.041622e-02 -5.115474e-02  -7.864114e-02
## 205                         -3.140151e-02 -5.647860e-02  -8.121887e-02
## 206                         -2.413382e-02 -5.098013e-02  -7.515032e-02
## 207                         -2.106602e-02 -5.012659e-02  -7.717419e-02
## 208                         -2.134245e-02 -5.081462e-02  -7.941391e-02
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## 211                         -1.935471e-02 -3.572131e-02  -5.862562e-02
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## 254                         -5.185892e-02 -4.079285e-02  -5.384484e-02
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## 260                      -4.117894e-02 -1.989648e-02   -2.395088e-02
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## 277                      -5.549952e-02 -4.550872e-02   -2.330547e-02
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## 280                      -3.817378e-02 -3.436235e-02    3.008657e-03
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## 285                      -2.848436e-02 -2.498964e-02    1.274345e-02
## 286                      -2.740299e-02 -2.382481e-02    8.878776e-03
## 287                      -2.988144e-02 -2.777283e-02   -8.661609e-04
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## 289                      -4.541527e-02 -3.524004e-02   -1.868803e-02
## 290                      -4.572881e-02 -3.210285e-02   -1.608989e-02
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## 306                      -1.392675e-03  3.530258e-03   -1.786807e-03
## 307                       3.838006e-04  5.866393e-03   -1.318663e-03
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## 309                       4.759457e-03  7.074962e-03   -4.256241e-03
## 310                      -8.008248e-04  2.711844e-04   -7.450058e-03
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## 341                         4.792312e-04  5.660690e-03  -1.941164e-03
## 342                         2.578685e-03  6.023675e-03  -9.267668e-04
## 343                         5.613430e-03  9.283509e-03   4.280812e-03
## 344                         7.939434e-03  1.270158e-02   8.973924e-03
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## 348                         6.731206e-03  8.153928e-03  -1.461787e-03
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## 350                         2.701734e-03  3.435830e-03  -1.237010e-03
## 351                         6.050528e-04  3.256288e-04  -4.408341e-03
## 352                        -8.790065e-04 -1.058744e-03  -5.136748e-03
## 353                        -3.696156e-03 -4.491793e-03  -9.907289e-03
## 354                        -6.824903e-03 -9.032976e-03  -1.507868e-02
## 355                        -8.125540e-03 -8.528490e-03  -1.389071e-02
## 356                        -4.915205e-03 -5.657217e-03  -8.203773e-03
## 357                        -5.413867e-03 -5.425900e-03  -1.050454e-02
## 358                        -4.804844e-03 -4.919289e-03  -8.273810e-03
## 359                        -3.685659e-03 -4.604758e-03  -1.181728e-02
## 360                        -8.860251e-04 -3.590446e-04  -8.322951e-03
## 361                        -2.611034e-03 -6.370467e-04  -5.207750e-03
## 362                        -4.313637e-03 -3.373524e-03  -6.581495e-03
## 363                        -2.169157e-03  9.208967e-04  -4.641395e-03
## 364                         1.389286e-03  4.205207e-03  -5.189324e-04
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## 384                            1.693788e-02  1.392038e-02  6.051190e-03
## 385                            1.568746e-02  1.084633e-02  5.228318e-03
## 386                            1.117662e-02  6.206898e-03  4.436426e-03
## 387                            4.753979e-03 -4.071809e-04  2.218305e-03
## 388                           -9.325228e-04 -6.561993e-03 -7.642939e-03
## 389                           -5.343784e-03 -9.040649e-03 -1.006940e-02
## 390                           -7.757973e-03 -1.095357e-02 -8.375892e-03
## 391                           -7.550858e-03 -1.257773e-02 -1.147901e-02
## 392                           -7.795241e-03 -1.079545e-02 -1.040946e-02
## 393                           -1.158652e-02 -1.493142e-02 -1.343119e-02
## 394                           -1.543889e-02 -1.919602e-02 -1.810449e-02
## 395                           -1.717964e-02 -2.079686e-02 -2.074402e-02
## 396                           -1.572142e-02 -1.919869e-02 -2.057342e-02
## 397                           -1.433980e-02 -1.543821e-02 -2.021139e-02
## 398                           -1.165701e-02 -1.229505e-02 -1.427367e-02
## 399                           -1.093591e-02 -1.217176e-02 -1.489011e-02
## 400                           -1.177335e-02 -1.065606e-02 -1.701834e-02
## 401                           -1.279448e-02 -8.612837e-03 -1.092308e-02
## 402                           -1.359897e-02 -9.705402e-03 -1.360798e-02
## 403                           -1.152557e-02 -7.587201e-03 -1.099149e-02
## 404                           -8.706887e-03 -2.690972e-03 -6.839264e-03
## 405                           -7.081437e-03  2.041536e-03 -3.001521e-03
## 406                           -7.274596e-03  1.733464e-03 -6.741870e-03
## 407                           -5.972077e-03  1.471827e-03 -6.527181e-03
## 408                           -7.212876e-03  1.602688e-03 -1.131106e-02
## 409                           -4.808584e-03  1.692979e-03 -8.762893e-03
## 410                           -2.458986e-04  4.138861e-03 -5.603136e-03
## 411                            2.667547e-03  3.454937e-03 -8.838392e-03
## 412                            4.278758e-03  5.034947e-03 -4.867600e-03
## 413                            4.155649e-03  3.654461e-03 -6.766846e-03
## 414                            4.743787e-03  2.089977e-03 -7.008764e-03
## 415                            4.208869e-03 -3.118013e-03 -1.105932e-02
## 416                            3.990169e-03 -5.575337e-03 -8.043109e-03
## 417                            1.527060e-03 -7.826964e-03 -9.828815e-03
## 418                            1.271949e-03 -9.748973e-03 -4.673109e-03
```

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## 419                        -3.401454e-03 -1.471809e-02  -9.903122e-03
## 420                        -9.602457e-03 -2.123465e-02  -1.541069e-02
## 421                        -1.868983e-02 -2.626689e-02  -1.695912e-02
## 422                        -2.281302e-02 -3.122951e-02  -2.082114e-02
## 423                        -2.424491e-02 -3.466953e-02  -2.140304e-02
## 424                        -2.912617e-02 -3.674709e-02  -2.273629e-02
## 425                        -3.288188e-02 -3.725838e-02  -2.144391e-02
## 426                        -3.635339e-02 -3.886228e-02  -2.512837e-02
## 427                        -3.695052e-02 -3.916329e-02  -2.275433e-02
## 428                        -3.624374e-02 -3.800647e-02  -2.116815e-02
## 429                        -3.697966e-02 -3.731597e-02  -1.922735e-02
## 430                        -3.517294e-02 -3.512940e-02  -2.048493e-02
## 431                        -3.195880e-02 -3.387035e-02  -1.892825e-02
## 432                        -3.128391e-02 -3.025427e-02  -1.648825e-02
## 433                        -3.178151e-02 -2.682750e-02  -1.568329e-02
## 434                        -2.969005e-02 -2.578384e-02  -1.431418e-02
## 435                        -2.987724e-02 -2.785464e-02  -1.713430e-02
## 436                        -2.726126e-02 -2.427308e-02  -1.147444e-02
## 437                        -2.713570e-02 -2.338569e-02  -1.239563e-02
## 438                        -2.583888e-02 -2.060594e-02  -1.068607e-02
## 439                        -2.164184e-02 -1.617607e-02  -7.632043e-03
## 440                        -2.255923e-02 -1.617286e-02  -3.528399e-03
## 441                        -1.943239e-02 -1.146852e-02   1.915611e-03
## 442                        -1.901411e-02 -1.335298e-02   5.442091e-04
## 443                        -2.095361e-02 -1.795166e-02  -3.360656e-03
## 444                        -2.045963e-02 -1.686217e-02  -1.663408e-03
## 445                        -2.185908e-02 -1.605238e-02  -1.481641e-03
## 446                        -2.613307e-02 -1.995105e-02  -5.715988e-03
## 447                        -2.642118e-02 -2.210790e-02  -5.776661e-03
## 448                        -2.615100e-02 -2.376897e-02  -7.351287e-03
## 449                        -2.669554e-02 -2.543309e-02  -5.598568e-03
## 450                        -2.725850e-02 -2.587646e-02  -9.934323e-03
## 451                        -2.827948e-02 -2.763572e-02  -1.214869e-02
## 452                        -2.770225e-02 -2.566479e-02  -1.093854e-02
## 453                        -2.564555e-02 -2.200237e-02  -6.984856e-03
## 454                        -2.559842e-02 -2.225224e-02  -8.643061e-03
## 455                        -2.232079e-02 -2.031954e-02  -6.947382e-03
## 456                        -1.920607e-02 -1.811281e-02  -3.884605e-03
## 457                        -1.790238e-02 -1.477266e-02  -2.508709e-03
## 458                        -1.709836e-02 -1.254770e-02  -2.029000e-03
## 459                        -1.765790e-02 -1.155568e-02  -5.275591e-03
## 460                        -1.663608e-02 -1.187368e-02  -9.021083e-04
## 461                        -1.422094e-02 -9.009038e-03   2.673111e-03
## 462                        -1.576512e-02 -1.115911e-02   2.604785e-03
## 463                        -1.628543e-02 -1.192097e-02   5.068840e-03
## 464                        -1.538160e-02 -9.798525e-03   1.038748e-02
## 465                        -1.842493e-02 -1.011783e-02   1.221959e-02
## 466                        -1.538884e-02 -7.936358e-03   1.160953e-02
## 467                        -1.401542e-02 -7.764493e-03   1.164921e-02
## 468                        -1.273956e-02 -8.532608e-03   1.106358e-02
## 469                        -1.196998e-02 -8.418440e-03   1.142437e-02
## 470                        -1.066459e-02 -8.111209e-03   5.757837e-03
## 471                        -1.184651e-02 -1.015807e-02   1.656817e-03
## 472                        -9.354215e-03 -7.023926e-03   3.788378e-03
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## 473                      -7.745827e-03 -4.515604e-03    2.352802e-03
## 474                      -6.311385e-03 -4.835283e-03    2.047474e-03
## 475                      -2.824116e-03 -4.563850e-03    3.242000e-03
## 476                      -3.831506e-03 -5.077018e-03    2.881850e-03
## 477                      -4.615236e-03 -5.553412e-03    1.470547e-03
## 478                      -5.836210e-03 -6.204612e-03   -9.684452e-04
## 479                      -4.507573e-03 -7.361964e-03   -1.398181e-03
## 480                      -4.012643e-03 -6.913862e-03    6.443882e-03
## 481                      -1.543987e-03 -3.745384e-03    8.354668e-03
## 482                      -4.974093e-03 -8.214988e-03    5.035606e-03
## 483                      -4.850684e-03 -1.033703e-02    4.130831e-03
## 484                      -7.096877e-03 -1.207175e-02    2.154054e-03
## 485                      -7.647271e-03 -1.096466e-02    1.331876e-03
## 486                      -5.716127e-03 -9.807382e-03    2.997750e-03
## 487                      -3.355239e-03 -6.271769e-03    7.257424e-03
## 488                      -3.557867e-03 -5.238534e-03    1.073567e-02
## 489                      -1.816562e-03 -2.781497e-03    1.507093e-02
## 490                      -3.071734e-03 -5.135862e-03    1.033522e-02
## 491                      -3.755505e-03 -6.908689e-03    1.155347e-02
## 492                       6.666533e-04 -1.323897e-03    1.541320e-02
## 493                       2.100077e-04 -7.404453e-04    1.628045e-02
## 494                       1.180838e-03  3.059766e-04    1.373806e-02
## 495                       2.157840e-03  6.220158e-04    1.234734e-02
## 496                       1.402306e-04  5.139549e-04    1.653054e-02
## 497                      -2.000279e-03 -2.722877e-03    1.298483e-02
## 498                      -3.111644e-03 -5.419986e-03    1.071495e-02
## 499                      -4.661596e-03 -7.916605e-03    4.943770e-03
## 500                      -4.318740e-03 -4.685105e-03    1.044086e-02
## 501                      -2.057980e-03 -6.731128e-04    1.216403e-02
## 502                      -4.605227e-03 -3.455466e-03    1.215984e-02
## 503                      -1.126133e-03 -9.328220e-04    1.204415e-02
## 504                       2.263564e-03  4.095964e-03    1.904835e-02
## 505                       3.233767e-03  5.611605e-03    2.091999e-02
## 506                       5.244045e-03  4.652409e-03    1.270549e-02
## 507                       7.217564e-03  6.713831e-03    1.504708e-02
## 508                       1.072004e-02  9.684717e-03    1.711299e-02
## 509                       1.287930e-02  1.465231e-02    2.058947e-02
## 510                       1.203729e-02  1.277142e-02    1.719256e-02
## 511                       9.377780e-03  9.388800e-03    1.401171e-02
## 512                       1.110012e-02  1.032983e-02    1.189505e-02
## 513                       1.019272e-02  9.463446e-03    1.262684e-02
## 514                       7.375322e-03  4.933805e-03    8.479520e-03
## 515                       6.961601e-03  4.437029e-03    9.640323e-03
## 516                       7.373381e-03  7.785073e-03    1.655518e-02
## 517                       6.697037e-03  7.897198e-03    1.773734e-02
## 518                       4.211920e-03  5.336230e-03    1.639271e-02
## 519                       1.664846e-03  1.151844e-03    1.520233e-02
## 520                       1.338046e-03  2.027244e-03    1.532428e-02
## 521                       3.456015e-03  5.322380e-03    1.837748e-02
## 522                       3.815619e-03  6.379470e-03    2.033399e-02
## 523                       3.461927e-03  5.040607e-03    1.925822e-02
## 524                       7.974939e-03  9.700706e-03    2.337241e-02
## 525                       1.095695e-02  1.141585e-02    2.313825e-02
## 526                       1.069176e-02  1.000727e-02    1.670717e-02
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## 527                      1.073446e-02  9.480999e-03   1.410836e-02
## 528                      1.489504e-02  1.254465e-02   1.251880e-02
## 529                      1.875827e-02  1.768080e-02   1.532981e-02
## 530                      1.843720e-02  1.518727e-02   1.604971e-02
## 531                      1.620461e-02  1.116944e-02   1.310220e-02
## 532                      1.768739e-02  1.206930e-02   1.196699e-02
## 533                      1.869934e-02  1.390249e-02   1.475431e-02
## 534                      1.669523e-02  1.228504e-02   1.186930e-02
## 535                      1.414701e-02  1.083485e-02   1.222272e-02
## 536                      1.343435e-02  1.097599e-02   1.504726e-02
## 537                      1.536170e-02  1.288238e-02   1.897404e-02
## 538                      1.243131e-02  1.212735e-02   2.238288e-02
## 539                      1.067052e-02  1.011070e-02   1.987314e-02
## 540                      1.053775e-02  1.268796e-02   2.003023e-02
## 541                      1.069764e-02  1.542640e-02   1.955456e-02
## 542                      8.451166e-03  1.148302e-02   2.106961e-02
## 543                      5.704843e-03  8.804694e-03   1.590317e-02
## 544                      5.215749e-03  8.274185e-03   1.416288e-02
## 545                      4.784795e-03  7.761940e-03   1.189906e-02
## 546                      2.583756e-03  6.315108e-03   9.208423e-03
## 547                      4.038193e-04  5.052078e-03   3.891575e-03
## 548                      1.794723e-03  6.353947e-03   1.700830e-04
## 549                      3.627252e-03  8.748919e-03   2.873682e-04
## 550                      4.847826e-03  8.755024e-03   1.078385e-03
## 551                      6.285737e-03  8.328887e-03   2.340972e-03
## 552                      7.807962e-03  9.784714e-03   1.278115e-03
## 553                      8.764397e-03  1.076497e-02   3.544274e-03
## 554                      9.756626e-03  1.214354e-02   5.170283e-03
## 555                      1.083019e-02  1.372682e-02   6.525067e-03
## 556                      1.315061e-02  1.547059e-02   8.652788e-03
## 557                      1.753632e-02  1.779036e-02   1.030732e-02
## 558                      1.921704e-02  2.096147e-02   1.627564e-02
## 559                      1.904146e-02  1.865552e-02   1.754331e-02
## 560                      2.036945e-02  1.950552e-02   2.054045e-02
## 561                      2.159488e-02  2.143226e-02   2.192084e-02
## 562                      1.682962e-02  1.750758e-02   2.023379e-02
## 563                      1.719457e-02  1.810790e-02   2.141964e-02
## 564                      1.915840e-02  1.938553e-02   2.275258e-02
## 565                      1.861401e-02  1.938893e-02   2.202084e-02
## 566                      1.620563e-02  1.728393e-02   1.699068e-02
## 567                      1.527591e-02  1.544919e-02   1.915846e-02
## 568                      1.343479e-02  1.234193e-02   1.702508e-02
## 569                      1.192024e-02  1.307332e-02   1.389160e-02
## 570                      1.257922e-02  1.213947e-02   8.644737e-03
## 571                      1.124817e-02  1.134142e-02   7.923733e-03
## 572                      1.219144e-02  1.389395e-02   7.764989e-03
## 573                      1.031609e-02  1.347359e-02   6.027795e-03
## 574                      5.986257e-03  9.402487e-03   1.055082e-03
## 575                      5.669958e-03  8.180671e-03  -6.636167e-04
## 576                      7.497685e-03  1.040599e-02   4.752829e-03
## 577                      4.909411e-03  8.300884e-03   1.593546e-03
## 578                      4.496132e-03  8.731266e-03  -7.456112e-04
## 579                      3.967982e-03  7.226984e-03   2.494657e-03
## 580                      1.814433e-03  7.785317e-03   6.559216e-03
```

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## 581                               5.597621e-03  1.149101e-02   5.986458e-03
## 582                               6.962924e-03  1.279804e-02   6.957645e-03
## 583                              -1.139164e-02 -1.086626e-02   1.496366e-02
## 584                              -7.441555e-03 -1.042698e-02   1.407308e-02
## 585                              -1.233456e-02 -1.628570e-02   1.676895e-02
## 586                              -1.668709e-02 -2.402953e-02   9.775052e-03
## 587                              -1.776004e-02 -2.114996e-02   6.480837e-03
## 588                              -1.217258e-02 -1.269928e-02   5.059698e-03
## 589                              -1.357806e-02 -1.355218e-02   3.826659e-03
## 590                              -1.257562e-02 -1.687506e-02   9.347097e-03
## 591                              -1.393917e-02 -1.811627e-02   6.866205e-03
## 592                              -1.065681e-02 -1.698748e-02  -5.487885e-03
## 593                              -9.263250e-03 -1.744305e-02  -4.493847e-03
## 594                              -1.184366e-02 -2.034217e-02  -7.251862e-03
## 595                              -9.130626e-03 -1.620204e-02  -1.092919e-02
## 596                              -7.364967e-03 -1.172060e-02  -8.299375e-03
## 597                              -9.896683e-03 -1.215005e-02  -5.269339e-03
## 598                              -1.395863e-02 -2.100647e-02  -6.646581e-04
## 599                              -9.051776e-03 -1.207250e-02   9.457170e-03
## 600                              -6.799761e-03 -8.500774e-03   7.954368e-03
## 601                              -8.830960e-03 -9.325819e-03   1.065790e-02
## 602                              -6.758160e-03 -5.887716e-03   2.141052e-02
## 603                              -8.516857e-03 -7.616890e-03   2.104329e-02
## 604                              -1.028101e-02 -7.077544e-03   1.829043e-02
## 605                              -1.387152e-02 -1.480041e-02   2.037388e-02
## 606                              -8.521129e-03 -1.252943e-02   2.400259e-02
## 607                              -8.038668e-03 -1.388962e-02   2.595015e-02
## 608                              -4.962912e-03 -1.039626e-02   2.774508e-02
## 609                              -1.003109e-02 -2.103173e-02   1.858817e-02
## 610                              -1.062457e-02 -2.950248e-02   1.797246e-02
## 611                              -5.579801e-03 -2.974850e-02   8.401935e-03
## 612                              -1.033549e-02 -3.750833e-02  -3.923402e-03
## 613                              -1.233818e-02 -3.465240e-02  -7.501231e-03
## 614                              -4.807365e-03 -2.956669e-02  -7.943884e-03
## 615                              -2.363475e-03 -2.418115e-02  -8.201052e-03
## 616                              -4.653121e-03 -2.605623e-02  -7.673154e-03
## 617                              -6.552649e-03 -2.576448e-02  -7.452219e-03
## 618                              -1.037917e-02 -2.476608e-02  -7.029879e-03
## 619                              -7.176980e-03 -1.774843e-02  -2.043206e-03
## 620                              -6.546924e-03 -7.578338e-03  -1.348958e-04
## 621                              -8.798095e-03 -5.218024e-03   6.637437e-03
## 622                              -6.596012e-03 -7.569487e-04   6.944722e-03
## 623                              -1.901473e-03  1.271243e-03   6.329552e-03
## 624                              -5.666585e-03  1.204912e-03   8.352598e-03
## 625                              -6.967734e-03 -5.639660e-04   1.054108e-02
## 626                              -6.952142e-03 -6.325430e-04   4.612180e-03
## 627                               7.670890e-04  4.163153e-03   7.011134e-03
## 628                               4.931673e-03  6.414656e-03   7.488817e-03
## 629                              -3.360860e-03 -5.931784e-03   2.544188e-03
## 630                              -7.159617e-03 -1.348679e-02   4.855285e-03
## 631                              -7.380794e-03 -1.935744e-02  -6.569582e-03
## 632                              -1.147853e-02 -2.864296e-02   2.030087e-03
## 633                              -1.282297e-02 -2.757549e-02   1.073364e-02
## 634                              -8.716802e-03 -2.614351e-02   1.585395e-02
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## 635                          -8.015252e-03 -2.568354e-02   1.207992e-02
## 636                          -9.936473e-03 -2.767658e-02   1.612505e-02
## 637                          -1.014999e-02 -2.741896e-02   1.287069e-02
## 638                          -9.773702e-03 -2.614290e-02   1.375142e-02
## 639                           2.735549e-03 -9.319977e-03   2.431619e-02
## 640                           1.019325e-02 -2.664565e-03   2.182270e-02
## 641                           1.134947e-02  4.245367e-03   2.886463e-02
## 642                           8.381552e-03  5.484656e-03   2.170862e-02
## 643                           5.726528e-03  6.087304e-03   1.442581e-02
## 644                           6.246287e-04  4.475138e-03   6.993342e-03
## 645                           3.785796e-03  9.649428e-03   1.336063e-02
## 646                           4.136466e-03  1.063590e-02   1.216446e-02
## 647                          -1.350654e-03  6.160119e-03   1.434796e-02
## 648                          -2.248646e-03  3.036222e-03   9.124650e-03
## 649                          -1.048276e-02 -1.112637e-02  -8.013150e-04
## 650                          -1.957872e-02 -1.909513e-02   1.424202e-03
## 651                          -1.928230e-02 -2.306308e-02   3.525242e-03
## 652                          -1.553573e-02 -2.283038e-02   1.221808e-02
## 653                          -1.285152e-02 -1.885642e-02   1.742788e-02
## 654                          -1.105778e-02 -2.182560e-02   2.089460e-02
## 655                          -1.635088e-02 -2.393717e-02   1.452741e-02
## 656                          -1.856625e-02 -2.281319e-02   1.656602e-02
## 657                          -1.332866e-02 -1.544522e-02   2.234494e-02
## 658                          -9.926841e-03 -3.143783e-03   3.917408e-02
## 659                          -3.958539e-03  4.655484e-03   4.202433e-02
## 660                           2.322057e-03  1.156058e-02   4.550087e-02
## 661                          -1.266987e-03  1.291438e-02   4.471646e-02
## 662                          -3.192482e-03  1.350855e-02   3.965585e-02
## 663                          -3.803643e-03  1.269631e-02   4.086919e-02
## 664                          -6.700343e-03  1.685033e-02   4.575934e-02
## 665                          -5.375085e-04  2.139135e-02   5.292398e-02
## 666                           5.516011e-03  2.503343e-02   5.266471e-02
## 667                           1.172352e-02  2.819029e-02   5.190406e-02
## 668                           2.073112e-02  2.688993e-02   4.532924e-02
## 669                           2.294539e-02  3.175195e-02   4.541473e-02
## 670                           2.443833e-02  3.190455e-02   4.492147e-02
## 671                           3.636658e-02  4.155152e-02   5.273863e-02
## 672                           4.735010e-02  4.948462e-02   6.362305e-02
## 673                           5.278543e-02  5.303769e-02   6.515124e-02
## 674                           6.035784e-02  5.790037e-02   6.568799e-02
## 675                           6.233791e-02  6.005455e-02   6.703293e-02
## 676                           5.998149e-02  6.184766e-02   7.028549e-02
## 677                           6.155586e-02  6.417085e-02   7.525297e-02
## 678                           5.467955e-02  6.444174e-02   7.651610e-02
## 679                           5.194597e-02  5.714291e-02   7.678420e-02
## 680                           4.686621e-02  5.409026e-02   6.904193e-02
## 681                           3.565572e-02  4.248430e-02   6.475859e-02
## 682                           2.618336e-02  3.768449e-02   5.752771e-02
## 683                           2.138378e-02  3.105236e-02   5.373585e-02
## 684                           1.233882e-02  2.370577e-02   4.436964e-02
## 685                           5.842131e-03  1.767926e-02   3.948634e-02
## 686                           5.617643e-03  1.364847e-02   3.182241e-02
## 687                          -8.372515e-04  5.326362e-03   2.420684e-02
## 688                           2.049572e-03  2.565432e-03   1.787589e-02
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## 689                          -5.251650e-04  4.435503e-03  1.269044e-02
## 690                           2.884378e-03  4.336926e-03  1.570120e-02
## 691                           1.100950e-02  1.227547e-02  1.005167e-02
## 692                           2.188198e-02  1.843358e-02  6.861989e-03
## 693                           3.145990e-02  2.627612e-02  1.654161e-02
## 694                           3.902625e-02  3.331553e-02  2.551217e-02
## 695                           4.500474e-02  4.034323e-02  2.651664e-02
## 696                           4.532048e-02  4.610773e-02  2.943069e-02
## 697                           4.941289e-02  5.620724e-02  3.923346e-02
## 698                           4.680151e-02  5.622741e-02  4.526961e-02
## 699                           4.754461e-02  5.930987e-02  4.989153e-02
## 700                           4.932249e-02  6.705521e-02  5.923825e-02
## 701                           5.441907e-02  7.174884e-02  6.903765e-02
## 702                           5.090201e-02  7.683304e-02  7.870555e-02
## 703                           4.740994e-02  7.835232e-02  7.709463e-02
## 704                           4.929442e-02  8.096408e-02  8.260205e-02
## 705                           4.909999e-02  8.108344e-02  8.593318e-02
## 706                           5.754888e-02  8.206066e-02  9.065480e-02
## 707                           5.890593e-02  7.620152e-02  8.468548e-02
## 708                           6.288800e-02  8.171127e-02  7.803339e-02
## 709                           6.974288e-02  8.622145e-02  8.641064e-02
## 710                           7.039307e-02  8.015915e-02  8.128438e-02
## 711                           7.134097e-02  8.098950e-02  7.333665e-02
## 712                           8.019342e-02  8.073408e-02  7.092742e-02
## 713                           8.431125e-02  8.303305e-02  7.340642e-02
## 714                           8.328875e-02  8.396860e-02  6.979642e-02
## 715                           8.123035e-02  8.436117e-02  6.954722e-02
## 716                           7.516388e-02  8.118495e-02  6.538697e-02
## 717                           7.561724e-02  8.691574e-02  6.786089e-02
## 718                           7.306563e-02  8.486042e-02  7.332606e-02
## 719                           7.161390e-02  8.597059e-02  6.865040e-02
## 720                           7.306181e-02  9.231181e-02  7.329942e-02
## 721                           6.940133e-02  9.154123e-02  7.675829e-02
## 722                           6.565856e-02  9.496254e-02  7.537371e-02
## 723                           6.557205e-02  1.006259e-01  7.886670e-02
## 724                           6.916892e-02  1.098017e-01  8.544891e-02
## 725                           7.272326e-02  1.149277e-01  9.134882e-02
## 726                           8.051697e-02  1.220993e-01  1.018280e-01
## 727                           8.020695e-02  1.218239e-01  9.730761e-02
## 728                           8.169325e-02  1.218411e-01  9.513693e-02
## 729                           8.115572e-02  1.213362e-01  9.109925e-02
## 730                           8.365762e-02  1.242668e-01  8.587564e-02
## 731                           8.194096e-02  1.213540e-01  7.969831e-02
## 732                           8.184140e-02  1.194003e-01  8.132101e-02
## 733                           7.872202e-02  1.133400e-01  7.262645e-02
## 734                           7.840309e-02  1.111514e-01  7.244803e-02
## 735                           7.455670e-02  1.111608e-01  7.357891e-02
## 736                           6.648663e-02  1.098780e-01  6.989279e-02
## 737                           6.272656e-02  1.087006e-01  7.166804e-02
## 738                           6.618591e-02  1.139172e-01  6.982685e-02
## 739                           6.480190e-02  1.141146e-01  7.579724e-02
## 740                           6.108263e-02  1.143507e-01  7.860161e-02
## 741                           6.309889e-02  1.161897e-01  8.482676e-02
## 742                           6.161907e-02  1.148182e-01  8.418757e-02
```

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## 743                        6.032989e-02  1.187958e-01   8.726188e-02
## 744                        5.787848e-02  1.182805e-01   8.721958e-02
## 745                        5.865616e-02  1.161292e-01   8.287463e-02
## 746                        6.500010e-02  1.147085e-01   7.641560e-02
## 747                        6.364268e-02  1.115326e-01   7.570409e-02
## 748                        5.429551e-02  1.055792e-01   7.536037e-02
## 749                        5.137864e-02  1.016918e-01   6.416612e-02
## 750                        4.469108e-02  9.033728e-02   5.611195e-02
## 751                        4.334414e-02  8.939739e-02   4.636684e-02
## 752                        4.138019e-02  8.901997e-02   4.925842e-02
## 753                        3.481442e-02  7.891410e-02   4.585699e-02
## 754                        3.596894e-02  7.819358e-02   3.649703e-02
## 755                        3.406793e-02  7.838040e-02   4.114245e-02
## 756                        2.574151e-02  7.953456e-02   4.715040e-02
## 757                        2.610151e-02  8.085122e-02   4.504308e-02
## 758                        2.849081e-02  8.346015e-02   4.980178e-02
## 759                        2.699544e-02  8.395480e-02   5.619507e-02
## 760                        3.432702e-02  9.500557e-02   5.537243e-02
## 761                        3.428291e-02  9.351530e-02   5.270915e-02
## 762                        3.341238e-02  8.988186e-02   4.864940e-02
## 763                        3.964832e-02  9.905590e-02   5.006514e-02
## 764                        3.300473e-02  9.430166e-02   5.227697e-02
## 765                        3.232299e-02  9.244652e-02   4.467902e-02
## 766                        3.573609e-02  8.925510e-02   3.700844e-02
## 767                        3.247311e-02  8.865386e-02   3.805508e-02
## 768                        3.081516e-02  8.292752e-02   2.675110e-02
## 769                        3.095412e-02  8.001181e-02   2.288798e-02
## 770                        2.430684e-02  6.899561e-02   2.442773e-02
## 771                        2.548690e-02  7.360784e-02   3.504351e-02
## 772                        2.605230e-02  7.945751e-02   3.752516e-02
## 773                        1.995549e-02  7.033065e-02   3.076273e-02
## 774                        2.008781e-02  6.594506e-02   2.688946e-02
## 775                        1.769981e-02  6.555477e-02   3.174282e-02
## 776                        8.637028e-03  6.502708e-02   3.712814e-02
## 777                        7.906593e-03  6.206769e-02   3.138959e-02
## 778                        3.571027e-03  5.888853e-02   3.598109e-02
## 779                       -3.080757e-04  5.626723e-02   2.865420e-02
## 780                        1.437326e-03  5.706708e-02   2.573616e-02
## 781                       -5.857259e-03  4.816299e-02   1.077742e-02
## 782                       -5.766545e-03  4.330396e-02   6.248764e-03
## 783                       -4.918673e-03  4.006232e-02   6.588416e-03
## 784                       -4.268168e-03  4.418116e-02   9.682842e-03
## 785                       -3.991754e-03  3.847544e-02   5.583155e-03
## 786                        6.842371e-04  3.381032e-02   5.659790e-04
## 787                       -1.821537e-05  3.202157e-02   3.028927e-03
## 788                        2.590166e-03  3.652613e-02  -3.217735e-04
## 789                        6.636388e-03  3.374370e-02   2.887588e-03
## 790                        4.928109e-03  3.382636e-02   2.222586e-03
## 791                        1.036872e-02  4.216717e-02   2.131644e-02
## 792                        1.212989e-02  4.544188e-02   1.770352e-02
## 793                        7.341738e-03  4.037346e-02   1.318267e-02
## 794                        4.327756e-03  3.269802e-02   1.185819e-02
## 795                       -5.869618e-04  3.144902e-02   5.047920e-03
## 796                        3.051344e-05  3.620757e-02   7.747560e-03
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## 797                     -2.121061e-03  3.131416e-02  -1.962835e-03
## 798                     -4.796590e-03  3.001981e-02   4.401537e-03
## 799                     -7.099694e-03  3.362235e-02   8.870867e-03
## 800                     -9.810418e-03  3.030884e-02   9.120978e-03
## 801                     -1.457155e-02  2.205223e-02  -3.191488e-03
## 802                     -2.076155e-02  1.646422e-02  -4.800329e-03
## 803                     -1.911265e-02  2.207786e-02   4.366667e-03
## 804                     -1.912808e-02  2.444619e-02  -3.196101e-03
## 805                     -1.593595e-02  2.367827e-02   2.924237e-04
## 806                     -1.731612e-02  1.615549e-02  -2.419060e-03
## 807                     -1.737526e-02  1.621301e-02   4.801310e-03
## 808                     -1.494327e-02  1.166172e-02  -2.637097e-03
## 809                     -2.137638e-02 -1.482268e-03  -1.675213e-02
## 810                     -2.334811e-02 -4.557286e-03  -1.739087e-02
## 811                     -1.998358e-02 -4.942361e-03  -1.514291e-02
## 812                     -1.268452e-02 -1.363193e-03  -6.376705e-03
## 813                     -1.300949e-02 -5.564387e-03  -1.341012e-02
## 814                     -1.248723e-02 -1.042746e-02  -7.099540e-03
## 815                     -1.358499e-02 -6.224047e-03  -2.292605e-03
## 816                     -1.519392e-02  2.530001e-03  -4.051623e-03
## 817                     -1.313899e-02  1.411008e-03  -3.027779e-03
## 818                     -1.281571e-02  2.385022e-03  -4.167566e-03
## 819                     -9.646365e-03  8.164321e-03   5.387080e-03
## 820                     -5.291605e-03  8.449575e-03   8.861811e-03
## 821                     -9.246444e-03  8.249437e-03   1.149024e-02
## 822                     -1.528315e-02  3.330825e-03   6.371905e-03
## 823                     -1.304769e-02  5.892596e-03   1.291167e-02
## 824                     -1.350730e-02  8.152231e-03   1.199571e-02
## 825                     -1.344589e-02  2.270885e-03   9.405927e-03
## 826                     -1.527356e-02 -8.360050e-03   7.351507e-03
## 827                     -1.284226e-02 -6.620658e-03   1.207074e-02
## 828                     -1.137442e-02 -7.392802e-03   1.313947e-02
## 829                     -1.542719e-02 -1.332122e-02   5.949004e-03
## 830                     -1.767354e-02 -1.755592e-02   1.868948e-03
## 831                     -1.757111e-02 -1.998341e-02  -1.494815e-03
## 832                     -1.085597e-02 -1.606519e-02   2.137970e-03
## 833                     -1.490174e-02 -2.007663e-02  -8.796977e-03
## 834                     -1.906290e-02 -2.416836e-02  -1.075143e-02
## 835                     -1.729874e-02 -1.816897e-02  -1.047113e-02
## 836                     -1.145609e-02 -9.634380e-03  -2.336859e-03
## 837                     -1.092946e-02 -1.111521e-02  -6.242815e-03
## 838                     -1.636508e-02 -1.644528e-02  -8.245048e-03
## 839                     -1.465941e-02 -1.137816e-02   2.439156e-04
## 840                     -1.567834e-02 -6.926490e-03   2.114666e-04
## 841                     -1.478800e-02 -6.071750e-03  -7.028407e-04
## 842                     -1.991589e-02 -9.969214e-03  -9.968421e-04
## 843                     -1.414628e-02 -4.589698e-03   3.679971e-03
## 844                     -9.008311e-03 -1.948153e-03   5.953477e-03
## 845                     -9.111279e-03 -2.809192e-03   7.882983e-03
## 846                     -7.970148e-03 -7.574530e-03   1.095665e-02
## 847                     -8.341641e-03 -6.714616e-03   1.625616e-02
## 848                     -1.912810e-03 -2.119401e-03   2.130625e-02
## 849                      2.641628e-04 -7.638123e-03   1.923265e-02
## 850                      1.794022e-03 -1.403566e-02   1.521103e-02
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## 851                          4.552525e-03 -1.608504e-02   1.936471e-02
## 852                          8.934240e-03 -1.344837e-02   2.240217e-02
## 853                          1.951464e-03 -2.056809e-02   2.098821e-02
## 854                         -4.003862e-03 -2.562891e-02   1.886026e-02
## 855                         -8.581914e-03 -2.743760e-02   1.395958e-02
## 856                         -1.262392e-02 -2.847510e-02   9.291608e-03
## 857                         -2.008513e-02 -3.667693e-02  -1.176686e-03
## 858                         -2.741289e-02 -4.622766e-02  -8.147380e-03
## 859                         -2.739670e-02 -4.331826e-02  -7.795570e-03
## 860                         -2.604059e-02 -3.913807e-02  -5.411198e-03
## 861                         -2.947272e-02 -3.869304e-02  -1.704106e-03
## 862                         -3.120807e-02 -3.995392e-02  -5.899310e-03
## 863                         -2.724523e-02 -3.715765e-02  -1.625998e-03
## 864                         -2.471354e-02 -3.032870e-02   4.075178e-04
## 865                         -2.045805e-02 -3.014064e-02   1.605493e-03
## 866                         -1.969655e-02 -3.092862e-02   1.124732e-03
## 867                         -1.322338e-02 -2.128370e-02   1.018864e-02
## 868                         -5.271027e-03 -1.165625e-02   1.633481e-02
## 869                         -6.499997e-03 -1.580423e-02   8.720742e-03
## 870                         -7.102662e-03 -2.008859e-02   1.150710e-02
## 871                         -5.418187e-03 -2.123288e-02   5.358845e-03
## 872                         -4.722284e-03 -1.987240e-02   5.859071e-03
## 873                         -9.698237e-03 -2.093056e-02  -6.739997e-03
## 874                         -1.535718e-03  7.753013e-03   1.449367e-03
## 875                          1.570142e-03 -1.966514e-04  -8.644592e-03
## 876                          1.056527e-03 -3.269788e-03   2.923441e-03
## 877                          3.107100e-03  1.442957e-03   2.031436e-03
## 878                          9.737700e-03  3.091350e-03   5.280798e-03
## 879                          1.461630e-02  8.156421e-03   3.154001e-03
## 880                          7.481172e-03  3.556429e-03   8.623237e-03
## 881                          4.109758e-04  6.949080e-03  -1.471643e-03
## 882                          8.604284e-03  1.678218e-02  -8.960804e-04
## 883                          6.589954e-03  1.393412e-02  -5.908977e-04
## 884                          3.010248e-04  1.528250e-02  -1.639955e-02
## 885                         -4.225532e-03  1.467465e-02  -8.650272e-03
## 886                          1.010857e-03  2.287511e-02  -2.520368e-02
## 887                         -1.436685e-02  1.144012e-02  -2.290397e-02
## 888                         -2.431163e-02  1.656717e-02  -9.672678e-03
## 889                         -3.067852e-02  1.621643e-02  -1.073277e-02
## 890                         -2.914170e-02  1.643033e-02  -2.457399e-02
## 891                         -1.737083e-02  1.783787e-02  -1.587046e-02
## 892                         -2.969551e-02 -1.430709e-03  -2.062644e-02
## 893                         -2.855105e-02 -1.224412e-02  -1.661089e-02
## 894                         -2.103092e-02 -5.471693e-03  -8.143190e-03
## 895                         -1.814806e-02 -5.196672e-03  -9.691294e-03
## 896                         -2.568838e-02 -7.538227e-03  -8.385296e-03
## 897                         -1.527094e-02 -5.338969e-03  -1.909115e-02
## 898                         -7.057573e-03 -1.117617e-02  -3.477358e-02
## 899                          5.828193e-03 -3.639384e-03  -3.056284e-02
## 900                          7.609615e-03 -6.120890e-03  -2.103923e-02
## 901                          1.254527e-03 -2.558318e-03  -1.620854e-02
## 902                          1.433626e-02  1.839246e-02  -6.117503e-03
## 903                          1.169605e-02  2.942604e-02  -9.820874e-03
## 904                          2.584373e-03  2.169757e-02  -1.841359e-03
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## 906                        9.914230e-03  2.561080e-02  -2.316625e-04
## 907                        2.347136e-03  2.224870e-02   1.641645e-02
## 908                       -1.126277e-02  2.304405e-02   2.345983e-02
## 909                       -1.386453e-02  2.139674e-02   2.124278e-02
## 910                       -1.697441e-02  2.425593e-02   1.731125e-02
## 911                       -1.385262e-02  1.595050e-02   4.272536e-03
## 912                       -1.861822e-02  4.583172e-03  -9.301148e-03
## 913                       -1.672088e-02  1.031251e-03  -8.204154e-03
## 914                       -1.051996e-02  7.444967e-03  -1.192638e-02
## 915                       -4.865397e-03  1.241322e-02  -7.198443e-03
## 916                       -6.890849e-03  3.796650e-03  -2.086567e-02
## 917                       -1.578236e-02 -8.129735e-03  -4.042278e-02
## 918                       -7.640959e-03 -7.681565e-03  -4.832439e-02
## 919                       -7.467272e-03 -1.086919e-02  -4.667010e-02
## 920                       -5.965065e-03 -1.704973e-02  -4.921178e-02
## 921                       -7.957631e-03 -8.632593e-03  -3.434664e-02
## 922                       -5.468143e-04 -2.590275e-03  -1.973369e-02
## 923                       -3.667540e-03  4.966843e-03  -1.023341e-02
## 924                       -5.830396e-03  3.513951e-03  -1.346145e-02
## 925                       -1.432597e-02  4.975991e-03  -3.502162e-03
## 926                       -1.402068e-02  1.080375e-02   3.274567e-03
## 927                       -1.054660e-02  2.308102e-02   1.227326e-02
## 928                       -1.319010e-02  1.718512e-02   1.270961e-02
## 929                       -1.680102e-02  1.556666e-02   1.701625e-02
## 930                       -1.764787e-02  2.273062e-02   2.200982e-02
## 931                       -1.193116e-02  2.009795e-02   2.878915e-02
## 932                       -7.874125e-03  1.482840e-02   1.749402e-02
## 933                       -9.887124e-03  8.346011e-03   9.037144e-03
## 934                       -4.458076e-03  8.952084e-03   9.068668e-03
## 935                        3.723767e-03  5.599468e-03   1.007842e-03
## 936                        1.380551e-03  6.322275e-03   1.089836e-02
## 937                        6.645878e-03  4.398454e-03   7.848907e-03
## 938                        1.038902e-02  8.933445e-03   9.966950e-03
## 939                        1.550696e-02  7.509801e-03   4.612071e-03
## 940                        1.502915e-02 -3.994545e-03  -9.718760e-04
## 941                        1.119268e-02 -2.472825e-03  -6.467206e-03
## 942                        5.777554e-03 -3.517973e-03  -9.441604e-03
## 943                        6.753635e-03 -1.409344e-03   4.529977e-04
## 944                        4.765366e-03 -1.003244e-03  -1.046925e-02
## 945                        2.243992e-03  6.629813e-03  -1.031560e-03
## 946                       -6.605907e-04  1.693015e-03  -2.372575e-02
## 947                        6.596108e-04  1.825522e-03  -2.744695e-02
## 948                       -5.407394e-03 -1.682457e-03  -3.111393e-02
## 949                       -9.402689e-03  3.435969e-03  -2.224720e-02
## 950                       -1.274806e-02  1.169906e-02  -1.688994e-02
## 951                       -1.500883e-02  9.969641e-03  -2.455695e-02
## 952                       -3.095670e-02 -8.246380e-03  -2.606563e-02
## 953                       -3.310854e-02 -1.125258e-02  -2.949345e-02
## 954                       -3.309745e-02 -8.955228e-03  -2.065957e-02
## 955                       -4.058553e-02 -1.911592e-02  -2.954293e-02
## 956                       -2.844718e-02 -3.804969e-03  -2.841907e-02
## 957                       -2.420316e-02 -6.720942e-04  -1.348175e-02
## 958                       -1.965876e-02  7.602708e-03  -1.015839e-02
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## 960                         3.495106e-03  1.115572e-02  -6.897806e-03
## 961                         9.366385e-03  1.180630e-02  -2.034094e-03
## 962                         3.615592e-02  4.092818e-02   9.861197e-03
## 963                         4.571913e-02  4.331181e-02   2.934004e-03
## 964                         4.338167e-02  3.650925e-02  -6.941673e-03
## 965                         3.873599e-02  3.570539e-02  -5.312908e-03
## 966                         2.897580e-02  1.757967e-02   3.321714e-03
## 967                         3.707223e-02  2.778762e-02  -3.353672e-04
## 968                         2.870330e-02  8.790938e-03  -5.371875e-03
## 969                         1.681725e-02  6.812963e-03  -1.227612e-02
## 970                         4.739415e-03 -5.943148e-03  -1.597508e-02
## 971                        -1.028002e-02 -1.329567e-02  -3.538588e-02
## 972                        -1.887154e-02 -2.143268e-02  -4.333792e-02
## 973                        -2.399384e-02 -1.822767e-02  -4.177075e-02
## 974                        -2.609456e-02 -1.667186e-02  -4.392058e-02
## 975                        -1.536290e-02 -2.264463e-02  -4.879230e-02
## 976                        -7.988750e-03 -1.017401e-02  -3.980657e-02
## 977                        -1.744580e-02 -1.865822e-02  -5.605714e-02
## 978                        -1.430728e-02 -9.575678e-03  -5.297102e-02
## 979                        -9.383341e-03 -1.055275e-02  -4.901523e-02
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## 981                         3.110648e-03  2.221481e-03  -3.364889e-02
## 982                         5.924477e-03  6.959464e-03  -3.498410e-02
## 983                        -9.660925e-03 -1.173404e-02  -5.771183e-02
## 984                        -1.099278e-02 -9.267896e-03  -6.247376e-02
## 985                        -1.125534e-02  2.947304e-03  -4.217453e-02
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## 988                        -9.607921e-03  1.585204e-02  -4.011239e-02
## 989                        -1.286401e-02  2.140238e-02  -4.181778e-02
## 990                        -1.515474e-02  1.462938e-02  -3.165263e-02
## 991                        -1.339109e-02  2.007061e-02  -3.199080e-02
## 992                         1.220030e-02  3.864474e-02   1.437201e-02
## 993                         2.263216e-02  5.186558e-02   3.186422e-02
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## 995                         2.803276e-02  4.377804e-02   2.352744e-02
## 996                         2.585005e-02  4.540776e-02   2.458342e-02
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## 998                         2.163785e-02  3.678226e-02   2.819291e-02
## 999                         2.490782e-02  3.932278e-02   2.641224e-02
## 1000                        2.819924e-02  4.331161e-02   1.347718e-02
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## 1002                        1.617045e-02  2.777173e-02  -2.959980e-02
## 1003                        1.707526e-02  2.600819e-02  -3.824308e-02
## 1004                        2.117939e-02  2.731574e-02  -3.061351e-02
## 1005                        2.183600e-02  3.581381e-02  -3.026397e-02
## 1006                        2.811162e-02  2.747138e-02  -2.834827e-02
## 1007                        2.111956e-02  2.026087e-02  -4.340000e-02
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## 1010                        2.380552e-02  1.831094e-02  -2.458826e-02
## 1011                        1.972943e-02  2.122739e-02  -2.105757e-02
## 1012                        3.033217e-02  1.595222e-02  -2.183269e-02
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## 1015                          3.647446e-02  1.293180e-02  -4.182521e-03
## 1016                          3.543407e-02  2.100050e-02  -1.177312e-02
## 1017                          4.117961e-02  2.547398e-02  -1.886279e-02
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## 1021                          3.356298e-02 -8.228749e-03  -4.109513e-02
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## 1032                          3.602090e-02  9.650355e-03  -1.447233e-02
## 1033                          3.301387e-02  2.565927e-03  -2.335234e-02
## 1034                          3.140241e-02  3.477970e-03  -2.570251e-02
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## 1062                          9.856441e-03 -1.063695e-02   6.313901e-03
## 1063                          2.361298e-02  6.060074e-03   5.858151e-03
## 1064                          2.217952e-02 -8.268820e-03  -7.722307e-03
## 1065                          1.558710e-02 -2.571485e-02  -6.646067e-03
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## 1069                      5.278142e-04 -3.197955e-02  -1.326665e-02
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## 1076                     -1.377244e-02 -2.241954e-02  -3.369765e-02
## 1077                     -1.208813e-02 -1.822925e-02  -3.819259e-02
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## 1079                     -4.618122e-03 -1.499209e-02  -6.302736e-02
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## 1081                     -9.733787e-03 -2.177751e-02  -8.709491e-02
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## 1087                      1.062456e-02 -1.216079e-02  -5.322485e-02
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## 1090                      1.118523e-02 -9.834344e-03  -3.057526e-02
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## 1095                     -1.157509e-02 -2.128627e-02  -2.905512e-02
## 1096                     -4.759491e-03 -2.442790e-02  -2.542456e-02
## 1097                     -5.287638e-03 -2.292789e-02  -1.892049e-02
## 1098                     -1.168027e-03 -2.106007e-02  -3.137310e-02
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## 1101                     -1.077316e-02 -1.385577e-02  -2.180422e-02
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## 1104                      1.218762e-02 -4.190019e-03  -1.643791e-02
## 1105                      4.774581e-03 -8.113704e-03  -2.688699e-02
## 1106                     -4.316152e-03 -8.036611e-03  -3.243596e-02
## 1107                     -8.941937e-03 -8.652496e-03  -4.582848e-02
## 1108                     -1.331617e-02 -6.656387e-03  -2.208815e-02
## 1109                     -2.596008e-02 -1.787426e-02  -1.477368e-02
## 1110                     -1.733970e-02 -2.017000e-02  -1.030294e-02
## 1111                     -2.386684e-02 -2.743620e-02  -1.602979e-02
## 1112                     -3.005028e-02 -3.889443e-02  -5.198946e-02
## 1113                     -3.644916e-02 -3.562699e-02  -4.451361e-02
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## 1126                          2.879886e-02  1.004961e-02   1.972204e-02
## 1127                          2.598794e-02  1.396185e-02   1.032323e-02
## 1128                          2.970656e-02  1.388440e-02   2.426792e-02
## 1129                          2.199024e-02  7.213107e-03   2.709955e-02
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## 1136                         -3.111723e-02 -2.300696e-02  -3.186234e-02
## 1137                         -2.120957e-02 -1.916440e-02  -1.418140e-02
## 1138                         -1.609202e-02 -1.116389e-02  -1.341394e-02
## 1139                         -1.050289e-02 -7.271317e-03  -1.402076e-02
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## 1144                          2.864163e-02  3.170526e-02   4.532203e-02
## 1145                          3.104156e-02  3.405268e-02   5.522291e-02
## 1146                          2.951233e-02  3.416142e-02   4.267429e-02
## 1147                          1.183920e-02  1.995463e-02   1.878268e-02
## 1148                          7.310034e-03  1.119390e-02   1.418245e-02
## 1149                          4.726409e-03  8.008521e-03   1.214627e-02
## 1150                         -7.990454e-04  6.823159e-03  -4.340575e-03
## 1151                         -1.136117e-02  4.873793e-03  -7.551541e-03
## 1152                         -2.271438e-02 -1.240831e-02  -3.825020e-03
## 1153                         -2.551495e-02 -6.228695e-03   1.311556e-03
## 1154                         -3.109613e-02 -1.666620e-02  -8.607911e-03
## 1155                         -3.565234e-02 -2.802068e-02  -2.538945e-02
## 1156                         -3.433220e-02 -2.973396e-02  -2.071920e-02
## 1157                         -2.267367e-02 -2.325034e-02  -3.994582e-03
## 1158                         -2.054927e-02 -1.939556e-02  -8.540063e-03
## 1159                         -1.937824e-02 -1.706254e-02  -8.770830e-03
## 1160                         -1.437209e-02 -1.994013e-02   1.066486e-02
## 1161                          1.580448e-03 -1.784257e-02   1.159451e-02
## 1162                          1.300535e-02  1.625841e-03   8.630695e-03
## 1163                          1.612871e-02 -4.555243e-03   5.620781e-03
## 1164                          1.432142e-02  9.606677e-04   1.128949e-02
##     Right.Putamen  Left.Putamen Right.Caudate Left.Accumbens
## 1   -3.092505e-03 -1.115148e-03 -2.233452e-02    4.551691e-03
## 2   -6.517176e-03 -4.039532e-03 -2.937551e-02    4.743273e-04
## 3   -2.058059e-04 -1.543777e-03 -2.499893e-02    4.193925e-03
## 4    5.331995e-03  2.166596e-03 -1.899753e-02    1.260414e-03
## 5    3.468652e-04 -2.084527e-03 -1.731046e-02    8.924157e-04
## 6    1.794641e-03 -1.190246e-03 -1.577875e-02    2.967291e-03
## 7    2.778190e-03  3.470492e-03 -1.445262e-02    1.718519e-03
## 8    3.040480e-03 -2.565205e-03 -1.274967e-02    7.093023e-04
## 9    8.972773e-04 -2.302991e-03 -1.917034e-02   -9.922391e-03
```

```
## 10      -4.446823e-03  -6.503946e-03  -2.656803e-02   -1.753432e-02
## 11      -5.073144e-03  -9.693584e-03  -2.916719e-02   -2.221422e-02
## 12      -8.109051e-03  -9.921823e-03  -3.005836e-02   -2.682791e-02
## 13      -1.407992e-02  -1.150348e-02  -3.218405e-02   -3.185198e-02
## 14      -1.942559e-02  -1.567792e-02  -3.548202e-02   -3.351871e-02
## 15      -1.458003e-02  -1.296816e-02  -3.500201e-02   -2.980757e-02
## 16      -1.755505e-02  -1.456814e-02  -3.538171e-02   -2.598202e-02
## 17      -1.702053e-02  -1.637523e-02  -3.540597e-02   -2.116327e-02
## 18      -1.754839e-02  -1.488947e-02  -3.557886e-02   -1.619825e-02
## 19      -1.133143e-02  -4.428795e-03  -2.610594e-02   -4.062770e-03
## 20       1.039398e-03   8.546879e-03  -1.251745e-02    1.558905e-03
## 21      -1.484058e-03   1.128201e-02  -1.151877e-02    4.150281e-03
## 22       5.429863e-04   1.054892e-02  -1.433506e-02    4.344165e-03
## 23       3.409281e-03   1.210917e-02  -1.716567e-02    1.301473e-02
## 24       8.188230e-03   1.398001e-02  -1.365642e-02    1.797273e-02
## 25       7.759495e-03   1.233908e-02  -1.487251e-02    1.928540e-02
## 26       9.407302e-03   1.456687e-02  -1.123613e-02    1.405901e-02
## 27       7.699588e-03   1.585017e-02  -1.171111e-02    4.148285e-03
## 28       9.108010e-03   1.713146e-02  -1.246676e-02   -3.892214e-03
## 29       4.594868e-03   7.757578e-03  -2.227525e-02   -1.819483e-02
## 30      -5.170498e-03  -2.272229e-03  -3.426296e-02   -2.602913e-02
## 31      -1.767913e-06  -8.227906e-04  -3.428731e-02   -2.323581e-02
## 32       1.383408e-03  -4.963960e-04  -3.072508e-02   -2.469951e-02
## 33      -9.136806e-04  -5.254746e-03  -3.215658e-02   -3.069436e-02
## 34      -2.863421e-03  -7.238608e-03  -3.955715e-02   -3.349883e-02
## 35      -5.880894e-03  -8.283496e-03  -4.154644e-02   -3.774737e-02
## 36      -8.876625e-03  -1.194164e-02  -4.842846e-02   -3.209790e-02
## 37      -8.559528e-03  -1.577022e-02  -4.974565e-02   -3.088689e-02
## 38      -1.106081e-02  -2.023235e-02  -4.818095e-02   -2.509850e-02
## 39      -6.355151e-03  -1.508293e-02  -3.623754e-02   -8.370793e-03
## 40      -7.224400e-03  -1.900299e-02  -3.005025e-02   -3.756277e-03
## 41      -8.640254e-03  -1.856221e-02  -3.250737e-02   -1.306369e-03
## 42      -9.110293e-03  -1.930403e-02  -3.522034e-02   -1.444277e-03
## 43      -3.410649e-03  -1.236934e-02  -3.283369e-02   -8.451713e-04
## 44      -2.995321e-03  -1.079828e-02  -2.750055e-02   -3.493199e-05
## 45      -4.297043e-04  -7.916616e-03  -2.499687e-02    3.021181e-03
## 46       1.345834e-03  -7.040410e-03  -2.337427e-02    3.145251e-03
## 47      -6.794757e-03  -1.040226e-02  -3.168064e-02   -8.329816e-03
## 48      -5.216014e-03  -6.376422e-03  -3.159370e-02   -1.221228e-02
## 49      -1.766587e-02  -1.583183e-02  -4.867162e-02   -3.005456e-02
## 50      -1.831804e-02  -1.057524e-02  -5.452705e-02   -2.849347e-02
## 51      -1.573774e-02  -8.266576e-03  -4.840841e-02   -2.136941e-02
## 52      -1.123032e-02  -5.315490e-03  -4.268937e-02   -1.437661e-02
## 53      -1.539012e-02  -9.837641e-03  -4.385038e-02   -1.800860e-02
## 54      -1.796641e-02  -1.270588e-02  -4.403787e-02   -1.647885e-02
## 55      -2.144103e-02  -1.402758e-02  -4.763285e-02   -1.266113e-02
## 56      -1.758629e-02  -6.533042e-03  -4.214243e-02   -1.165474e-02
## 57      -1.018415e-02  -6.171774e-04  -3.553791e-02    8.024164e-04
## 58      -1.164075e-02  -2.244883e-03  -3.550816e-02    5.874958e-03
## 59      -1.075141e-02  -1.027964e-03  -2.348750e-02    1.416784e-02
## 60      -1.039299e-02  -6.488375e-03  -2.361521e-02    1.004083e-03
## 61      -1.645197e-02  -1.214233e-02  -2.890433e-02   -1.114802e-02
## 62      -2.166530e-02  -1.641904e-02  -3.242478e-02   -1.564144e-02
## 63      -1.926176e-02  -1.578265e-02  -3.383748e-02   -1.154105e-02
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## 64    -2.245816e-02 -1.676225e-02 -3.785970e-02  -1.400581e-02
## 65    -2.615884e-02 -2.195309e-02 -3.643720e-02  -2.144263e-02
## 66    -2.912454e-02 -2.845071e-02 -4.314122e-02  -3.074986e-02
## 67    -3.224256e-02 -3.297478e-02 -4.535246e-02  -3.558174e-02
## 68    -3.501913e-02 -3.510373e-02 -5.134874e-02  -4.006635e-02
## 69    -3.693225e-02 -3.783421e-02 -6.898374e-02  -4.580468e-02
## 70    -4.287594e-02 -3.744752e-02 -7.402931e-02  -3.948955e-02
## 71    -4.270619e-02 -3.826966e-02 -7.323460e-02  -2.799399e-02
## 72    -3.951467e-02 -3.385785e-02 -6.810366e-02  -1.863202e-02
## 73    -4.454720e-02 -3.535900e-02 -6.637305e-02  -1.989856e-02
## 74    -4.138648e-02 -3.154806e-02 -6.042497e-02  -1.667122e-02
## 75    -3.327154e-02 -2.480096e-02 -5.799550e-02  -8.851179e-03
## 76    -3.023063e-02 -2.133640e-02 -4.830038e-02  -3.640355e-03
## 77    -2.145262e-02 -1.266971e-02 -4.081427e-02   2.994459e-03
## 78    -1.736814e-02 -5.273008e-03 -3.354742e-02   9.498550e-03
## 79    -7.789788e-03 -1.454577e-03 -1.912839e-02   1.942537e-02
## 80    -5.433470e-03 -3.199828e-03 -1.971319e-02   1.612241e-02
## 81    -2.482927e-03 -3.013730e-04 -2.351047e-02   5.684817e-03
## 82    -5.630660e-03 -2.565138e-03 -2.729453e-02  -3.177582e-03
## 83    -2.962529e-03 -8.955587e-04 -2.795838e-02  -5.243035e-03
## 84    -3.391823e-03 -2.281686e-03 -3.077612e-02  -1.020174e-02
## 85    -1.075649e-02 -5.683284e-03 -3.498060e-02  -1.372612e-02
## 86    -1.324167e-02 -7.605263e-03 -4.270348e-02  -1.051599e-02
## 87    -2.773067e-02 -1.913013e-02 -5.464354e-02  -2.062924e-02
## 88    -3.439997e-02 -2.755819e-02 -6.271026e-02  -3.000572e-02
## 89    -3.570286e-02 -2.452131e-02 -7.067598e-02  -3.637656e-02
## 90    -4.023117e-02 -2.372125e-02 -7.095277e-02  -3.268794e-02
## 91    -4.524026e-02 -2.337300e-02 -6.503307e-02  -2.366641e-02
## 92    -4.361343e-02 -2.330413e-02 -6.542827e-02  -3.031145e-02
## 93    -4.673566e-02 -2.703541e-02 -6.780962e-02  -3.359650e-02
## 94    -4.700874e-02 -2.777525e-02 -6.952207e-02  -2.952438e-02
## 95    -4.695870e-02 -3.003735e-02 -7.137738e-02  -3.644354e-02
## 96    -5.152168e-02 -3.327872e-02 -6.879920e-02  -4.177994e-02
## 97    -4.930880e-02 -3.278387e-02 -7.258723e-02  -4.079278e-02
## 98    -5.338820e-02 -3.823719e-02 -7.596770e-02  -4.160515e-02
## 99    -4.910751e-02 -3.795600e-02 -6.945005e-02  -3.496446e-02
## 100   -6.004095e-02 -4.744897e-02 -8.321101e-02  -5.542411e-02
## 101   -6.163631e-02 -5.258235e-02 -9.249198e-02  -6.643534e-02
## 102   -6.453539e-02 -5.302869e-02 -9.487317e-02  -6.477477e-02
## 103   -6.489686e-02 -5.163051e-02 -9.438365e-02  -5.995143e-02
## 104   -6.242249e-02 -4.780852e-02 -9.755516e-02  -6.013907e-02
## 105   -5.865312e-02 -4.366791e-02 -9.313549e-02  -5.874978e-02
## 106   -5.100054e-02 -3.511756e-02 -9.028224e-02  -5.528518e-02
## 107   -5.032492e-02 -2.934196e-02 -8.051074e-02  -6.141394e-02
## 108   -3.908110e-02 -1.925376e-02 -7.295001e-02  -6.547053e-02
## 109   -3.271016e-02 -7.362117e-03 -6.005695e-02  -6.079753e-02
## 110   -1.069936e-02  1.311288e-02 -3.272394e-02  -3.473054e-02
## 111    1.502584e-03  3.048619e-02 -1.377984e-02  -1.965882e-02
## 112    1.250865e-02  3.682553e-02 -5.918996e-04  -5.900332e-03
## 113    2.631684e-02  4.634465e-02  1.610711e-02   1.816856e-04
## 114    3.539121e-02  5.327728e-02  3.046236e-02   3.919834e-03
## 115    4.527993e-02  6.346902e-02  4.352343e-02   1.321680e-02
## 116    5.000725e-02  6.483296e-02  5.593396e-02   1.554498e-02
## 117    6.499042e-02  7.492871e-02  6.939249e-02   3.694065e-02
```

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## 118   7.223620e-02   8.621676e-02   8.299619e-02    5.357790e-02
## 119   8.424335e-02   9.654370e-02   1.028232e-01    7.277271e-02
## 120   8.783942e-02   9.870613e-02   1.079665e-01    7.125553e-02
## 121   8.848275e-02   9.676993e-02   1.125269e-01    7.643436e-02
## 122   8.929459e-02   9.635307e-02   1.166042e-01    7.627547e-02
## 123   8.620002e-02   9.667211e-02   1.121557e-01    7.917487e-02
## 124   8.654983e-02   9.921307e-02   1.187949e-01    8.449777e-02
## 125   8.690462e-02   9.553767e-02   1.159098e-01    8.390172e-02
## 126   9.231234e-02   1.012899e-01   1.221213e-01    8.750530e-02
## 127   8.349914e-02   9.350463e-02   1.219726e-01    7.794248e-02
## 128   7.742064e-02   8.656758e-02   1.194596e-01    7.114844e-02
## 129   5.832418e-02   6.370565e-02   1.029480e-01    4.751430e-02
## 130   5.614471e-02   6.045965e-02   1.062348e-01    5.084704e-02
## 131   4.866457e-02   5.239500e-02   1.049851e-01    3.460549e-02
## 132   4.388350e-02   4.899325e-02   1.043069e-01    3.280994e-02
## 133   4.371969e-02   4.780436e-02   1.106982e-01    2.708674e-02
## 134   3.404462e-02   3.650354e-02   1.066714e-01    1.234615e-02
## 135   2.361982e-02   2.831286e-02   1.059498e-01    3.894467e-03
## 136   8.889387e-03   1.414732e-02   9.644021e-02   -1.066507e-02
## 137   4.125966e-03   7.738556e-03   9.447494e-02   -1.557492e-02
## 138   2.353115e-03   3.096532e-03   9.264287e-02   -1.998513e-02
## 139   8.678977e-03   1.089947e-02   1.052920e-01   -1.644225e-02
## 140  -2.971595e-03   4.828109e-03   9.486487e-02   -3.209769e-02
## 141  -4.619301e-03   2.560301e-03   9.754132e-02   -2.798954e-02
## 142  -9.289711e-03  -7.691352e-05   9.450062e-02   -3.155684e-02
## 143  -1.360767e-02  -3.249929e-03   8.995284e-02   -3.075064e-02
## 144  -1.870928e-02  -6.840599e-03   8.847965e-02   -3.145345e-02
## 145  -2.108960e-02  -8.348854e-03   8.749349e-02   -3.515803e-02
## 146  -1.672747e-02  -9.816506e-03   8.991140e-02   -3.062498e-02
## 147  -2.180190e-02  -1.168728e-02   9.086719e-02   -3.802188e-02
## 148  -2.941676e-02  -1.758879e-02   8.675624e-02   -3.400546e-02
## 149  -4.826811e-02  -3.827453e-02   6.147804e-02   -5.547954e-02
## 150  -4.723762e-02  -4.436121e-02   6.144187e-02   -5.279686e-02
## 151  -5.040677e-02  -4.661369e-02   5.171573e-02   -6.229183e-02
## 152  -5.480424e-02  -5.000125e-02   4.855922e-02   -6.614134e-02
## 153  -5.830818e-02  -5.594669e-02   4.208220e-02   -7.466555e-02
## 154  -6.341064e-02  -6.049725e-02   3.209792e-02   -7.556155e-02
## 155  -7.231866e-02  -6.731097e-02   2.519984e-02   -7.438558e-02
## 156  -8.476985e-02  -7.112027e-02   1.429380e-02   -8.214629e-02
## 157  -8.592529e-02  -7.733200e-02   7.049748e-03   -7.766843e-02
## 158  -8.750967e-02  -7.899014e-02   7.706156e-04   -8.432255e-02
## 159  -7.771142e-02  -7.019412e-02   4.378971e-03   -7.172671e-02
## 160  -8.236132e-02  -7.444695e-02  -3.228135e-03   -7.608491e-02
## 161  -8.213886e-02  -7.874071e-02  -6.815279e-03   -7.757942e-02
## 162  -8.226063e-02  -7.974780e-02  -1.086304e-02   -7.980163e-02
## 163  -8.326161e-02  -7.809327e-02  -1.145918e-02   -7.986577e-02
## 164  -7.890426e-02  -7.826037e-02  -1.056813e-02   -8.059319e-02
## 165  -7.478657e-02  -7.501146e-02  -1.132977e-02   -8.083842e-02
## 166  -7.141517e-02  -7.511341e-02  -9.881346e-03   -7.906445e-02
## 167  -7.502946e-02  -7.115073e-02  -9.712754e-03   -8.484988e-02
## 168  -7.489231e-02  -7.273532e-02  -7.429971e-03   -8.998848e-02
## 169  -9.253930e-02  -8.943385e-02  -2.712059e-02   -1.186207e-01
## 170  -8.932517e-02  -8.729693e-02  -2.412185e-02   -1.167013e-01
## 171  -9.496187e-02  -8.722399e-02  -2.944232e-02   -1.220573e-01
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## 172  -8.874305e-02  -8.223037e-02  -2.523405e-02  -1.159923e-01
## 173  -9.265525e-02  -8.744439e-02  -3.405860e-02  -1.207356e-01
## 174  -9.614848e-02  -9.062058e-02  -4.192962e-02  -1.264132e-01
## 175  -9.420010e-02  -9.306204e-02  -4.240348e-02  -1.328925e-01
## 176  -9.376857e-02  -9.195215e-02  -5.198287e-02  -1.283848e-01
## 177  -9.272790e-02  -9.387592e-02  -5.883408e-02  -1.368032e-01
## 178  -8.838613e-02  -9.120220e-02  -5.639132e-02  -1.303241e-01
## 179  -6.835361e-02  -7.066905e-02  -3.976908e-02  -1.037052e-01
## 180  -7.742536e-02  -7.523240e-02  -4.957200e-02  -1.115096e-01
## 181  -6.500853e-02  -6.694531e-02  -3.622846e-02  -1.018264e-01
## 182  -6.991599e-02  -7.166359e-02  -3.961960e-02  -1.088250e-01
## 183  -6.682245e-02  -6.709061e-02  -3.259256e-02  -9.862296e-02
## 184  -6.074633e-02  -6.171914e-02  -2.913080e-02  -9.422699e-02
## 185  -5.786574e-02  -5.664190e-02  -2.949917e-02  -8.392398e-02
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## 197  -5.720424e-02  -5.259638e-02  -5.398731e-02  -9.013243e-02
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## 221  -1.541108e-02  -1.661545e-02  -4.945643e-02  -6.039321e-02
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## 292  -2.781327e-03  -8.088880e-04   9.302499e-03  -6.204919e-03
## 293  -2.356559e-03  -1.310989e-03   9.603651e-03  -6.535374e-03
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## 381    1.970293e-02   1.576862e-02   1.735403e-02    4.244803e-03
## 382    1.364722e-02   1.185502e-02   1.241250e-02   -4.764484e-03
## 383    1.265712e-02   1.104514e-02   1.425001e-02   -3.008642e-03
## 384    9.701354e-03   9.624783e-03   1.323792e-02    1.807735e-04
## 385    8.245973e-03   8.342613e-03   7.801825e-03    2.270663e-03
## 386    7.858093e-03   6.257431e-03   3.904650e-03    8.979377e-04
## 387    3.612515e-03   3.167907e-03  -2.572484e-03   -1.439980e-03
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## 388   -6.830097e-04  -2.346722e-03  -8.706477e-03   -9.682345e-03
## 389   -5.085586e-03  -4.969409e-03  -1.020050e-02   -1.059586e-02
## 390   -8.881866e-03  -7.902460e-03  -1.083596e-02   -8.944859e-03
## 391   -1.172892e-02  -1.046264e-02  -1.095528e-02   -1.233982e-02
## 392   -1.097498e-02  -1.024694e-02  -9.080709e-03   -8.363593e-03
## 393   -1.233153e-02  -1.222336e-02  -1.231311e-02   -1.153752e-02
## 394   -1.156090e-02  -1.378732e-02  -1.468910e-02   -1.593334e-02
## 395   -1.276356e-02  -1.442211e-02  -1.612013e-02   -1.762073e-02
## 396   -1.319751e-02  -1.322321e-02  -1.494621e-02   -1.555904e-02
## 397   -1.105244e-02  -1.266277e-02  -1.196247e-02   -1.543064e-02
## 398   -8.471708e-03  -9.664808e-03  -7.992919e-03   -1.312866e-02
## 399   -6.224656e-03  -8.932966e-03  -7.427637e-03   -1.384616e-02
## 400   -1.282592e-03  -5.136174e-03  -7.293317e-03   -1.689114e-02
## 401    2.337142e-03  -1.714198e-03  -7.200443e-03   -1.139684e-02
## 402    2.978172e-03  -2.073210e-04  -8.499484e-03   -1.481411e-02
## 403    6.042447e-03   3.168667e-03  -6.007077e-03   -1.365386e-02
## 404    8.507990e-03   7.811426e-03  -2.850778e-03   -9.635037e-03
## 405    1.176982e-02   1.147355e-02   3.898665e-04   -9.088886e-03
## 406    1.368156e-02   1.194165e-02   7.798117e-04   -1.065901e-02
## 407    1.500142e-02   1.415501e-02   1.054873e-03   -1.118206e-02
## 408    1.581811e-02   1.356790e-02  -5.141086e-04   -1.223357e-02
## 409    1.782021e-02   1.602931e-02   2.561094e-05   -1.245414e-02
## 410    1.866570e-02   1.715396e-02   3.555229e-03   -1.188214e-02
## 411    1.717454e-02   1.695511e-02   4.499636e-03   -1.126050e-02
## 412    1.947302e-02   1.773410e-02   5.762339e-03   -7.791195e-03
## 413    1.998839e-02   1.827130e-02   4.608468e-03   -8.682432e-03
## 414    2.262979e-02   1.956856e-02   4.080954e-03   -8.611388e-03
## 415    2.210833e-02   1.846072e-02   7.913560e-05   -9.565154e-03
## 416    2.183596e-02   1.972841e-02  -1.842209e-03   -1.080542e-02
## 417    2.058277e-02   1.906708e-02  -4.618403e-03   -1.040899e-02
## 418    2.014708e-02   2.027654e-02  -5.412994e-03   -7.605110e-03
## 419    1.799436e-02   1.702799e-02  -1.144353e-02   -9.709398e-03
## 420    1.418905e-02   1.445347e-02  -1.919594e-02   -9.879576e-03
## 421    1.408469e-02   1.416650e-02  -2.704441e-02   -1.343596e-02
## 422    1.034776e-02   1.143508e-02  -3.191107e-02   -1.762811e-02
## 423    8.588299e-03   7.203496e-03  -3.559634e-02   -1.866119e-02
## 424    4.877071e-03   4.250494e-03  -3.832078e-02   -1.990888e-02
## 425    3.226509e-03   1.034243e-03  -3.868865e-02   -2.293153e-02
## 426    2.084709e-03  -1.291016e-03  -4.020400e-02   -2.472295e-02
## 427    2.022993e-03  -1.970769e-03  -4.117537e-02   -2.492681e-02
## 428    2.514121e-03  -1.573975e-03  -4.034919e-02   -2.221877e-02
## 429    2.585598e-03  -4.714233e-04  -3.997184e-02   -2.055584e-02
## 430    2.508771e-03  -2.151731e-03  -3.646712e-02   -2.221754e-02
## 431    9.439392e-05  -3.975947e-03  -3.364391e-02   -2.295079e-02
## 432    2.395015e-03  -2.232933e-03  -3.170277e-02   -1.834271e-02
## 433    3.691312e-03   5.682418e-04  -2.911056e-02   -1.580153e-02
## 434    4.533917e-03   1.071271e-03  -2.726597e-02   -1.839206e-02
## 435    4.538296e-03   1.946181e-03  -2.859744e-02   -1.982669e-02
## 436    5.306045e-03   3.922630e-03  -2.620280e-02   -1.518683e-02
## 437    5.346958e-03   4.397506e-03  -2.466366e-02   -1.598156e-02
## 438    7.352344e-03   6.713780e-03  -2.281119e-02   -1.732724e-02
## 439    1.119132e-02   1.043368e-02  -1.754093e-02   -1.531815e-02
## 440    1.128529e-02   1.166020e-02  -1.867209e-02   -1.203389e-02
## 441    1.855333e-02   1.851245e-02  -1.401056e-02   -5.023689e-03
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## 442   1.726885e-02   1.968046e-02 -1.441649e-02  -7.275462e-03
## 443   1.273038e-02   1.748516e-02 -1.776844e-02  -9.041835e-03
## 444   1.277111e-02   1.747982e-02 -1.833376e-02  -3.663102e-03
## 445   1.095961e-02   1.582481e-02 -1.810519e-02  -1.255549e-03
## 446   1.031179e-02   1.330266e-02 -2.189386e-02  -2.763432e-03
## 447   9.481762e-03   1.225603e-02 -2.380456e-02  -1.836995e-03
## 448   9.037598e-03   9.790052e-03 -2.356947e-02  -9.609513e-04
## 449   5.843877e-03   6.233606e-03 -2.576982e-02   2.414177e-03
## 450   4.464628e-03   5.265459e-03 -2.624256e-02  -3.487629e-03
## 451   1.230202e-03   2.471573e-03 -2.806170e-02  -6.394785e-03
## 452   2.765101e-03   1.603457e-03 -2.613675e-02  -4.382577e-03
## 453   6.138971e-03   2.898833e-03 -2.371879e-02  -2.052253e-03
## 454   6.353876e-03   2.115117e-03 -2.365621e-02  -3.468299e-03
## 455   7.906072e-03   5.622649e-03 -2.238201e-02  -1.723888e-03
## 456   8.014424e-03   6.112017e-03 -1.942668e-02  -3.873221e-03
## 457   9.065985e-03   6.765487e-03 -1.765034e-02  -4.018990e-03
## 458   7.663493e-03   7.438984e-03 -1.750253e-02  -4.410249e-03
## 459   9.428067e-03   6.774602e-03 -1.735027e-02  -1.022908e-02
## 460   8.964595e-03   5.259414e-03 -1.884670e-02  -5.164267e-03
## 461   1.065936e-02   5.573012e-03 -1.643518e-02  -1.332935e-03
## 462   8.081106e-03   3.780207e-03 -1.808323e-02  -3.421420e-03
## 463   6.610773e-03   5.015459e-03 -1.884110e-02  -2.201410e-03
## 464   6.219651e-03   6.597492e-03 -1.678748e-02   3.099044e-03
## 465   5.010497e-03   3.473063e-03 -1.777445e-02   3.715771e-03
## 466   6.267599e-03   5.259092e-03 -1.591166e-02   8.008699e-03
## 467   6.127340e-03   4.263143e-03 -1.493191e-02   9.981381e-03
## 468   3.767601e-03   2.615966e-03 -1.578202e-02   1.052057e-02
## 469   1.362448e-03   2.755433e-03 -1.665091e-02   1.298907e-02
## 470   3.275913e-03   4.465615e-03 -1.417838e-02   9.597081e-03
## 471   2.326750e-03   4.784525e-03 -1.548170e-02   5.855458e-03
## 472   3.043692e-03   6.229344e-03 -1.360789e-02   7.622061e-03
## 473   4.281856e-03   5.481678e-03 -1.123376e-02   7.848498e-03
## 474   4.343549e-03   5.246961e-03 -1.129494e-02   3.580073e-03
## 475   5.289580e-03   7.251525e-03 -1.015121e-02   4.117589e-03
## 476   4.445231e-03   6.813195e-03 -1.136932e-02   4.768470e-03
## 477   4.502667e-03   7.952739e-03 -1.273776e-02   4.773960e-03
## 478   5.129926e-03   7.085782e-03 -1.237962e-02   3.859449e-03
## 479   5.914397e-03   5.902625e-03 -1.099463e-02   2.691866e-03
## 480   5.215869e-03   5.991078e-03 -1.178244e-02   7.807598e-03
## 481   6.512915e-03   6.375487e-03 -9.063563e-03   1.056003e-02
## 482   5.020570e-03   3.990511e-03 -1.226124e-02   6.016768e-03
## 483   3.788720e-03   3.741863e-03 -1.337574e-02   4.045927e-03
## 484   2.643961e-03   2.796402e-03 -1.508460e-02   7.492839e-03
## 485   2.008522e-03   2.138699e-03 -1.454008e-02   7.955081e-03
## 486   2.554112e-03   1.563275e-03 -1.353795e-02   6.007609e-03
## 487   2.912739e-03   2.096075e-03 -1.009642e-02   9.208995e-03
## 488   2.668492e-03   3.799983e-03 -9.183448e-03   8.436634e-03
## 489   4.675054e-03   7.728868e-03 -6.638710e-03   1.122810e-02
## 490   4.949828e-03   6.569953e-03 -7.918348e-03   7.358739e-03
## 491   3.348106e-03   5.603230e-03 -9.588503e-03   7.990186e-03
## 492   7.162972e-03   9.227258e-03 -5.337971e-03   1.456564e-02
## 493   7.527231e-03   8.330324e-03 -5.101433e-03   1.456190e-02
## 494   5.711502e-03   6.264901e-03 -4.314220e-03   1.161521e-02
## 495   5.988190e-03   6.133763e-03 -3.565718e-03   1.105915e-02
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## 496    5.821168e-03    6.641697e-03   -3.771491e-03    1.449448e-02
## 497    4.936271e-03    4.761672e-03   -6.485350e-03    1.016925e-02
## 498    3.933610e-03    1.125707e-03   -8.785357e-03    8.837271e-03
## 499    1.417381e-03   -3.950822e-03   -1.161057e-02    7.109405e-03
## 500    5.632106e-04   -4.509343e-03   -1.005479e-02    1.286670e-02
## 501    2.099042e-03   -3.683627e-03   -6.687844e-03    1.496857e-02
## 502   -2.296748e-04   -4.930797e-03   -8.290894e-03    1.329214e-02
## 503   -8.017287e-04   -3.057434e-03   -6.753153e-03    1.430038e-02
## 504    3.681892e-03    1.491469e-03   -3.338110e-03    2.011426e-02
## 505    5.096162e-03    3.797708e-03   -2.213153e-03    2.107984e-02
## 506    3.750051e-03    3.454904e-03   -8.736715e-04    1.351686e-02
## 507    3.729543e-03    3.994794e-03    1.508182e-03    1.627526e-02
## 508    5.527701e-03    7.509663e-03    5.946492e-03    1.756662e-02
## 509    8.555406e-03    1.225889e-02    1.088488e-02    1.959645e-02
## 510    8.311127e-03    1.324323e-02    9.490221e-03    1.588549e-02
## 511    5.120257e-03    1.075293e-02    6.562503e-03    1.461603e-02
## 512    4.425470e-03    1.081261e-02    7.179189e-03    1.450619e-02
## 513    4.924495e-03    9.765324e-03    7.300035e-03    1.612766e-02
## 514    1.563737e-03    7.302861e-03    3.961438e-03    1.258117e-02
## 515    1.328034e-03    5.859966e-03    3.203079e-03    1.341550e-02
## 516    2.799796e-03    7.822845e-03    4.583485e-03    2.117029e-02
## 517    2.589879e-03    7.608537e-03    4.170189e-03    2.150645e-02
## 518    1.271193e-03    5.042792e-03    4.685311e-04    2.294076e-02
## 519   -2.390124e-04    2.789972e-03   -2.386455e-03    2.074217e-02
## 520   -1.550483e-03   -7.193764e-06   -3.129957e-03    2.156786e-02
## 521   -1.604282e-03   -5.391417e-04    1.146214e-04    2.235125e-02
## 522   -3.777886e-04   -1.708078e-03    1.049816e-03    2.101709e-02
## 523   -2.605029e-03   -3.100916e-03   -7.199699e-04    1.792191e-02
## 524   -3.652529e-04   -1.740800e-03    3.916140e-03    2.154327e-02
## 525   -1.053703e-03   -2.239875e-03    5.972698e-03    2.290125e-02
## 526   -8.452988e-04   -4.605760e-03    6.208602e-03    1.825082e-02
## 527   -1.895502e-04   -3.886230e-03    6.967915e-03    1.684801e-02
## 528    1.747836e-03   -1.103716e-03    1.100219e-02    1.723163e-02
## 529    3.526183e-03    9.260614e-04    1.516449e-02    1.881249e-02
## 530    6.004373e-03    2.879160e-03    1.559582e-02    1.604556e-02
## 531    7.310951e-03    1.753295e-03    1.314609e-02    1.122076e-02
## 532    8.101694e-03    3.593372e-03    1.519156e-02    1.368187e-02
## 533    9.824505e-03    5.080029e-03    1.850774e-02    1.409409e-02
## 534    1.017524e-02    6.430958e-03    1.835785e-02    1.200273e-02
## 535    9.172783e-03    6.588381e-03    1.650774e-02    8.122491e-03
## 536    8.099846e-03    7.247079e-03    1.636300e-02    8.339174e-03
## 537    8.574421e-03    7.398067e-03    1.917646e-02    1.267125e-02
## 538    1.004936e-02    8.408613e-03    1.647282e-02    1.402616e-02
## 539    8.379853e-03    6.289127e-03    1.309016e-02    1.469363e-02
## 540    4.474568e-03    5.722258e-03    1.299685e-02    1.823377e-02
## 541    2.445394e-03    6.923450e-03    1.427703e-02    2.076956e-02
## 542   -1.587887e-03    3.455688e-03    1.054523e-02    1.726474e-02
## 543   -4.426705e-03    1.245954e-03    6.754658e-03    1.593925e-02
## 544   -6.508181e-03   -2.598885e-03    4.059131e-03    1.513736e-02
## 545   -7.668991e-03   -4.951832e-03    4.511732e-03    1.727706e-02
## 546   -8.390780e-03   -5.328405e-03    2.628831e-03    1.624744e-02
## 547   -8.476529e-03   -6.248520e-03    4.959514e-05    8.808940e-03
## 548   -1.095561e-02   -8.468916e-03    2.000979e-03    4.315207e-03
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## 550   -7.817436e-03 -6.699377e-03   7.983665e-03    4.107645e-03
## 551   -5.865693e-03 -4.947146e-03   7.860239e-03    2.057507e-03
## 552   -4.255562e-03 -4.777559e-03   9.542928e-03    3.280858e-03
## 553   -2.112307e-03 -3.927389e-03   1.058447e-02    6.394485e-03
## 554   -1.136064e-03 -2.283716e-03   1.235772e-02    4.956603e-03
## 555    4.620303e-04 -8.276436e-04   1.426747e-02    5.642128e-03
## 556    4.212192e-03  1.476929e-03   1.696174e-02    8.154218e-03
## 557    5.671553e-03  4.420610e-03   2.022162e-02    1.395882e-02
## 558    9.362572e-03  7.703947e-03   2.311005e-02    1.848709e-02
## 559    8.959348e-03  7.358203e-03   2.035778e-02    1.840240e-02
## 560    8.487584e-03  5.886645e-03   2.080010e-02    1.780966e-02
## 561    8.452772e-03  5.953750e-03   2.476278e-02    2.269165e-02
## 562    3.464320e-03  3.507467e-03   2.077514e-02    1.844400e-02
## 563    3.258256e-03  2.889437e-03   2.092607e-02    1.810186e-02
## 564    4.869579e-03  3.930539e-03   2.299213e-02    2.506977e-02
## 565    4.201444e-03  2.929709e-03   2.060698e-02    2.302941e-02
## 566    1.556048e-03  1.384358e-03   1.869260e-02    2.103499e-02
## 567    1.681466e-03  8.202450e-04   1.770053e-02    1.848668e-02
## 568   -1.914231e-03 -1.869201e-03   1.540871e-02    1.782800e-02
## 569   -3.352416e-03 -2.447463e-03   1.673786e-02    1.736974e-02
## 570   -3.209128e-03 -2.390923e-03   1.607865e-02    1.558102e-02
## 571   -2.785041e-03 -2.940638e-03   1.346624e-02    1.285043e-02
## 572    6.127793e-04 -7.849396e-04   1.498020e-02    1.360907e-02
## 573    2.691013e-04  2.240051e-04   1.457349e-02    1.336926e-02
## 574   -1.560748e-03 -1.369260e-03   1.133027e-02    6.415639e-03
## 575   -3.280620e-03 -4.255706e-04   1.212813e-02    4.413230e-03
## 576   -2.995753e-03 -6.719612e-04   1.297067e-02    4.612954e-03
## 577   -7.103760e-03 -4.680987e-03   9.575928e-03    3.833561e-03
## 578   -7.446173e-03 -5.958958e-03   8.827926e-03    4.678385e-03
## 579   -6.870477e-03 -7.286356e-03   6.091219e-03    3.104660e-03
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## 581   -8.259391e-03 -7.962080e-03   7.932434e-03    4.005042e-03
## 582   -8.334006e-03 -7.555982e-03   1.049030e-02    5.476886e-03
## 583    1.376404e-02 -2.611161e-04  -1.367186e-02    1.779566e-02
## 584    1.320250e-02 -1.945764e-03  -1.253590e-02    2.142711e-02
## 585    1.171107e-02 -1.687983e-03  -1.767296e-02    2.117353e-02
## 586    5.146998e-03 -5.349256e-03  -2.211303e-02    1.979919e-02
## 587    7.130752e-03 -1.869060e-03  -2.260948e-02    1.794671e-02
## 588    8.252251e-03  1.594411e-04  -2.010496e-02    2.649348e-02
## 589    9.136813e-03  4.622886e-03  -2.179954e-02    3.155769e-02
## 590    4.080309e-03  2.837384e-03  -2.566047e-02    2.699883e-02
## 591   -3.857355e-03 -6.294219e-04  -2.541921e-02    2.035420e-02
## 592   -2.828871e-03 -3.107897e-03  -2.634980e-02    8.237163e-03
## 593   -7.217304e-03 -5.596016e-03  -2.609629e-02    5.026066e-03
## 594   -8.120485e-03 -5.485893e-03  -2.911751e-02    7.101417e-05
## 595   -8.867535e-03 -3.802200e-03  -2.534927e-02   -7.307568e-04
## 596   -6.519467e-03 -6.254341e-04  -2.298978e-02    4.016237e-04
## 597   -7.440321e-03 -3.377250e-03  -1.942752e-02    1.315879e-03
## 598   -7.844321e-03 -5.914401e-03  -2.112270e-02    1.871274e-03
## 599   -4.300502e-03 -3.130215e-03  -1.178415e-02    2.782166e-03
## 600    1.498221e-03  1.436330e-03  -7.187699e-03    6.249996e-03
## 601    6.231986e-03  4.999333e-03  -9.661031e-03    1.031592e-02
## 602    8.760918e-03  9.263462e-03  -8.303051e-03    2.246295e-02
## 603    1.003262e-02  8.081502e-03  -1.105138e-02    1.902155e-02
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## 604    8.869194e-03   8.087355e-03 -1.025336e-02    2.494714e-02
## 605    6.032404e-03   6.407842e-03 -1.346810e-02    2.437027e-02
## 606    7.451062e-03   8.233000e-03 -1.267203e-02    2.673230e-02
## 607    8.902226e-03   1.210576e-02 -1.411180e-02    2.157666e-02
## 608    7.082687e-03   9.843961e-03 -1.758833e-02    2.017343e-02
## 609    3.481130e-03   4.532078e-03 -2.769201e-02    1.713366e-02
## 610   -4.437204e-03  -1.702654e-04 -3.440044e-02    1.432370e-02
## 611   -7.682281e-03  -4.577856e-03 -3.536945e-02    1.090559e-02
## 612   -1.315649e-02  -1.275821e-02 -4.152905e-02   -4.272671e-03
## 613   -1.157051e-02  -1.229943e-02 -4.031061e-02    2.618872e-05
## 614   -6.712840e-03  -1.197159e-02 -3.625318e-02   -6.618392e-03
## 615   -2.777432e-03  -1.064226e-02 -3.369208e-02   -5.217320e-03
## 616   -1.106910e-03  -1.188550e-02 -3.367621e-02   -4.262503e-03
## 617   -4.300195e-03  -1.436321e-02 -3.460892e-02    5.778317e-04
## 618   -3.031457e-03  -1.354187e-02 -2.769566e-02    1.078742e-03
## 619    2.800165e-04  -9.181338e-03 -2.231639e-02    4.294560e-03
## 620    6.541253e-03  -5.811956e-03 -1.404410e-02    9.400481e-03
## 621    1.186300e-02  -7.721252e-04 -1.105449e-02    7.412923e-03
## 622    1.389965e-02   3.487717e-04 -5.008725e-03    1.618546e-02
## 623    1.614755e-02   3.797591e-03 -9.952815e-04    1.502681e-02
## 624    1.555312e-02   5.296295e-03 -5.663112e-04    2.299041e-02
## 625    1.417364e-02   4.292688e-03 -1.403381e-04    2.322119e-02
## 626    1.285416e-02   1.843725e-03 -1.825717e-04    1.887445e-02
## 627    1.626617e-02   6.629633e-03  5.063483e-03    1.960014e-02
## 628    1.233141e-02   8.055114e-03  2.060187e-03    1.960684e-02
## 629    3.298429e-03  -1.470471e-03 -1.136004e-02    1.464847e-02
## 630   -1.895674e-03  -8.008634e-03 -2.166231e-02    1.227332e-02
## 631   -8.483587e-03  -1.291588e-02 -3.062179e-02    1.113942e-02
## 632   -1.030591e-02  -1.215520e-02 -3.711637e-02    4.649520e-03
## 633   -8.540090e-03  -1.338501e-02 -3.869706e-02    1.102295e-02
## 634   -6.587945e-03  -1.272359e-02 -3.816239e-02    7.437017e-03
## 635   -6.596555e-03  -1.395465e-02 -3.692803e-02    1.603370e-03
## 636   -8.142871e-03  -1.280086e-02 -3.749359e-02    6.221764e-03
## 637   -4.304673e-03  -1.327960e-02 -4.312510e-02    1.121765e-02
## 638   -2.697114e-03  -8.017873e-03 -4.104913e-02    1.367969e-02
## 639    9.467758e-03   8.625162e-04 -2.480016e-02    2.238382e-02
## 640    1.464228e-02   8.089354e-03 -1.583920e-02    2.207104e-02
## 641    1.525463e-02   8.202811e-03 -6.864185e-03    2.915810e-02
## 642    1.095624e-02   3.895135e-03 -8.629819e-03    2.424057e-02
## 643    6.892918e-03   3.439875e-03 -7.744612e-03    1.627730e-02
## 644    2.510872e-03   2.469305e-04 -1.097340e-02    1.302310e-02
## 645    7.384651e-03   7.024521e-03 -9.935544e-03    2.276758e-02
## 646    2.259510e-03   5.045842e-03 -1.071056e-02    1.935613e-02
## 647   -6.751514e-03  -1.953700e-03 -1.018892e-02    1.371451e-02
## 648   -5.970803e-03  -8.786991e-03 -1.258836e-02    1.135632e-02
## 649   -1.838645e-02  -1.551676e-02 -2.409488e-02    3.574251e-03
## 650   -2.501629e-02  -2.323894e-02 -3.200647e-02   -2.818953e-05
## 651   -2.290935e-02  -2.329073e-02 -3.510783e-02   -5.049754e-03
## 652   -2.202242e-02  -2.095458e-02 -3.476420e-02    4.657417e-03
## 653   -1.862661e-02  -2.024185e-02 -3.037225e-02    1.095367e-02
## 654   -1.249826e-02  -1.710815e-02 -2.759481e-02    1.780335e-02
## 655   -1.634700e-02  -2.197563e-02 -2.811885e-02    1.116009e-02
## 656   -1.003492e-02  -1.740213e-02 -2.641606e-02    1.463126e-02
## 657   -2.785526e-03  -5.628135e-03 -1.968390e-02    1.903633e-02
```

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## 658    3.730463e-03    4.099731e-03   -7.032345e-03    3.292421e-02
## 659    1.141325e-02    7.089776e-03    1.318911e-03    3.692869e-02
## 660    1.706514e-02    1.547472e-02    1.076056e-02    4.628534e-02
## 661    1.608037e-02    1.635685e-02    1.004222e-02    4.918179e-02
## 662    2.057859e-02    1.948628e-02    1.339542e-02    4.997163e-02
## 663    2.083517e-02    2.171813e-02    1.348936e-02    5.072559e-02
## 664    1.655069e-02    2.103406e-02    1.455772e-02    4.909014e-02
## 665    2.023151e-02    2.824733e-02    2.044974e-02    5.773382e-02
## 666    2.287633e-02    2.706442e-02    2.463003e-02    5.601512e-02
## 667    2.212141e-02    2.231215e-02    2.980958e-02    5.630337e-02
## 668    2.153346e-02    2.175152e-02    2.875322e-02    4.983230e-02
## 669    2.125671e-02    2.344804e-02    2.845464e-02    5.713815e-02
## 670    1.812225e-02    1.839600e-02    2.585344e-02    5.395072e-02
## 671    2.521122e-02    2.486528e-02    3.824365e-02    5.910360e-02
## 672    3.022227e-02    2.754082e-02    4.362759e-02    6.481962e-02
## 673    3.069286e-02    2.913327e-02    4.584058e-02    6.979622e-02
## 674    3.517647e-02    3.154850e-02    5.191767e-02    7.097205e-02
## 675    3.748586e-02    2.793408e-02    5.179541e-02    6.946107e-02
## 676    3.351972e-02    2.576400e-02    5.072844e-02    7.411595e-02
## 677    3.399735e-02    2.635465e-02    5.189219e-02    7.749969e-02
## 678    2.883520e-02    2.173825e-02    5.080255e-02    8.424920e-02
## 679    2.026024e-02    1.473199e-02    5.089415e-02    8.030016e-02
## 680    1.629687e-02    7.707407e-03    4.830512e-02    7.759798e-02
## 681    7.478254e-03    1.749087e-05    3.762097e-02    7.150418e-02
## 682    1.457243e-03   -3.459941e-03    3.060688e-02    6.594716e-02
## 683   -2.505497e-03   -1.172343e-02    2.464247e-02    5.859884e-02
## 684   -1.022693e-02   -1.772115e-02    1.511680e-02    5.208893e-02
## 685   -1.770758e-02   -2.034393e-02    1.255055e-02    5.052894e-02
## 686   -1.936844e-02   -2.073368e-02    1.127698e-02    4.622935e-02
## 687   -2.849475e-02   -2.618560e-02    3.894458e-03    4.101972e-02
## 688   -2.596567e-02   -2.676099e-02    5.184613e-03    2.872261e-02
## 689   -2.619670e-02   -2.469991e-02    3.543285e-03    2.221128e-02
## 690   -2.718726e-02   -2.283029e-02    5.520468e-03    1.690540e-02
## 691   -2.735959e-02   -2.488031e-02    9.232552e-03    1.325624e-02
## 692   -2.613361e-02   -2.488231e-02    1.618642e-02    1.688518e-02
## 693   -2.148068e-02   -1.758348e-02    2.764933e-02    2.850561e-02
## 694   -1.630956e-02   -1.275933e-02    3.588427e-02    3.478559e-02
## 695   -1.246625e-02   -1.278642e-02    3.903270e-02    4.043959e-02
## 696   -1.521384e-02   -1.281265e-02    4.230392e-02    4.227053e-02
## 697   -1.068146e-02   -1.197931e-02    5.546275e-02    5.350541e-02
## 698   -1.529932e-02   -1.637691e-02    5.357533e-02    6.268141e-02
## 699   -1.365453e-02   -1.575041e-02    5.520207e-02    7.097201e-02
## 700   -1.051884e-02   -1.202205e-02    5.774970e-02    8.093890e-02
## 701   -1.125279e-03   -6.307636e-03    6.523417e-02    8.889377e-02
## 702    4.732095e-03   -1.299451e-03    7.051720e-02    9.723843e-02
## 703    4.281930e-03   -1.749881e-03    7.087168e-02    9.571476e-02
## 704    5.499686e-03   -2.469408e-03    7.383210e-02    1.019180e-01
## 705    5.188863e-03    1.516461e-03    7.685640e-02    1.025791e-01
## 706    1.242890e-02    5.086796e-03    8.047843e-02    1.068359e-01
## 707    1.418378e-02    6.397381e-03    7.151856e-02    1.025221e-01
## 708    2.167072e-02    1.156185e-02    7.650480e-02    9.581152e-02
## 709    2.633697e-02    1.379031e-02    8.413307e-02    9.916824e-02
## 710    2.718237e-02    1.056054e-02    8.389637e-02    9.241618e-02
## 711    2.108517e-02    5.368090e-03    8.198207e-02    9.218864e-02
```

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## 712   1.819055e-02   3.662864e-03   8.316786e-02   8.829225e-02
## 713   2.075901e-02   5.540841e-03   8.781499e-02   8.941976e-02
## 714   2.212010e-02   1.054814e-02   8.647018e-02   8.690670e-02
## 715   1.960942e-02   5.693856e-03   8.321904e-02   8.476083e-02
## 716   1.854019e-02   5.100737e-03   8.174013e-02   7.670919e-02
## 717   1.848427e-02   5.345923e-03   8.598334e-02   7.277124e-02
## 718   1.575074e-02   5.300637e-03   8.560297e-02   7.853188e-02
## 719   1.372434e-02   3.782378e-03   8.482295e-02   7.740058e-02
## 720   1.570812e-02   6.135542e-03   9.133713e-02   8.232120e-02
## 721   2.049096e-02   1.076902e-02   9.453058e-02   8.315020e-02
## 722   2.339034e-02   1.088968e-02   9.597755e-02   8.183817e-02
## 723   2.789155e-02   1.535354e-02   9.828762e-02   8.976391e-02
## 724   3.236541e-02   1.759410e-02   1.063016e-01   9.590041e-02
## 725   4.194331e-02   2.367601e-02   1.141077e-01   9.720061e-02
## 726   4.744286e-02   2.886173e-02   1.242090e-01   1.028615e-01
## 727   5.124839e-02   3.263377e-02   1.256688e-01   1.053371e-01
## 728   5.729558e-02   3.524691e-02   1.280610e-01   9.602731e-02
## 729   6.158333e-02   3.888283e-02   1.292104e-01   8.891308e-02
## 730   6.548555e-02   4.418540e-02   1.306104e-01   8.704598e-02
## 731   6.414205e-02   4.501762e-02   1.264576e-01   7.871795e-02
## 732   6.512080e-02   4.746435e-02   1.282588e-01   7.698587e-02
## 733   6.322385e-02   4.530967e-02   1.261564e-01   6.760749e-02
## 734   6.745383e-02   4.994706e-02   1.306875e-01   6.624107e-02
## 735   7.156597e-02   5.070280e-02   1.322554e-01   6.959907e-02
## 736   7.522763e-02   5.404304e-02   1.309618e-01   7.403217e-02
## 737   7.345726e-02   5.433480e-02   1.299477e-01   7.868749e-02
## 738   7.331563e-02   5.883989e-02   1.347943e-01   8.656049e-02
## 739   7.881477e-02   6.551062e-02   1.383913e-01   8.788046e-02
## 740   8.137708e-02   6.713403e-02   1.389830e-01   8.922958e-02
## 741   8.268816e-02   6.725200e-02   1.409143e-01   9.494158e-02
## 742   8.194936e-02   6.470794e-02   1.403611e-01   9.260314e-02
## 743   8.459664e-02   6.894305e-02   1.447773e-01   9.241605e-02
## 744   8.385532e-02   6.781955e-02   1.457981e-01   9.405474e-02
## 745   7.977785e-02   7.158201e-02   1.447288e-01   8.963253e-02
## 746   7.722061e-02   6.654393e-02   1.427920e-01   7.949099e-02
## 747   7.953040e-02   6.816465e-02   1.455466e-01   7.261411e-02
## 748   7.744454e-02   6.387743e-02   1.379274e-01   6.804672e-02
## 749   7.194745e-02   6.029427e-02   1.338803e-01   6.449939e-02
## 750   6.293779e-02   5.346170e-02   1.280742e-01   5.394724e-02
## 751   6.464261e-02   5.783924e-02   1.268432e-01   4.482929e-02
## 752   6.776813e-02   6.244927e-02   1.273860e-01   4.695460e-02
## 753   5.875429e-02   5.113478e-02   1.189244e-01   3.968831e-02
## 754   5.492478e-02   4.849387e-02   1.140892e-01   3.320290e-02
## 755   5.921582e-02   4.673890e-02   1.108082e-01   3.772528e-02
## 756   6.178795e-02   4.957891e-02   1.125290e-01   4.368158e-02
## 757   6.010696e-02   4.745437e-02   1.067477e-01   3.969855e-02
## 758   6.271450e-02   4.915768e-02   1.094532e-01   3.716024e-02
## 759   6.715979e-02   5.042877e-02   1.106338e-01   4.253132e-02
## 760   7.738853e-02   5.716704e-02   1.175372e-01   4.430892e-02
## 761   7.661188e-02   5.788881e-02   1.158986e-01   4.330450e-02
## 762   7.277829e-02   5.665634e-02   1.110306e-01   4.238602e-02
## 763   8.159301e-02   6.475057e-02   1.187272e-01   4.628959e-02
## 764   8.353015e-02   6.349255e-02   1.175718e-01   4.590456e-02
## 765   7.768671e-02   6.187527e-02   1.180540e-01   4.409945e-02
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## 766   7.571923e-02   5.951204e-02   1.146434e-01    3.709872e-02
## 767   7.973098e-02   5.924296e-02   1.177587e-01    3.381319e-02
## 768   7.993700e-02   6.025123e-02   1.133743e-01    3.356909e-02
## 769   7.465293e-02   5.520530e-02   1.087973e-01    2.170551e-02
## 770   6.479273e-02   4.590365e-02   9.788114e-02    1.894147e-02
## 771   6.396874e-02   4.437635e-02   1.066471e-01    2.114588e-02
## 772   6.645549e-02   4.478136e-02   1.148144e-01    1.869967e-02
## 773   5.792503e-02   3.812497e-02   1.010975e-01    1.130773e-02
## 774   5.083815e-02   3.290157e-02   9.596886e-02    4.365270e-03
## 775   5.333151e-02   3.159420e-02   9.503732e-02    1.066916e-03
## 776   5.074107e-02   3.363039e-02   9.349195e-02    6.364213e-03
## 777   4.733721e-02   3.392552e-02   8.964374e-02    1.741310e-03
## 778   4.140605e-02   2.998965e-02   8.963720e-02   -1.436847e-03
## 779   3.858687e-02   3.032946e-02   8.676298e-02    1.717015e-03
## 780   4.135123e-02   3.527249e-02   8.628671e-02    2.649036e-03
## 781   3.916803e-02   3.457536e-02   7.739714e-02   -1.024885e-03
## 782   3.967346e-02   3.430007e-02   7.292207e-02   -5.868267e-04
## 783   3.751501e-02   3.589338e-02   7.502614e-02    1.269907e-03
## 784   4.305586e-02   4.166308e-02   7.769648e-02    6.865759e-03
## 785   3.705061e-02   4.184089e-02   7.345908e-02    4.557023e-03
## 786   3.550359e-02   3.654516e-02   7.016773e-02   -6.082527e-03
## 787   3.542803e-02   3.484710e-02   7.013688e-02    3.077243e-03
## 788   4.239768e-02   3.868719e-02   7.133860e-02    5.558789e-03
## 789   4.556954e-02   3.875069e-02   7.070614e-02    9.673384e-03
## 790   4.451608e-02   3.753385e-02   7.151038e-02    1.045112e-02
## 791   4.398389e-02   3.315354e-02   7.755677e-02    1.778823e-02
## 792   4.277259e-02   3.357433e-02   7.688235e-02    1.666407e-02
## 793   4.360090e-02   2.799326e-02   6.831735e-02    1.259691e-02
## 794   3.385424e-02   1.924780e-02   6.134256e-02    8.251640e-03
## 795   3.270202e-02   1.706735e-02   5.912754e-02    6.697544e-03
## 796   3.404175e-02   2.418988e-02   6.352479e-02    1.483825e-02
## 797   3.112332e-02   2.198533e-02   5.517114e-02    5.318074e-03
## 798   3.234485e-02   2.433060e-02   5.226500e-02    6.001518e-03
## 799   3.092322e-02   2.645465e-02   5.110368e-02    6.610938e-03
## 800   3.005278e-02   2.632487e-02   4.806760e-02    5.665477e-03
## 801   3.020379e-02   3.062282e-02   3.780843e-02   -4.501511e-03
## 802   2.724557e-02   2.630847e-02   3.076205e-02   -1.023626e-02
## 803   2.858166e-02   3.051058e-02   3.561401e-02   -4.386503e-03
## 804   3.031819e-02   3.226689e-02   3.448482e-02   -6.059933e-03
## 805   3.239269e-02   3.485554e-02   3.377482e-02   -3.718209e-03
## 806   2.805388e-02   2.701123e-02   2.612133e-02   -9.876418e-03
## 807   2.613497e-02   2.792144e-02   2.771592e-02   -2.876033e-03
## 808   2.155568e-02   2.001643e-02   2.604028e-02   -1.049868e-02
## 809   1.402536e-02   6.697725e-03   1.460482e-02   -3.540855e-02
## 810   1.010209e-02   3.667493e-03   1.029510e-02   -4.030946e-02
## 811   5.117267e-03  -4.931693e-03   1.193681e-02   -3.177341e-02
## 812   9.112259e-03  -1.412883e-03   1.597000e-02   -2.596693e-02
## 813   7.986464e-03  -1.875489e-03   1.012343e-02   -2.973783e-02
## 814   1.045326e-02   6.019543e-04   1.049096e-02   -2.667011e-02
## 815   1.056478e-02  -3.007373e-03   1.169228e-02   -2.680743e-02
## 816   1.638054e-02   1.496725e-03   1.579617e-02   -2.168629e-02
## 817   1.828983e-02  -2.956045e-04   1.055947e-02   -2.599232e-02
## 818   1.599125e-02   7.188516e-03   7.409869e-03   -1.360521e-02
## 819   1.858092e-02   1.354126e-02   1.119019e-02    7.833058e-03
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## 820     2.152652e-02   1.586379e-02   1.276375e-02    1.304065e-02
## 821     2.458679e-02   2.062892e-02   8.995417e-03    1.061962e-02
## 822     1.913095e-02   1.860501e-02   6.117707e-03    1.137292e-02
## 823     2.215688e-02   2.139411e-02   9.569259e-03    1.164928e-02
## 824     1.911467e-02   2.169796e-02   7.834493e-03    1.334436e-02
## 825     1.607532e-02   2.403267e-02   2.782109e-03    1.157681e-02
## 826     7.740920e-03   1.807830e-02  -3.367898e-03    1.288359e-02
## 827     7.639663e-03   1.902225e-02  -1.969941e-03    1.903046e-02
## 828     6.141230e-03   1.112232e-02  -4.822686e-03    2.138879e-02
## 829     1.066696e-03   7.024900e-03  -1.047327e-02    1.026085e-02
## 830    -2.992989e-03   6.122277e-03  -1.417259e-02    2.323431e-03
## 831    -5.452904e-03   1.362379e-03  -1.461391e-02    3.758681e-03
## 832     7.419141e-05   1.203760e-03  -1.337359e-02    1.451214e-03
## 833    -2.016518e-03  -4.422925e-04  -1.710619e-02   -1.277568e-03
## 834    -3.162080e-03  -1.272559e-03  -2.152647e-02   -2.864225e-03
## 835    -1.026545e-03  -3.046730e-03  -1.776631e-02    1.871722e-03
## 836     4.874264e-03   4.668624e-03  -1.496190e-02    1.301828e-03
## 837     4.552039e-03   8.692263e-03  -1.725194e-02    2.992385e-03
## 838    -5.955410e-04   1.128384e-02  -2.239348e-02   -9.778843e-03
## 839     3.512852e-03   1.284611e-02  -2.035911e-02   -3.931707e-03
## 840     5.985031e-03   1.354070e-02  -1.915400e-02    4.323891e-03
## 841     7.776882e-03   1.432377e-02  -1.932543e-02    5.613565e-03
## 842     3.294817e-03   1.295197e-02  -2.278041e-02    3.064274e-03
## 843     5.681955e-03   1.603270e-02  -2.190640e-02    1.529494e-02
## 844     7.170447e-03   1.412730e-02  -2.217079e-02    1.568002e-02
## 845     7.115196e-03   1.533093e-02  -2.487455e-02    1.647800e-02
## 846     5.982250e-03   6.941185e-03  -3.040539e-02    1.903105e-02
## 847     9.150169e-03   5.786998e-03  -2.860031e-02    1.792293e-02
## 848     1.557276e-02   1.788801e-03  -2.515655e-02    2.658813e-02
## 849     1.530218e-02   2.269888e-03  -2.763389e-02    2.271081e-02
## 850     1.660197e-02   2.136004e-03  -3.222414e-02    1.623584e-02
## 851     1.573668e-02   2.111742e-03  -3.627905e-02    1.223608e-02
## 852     1.733141e-02   2.852315e-03  -3.498985e-02    1.636081e-02
## 853     1.247549e-02   1.935875e-04  -3.675104e-02    5.215207e-03
## 854     9.113571e-03  -1.394732e-03  -4.053586e-02   -3.125247e-03
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## 856    -6.261173e-04   2.310096e-03  -3.990265e-02   -8.782477e-03
## 857    -1.235836e-02  -3.280148e-03  -4.569744e-02   -1.625913e-02
## 858    -1.852595e-02  -4.660324e-03  -5.077656e-02   -2.614131e-02
## 859    -1.531150e-02  -5.291662e-03  -4.784584e-02   -2.696574e-02
## 860    -1.769704e-02  -5.633033e-03  -4.630133e-02   -1.970324e-02
## 861    -1.884337e-02  -2.968904e-03  -4.513001e-02   -1.549670e-02
## 862    -2.110965e-02  -6.209404e-03  -4.730165e-02   -1.734631e-02
## 863    -2.199559e-02  -8.091825e-03  -4.621570e-02   -1.009010e-02
## 864    -1.832485e-02  -5.968435e-03  -4.249401e-02   -3.467984e-03
## 865    -1.791955e-02  -7.876947e-03  -4.216679e-02   -1.523432e-04
## 866    -1.579309e-02  -1.410227e-02  -4.607067e-02   -3.559124e-03
## 867    -6.275719e-03  -1.057428e-02  -4.110857e-02    5.387674e-03
## 868    -3.239915e-03  -7.676147e-03  -3.560002e-02    1.279002e-02
## 869    -6.677690e-03  -7.177768e-03  -4.177044e-02    1.613518e-02
## 870    -3.385744e-03  -4.220623e-03  -4.566186e-02    9.638045e-03
## 871    -6.668181e-04  -7.534036e-03  -4.831839e-02    7.544695e-03
## 872     1.928509e-03  -9.482825e-04  -4.942784e-02    1.140302e-02
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## 877   -6.018409e-03   3.332613e-03   5.313313e-03    1.617102e-02
## 878   -8.363735e-03   3.742723e-03   5.076511e-03    2.126625e-02
## 879    1.536301e-03   1.448964e-02   1.011133e-02    2.407724e-02
## 880   -2.676267e-03   5.341731e-03   1.048235e-03    2.176706e-02
## 881   -1.147740e-02   5.092417e-03  -3.588581e-03    1.073336e-02
## 882   -2.768471e-03   1.138613e-02   3.123168e-03    1.418438e-02
## 883    6.220823e-03   2.455419e-02   4.433813e-03    2.201148e-02
## 884   -1.694790e-03   2.266220e-02   5.466792e-03    2.375101e-02
## 885    1.398626e-03   1.472714e-02   6.602918e-03    3.144959e-02
## 886    3.461736e-03   1.924920e-02   6.513541e-03    2.573163e-02
## 887   -1.532458e-02   1.917987e-03  -1.181613e-02    1.327645e-02
## 888   -9.133577e-03   4.479224e-03  -8.239786e-03    2.510566e-02
## 889   -2.103861e-02   7.367599e-05  -1.079487e-02    2.139091e-02
## 890   -1.153928e-02   8.114738e-03  -1.068263e-02    2.065762e-02
## 891    3.732431e-04   1.701861e-02  -5.231976e-03    3.268865e-02
## 892   -6.824987e-03   9.068581e-03  -1.795330e-02    1.386980e-02
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## 895   -4.586699e-03   1.737813e-03  -1.750060e-02    8.750127e-03
## 896   -1.543261e-02  -1.605552e-03  -2.660160e-02    2.358978e-02
## 897   -3.172053e-03   8.695017e-03  -1.810036e-02    1.089182e-02
## 898   -5.063061e-03   4.708531e-03  -1.753888e-02   -2.846916e-03
## 899    5.283216e-03   9.003729e-03  -1.142732e-02    1.035070e-02
## 900   -6.493090e-03   6.908886e-04  -1.382697e-02    9.377226e-03
## 901   -1.130749e-02  -7.097192e-03  -9.925946e-03    9.650027e-03
## 902   -2.038361e-03  -3.183704e-03   1.054734e-02    1.632299e-02
## 903    4.983556e-03   1.461024e-02   2.191341e-02    1.555668e-02
## 904   -3.696736e-04   1.048726e-02   1.566137e-02    4.495783e-03
## 905   -2.614703e-03   7.078907e-03   1.438563e-02    2.670542e-03
## 906    8.997858e-03   7.942990e-03   2.834093e-02   -7.485838e-03
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## 909   -7.553339e-03  -2.101796e-03   2.151973e-02    1.540345e-02
## 910   -1.479551e-03  -1.601389e-03   2.629807e-02    1.602041e-02
## 911   -5.746303e-03  -4.038505e-03   2.040725e-02    6.855002e-03
## 912   -9.455695e-03  -4.108678e-03   7.781618e-03    6.083793e-03
## 913   -1.562365e-02  -1.393410e-02  -1.329646e-03    1.110135e-02
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## 918   -5.117309e-03  -9.278011e-03  -1.597566e-02    6.479385e-03
## 919   -9.404439e-03  -1.351199e-02  -2.134764e-02   -3.091363e-03
## 920   -1.748624e-02  -6.220744e-03  -2.538369e-02   -2.216742e-02
## 921   -1.504581e-02  -3.540544e-03  -1.803962e-02   -1.414030e-02
## 922   -1.389222e-02   1.805065e-03  -6.690843e-03   -6.134573e-03
## 923   -7.672358e-03   2.317501e-05   5.429080e-04   -1.788739e-02
## 924   -2.381134e-03   7.213823e-03  -4.620986e-03   -1.815927e-02
## 925   -2.618489e-03   5.940509e-03  -5.239868e-03   -1.480077e-02
## 926    4.098160e-03   9.738448e-03   2.427277e-03   -9.504532e-03
## 927    6.809704e-03   7.321344e-03   1.162333e-02    1.187557e-02
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## 928    6.403805e-03   3.808329e-03   9.580367e-03  -7.723800e-03
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## 938   -9.836202e-03   4.629408e-03   1.712817e-02  -9.852348e-03
## 939   -1.907878e-02   1.043050e-03   6.117754e-03  -7.937289e-03
## 940   -2.109455e-02   3.925567e-03   5.031411e-03  -1.371679e-02
## 941   -2.245357e-02   1.125539e-03   3.964971e-03  -2.044556e-02
## 942    6.792998e-04   1.516923e-02   7.533860e-03  -9.515276e-03
## 943    1.104942e-02   2.048724e-02   1.556751e-02  -8.434582e-04
## 944    1.669143e-02   2.645406e-02   1.700780e-02  -1.770035e-02
## 945    2.487960e-02   2.310646e-02   2.281296e-02  -2.779538e-04
## 946    2.639733e-02   1.779838e-02   2.729855e-02  -1.789267e-02
## 947    1.775110e-02   1.086619e-02   2.135013e-02  -8.080551e-03
## 948    8.868416e-03   8.020764e-03   1.317990e-02   3.786067e-03
## 949    1.886025e-02   9.163175e-03   1.861844e-02  -4.201931e-04
## 950    1.888142e-02   8.042634e-05   1.750243e-02   2.125109e-03
## 951    1.333666e-02  -2.573273e-03   1.895599e-02   5.127136e-03
## 952   -6.341075e-03  -1.629270e-02  -2.728742e-03  -5.690270e-03
## 953   -1.232290e-02  -2.352116e-02  -9.192147e-03  -7.212255e-03
## 954   -1.419707e-02  -3.131256e-02  -1.427404e-02   1.092508e-02
## 955   -2.843768e-02  -3.973227e-02  -2.903830e-02  -7.654791e-03
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## 958   -1.139404e-02  -3.157534e-02  -1.109571e-02  -1.094134e-02
## 959   -1.437400e-02  -3.679191e-02  -1.064408e-02  -1.449397e-02
## 960   -1.181707e-02  -2.950161e-02  -2.701921e-03  -5.575023e-03
## 961   -7.402232e-03  -2.579105e-02  -8.880410e-03  -1.145931e-02
## 962    1.244214e-02  -1.156926e-02   1.695663e-02   2.340845e-03
## 963    1.541377e-02   1.930616e-03   2.141162e-02   2.210450e-03
## 964    2.010472e-02   1.064431e-02   2.458957e-02  -1.951389e-02
## 965    2.283015e-02   1.090496e-02   2.383908e-02  -1.794106e-02
## 966    7.437388e-03  -5.610589e-04   1.276107e-02  -1.798166e-02
## 967    1.189902e-02   1.186114e-02   1.722239e-02  -1.917774e-02
## 968    9.158177e-03   3.658225e-03   1.231776e-02  -2.281642e-02
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## 970   -3.000268e-03   6.855041e-04   8.354763e-03  -2.366107e-02
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## 974   -2.046622e-02  -1.753471e-02  -3.620890e-03  -2.488978e-02
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## 976   -1.340761e-03  -3.357105e-03  -1.014503e-03  -7.100594e-03
## 977   -7.914830e-03  -1.075380e-02  -5.829659e-03  -1.847394e-02
## 978   -3.761184e-03  -3.100294e-03  -1.491912e-04  -1.237952e-02
## 979    3.158249e-03  -6.808344e-05   5.338467e-03  -6.383246e-04
## 980    7.021797e-03   5.246836e-03   3.468191e-03  -1.657640e-02
## 981    1.454750e-02   1.782999e-02   5.527653e-03  -5.690991e-03
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## 982   2.083572e-02  1.574908e-02  1.701693e-03 -1.703030e-02
## 983   4.678799e-03  5.989967e-03 -1.531955e-02 -3.540024e-02
## 984   7.507188e-03  8.746142e-03 -1.276125e-02 -4.685314e-02
## 985   8.117837e-03  1.083284e-02 -3.862520e-03 -4.342708e-02
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## 992   3.199056e-02  2.844575e-02  4.574074e-02  3.791340e-03
## 993   4.150836e-02  3.586036e-02  5.914839e-02  2.223710e-02
## 994   3.940060e-02  3.151184e-02  5.622663e-02  3.097632e-02
## 995   3.281862e-02  3.057899e-02  5.382487e-02  2.742443e-02
## 996   3.178841e-02  3.554484e-02  5.148654e-02  2.919250e-02
## 997   2.639207e-02  3.647273e-02  4.945522e-02  2.863479e-02
## 998   2.269084e-02  3.501148e-02  4.085329e-02  2.939450e-02
## 999   2.749866e-02  3.985436e-02  4.665902e-02  2.211374e-02
## 1000  1.613866e-02  4.097755e-02  4.106826e-02  2.031474e-02
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## 1002  6.967977e-03  2.275927e-02  2.115548e-02  1.506000e-03
## 1003  1.510734e-02  2.364254e-02  2.119796e-02 -1.650820e-03
## 1004  1.629896e-02  2.901395e-02  2.713756e-02 -3.568497e-03
## 1005  2.301475e-02  3.496578e-02  3.169767e-02 -2.933546e-03
## 1006  1.842940e-02  2.684366e-02  3.030241e-02 -1.434086e-02
## 1007  1.254002e-02  1.919271e-02  2.013921e-02 -1.931642e-02
## 1008  1.417623e-02  1.656663e-02  2.723617e-02 -1.584515e-02
## 1009  1.035446e-02  9.493021e-03  1.466533e-02 -2.846584e-03
## 1010  2.162585e-02  1.241377e-02  2.465305e-02  1.963712e-03
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## 1012  2.056056e-02  1.362069e-02  3.318282e-02 -1.055436e-02
## 1013  1.253966e-02  1.202682e-02  3.240246e-02 -7.736114e-03
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## 1034 -1.285841e-02 -2.394235e-03  2.395930e-03 -2.483234e-02
## 1035 -8.405630e-03 -3.057845e-03  7.388045e-03 -2.297951e-02
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## 1036 -9.474140e-03 -2.468913e-03  1.940934e-03 -3.044726e-02
## 1037 -2.673365e-04  5.942873e-04  1.497475e-02 -1.683881e-02
## 1038  3.080339e-03  5.881233e-03  9.794913e-03 -3.960670e-03
## 1039 -7.479341e-05 -1.780210e-03  4.418975e-03 -1.884036e-02
## 1040 -7.164744e-03 -7.059255e-03 -7.442392e-03 -3.526271e-02
## 1041 -2.022751e-02 -2.242947e-02 -9.531310e-03 -5.505814e-02
## 1042 -1.335035e-02 -2.090338e-02 -5.363684e-03 -3.466087e-02
## 1043 -7.443445e-03 -1.748108e-02 -3.920846e-03 -2.271069e-02
## 1044 -3.367269e-03 -1.374942e-02 -1.861944e-03 -1.808569e-02
## 1045 -1.213508e-02 -2.386833e-02 -1.638415e-02 -2.906465e-02
## 1046 -8.195336e-03 -1.734980e-02 -7.832924e-03 -2.414611e-02
## 1047 -1.801110e-02 -3.040932e-02 -2.172414e-02 -3.803887e-02
## 1048 -1.727094e-02 -2.740630e-02 -1.937810e-02 -4.690032e-02
## 1049 -1.347156e-02 -1.724022e-02 -1.435729e-02 -2.537477e-02
## 1050 -8.365108e-03 -9.906834e-03  5.955020e-03 -1.336394e-02
## 1051  1.021161e-03  4.315085e-03  9.976676e-03  9.358155e-03
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## 1053 -2.050247e-02 -1.501046e-02 -9.631630e-03 -3.701149e-02
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## 1055 -2.722463e-02 -8.775951e-03 -4.518975e-03 -3.538977e-02
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## 1057 -2.354806e-02 -2.458961e-03 -2.605549e-03 -2.934305e-02
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## 1059 -2.142169e-02 -2.105335e-03 -1.074621e-02 -2.540397e-02
## 1060 -2.167229e-02 -6.298553e-03 -2.392070e-02 -2.904327e-02
## 1061 -1.620704e-02 -9.480508e-03 -1.828019e-02 -2.974590e-02
## 1062 -9.917355e-03  9.512632e-04 -1.127723e-02  6.500134e-03
## 1063  3.733462e-03  7.417234e-03 -4.473465e-03  2.035095e-02
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## 1067 -1.447921e-02 -1.496155e-02 -2.935326e-02 -1.194320e-02
## 1068 -1.028585e-02 -2.126729e-02 -2.763673e-02 -1.978387e-02
## 1069 -8.132284e-03 -2.603898e-02 -2.527927e-02 -3.926568e-02
## 1070 -7.669862e-03 -2.005718e-02 -1.998186e-02 -2.133244e-02
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## 1074 -2.387828e-02 -1.730782e-02 -2.630721e-02 -7.854762e-02
## 1075 -8.260790e-03 -6.090853e-03 -1.676958e-02 -5.802943e-02
## 1076 -1.004182e-02 -2.626914e-03 -1.228834e-02 -5.806512e-02
## 1077 -1.873256e-03 -2.568589e-03 -6.427839e-03 -5.142620e-02
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## 1079 -6.576714e-03  5.944121e-03 -9.956274e-03 -5.290002e-02
## 1080 -1.053220e-02  7.364222e-04 -1.883341e-02 -7.596247e-02
## 1081 -1.240228e-02  6.377931e-04 -2.387872e-02 -8.126568e-02
## 1082 -7.065303e-03  5.379296e-03 -1.759205e-02 -4.291343e-02
## 1083  2.376096e-03  5.694842e-03 -7.705167e-03 -3.608338e-02
## 1084  2.549581e-03  6.770119e-03 -1.334605e-02 -4.149085e-02
## 1085 -7.791553e-03  3.423249e-03 -2.101334e-02 -5.305507e-02
## 1086 -1.778000e-03  4.250578e-03 -2.278520e-02 -5.154762e-02
## 1087 -3.750636e-03  1.504484e-03 -2.486199e-02 -5.070008e-02
## 1088 -5.234143e-03  6.563908e-04 -2.867424e-02 -4.222449e-02
## 1089 -7.683119e-03 -9.755144e-03 -2.496253e-02 -2.742810e-02
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## 1097  1.919670e-03  2.482143e-03 -1.491083e-02  -2.265195e-03
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## 1102  1.349726e-02  7.688981e-03 -2.245301e-02   6.570913e-03
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## 1106  1.190463e-02  6.015269e-03 -9.079933e-03   1.607540e-02
## 1107  9.121494e-03  6.435823e-04 -9.742344e-03   9.540126e-03
## 1108  3.292571e-03  6.151179e-03 -4.240607e-03   1.394328e-02
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## 1120 -1.884518e-02 -6.294545e-03 -2.231133e-02  -4.030052e-02
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## 1123 -1.107048e-03  4.868604e-03 -1.204769e-02  -1.042976e-02
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## 1125  9.632441e-03  1.499678e-02  6.360043e-03  -1.860935e-03
## 1126  1.266493e-02  1.203691e-02  1.034117e-02   8.132750e-03
## 1127  1.843367e-02  1.997295e-02  1.097161e-02   5.401289e-03
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## 1143  1.111899e-02  3.334131e-02  1.608519e-02   2.265833e-02
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## 1146  2.341176e-02  3.830090e-02  3.500750e-02   3.559702e-02
## 1147  1.794862e-02  2.789657e-02  1.910205e-02   1.208196e-02
## 1148  1.404144e-02  2.773336e-02  1.012124e-02   7.688098e-03
## 1149  1.939607e-02  2.700431e-02  1.240853e-02   8.168882e-03
## 1150  1.226111e-02  2.845581e-02  5.468853e-03   2.732943e-03
## 1151  1.624050e-02  1.952622e-02  7.534333e-03   2.154480e-03
## 1152  5.534272e-03  9.921727e-03 -5.587031e-03  -1.084279e-02
## 1153  8.717905e-03  7.339909e-03 -5.688331e-03  -5.901995e-03
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## 1156 -8.497553e-04  1.162787e-03 -2.186442e-02  -2.103736e-02
## 1157  4.181798e-03  8.475327e-03 -1.077700e-02  -6.982236e-03
## 1158  7.829300e-03  8.282084e-03 -6.648256e-03  -9.298132e-03
## 1159  5.921397e-03  7.021569e-03 -6.761933e-03  -6.842509e-03
## 1160  1.054175e-02  5.865800e-03 -7.199667e-03   1.043661e-02
## 1161  9.775016e-03  9.024608e-03 -3.790313e-03   3.132657e-03
## 1162  1.888267e-02  8.365204e-03  1.322236e-02   1.302075e-02
## 1163  1.062727e-02  1.103099e-02  8.502517e-03   2.345084e-03
## 1164  5.588672e-03  9.115889e-03  7.636690e-03   1.640485e-02
##      t_class_type_reveal_onset      wave   trial_n    tr_roi_mean
## 1                      195.1336 1.501133 118.6239 -1.110994e-02
## 2                      197.0006 1.500000 119.7560 -1.482850e-02
## 3                      198.4045 1.482320 120.6558 -9.816569e-03
## 4                      196.1017 1.453736 119.2806 -7.394675e-03
## 5                      195.6647 1.433704 118.9645 -9.052880e-03
## 6                      197.1070 1.414762 119.8067 -7.205030e-03
## 7                      197.2844 1.408454 119.8627 -4.581200e-03
## 8                      201.7193 1.406085 122.4586 -4.697879e-03
## 9                      202.3833 1.406242 122.8612 -8.285987e-03
## 10                     211.2918 1.427708 128.2616 -1.438783e-02
## 11                     211.6088 1.436701 128.4357 -1.629540e-02
## 12                     208.7550 1.441272 126.7117 -1.892697e-02
## 13                     206.5444 1.460990 125.3250 -2.204498e-02
## 14                     207.8527 1.491705 126.0968 -2.611190e-02
## 15                     207.7160 1.511851 126.0665 -2.312683e-02
## 16                     204.8320 1.532465 124.3521 -2.213128e-02
## 17                     204.8032 1.540856 124.3825 -2.222501e-02
## 18                     200.4870 1.539870 121.8532 -2.120502e-02
## 19                     199.8730 1.539456 121.4806 -1.295893e-02
## 20                     191.7284 1.518937 116.5424 -7.986238e-04
## 21                     191.3888 1.510879 116.3535  5.725095e-04
## 22                     193.4699 1.509095 117.6157  1.000770e-03
## 23                     195.5693 1.489782 118.9368  2.321486e-03
## 24                     194.2649 1.458826 118.1672  6.198370e-03
## 25                     194.2526 1.437720 118.1091  6.167453e-03
## 26                     197.1070 1.414762 119.8067  5.926552e-03
## 27                     197.2844 1.408454 119.8627  4.236205e-03
## 28                     201.7193 1.406085 122.4586  2.619181e-03
## 29                     202.3833 1.406242 122.8612 -5.889587e-03
## 30                     211.2918 1.427708 128.2616 -1.659382e-02
## 31                     211.6088 1.436701 128.4357 -1.618030e-02
## 32                     208.7550 1.441272 126.7117 -1.575241e-02
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## 343                       215.5079 1.453586 130.8649  8.206348e-03
## 344                       216.0313 1.448046 131.1998  1.124305e-02
## 345                       218.7725 1.453130 132.8905  1.193288e-02
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## 347                       217.8142 1.453989 132.3018  8.065521e-03
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## 407                       216.7424 1.456291 131.6578  3.256709e-04
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## 410                       205.4116 1.457018 124.6467  3.249583e-03
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## 510                    201.2823 1.456943 122.1291  1.405435e-02
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## 512                    202.7039 1.470401 122.9897  1.150532e-02
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## 651                    243.2336 1.429754 147.4514 -1.588482e-02
## 652                    247.3434 1.438671 149.9559 -1.236364e-02
## 653                    247.6555 1.448030 150.1507 -9.228190e-03
## 654                    244.9853 1.466502 148.5128 -6.656213e-03
## 655                    241.9813 1.490318 146.6672 -1.102598e-02
## 656                    238.1572 1.512533 144.3879 -8.942324e-03
## 657                    234.6174 1.523798 142.3327 -2.507640e-03
## 658                    230.5363 1.530698 139.9428  7.779444e-03
## 659                    226.0517 1.533013 137.3349  1.359895e-02
## 660                    219.1031 1.527277 133.1853  2.065656e-02
## 661                    213.3119 1.529372 129.6579  2.054374e-02
## 662                    209.4328 1.522722 127.2987  2.138791e-02
## 663                    207.8538 1.516883 126.3473  2.198121e-02
## 664                    209.2809 1.500730 127.2414  2.230644e-02
## 665                    211.3312 1.476800 128.5214  2.862041e-02
## 666                    215.3088 1.453404 130.8925  3.063546e-02
## 667                    218.8993 1.440841 132.9752  3.210718e-02
## 668                    223.1212 1.431525 135.4444  3.117706e-02
## 669                    228.1457 1.426839 138.3625  3.282302e-02
## 670                    236.4338 1.431976 143.3085  3.089725e-02
## 671                    243.2336 1.429754 147.4514  3.919853e-02
## 672                    247.3434 1.438671 149.9559  4.631260e-02
## 673                    247.6555 1.448030 150.1507  4.904261e-02
## 674                    244.9853 1.466502 148.5128  5.291780e-02
## 675                    241.9813 1.490318 146.6672  5.327319e-02
## 676                    238.1572 1.512533 144.3879  5.361540e-02
## 677                    234.6174 1.523798 142.3327  5.559044e-02
## 678                    230.5363 1.530698 139.9428  5.491254e-02
## 679                    226.0517 1.533013 137.3349  5.192179e-02
## 680                    219.1031 1.527277 133.1853  4.785343e-02
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## 681                      213.3119 1.529372 129.6579   3.959569e-02
## 682                      209.4328 1.522722 127.2987   3.322304e-02
## 683                      207.8538 1.516883 126.3473   2.789591e-02
## 684                      209.2809 1.500730 127.2414   2.036549e-02
## 685                      211.3312 1.476800 128.5214   1.599631e-02
## 686                      215.3088 1.453404 130.8925   1.326847e-02
## 687                      218.8993 1.440841 132.9752   6.187840e-03
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## 689                      228.1457 1.426839 138.3625   8.439300e-04
## 690                      236.4338 1.431976 143.3085   1.277187e-03
## 691                      243.2336 1.429754 147.4514   2.794359e-03
## 692                      247.3434 1.438671 149.9559   6.673541e-03
## 693                      247.6555 1.448030 150.1507   1.542675e-02
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## 697                      234.6174 1.523798 142.3327   3.444784e-02
## 698                      230.5363 1.530698 139.9428   3.487118e-02
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## 707                      218.7970 1.440558 132.9133   6.238046e-02
## 708                      222.9680 1.431084 135.3517   6.492275e-02
## 709                      227.6881 1.425476 138.0851   7.052936e-02
## 710                      235.7908 1.429992 142.9183   6.832446e-02
## 711                      242.1386 1.426230 146.7866   6.661128e-02
## 712                      245.6388 1.433138 148.9206   6.772854e-02
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## 714                      242.6234 1.459311 147.0774   7.097823e-02
## 715                      239.4759 1.483152 145.1440   6.854630e-02
## 716                      235.6018 1.505689 142.8349   6.552846e-02
## 717                      232.0788 1.517283 140.7912   6.730065e-02
## 718                      228.0343 1.524505 138.4246   6.798295e-02
## 719                      223.8093 1.527617 135.9753   6.697420e-02
## 720                      216.9970 1.522323 131.9089   7.087750e-02
## 721                      211.6166 1.525513 128.6301   7.173460e-02
## 722                      208.3697 1.520312 126.6539   7.136147e-02
## 723                      207.2518 1.516221 125.9818   7.486567e-02
## 724                      208.4603 1.501466 126.7421   7.952505e-02
## 725                      210.3366 1.478831 127.9158   8.545241e-02
## 726                      213.4510 1.457288 129.7599   9.218367e-02
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## 731                      236.7134 1.434349 143.4648   8.876493e-02
## 732                      238.8437 1.440753 144.7641   8.905012e-02
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## 735                     229.7435 1.490286 139.1999  8.613406e-02
## 736                     226.2645 1.511705 137.1364  8.565715e-02
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## 755                     228.9787 1.488193 138.7325  5.750609e-02
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## 757                     221.6798 1.516603 134.4510  5.738163e-02
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## 789                   223.3012 1.433360 135.4001  2.948902e-02
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## 799                   213.4973 1.523126 129.7030  2.051559e-02
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## 802                   199.4638 1.517712 121.2437  8.434484e-03
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## 843                    199.4383 1.515725 121.2383 -1.965939e-04
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## 850                    227.3415 1.446820 137.7665  2.922086e-04
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## 890                    232.6596 1.589286 140.8490 -3.897937e-03
## 891                    231.6070 1.603834 140.1741  4.960305e-03
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## 893                    223.3356 1.618284 135.1155 -1.261045e-02
## 894                    223.7611 1.618971 135.3650 -4.879320e-03
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## 951                 226.6650 1.591406 137.1719  1.170960e-03
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## 953                 204.3617 1.603663 123.5612 -1.668949e-02
## 954                 204.7085 1.604258 123.7636 -1.513666e-02
## 955                 203.3460 1.597770 122.9048 -2.710814e-02
## 956                 202.7478 1.585169 122.5698 -1.800181e-02
## 957                 204.0185 1.597315 123.3758 -1.371094e-02
## 958                 206.5366 1.604966 124.9127 -1.051332e-02
## 959                 205.4418 1.604580 124.3099 -1.225495e-02
## 960                 206.0128 1.600306 124.6784 -4.889861e-03
## 961                 204.1650 1.591398 123.5853 -3.655795e-03
## 962                 225.3866 1.579747 136.5392  1.626532e-02
## 963                 227.6091 1.577650 137.9022  2.076130e-02
## 964                 227.1648 1.577049 137.6410  1.848179e-02
## 965                 228.3376 1.584479 138.3840  1.842387e-02
## 966                 229.3537 1.598361 138.9738  9.287474e-03
## 967                 227.5304 1.585012 137.8251  1.494511e-02
## 968                 224.6344 1.577015 136.0567  7.106221e-03
## 969                 225.4916 1.577830 136.5110  4.793146e-03
## 970                 224.8443 1.582288 136.0956 -1.753491e-03
## 971                 226.6650 1.591406 137.1719 -1.245037e-02
## 972                 206.7794 1.601288 125.0458 -1.681878e-02
## 973                 204.3617 1.603663 123.5612 -1.810393e-02
## 974                 204.7085 1.604258 123.7636 -1.963169e-02
## 975                 203.3460 1.597770 122.9048 -1.862410e-02
## 976                 202.7478 1.585169 122.5698 -8.111124e-03
## 977                 204.0185 1.597315 123.3758 -1.596230e-02
## 978                 206.5366 1.604966 124.9127 -1.030126e-02
## 979                 205.2760 1.605042 124.2101 -6.016405e-03
## 980                 205.5145 1.601688 124.3784 -5.619512e-03
## 981                 203.6609 1.592764 123.2818  3.699907e-03
## 982                 224.3843 1.582697 135.9364  3.475209e-03
## 983                 226.1589 1.581954 137.0298 -1.280541e-02
## 984                 225.3901 1.582299 136.5732 -1.377657e-02
## 985                 226.5980 1.589723 137.3377 -6.937892e-03
## 986                 227.4381 1.604305 137.8212 -1.042447e-02
## 987                 225.6297 1.590724 136.6810 -2.873492e-03
## 988                 222.7241 1.582595 134.9065 -3.388338e-03
## 989                 223.7760 1.582871 135.4774 -4.568507e-03
## 990                 223.4431 1.586425 135.2510 -3.980823e-03
## 991                 225.2811 1.595594 136.3375  4.043200e-05
## 992                 205.8509 1.603882 124.4853  2.576402e-02
## 993                 203.8824 1.604993 123.2717  3.766298e-02
## 994                 204.5490 1.604702 123.6672  3.833242e-02
## 995                 203.1834 1.598214 122.8065  3.338725e-02
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## 997                 204.0185 1.597315 123.3758  3.293422e-02
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## 999                 205.2760 1.605042 124.2101  3.217525e-02
## 1000                205.5145 1.601688 124.3784  2.993023e-02
## 1001                203.6609 1.592764 123.2818  3.062892e-02
## 1002                224.3843 1.582697 135.9364  1.251140e-02
## 1003                226.1589 1.581954 137.0298  1.233795e-02
## 1004                225.3901 1.582299 136.5732  1.551410e-02
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## 1005                    226.5980 1.589723 137.3377  2.002075e-02
## 1006                    227.4381 1.604305 137.8212  1.659157e-02
## 1007                    225.6297 1.590724 136.6810  9.114211e-03
## 1008                    222.7241 1.582595 134.9065  1.150321e-02
## 1009                    223.7760 1.582871 135.4774  8.644295e-03
## 1010                    223.4431 1.586425 135.2510  1.358223e-02
## 1011                    225.2811 1.595594 136.3375  1.104188e-02
## 1012                    205.8509 1.603882 124.4853  1.420485e-02
## 1013                    203.8824 1.604993 123.2717  1.454946e-02
## 1014                    204.5490 1.604702 123.6672  1.347628e-02
## 1015                    203.1834 1.598214 122.8065  1.372794e-02
## 1016                    202.7478 1.585169 122.5698  1.393778e-02
## 1017                    204.0185 1.597315 123.3758  1.444761e-02
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## 1023                    226.1589 1.581954 137.0298 -7.369485e-03
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## 1030                    223.4431 1.586425 135.2510  1.786500e-02
## 1031                    225.2811 1.595594 136.3375  1.752531e-02
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## 1033                    203.8824 1.604993 123.2717  4.710433e-03
## 1034                    204.5490 1.604702 123.6672  1.925529e-03
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## 1036                    202.7478 1.585169 122.5698 -2.041825e-04
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## 1039                    204.9525 1.605968 124.0130  6.984446e-03
## 1040                    204.8646 1.602771 123.9823 -2.127834e-03
## 1041                    203.0033 1.593822 122.8811 -1.440936e-02
## 1042                    223.5661 1.583475 135.4378 -8.206274e-03
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## 1044                    224.2777 1.582363 135.8952  2.990556e-03
## 1045                    225.0382 1.588816 136.3865 -8.128673e-03
## 1046                    225.8618 1.603506 136.8598 -1.611278e-03
## 1047                    224.0658 1.589828 135.7268 -1.454494e-02
## 1048                    221.1526 1.580829 133.9472 -1.630841e-02
## 1049                    222.3932 1.580671 134.6326 -8.823755e-03
## 1050                    221.9123 1.583134 134.3142  2.170809e-03
## 1051                    223.7697 1.592387 135.4124  1.305357e-02
## 1052                    204.4835 1.601302 123.6483 -1.370933e-03
## 1053                    202.7880 1.602952 122.6015 -1.033526e-02
## 1054                    203.4573 1.602659 122.9985 -1.126136e-02
## 1055                    202.5496 1.597015 122.4179 -9.706232e-03
## 1056                    202.1211 1.583947 122.1856 -1.499146e-02
## 1057                    203.3857 1.596111 122.9880 -4.566197e-03
## 1058                    205.9049 1.604528 124.5260 -2.567151e-03
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## 1059                    204.4682 1.605061 123.7163 -4.733144e-03
## 1060                    204.8646 1.602771 123.9823 -1.102845e-02
## 1061                    202.8399 1.594281 122.7821 -1.019233e-02
## 1062                    223.2406 1.584471 135.2406  4.711980e-04
## 1063                    224.4178 1.583960 135.9708  1.098293e-02
## 1064                    223.4843 1.584795 135.4144  2.940986e-03
## 1065                    224.1003 1.591736 135.8182 -2.612897e-03
## 1066                    224.9140 1.606544 136.2852 -3.891305e-03
## 1067                    223.1255 1.592745 135.1566 -1.061464e-02
## 1068                    220.0492 1.584150 133.2778 -1.298721e-02
## 1069                    221.3154 1.583936 133.9783 -1.577839e-02
## 1070                    220.8361 1.586400 133.6608 -8.640344e-03
## 1071                    222.8601 1.595219 134.8598 -1.192837e-02
## 1072                    203.7227 1.603486 123.1859 -2.424132e-02
## 1073                    202.3196 1.604290 122.3166 -2.978347e-02
## 1074                    203.1461 1.603550 122.8092 -2.722109e-02
## 1075                    202.3919 1.597461 122.3219 -1.656277e-02
## 1076                    201.9652 1.584377 122.0906 -1.645541e-02
## 1077                    203.0714 1.596255 122.7963 -1.375557e-02
## 1078                    205.7487 1.604230 124.4305 -1.240919e-02
## 1079                    203.8279 1.603846 123.3246 -1.481898e-02
## 1080                    204.2230 1.601544 123.5900 -2.461127e-02
## 1081                    201.8632 1.593944 122.1848 -2.598066e-02
## 1082                    222.1037 1.584549 134.5451 -1.096820e-02
## 1083                    222.9938 1.584175 135.0993 -4.180680e-03
## 1084                    222.0532 1.585017 134.5387 -7.613833e-03
## 1085                    222.3737 1.592160 134.7615 -1.386629e-02
## 1086                    222.8485 1.606446 135.0204 -1.080151e-02
## 1087                    221.2363 1.592839 133.9992 -1.246851e-02
## 1088                    218.1467 1.584158 132.1122 -1.366903e-02
## 1089                    219.9263 1.584951 133.1262 -1.350079e-02
## 1090                    219.4491 1.587429 132.8098 -4.949892e-03
## 1091                    221.7991 1.595353 134.2083 -1.131470e-02
## 1092                    202.8114 1.603209 122.6265 -1.622775e-02
## 1093                    201.6977 1.603858 121.9347 -2.063303e-02
## 1094                    202.5267 1.603116 122.4288 -1.922106e-02
## 1095                    202.0786 1.596859 122.1294 -1.095749e-02
## 1096                    201.9652 1.584377 122.0906 -8.475237e-03
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## 1106                    222.6897 1.606112 134.9236  1.392878e-03
## 1107                    220.9218 1.592160 133.8073 -2.907679e-03
## 1108                    217.8299 1.583471 131.9190  3.164390e-04
## 1109                    219.6186 1.584279 132.9384 -5.739040e-03
## 1110                    219.1418 1.586764 132.6223 -5.551854e-03
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## 1112                    201.5989 1.600880 121.8848 -2.044401e-02
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## 1113                        200.1458 1.600897 120.9851 -2.202114e-02
## 1114                        200.8253 1.600598 121.3889 -2.488856e-02
## 1115                        199.7291 1.596067 120.6914 -2.502900e-02
## 1116                        199.6494 1.583458 120.6736 -2.484287e-02
## 1117                        200.7304 1.596212 121.3652 -2.387130e-02
## 1118                        203.2618 1.604740 122.9113 -2.913687e-02
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## 1120                        201.0114 1.601569 121.6290 -2.290301e-02
## 1121                        198.7636 1.594957 120.2939 -1.159762e-02
## 1122                        219.6684 1.586957 133.0609  4.504872e-03
## 1123                        220.9386 1.587234 133.8477  1.081599e-03
## 1124                        220.1484 1.587585 133.3776  7.387405e-03
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## 1126                        221.5785 1.607173 134.2485  1.677713e-02
## 1127                        219.9781 1.592624 133.2330  1.770500e-02
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## 1129                        219.4655 1.584753 132.8459  1.899706e-02
## 1130                        218.9890 1.587237 132.5299  1.615047e-02
## 1131                        221.1953 1.594051 133.8392  1.110284e-02
## 1132                        201.5989 1.600880 121.8848 -8.015902e-03
## 1133                        200.1458 1.600897 120.9851 -9.069139e-03
## 1134                        200.8253 1.600598 121.3889 -1.630971e-02
## 1135                        199.7291 1.596067 120.6914 -2.220907e-02
## 1136                        199.6494 1.583458 120.6736 -2.255682e-02
## 1137                        200.7304 1.596212 121.3652 -1.507142e-02
## 1138                        203.2618 1.604740 122.9113 -1.005079e-02
## 1139                        200.6226 1.603906 121.3672 -7.830423e-03
## 1140                        201.0114 1.601569 121.6290 -1.818376e-03
## 1141                        198.7636 1.594957 120.2939 -5.678570e-04
## 1142                        219.6684 1.586957 133.0609  1.973761e-02
## 1143                        220.9386 1.587234 133.8477  2.307095e-02
## 1144                        220.1484 1.587585 133.3776  3.395322e-02
## 1145                        220.8108 1.592935 133.8124  3.723857e-02
## 1146                        220.9466 1.607541 133.8655  3.420179e-02
## 1147                        219.0384 1.593934 132.6647  1.980141e-02
## 1148                        216.0937 1.584654 130.8649  1.412847e-02
## 1149                        217.7888 1.588380 131.8249  1.375217e-02
## 1150                        217.0077 1.591837 131.3233  8.529860e-03
## 1151                        219.2470 1.598700 132.6523  5.350853e-03
## 1152                        199.3285 1.605341 120.5000 -3.535563e-03
## 1153                        197.1873 1.605004 119.1789 -1.044616e-03
## 1154                        197.7170 1.605163 119.4905 -8.238160e-03
## 1155                        196.5697 1.599846 118.7588 -1.497209e-02
## 1156                        196.8528 1.586858 118.9622 -1.506890e-02
## 1157                        197.7441 1.598002 119.5334 -5.388720e-03
## 1158                        200.1263 1.606366 120.9876 -4.547478e-03
## 1159                        198.1984 1.603162 119.8806 -4.533405e-03
## 1160                        198.9101 1.599842 120.3391  1.078332e-03
## 1161                        196.6289 1.593153 118.9841  4.473184e-03
## 1162                        217.8789 1.584723 131.9622  1.233366e-02
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##      run_mean_across_rois offset_start   condition
## 1              0.001242466        -10.0 FailedStop
```

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## 2           0.001221124        -9.9  FailedStop
## 3           0.001286349        -9.8  FailedStop
## 4           0.001352369        -9.7  FailedStop
## 5           0.001400926        -9.6  FailedStop
## 6           0.001470850        -9.5  FailedStop
## 7           0.001405952        -9.4  FailedStop
## 8           0.001354902        -9.3  FailedStop
## 9           0.001466082        -9.2  FailedStop
## 10          0.001399550        -9.1  FailedStop
## 11          0.001475474        -9.0  FailedStop
## 12          0.001478436        -8.9  FailedStop
## 13          0.001422291        -8.8  FailedStop
## 14          0.001369681        -8.7  FailedStop
## 15          0.001324324        -8.6  FailedStop
## 16          0.001249701        -8.5  FailedStop
## 17          0.001309156        -8.4  FailedStop
## 18          0.001359086        -8.3  FailedStop
## 19          0.001255853        -8.2  FailedStop
## 20          0.001318151        -8.1  FailedStop
## 21          0.001248045        -8.0  FailedStop
## 22          0.001236677        -7.9  FailedStop
## 23          0.001291253        -7.8  FailedStop
## 24          0.001344369        -7.7  FailedStop
## 25          0.001390771        -7.6  FailedStop
## 26          0.001470850        -7.5  FailedStop
## 27          0.001405952        -7.4  FailedStop
## 28          0.001354902        -7.3  FailedStop
## 29          0.001466082        -7.2  FailedStop
## 30          0.001399550        -7.1  FailedStop
## 31          0.001475474        -7.0  FailedStop
## 32          0.001478436        -6.9  FailedStop
## 33          0.001422291        -6.8  FailedStop
## 34          0.001369681        -6.7  FailedStop
## 35          0.001324324        -6.6  FailedStop
## 36          0.001249701        -6.5  FailedStop
## 37          0.001309156        -6.4  FailedStop
## 38          0.001359086        -6.3  FailedStop
## 39          0.001255853        -6.2  FailedStop
## 40          0.001318151        -6.1  FailedStop
## 41          0.001248045        -6.0  FailedStop
## 42          0.001236677        -5.9  FailedStop
## 43          0.001291253        -5.8  FailedStop
## 44          0.001344369        -5.7  FailedStop
## 45          0.001390294        -5.6  FailedStop
## 46          0.001470347        -5.5  FailedStop
## 47          0.001405473        -5.4  FailedStop
## 48          0.001354423        -5.3  FailedStop
## 49          0.001462213        -5.2  FailedStop
## 50          0.001397317        -5.1  FailedStop
## 51          0.001470442        -5.0  FailedStop
## 52          0.001473515        -4.9  FailedStop
## 53          0.001418760        -4.8  FailedStop
## 54          0.001367413        -4.7  FailedStop
## 55          0.001323597        -4.6  FailedStop
```

```
## 56           0.001250720           -4.5   FailedStop
## 57           0.001308786           -4.4   FailedStop
## 58           0.001357569           -4.3   FailedStop
## 59           0.001276457           -4.2   FailedStop
## 60           0.001337329           -4.1   FailedStop
## 61           0.001269532           -4.0   FailedStop
## 62           0.001259186           -3.9   FailedStop
## 63           0.001312774           -3.8   FailedStop
## 64           0.001364720           -3.7   FailedStop
## 65           0.001409864           -3.6   FailedStop
## 66           0.001488433           -3.5   FailedStop
## 67           0.001424629           -3.4   FailedStop
## 68           0.001375199           -3.3   FailedStop
## 69           0.001462213           -3.2   FailedStop
## 70           0.001397317           -3.1   FailedStop
## 71           0.001470442           -3.0   FailedStop
## 72           0.001473515           -2.9   FailedStop
## 73           0.001418760           -2.8   FailedStop
## 74           0.001367413           -2.7   FailedStop
## 75           0.001323597           -2.6   FailedStop
## 76           0.001250720           -2.5   FailedStop
## 77           0.001308786           -2.4   FailedStop
## 78           0.001357569           -2.3   FailedStop
## 79           0.001276457           -2.2   FailedStop
## 80           0.001337329           -2.1   FailedStop
## 81           0.001269532           -2.0   FailedStop
## 82           0.001259186           -1.9   FailedStop
## 83           0.001312774           -1.8   FailedStop
## 84           0.001364720           -1.7   FailedStop
## 85           0.001409864           -1.6   FailedStop
## 86           0.001488433           -1.5   FailedStop
## 87           0.001424629           -1.4   FailedStop
## 88           0.001375199           -1.3   FailedStop
## 89           0.001462213           -1.2   FailedStop
## 90           0.001397317           -1.1   FailedStop
## 91           0.001470442           -1.0   FailedStop
## 92           0.001473515           -0.9   FailedStop
## 93           0.001418760           -0.8   FailedStop
## 94           0.001367413           -0.7   FailedStop
## 95           0.001323597           -0.6   FailedStop
## 96           0.001250720           -0.5   FailedStop
## 97           0.001308786           -0.4   FailedStop
## 98           0.001357569           -0.3   FailedStop
## 99           0.001276457           -0.2   FailedStop
## 100          0.001337329           -0.1   FailedStop
## 101          0.001269532            0.0   FailedStop
## 102          0.001259186            0.1   FailedStop
## 103          0.001312774            0.2   FailedStop
## 104          0.001364720            0.3   FailedStop
## 105          0.001409864            0.4   FailedStop
## 106          0.001488433            0.5   FailedStop
## 107          0.001424629            0.6   FailedStop
## 108          0.001375199            0.7   FailedStop
## 109          0.001462213            0.8   FailedStop
```

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## 110          0.001397317         0.9  FailedStop
## 111          0.001470442         1.0  FailedStop
## 112          0.001473515         1.1  FailedStop
## 113          0.001418760         1.2  FailedStop
## 114          0.001367413         1.3  FailedStop
## 115          0.001323597         1.4  FailedStop
## 116          0.001250720         1.5  FailedStop
## 117          0.001308786         1.6  FailedStop
## 118          0.001357569         1.7  FailedStop
## 119          0.001276457         1.8  FailedStop
## 120          0.001337329         1.9  FailedStop
## 121          0.001270276         2.0  FailedStop
## 122          0.001259955         2.1  FailedStop
## 123          0.001313561         2.2  FailedStop
## 124          0.001365517         2.3  FailedStop
## 125          0.001410680         2.4  FailedStop
## 126          0.001491648         2.5  FailedStop
## 127          0.001428036         2.6  FailedStop
## 128          0.001382572         2.7  FailedStop
## 129          0.001468106         2.8  FailedStop
## 130          0.001412039         2.9  FailedStop
## 131          0.001482423         3.0  FailedStop
## 132          0.001481111         3.1  FailedStop
## 133          0.001430892         3.2  FailedStop
## 134          0.001378797         3.3  FailedStop
## 135          0.001334217         3.4  FailedStop
## 136          0.001257925         3.5  FailedStop
## 137          0.001316712         3.6  FailedStop
## 138          0.001362309         3.7  FailedStop
## 139          0.001282162         3.8  FailedStop
## 140          0.001335423         3.9  FailedStop
## 141          0.001270468         4.0  FailedStop
## 142          0.001261197         4.1  FailedStop
## 143          0.001302343         4.2  FailedStop
## 144          0.001347224         4.3  FailedStop
## 145          0.001390451         4.4  FailedStop
## 146          0.001466260         4.5  FailedStop
## 147          0.001407456         4.6  FailedStop
## 148          0.001361632         4.7  FailedStop
## 149          0.001449434         4.8  FailedStop
## 150          0.001409297         4.9  FailedStop
## 151          0.001464922         5.0  FailedStop
## 152          0.001484755         5.1  FailedStop
## 153          0.001439902         5.2  FailedStop
## 154          0.001418907         5.3  FailedStop
## 155          0.001374172         5.4  FailedStop
## 156          0.001300496         5.5  FailedStop
## 157          0.001357038         5.6  FailedStop
## 158          0.001402043         5.7  FailedStop
## 159          0.001319242         5.8  FailedStop
## 160          0.001357684         5.9  FailedStop
## 161          0.001307435         6.0  FailedStop
## 162          0.001283603         6.1  FailedStop
## 163          0.001326318         6.2  FailedStop
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## 164        0.001347224        6.3    FailedStop
## 165        0.001390451        6.4    FailedStop
## 166        0.001466260        6.5    FailedStop
## 167        0.001407456        6.6    FailedStop
## 168        0.001361632        6.7    FailedStop
## 169        0.001449434        6.8    FailedStop
## 170        0.001409297        6.9    FailedStop
## 171        0.001464922        7.0    FailedStop
## 172        0.001486900        7.1    FailedStop
## 173        0.001439539        7.2    FailedStop
## 174        0.001418990        7.3    FailedStop
## 175        0.001368275        7.4    FailedStop
## 176        0.001295402        7.5    FailedStop
## 177        0.001352620        7.6    FailedStop
## 178        0.001409937        7.7    FailedStop
## 179        0.001325869        7.8    FailedStop
## 180        0.001364788        7.9    FailedStop
## 181        0.001313774        8.0    FailedStop
## 182        0.001287723        8.1    FailedStop
## 183        0.001333722        8.2    FailedStop
## 184        0.001354499        8.3    FailedStop
## 185        0.001403985        8.4    FailedStop
## 186        0.001478965        8.5    FailedStop
## 187        0.001419329        8.6    FailedStop
## 188        0.001361632        8.7    FailedStop
## 189        0.001449434        8.8    FailedStop
## 190        0.001409297        8.9    FailedStop
## 191        0.001464922        9.0    FailedStop
## 192        0.001486900        9.1    FailedStop
## 193        0.001439539        9.2    FailedStop
## 194        0.001418990        9.3    FailedStop
## 195        0.001368275        9.4    FailedStop
## 196        0.001295402        9.5    FailedStop
## 197        0.001352620        9.6    FailedStop
## 198        0.001409937        9.7    FailedStop
## 199        0.001325869        9.8    FailedStop
## 200        0.001364788        9.9    FailedStop
## 201        0.001313774       10.0    FailedStop
## 202        0.001287723       10.1    FailedStop
## 203        0.001333722       10.2    FailedStop
## 204        0.001354499       10.3    FailedStop
## 205        0.001403985       10.4    FailedStop
## 206        0.001478965       10.5    FailedStop
## 207        0.001419329       10.6    FailedStop
## 208        0.001361632       10.7    FailedStop
## 209        0.001449434       10.8    FailedStop
## 210        0.001409297       10.9    FailedStop
## 211        0.001464922       11.0    FailedStop
## 212        0.001486900       11.1    FailedStop
## 213        0.001439539       11.2    FailedStop
## 214        0.001418990       11.3    FailedStop
## 215        0.001368275       11.4    FailedStop
## 216        0.001295402       11.5    FailedStop
## 217        0.001349761       11.6    FailedStop
```

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## 218        0.001405976      11.7  FailedStop
## 219        0.001321171      11.8  FailedStop
## 220        0.001357717      11.9  FailedStop
## 221        0.001292728      12.0  FailedStop
## 222        0.001266456      12.1  FailedStop
## 223        0.001307141      12.2  FailedStop
## 224        0.001348436      12.3  FailedStop
## 225        0.001401047      12.4  FailedStop
## 226        0.001477167      12.5  FailedStop
## 227        0.001419464      12.6  FailedStop
## 228        0.001362174      12.7  FailedStop
## 229        0.001451757      12.8  FailedStop
## 230        0.001413800      12.9  FailedStop
## 231        0.001484405      13.0  FailedStop
## 232        0.001505015      13.1  FailedStop
## 233        0.001462787      13.2  FailedStop
## 234        0.001421441      13.3  FailedStop
## 235        0.001368275      13.4  FailedStop
## 236        0.001295402      13.5  FailedStop
## 237        0.001349761      13.6  FailedStop
## 238        0.001405976      13.7  FailedStop
## 239        0.001321171      13.8  FailedStop
## 240        0.001357717      13.9  FailedStop
## 241        0.001292728      14.0  FailedStop
## 242        0.001266456      14.1  FailedStop
## 243        0.001307141      14.2  FailedStop
## 244        0.001348436      14.3  FailedStop
## 245        0.001401047      14.4  FailedStop
## 246        0.001477167      14.5  FailedStop
## 247        0.001419464      14.6  FailedStop
## 248        0.001362174      14.7  FailedStop
## 249        0.001451757      14.8  FailedStop
## 250        0.001413800      14.9  FailedStop
## 251        0.001484405      15.0  FailedStop
## 252        0.001505015      15.1  FailedStop
## 253        0.001462787      15.2  FailedStop
## 254        0.001421441      15.3  FailedStop
## 255        0.001368275      15.4  FailedStop
## 256        0.001295402      15.5  FailedStop
## 257        0.001349761      15.6  FailedStop
## 258        0.001405976      15.7  FailedStop
## 259        0.001321171      15.8  FailedStop
## 260        0.001357717      15.9  FailedStop
## 261        0.001292728      16.0  FailedStop
## 262        0.001266456      16.1  FailedStop
## 263        0.001307141      16.2  FailedStop
## 264        0.001348436      16.3  FailedStop
## 265        0.001401047      16.4  FailedStop
## 266        0.001477167      16.5  FailedStop
## 267        0.001419464      16.6  FailedStop
## 268        0.001362174      16.7  FailedStop
## 269        0.001451757      16.8  FailedStop
## 270        0.001413800      16.9  FailedStop
## 271        0.001484405      17.0  FailedStop
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## 272        0.001505015        17.1   FailedStop
## 273        0.001462787        17.2   FailedStop
## 274        0.001421441        17.3   FailedStop
## 275        0.001368275        17.4   FailedStop
## 276        0.001295402        17.5   FailedStop
## 277        0.001349761        17.6   FailedStop
## 278        0.001405976        17.7   FailedStop
## 279        0.001321171        17.8   FailedStop
## 280        0.001357717        17.9   FailedStop
## 281        0.001292728        18.0   FailedStop
## 282        0.001266456        18.1   FailedStop
## 283        0.001307141        18.2   FailedStop
## 284        0.001348436        18.3   FailedStop
## 285        0.001401047        18.4   FailedStop
## 286        0.001477167        18.5   FailedStop
## 287        0.001419464        18.6   FailedStop
## 288        0.001362174        18.7   FailedStop
## 289        0.001451757        18.8   FailedStop
## 290        0.001413800        18.9   FailedStop
## 291        0.001484405        19.0   FailedStop
## 292        0.001603938       -10.0   CorrectGo
## 293        0.001602874        -9.9   CorrectGo
## 294        0.001577177        -9.8   CorrectGo
## 295        0.001579979        -9.7   CorrectGo
## 296        0.001571181        -9.6   CorrectGo
## 297        0.001596656        -9.5   CorrectGo
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## 299        0.001614493        -9.3   CorrectGo
## 300        0.001600611        -9.2   CorrectGo
## 301        0.001644767        -9.1   CorrectGo
## 302        0.001642287        -9.0   CorrectGo
## 303        0.001642838        -8.9   CorrectGo
## 304        0.001670673        -8.8   CorrectGo
## 305        0.001666653        -8.7   CorrectGo
## 306        0.001672548        -8.6   CorrectGo
## 307        0.001645564        -8.5   CorrectGo
## 308        0.001641679        -8.4   CorrectGo
## 309        0.001627519        -8.3   CorrectGo
## 310        0.001638863        -8.2   CorrectGo
## 311        0.001601420        -8.1   CorrectGo
## 312        0.001603326        -8.0   CorrectGo
## 313        0.001602348        -7.9   CorrectGo
## 314        0.001576647        -7.8   CorrectGo
## 315        0.001579443        -7.7   CorrectGo
## 316        0.001570794        -7.6   CorrectGo
## 317        0.001595129        -7.5   CorrectGo
## 318        0.001593093        -7.4   CorrectGo
## 319        0.001609922        -7.3   CorrectGo
## 320        0.001596004        -7.2   CorrectGo
## 321        0.001639755        -7.1   CorrectGo
## 322        0.001637328        -7.0   CorrectGo
## 323        0.001637945        -6.9   CorrectGo
## 324        0.001665595        -6.8   CorrectGo
## 325        0.001663158        -6.7   CorrectGo
```

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## 326          0.001669088          -6.6     CorrectGo
## 327          0.001643913          -6.5     CorrectGo
## 328          0.001644878          -6.4     CorrectGo
## 329          0.001629053          -6.3     CorrectGo
## 330          0.001640300          -6.2     CorrectGo
## 331          0.001603021          -6.1     CorrectGo
## 332          0.001604927          -6.0     CorrectGo
## 333          0.001603973          -5.9     CorrectGo
## 334          0.001578408          -5.8     CorrectGo
## 335          0.001579443          -5.7     CorrectGo
## 336          0.001570794          -5.6     CorrectGo
## 337          0.001595129          -5.5     CorrectGo
## 338          0.001593093          -5.4     CorrectGo
## 339          0.001609922          -5.3     CorrectGo
## 340          0.001596004          -5.2     CorrectGo
## 341          0.001639755          -5.1     CorrectGo
## 342          0.001637328          -5.0     CorrectGo
## 343          0.001637945          -4.9     CorrectGo
## 344          0.001665595          -4.8     CorrectGo
## 345          0.001663158          -4.7     CorrectGo
## 346          0.001669088          -4.6     CorrectGo
## 347          0.001643913          -4.5     CorrectGo
## 348          0.001644878          -4.4     CorrectGo
## 349          0.001628903          -4.3     CorrectGo
## 350          0.001637752          -4.2     CorrectGo
## 351          0.001600896          -4.1     CorrectGo
## 352          0.001602770          -4.0     CorrectGo
## 353          0.001601800          -3.9     CorrectGo
## 354          0.001576510          -3.8     CorrectGo
## 355          0.001577506          -3.7     CorrectGo
## 356          0.001568901          -3.6     CorrectGo
## 357          0.001592898          -3.5     CorrectGo
## 358          0.001590843          -3.4     CorrectGo
## 359          0.001607592          -3.3     CorrectGo
## 360          0.001596004          -3.2     CorrectGo
## 361          0.001639755          -3.1     CorrectGo
## 362          0.001637328          -3.0     CorrectGo
## 363          0.001637945          -2.9     CorrectGo
## 364          0.001665595          -2.8     CorrectGo
## 365          0.001663158          -2.7     CorrectGo
## 366          0.001669088          -2.6     CorrectGo
## 367          0.001643913          -2.5     CorrectGo
## 368          0.001644878          -2.4     CorrectGo
## 369          0.001628903          -2.3     CorrectGo
## 370          0.001637752          -2.2     CorrectGo
## 371          0.001600896          -2.1     CorrectGo
## 372          0.001602770          -2.0     CorrectGo
## 373          0.001601800          -1.9     CorrectGo
## 374          0.001576510          -1.8     CorrectGo
## 375          0.001577506          -1.7     CorrectGo
## 376          0.001568901          -1.6     CorrectGo
## 377          0.001592898          -1.5     CorrectGo
## 378          0.001590843          -1.4     CorrectGo
## 379          0.001607592          -1.3     CorrectGo
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## 380          0.001596004          -1.2     CorrectGo
## 381          0.001639755          -1.1     CorrectGo
## 382          0.001637328          -1.0     CorrectGo
## 383          0.001637945          -0.9     CorrectGo
## 384          0.001665595          -0.8     CorrectGo
## 385          0.001663322          -0.7     CorrectGo
## 386          0.001669545          -0.6     CorrectGo
## 387          0.001644360          -0.5     CorrectGo
## 388          0.001645318          -0.4     CorrectGo
## 389          0.001629427          -0.3     CorrectGo
## 390          0.001638255          -0.2     CorrectGo
## 391          0.001601396          -0.1     CorrectGo
## 392          0.001603272           0.0     CorrectGo
## 393          0.001602308           0.1     CorrectGo
## 394          0.001577021           0.2     CorrectGo
## 395          0.001577877           0.3     CorrectGo
## 396          0.001568992           0.4     CorrectGo
## 397          0.001592991           0.5     CorrectGo
## 398          0.001590938           0.6     CorrectGo
## 399          0.001606693           0.7     CorrectGo
## 400          0.001594699           0.8     CorrectGo
## 401          0.001639300           0.9     CorrectGo
## 402          0.001634081           1.0     CorrectGo
## 403          0.001636651           1.1     CorrectGo
## 404          0.001663687           1.2     CorrectGo
## 405          0.001663644           1.3     CorrectGo
## 406          0.001669889           1.4     CorrectGo
## 407          0.001644864           1.5     CorrectGo
## 408          0.001645817           1.6     CorrectGo
## 409          0.001630758           1.7     CorrectGo
## 410          0.001639862           1.8     CorrectGo
## 411          0.001602177           1.9     CorrectGo
## 412          0.001606484           2.0     CorrectGo
## 413          0.001603924           2.1     CorrectGo
## 414          0.001579333           2.2     CorrectGo
## 415          0.001578248           2.3     CorrectGo
## 416          0.001569374           2.4     CorrectGo
## 417          0.001593085           2.5     CorrectGo
## 418          0.001591034           2.6     CorrectGo
## 419          0.001606693           2.7     CorrectGo
## 420          0.001594699           2.8     CorrectGo
## 421          0.001639300           2.9     CorrectGo
## 422          0.001634081           3.0     CorrectGo
## 423          0.001636651           3.1     CorrectGo
## 424          0.001663687           3.2     CorrectGo
## 425          0.001663644           3.3     CorrectGo
## 426          0.001669889           3.4     CorrectGo
## 427          0.001644864           3.5     CorrectGo
## 428          0.001645817           3.6     CorrectGo
## 429          0.001630758           3.7     CorrectGo
## 430          0.001639862           3.8     CorrectGo
## 431          0.001602177           3.9     CorrectGo
## 432          0.001606484           4.0     CorrectGo
## 433          0.001603924           4.1     CorrectGo
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## 434        0.001579333        4.2    CorrectGo
## 435        0.001578248        4.3    CorrectGo
## 436        0.001569374        4.4    CorrectGo
## 437        0.001593085        4.5    CorrectGo
## 438        0.001591193        4.6    CorrectGo
## 439        0.001606855        4.7    CorrectGo
## 440        0.001594868        4.8    CorrectGo
## 441        0.001639471        4.9    CorrectGo
## 442        0.001634251        5.0    CorrectGo
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## 444        0.001663854        5.2    CorrectGo
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## 446        0.001670049        5.4    CorrectGo
## 447        0.001645020        5.5    CorrectGo
## 448        0.001645817        5.6    CorrectGo
## 449        0.001630758        5.7    CorrectGo
## 450        0.001639862        5.8    CorrectGo
## 451        0.001602177        5.9    CorrectGo
## 452        0.001606484        6.0    CorrectGo
## 453        0.001603924        6.1    CorrectGo
## 454        0.001579333        6.2    CorrectGo
## 455        0.001578551        6.3    CorrectGo
## 456        0.001569745        6.4    CorrectGo
## 457        0.001591878        6.5    CorrectGo
## 458        0.001590016        6.6    CorrectGo
## 459        0.001603160        6.7    CorrectGo
## 460        0.001588648        6.8    CorrectGo
## 461        0.001631367        6.9    CorrectGo
## 462        0.001626348        7.0    CorrectGo
## 463        0.001631065        7.1    CorrectGo
## 464        0.001658406        7.2    CorrectGo
## 465        0.001657795        7.3    CorrectGo
## 466        0.001663901        7.4    CorrectGo
## 467        0.001640412        7.5    CorrectGo
## 468        0.001642590        7.6    CorrectGo
## 469        0.001629914        7.7    CorrectGo
## 470        0.001641020        7.8    CorrectGo
## 471        0.001604907        7.9    CorrectGo
## 472        0.001609092        8.0    CorrectGo
## 473        0.001604796        8.1    CorrectGo
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## 475        0.001579746        8.3    CorrectGo
## 476        0.001571322        8.4    CorrectGo
## 477        0.001593719        8.5    CorrectGo
## 478        0.001590479        8.6    CorrectGo
## 479        0.001603468        8.7    CorrectGo
## 480        0.001589073        8.8    CorrectGo
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## 484        0.001656552        9.2    CorrectGo
## 485        0.001654664        9.3    CorrectGo
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## 487        0.001635239        9.5    CorrectGo
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## 488          0.001641221          9.6     CorrectGo
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## 491          0.001603729          9.9     CorrectGo
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## 493          0.001605017         10.1     CorrectGo
## 494          0.001580834         10.2     CorrectGo
## 495          0.001582206         10.3     CorrectGo
## 496          0.001574302         10.4     CorrectGo
## 497          0.001597757         10.5     CorrectGo
## 498          0.001588404         10.6     CorrectGo
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## 512          0.001612738         12.0     CorrectGo
## 513          0.001607589         12.1     CorrectGo
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## 528          0.001644375         13.6     CorrectGo
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## 535          0.001585568         14.3     CorrectGo
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## 537          0.001595558         14.5     CorrectGo
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## 541          0.001627425         14.9     CorrectGo
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## 555          0.001585719      16.3   CorrectGo
## 556          0.001575388      16.4   CorrectGo
## 557          0.001595717      16.5   CorrectGo
## 558          0.001585470      16.6   CorrectGo
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## 574          0.001582702      18.2   CorrectGo
## 575          0.001581238      18.3   CorrectGo
## 576          0.001572152      18.4   CorrectGo
## 577          0.001589252      18.5   CorrectGo
## 578          0.001584367      18.6   CorrectGo
## 579          0.001602203      18.7   CorrectGo
## 580          0.001590773      18.8   CorrectGo
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## 584          0.001846098      -9.9 CorrectStop
## 585          0.001984531      -9.8 CorrectStop
## 586          0.001911440      -9.7 CorrectStop
## 587          0.001906134      -9.6 CorrectStop
## 588          0.001930009      -9.5 CorrectStop
## 589          0.001863022      -9.4 CorrectStop
## 590          0.001932082      -9.3 CorrectStop
## 591          0.001847583      -9.2 CorrectStop
## 592          0.001890533      -9.1 CorrectStop
## 593          0.001926376      -9.0 CorrectStop
## 594          0.001904953      -8.9 CorrectStop
## 595          0.001772739      -8.8 CorrectStop
```

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## 596          0.001841088          -8.7 CorrectStop
## 597          0.001844453          -8.6 CorrectStop
## 598          0.001822458          -8.5 CorrectStop
## 599          0.001882118          -8.4 CorrectStop
## 600          0.001824018          -8.3 CorrectStop
## 601          0.001895036          -8.2 CorrectStop
## 602          0.001858317          -8.1 CorrectStop
## 603          0.001823814          -8.0 CorrectStop
## 604          0.001841889          -7.9 CorrectStop
## 605          0.001979145          -7.8 CorrectStop
## 606          0.001907272          -7.7 CorrectStop
## 607          0.001904236          -7.6 CorrectStop
## 608          0.001930009          -7.5 CorrectStop
## 609          0.001863022          -7.4 CorrectStop
## 610          0.001932082          -7.3 CorrectStop
## 611          0.001847583          -7.2 CorrectStop
## 612          0.001890533          -7.1 CorrectStop
## 613          0.001926376          -7.0 CorrectStop
## 614          0.001904953          -6.9 CorrectStop
## 615          0.001772739          -6.8 CorrectStop
## 616          0.001841088          -6.7 CorrectStop
## 617          0.001844453          -6.6 CorrectStop
## 618          0.001822458          -6.5 CorrectStop
## 619          0.001882118          -6.4 CorrectStop
## 620          0.001824018          -6.3 CorrectStop
## 621          0.001895036          -6.2 CorrectStop
## 622          0.001858317          -6.1 CorrectStop
## 623          0.001823814          -6.0 CorrectStop
## 624          0.001841889          -5.9 CorrectStop
## 625          0.001979145          -5.8 CorrectStop
## 626          0.001907272          -5.7 CorrectStop
## 627          0.001904236          -5.6 CorrectStop
## 628          0.001928057          -5.5 CorrectStop
## 629          0.001861048          -5.4 CorrectStop
## 630          0.001930058          -5.3 CorrectStop
## 631          0.001864391          -5.2 CorrectStop
## 632          0.001906758          -5.1 CorrectStop
## 633          0.001942743          -5.0 CorrectStop
## 634          0.001920984          -4.9 CorrectStop
## 635          0.001789310          -4.8 CorrectStop
## 636          0.001857114          -4.7 CorrectStop
## 637          0.001860324          -4.6 CorrectStop
## 638          0.001839920          -4.5 CorrectStop
## 639          0.001898850          -4.4 CorrectStop
## 640          0.001841238          -4.3 CorrectStop
## 641          0.001904335          -4.2 CorrectStop
## 642          0.001868085          -4.1 CorrectStop
## 643          0.001833334          -4.0 CorrectStop
## 644          0.001851501          -3.9 CorrectStop
## 645          0.001987504          -3.8 CorrectStop
## 646          0.001916456          -3.7 CorrectStop
## 647          0.001913533          -3.6 CorrectStop
## 648          0.001937263          -3.5 CorrectStop
## 649          0.001871236          -3.4 CorrectStop
```

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## 650          0.001939242          -3.3 CorrectStop
## 651          0.001864391          -3.2 CorrectStop
## 652          0.001906758          -3.1 CorrectStop
## 653          0.001942743          -3.0 CorrectStop
## 654          0.001920984          -2.9 CorrectStop
## 655          0.001789310          -2.8 CorrectStop
## 656          0.001857114          -2.7 CorrectStop
## 657          0.001860324          -2.6 CorrectStop
## 658          0.001839920          -2.5 CorrectStop
## 659          0.001898850          -2.4 CorrectStop
## 660          0.001841238          -2.3 CorrectStop
## 661          0.001904335          -2.2 CorrectStop
## 662          0.001868085          -2.1 CorrectStop
## 663          0.001833334          -2.0 CorrectStop
## 664          0.001851501          -1.9 CorrectStop
## 665          0.001987504          -1.8 CorrectStop
## 666          0.001916456          -1.7 CorrectStop
## 667          0.001913533          -1.6 CorrectStop
## 668          0.001937263          -1.5 CorrectStop
## 669          0.001871236          -1.4 CorrectStop
## 670          0.001939242          -1.3 CorrectStop
## 671          0.001864391          -1.2 CorrectStop
## 672          0.001906758          -1.1 CorrectStop
## 673          0.001942743          -1.0 CorrectStop
## 674          0.001920984          -0.9 CorrectStop
## 675          0.001789310          -0.8 CorrectStop
## 676          0.001857114          -0.7 CorrectStop
## 677          0.001860324          -0.6 CorrectStop
## 678          0.001839920          -0.5 CorrectStop
## 679          0.001898850          -0.4 CorrectStop
## 680          0.001841238          -0.3 CorrectStop
## 681          0.001904335          -0.2 CorrectStop
## 682          0.001868085          -0.1 CorrectStop
## 683          0.001833334           0.0 CorrectStop
## 684          0.001851501           0.1 CorrectStop
## 685          0.001987504           0.2 CorrectStop
## 686          0.001916456           0.3 CorrectStop
## 687          0.001913533           0.4 CorrectStop
## 688          0.001937263           0.5 CorrectStop
## 689          0.001871236           0.6 CorrectStop
## 690          0.001939242           0.7 CorrectStop
## 691          0.001864391           0.8 CorrectStop
## 692          0.001906758           0.9 CorrectStop
## 693          0.001942743           1.0 CorrectStop
## 694          0.001920984           1.1 CorrectStop
## 695          0.001789310           1.2 CorrectStop
## 696          0.001857114           1.3 CorrectStop
## 697          0.001860324           1.4 CorrectStop
## 698          0.001839920           1.5 CorrectStop
## 699          0.001898850           1.6 CorrectStop
## 700          0.001841238           1.7 CorrectStop
## 701          0.001904335           1.8 CorrectStop
## 702          0.001868085           1.9 CorrectStop
## 703          0.001833334           2.0 CorrectStop
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## 704          0.001851501            2.1 CorrectStop
## 705          0.001989429            2.2 CorrectStop
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## 707          0.001914914            2.4 CorrectStop
## 708          0.001936925            2.5 CorrectStop
## 709          0.001856066            2.6 CorrectStop
## 710          0.001927128            2.7 CorrectStop
## 711          0.001848212            2.8 CorrectStop
## 712          0.001890535            2.9 CorrectStop
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## 714          0.001908168            3.1 CorrectStop
## 715          0.001772701            3.2 CorrectStop
## 716          0.001841481            3.3 CorrectStop
## 717          0.001845396            3.4 CorrectStop
## 718          0.001826618            3.5 CorrectStop
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## 720          0.001838590            3.7 CorrectStop
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## 722          0.001869449            3.9 CorrectStop
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## 724          0.001858006            4.1 CorrectStop
## 725          0.002001916            4.2 CorrectStop
## 726          0.001936416            4.3 CorrectStop
## 727          0.001924302            4.4 CorrectStop
## 728          0.001940510            4.5 CorrectStop
## 729          0.001859950            4.6 CorrectStop
## 730          0.001927757            4.7 CorrectStop
## 731          0.001836744            4.8 CorrectStop
## 732          0.001878253            4.9 CorrectStop
## 733          0.001907013            5.0 CorrectStop
## 734          0.001887865            5.1 CorrectStop
## 735          0.001742751            5.2 CorrectStop
## 736          0.001805025            5.3 CorrectStop
## 737          0.001818638            5.4 CorrectStop
## 738          0.001805982            5.5 CorrectStop
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## 747          0.001924302            6.4 CorrectStop
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## 752          0.001878319            6.9 CorrectStop
## 753          0.001908202            7.0 CorrectStop
## 754          0.001891547            7.1 CorrectStop
## 755          0.001743624            7.2 CorrectStop
## 756          0.001819710            7.3 CorrectStop
## 757          0.001845348            7.4 CorrectStop
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## 758          0.001828772              7.5 CorrectStop
## 759          0.001908707              7.6 CorrectStop
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## 762          0.001893212              7.9 CorrectStop
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## 764          0.001881407              8.1 CorrectStop
## 765          0.002028310              8.2 CorrectStop
## 766          0.001952954              8.3 CorrectStop
## 767          0.001928142              8.4 CorrectStop
## 768          0.001947509              8.5 CorrectStop
## 769          0.001861453              8.6 CorrectStop
## 770          0.001927757              8.7 CorrectStop
## 771          0.001836744              8.8 CorrectStop
## 772          0.001878319              8.9 CorrectStop
## 773          0.001908202              9.0 CorrectStop
## 774          0.001891547              9.1 CorrectStop
## 775          0.001743624              9.2 CorrectStop
## 776          0.001819710              9.3 CorrectStop
## 777          0.001845348              9.4 CorrectStop
## 778          0.001828772              9.5 CorrectStop
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## 784          0.001881407             10.1 CorrectStop
## 785          0.002028310             10.2 CorrectStop
## 786          0.001952954             10.3 CorrectStop
## 787          0.001928142             10.4 CorrectStop
## 788          0.001947509             10.5 CorrectStop
## 789          0.001861453             10.6 CorrectStop
## 790          0.001927757             10.7 CorrectStop
## 791          0.001836744             10.8 CorrectStop
## 792          0.001878319             10.9 CorrectStop
## 793          0.001908202             11.0 CorrectStop
## 794          0.001891547             11.1 CorrectStop
## 795          0.001743624             11.2 CorrectStop
## 796          0.001819710             11.3 CorrectStop
## 797          0.001846118             11.4 CorrectStop
## 798          0.001831446             11.5 CorrectStop
## 799          0.001910301             11.6 CorrectStop
## 800          0.001852053             11.7 CorrectStop
## 801          0.001916767             11.8 CorrectStop
## 802          0.001885920             11.9 CorrectStop
## 803          0.001865143             12.0 CorrectStop
## 804          0.001880494             12.1 CorrectStop
## 805          0.002020278             12.2 CorrectStop
## 806          0.001946451             12.3 CorrectStop
## 807          0.001920289             12.4 CorrectStop
## 808          0.001937741             12.5 CorrectStop
## 809          0.001851063             12.6 CorrectStop
## 810          0.001918368             12.7 CorrectStop
## 811          0.001842065             12.8 CorrectStop
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## 812          0.001878488          12.9 CorrectStop
## 813          0.001901742          13.0 CorrectStop
## 814          0.001884598          13.1 CorrectStop
## 815          0.001746243          13.2 CorrectStop
## 816          0.001819710          13.3 CorrectStop
## 817          0.001846118          13.4 CorrectStop
## 818          0.001831446          13.5 CorrectStop
## 819          0.001910301          13.6 CorrectStop
## 820          0.001852053          13.7 CorrectStop
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## 822          0.001885920          13.9 CorrectStop
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## 824          0.001880494          14.1 CorrectStop
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## 828          0.001937741          14.5 CorrectStop
## 829          0.001851063          14.6 CorrectStop
## 830          0.001918368          14.7 CorrectStop
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## 832          0.001878488          14.9 CorrectStop
## 833          0.001901742          15.0 CorrectStop
## 834          0.001884598          15.1 CorrectStop
## 835          0.001746243          15.2 CorrectStop
## 836          0.001819710          15.3 CorrectStop
## 837          0.001846118          15.4 CorrectStop
## 838          0.001831446          15.5 CorrectStop
## 839          0.001910301          15.6 CorrectStop
## 840          0.001852053          15.7 CorrectStop
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## 844          0.001880494          16.1 CorrectStop
## 845          0.002020278          16.2 CorrectStop
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## 848          0.001937741          16.5 CorrectStop
## 849          0.001851063          16.6 CorrectStop
## 850          0.001918368          16.7 CorrectStop
## 851          0.001842065          16.8 CorrectStop
## 852          0.001878488          16.9 CorrectStop
## 853          0.001901742          17.0 CorrectStop
## 854          0.001884598          17.1 CorrectStop
## 855          0.001746243          17.2 CorrectStop
## 856          0.001819710          17.3 CorrectStop
## 857          0.001846118          17.4 CorrectStop
## 858          0.001831446          17.5 CorrectStop
## 859          0.001910301          17.6 CorrectStop
## 860          0.001852053          17.7 CorrectStop
## 861          0.001916767          17.8 CorrectStop
## 862          0.001885920          17.9 CorrectStop
## 863          0.001865143          18.0 CorrectStop
## 864          0.001880494          18.1 CorrectStop
## 865          0.002020278          18.2 CorrectStop
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## 867          0.001920289          18.4 CorrectStop
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## 878          0.001439824          -9.6     FailedGo
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## 892          0.001515477          -8.2     FailedGo
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## 896          0.001234527          -7.8     FailedGo
## 897          0.001312946          -7.7     FailedGo
## 898          0.001439824          -7.6     FailedGo
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## 901          0.001594844          -7.3     FailedGo
## 902          0.001575699          -7.2     FailedGo
## 903          0.001790638          -7.1     FailedGo
## 904          0.001785848          -7.0     FailedGo
## 905          0.001801434          -6.9     FailedGo
## 906          0.001860449          -6.8     FailedGo
## 907          0.001838428          -6.7     FailedGo
## 908          0.001708036          -6.6     FailedGo
## 909          0.001557667          -6.5     FailedGo
## 910          0.001562142          -6.4     FailedGo
## 911          0.001555685          -6.3     FailedGo
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## 913          0.001368497          -6.1     FailedGo
## 914          0.001372099          -6.0     FailedGo
## 915          0.001351115          -5.9     FailedGo
## 916          0.001300491          -5.8     FailedGo
## 917          0.001312946          -5.7     FailedGo
## 918          0.001439824          -5.6     FailedGo
## 919          0.001592551          -5.5     FailedGo
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## 920          0.001587966          -5.4     FailedGo
## 921          0.001594844          -5.3     FailedGo
## 922          0.001575699          -5.2     FailedGo
## 923          0.001790638          -5.1     FailedGo
## 924          0.001785848          -5.0     FailedGo
## 925          0.001801434          -4.9     FailedGo
## 926          0.001860449          -4.8     FailedGo
## 927          0.001838428          -4.7     FailedGo
## 928          0.001708036          -4.6     FailedGo
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## 932          0.001537910          -4.2     FailedGo
## 933          0.001345390          -4.1     FailedGo
## 934          0.001348700          -4.0     FailedGo
## 935          0.001328841          -3.9     FailedGo
## 936          0.001281877          -3.8     FailedGo
## 937          0.001293195          -3.7     FailedGo
## 938          0.001411208          -3.6     FailedGo
## 939          0.001552910          -3.5     FailedGo
## 940          0.001548523          -3.4     FailedGo
## 941          0.001563389          -3.3     FailedGo
## 942          0.001575699          -3.2     FailedGo
## 943          0.001790638          -3.1     FailedGo
## 944          0.001785848          -3.0     FailedGo
## 945          0.001801434          -2.9     FailedGo
## 946          0.001860449          -2.8     FailedGo
## 947          0.001838428          -2.7     FailedGo
## 948          0.001708036          -2.6     FailedGo
## 949          0.001557667          -2.5     FailedGo
## 950          0.001562142          -2.4     FailedGo
## 951          0.001546978          -2.3     FailedGo
## 952          0.001537910          -2.2     FailedGo
## 953          0.001345390          -2.1     FailedGo
## 954          0.001348700          -2.0     FailedGo
## 955          0.001328841          -1.9     FailedGo
## 956          0.001281877          -1.8     FailedGo
## 957          0.001293195          -1.7     FailedGo
## 958          0.001411208          -1.6     FailedGo
## 959          0.001552910          -1.5     FailedGo
## 960          0.001548523          -1.4     FailedGo
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## 963          0.001790638          -1.1     FailedGo
## 964          0.001785848          -1.0     FailedGo
## 965          0.001801434          -0.9     FailedGo
## 966          0.001860449          -0.8     FailedGo
## 967          0.001838428          -0.7     FailedGo
## 968          0.001708036          -0.6     FailedGo
## 969          0.001557667          -0.5     FailedGo
## 970          0.001562142          -0.4     FailedGo
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## 972          0.001537910          -0.2     FailedGo
## 973          0.001345390          -0.1     FailedGo
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## 974     0.001348700          0.0     FailedGo
## 975     0.001328841          0.1     FailedGo
## 976     0.001281877          0.2     FailedGo
## 977     0.001293195          0.3     FailedGo
## 978     0.001411208          0.4     FailedGo
## 979     0.001555006          0.5     FailedGo
## 980     0.001557418          0.6     FailedGo
## 981     0.001572346          0.7     FailedGo
## 982     0.001559001          0.8     FailedGo
## 983     0.001773619          0.9     FailedGo
## 984     0.001757747          1.0     FailedGo
## 985     0.001773862          1.1     FailedGo
## 986     0.001822431          1.2     FailedGo
## 987     0.001800845          1.3     FailedGo
## 988     0.001669555          1.4     FailedGo
## 989     0.001516185          1.5     FailedGo
## 990     0.001513889          1.6     FailedGo
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## 995     0.001318942          2.1     FailedGo
## 996     0.001281877          2.2     FailedGo
## 997     0.001293195          2.3     FailedGo
## 998     0.001411208          2.4     FailedGo
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## 1000    0.001557418          2.6     FailedGo
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## 1002    0.001559001          2.8     FailedGo
## 1003    0.001773619          2.9     FailedGo
## 1004    0.001757747          3.0     FailedGo
## 1005    0.001773862          3.1     FailedGo
## 1006    0.001822431          3.2     FailedGo
## 1007    0.001800845          3.3     FailedGo
## 1008    0.001669555          3.4     FailedGo
## 1009    0.001516185          3.5     FailedGo
## 1010    0.001513889          3.6     FailedGo
## 1011    0.001498769          3.7     FailedGo
## 1012    0.001516428          3.8     FailedGo
## 1013    0.001325170          3.9     FailedGo
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## 1015    0.001318942          4.1     FailedGo
## 1016    0.001281877          4.2     FailedGo
## 1017    0.001293195          4.3     FailedGo
## 1018    0.001411208          4.4     FailedGo
## 1019    0.001555006          4.5     FailedGo
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## 1024    0.001757747          5.0     FailedGo
## 1025    0.001773862          5.1     FailedGo
## 1026    0.001822431          5.2     FailedGo
## 1027    0.001800845          5.3     FailedGo
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## 1039      0.001553673      6.5      FailedGo
## 1040      0.001568265      6.6      FailedGo
## 1041      0.001583273      6.7      FailedGo
## 1042      0.001564893      6.8      FailedGo
## 1043      0.001768011      6.9      FailedGo
## 1044      0.001752051      7.0      FailedGo
## 1045      0.001760093      7.1      FailedGo
## 1046      0.001808860      7.2      FailedGo
## 1047      0.001787330      7.3      FailedGo
## 1048      0.001656565      7.4      FailedGo
## 1049      0.001510789      7.5      FailedGo
## 1050      0.001496587      7.6      FailedGo
## 1051      0.001481401      7.7      FailedGo
## 1052      0.001505934      7.8      FailedGo
## 1053      0.001324726      7.9      FailedGo
## 1054      0.001338567      8.0      FailedGo
## 1055      0.001326950      8.1      FailedGo
## 1056      0.001289670      8.2      FailedGo
## 1057      0.001301144      8.3      FailedGo
## 1058      0.001418230      8.4      FailedGo
## 1059      0.001554354      8.5      FailedGo
## 1060      0.001568265      8.6      FailedGo
## 1061      0.001585417      8.7      FailedGo
## 1062      0.001573621      8.8      FailedGo
## 1063      0.001771546      8.9      FailedGo
## 1064      0.001761208      9.0      FailedGo
## 1065      0.001755986      9.1      FailedGo
## 1066      0.001804936      9.2      FailedGo
## 1067      0.001783369      9.3      FailedGo
## 1068      0.001650254      9.4      FailedGo
## 1069      0.001503765      9.5      FailedGo
## 1070      0.001489511      9.6      FailedGo
## 1071      0.001472140      9.7      FailedGo
## 1072      0.001492215      9.8      FailedGo
## 1073      0.001315476      9.9      FailedGo
## 1074      0.001324629      10.0     FailedGo
## 1075      0.001325110      10.1     FailedGo
## 1076      0.001287827      10.2     FailedGo
## 1077      0.001297697      10.3     FailedGo
## 1078      0.001416723      10.4     FailedGo
## 1079      0.001555885      10.5     FailedGo
## 1080      0.001569845      10.6     FailedGo
## 1081      0.001575400      10.7     FailedGo
```

```
## 1082        0.001569870        10.8     FailedGo
## 1083        0.001771713        10.9     FailedGo
## 1084        0.001761296        11.0     FailedGo
## 1085        0.001755950        11.1     FailedGo
## 1086        0.001808110        11.2     FailedGo
## 1087        0.001787607        11.3     FailedGo
## 1088        0.001653136        11.4     FailedGo
## 1089        0.001502177        11.5     FailedGo
## 1090        0.001487827        11.6     FailedGo
## 1091        0.001482553        11.7     FailedGo
## 1092        0.001495582        11.8     FailedGo
## 1093        0.001316430        11.9     FailedGo
## 1094        0.001325610        12.0     FailedGo
## 1095        0.001326820        12.1     FailedGo
## 1096        0.001287827        12.2     FailedGo
## 1097        0.001297697        12.3     FailedGo
## 1098        0.001416723        12.4     FailedGo
## 1099        0.001555885        12.5     FailedGo
## 1100        0.001569845        12.6     FailedGo
## 1101        0.001575400        12.7     FailedGo
## 1102        0.001569870        12.8     FailedGo
## 1103        0.001771713        12.9     FailedGo
## 1104        0.001761296        13.0     FailedGo
## 1105        0.001754022        13.1     FailedGo
## 1106        0.001806193        13.2     FailedGo
## 1107        0.001786683        13.3     FailedGo
## 1108        0.001651998        13.4     FailedGo
## 1109        0.001500817        13.5     FailedGo
## 1110        0.001486449        13.6     FailedGo
## 1111        0.001490219        13.7     FailedGo
## 1112        0.001499175        13.8     FailedGo
## 1113        0.001320677        13.9     FailedGo
## 1114        0.001331812        14.0     FailedGo
## 1115        0.001340309        14.1     FailedGo
## 1116        0.001300679        14.2     FailedGo
## 1117        0.001316686        14.3     FailedGo
## 1118        0.001435048        14.4     FailedGo
## 1119        0.001575794        14.5     FailedGo
## 1120        0.001590051        14.6     FailedGo
## 1121        0.001588930        14.7     FailedGo
## 1122        0.001588530        14.8     FailedGo
## 1123        0.001789888        14.9     FailedGo
## 1124        0.001776831        15.0     FailedGo
## 1125        0.001761794        15.1     FailedGo
## 1126        0.001814410        15.2     FailedGo
## 1127        0.001787225        15.3     FailedGo
## 1128        0.001654060        15.4     FailedGo
## 1129        0.001502975        15.5     FailedGo
## 1130        0.001488586        15.6     FailedGo
## 1131        0.001490219        15.7     FailedGo
## 1132        0.001499175        15.8     FailedGo
## 1133        0.001320677        15.9     FailedGo
## 1134        0.001331812        16.0     FailedGo
## 1135        0.001340309        16.1     FailedGo
```

```
## 1136              0.001300679           16.2     FailedGo
## 1137              0.001316686           16.3     FailedGo
## 1138              0.001435048           16.4     FailedGo
## 1139              0.001575794           16.5     FailedGo
## 1140              0.001590051           16.6     FailedGo
## 1141              0.001588930           16.7     FailedGo
## 1142              0.001588530           16.8     FailedGo
## 1143              0.001789888           16.9     FailedGo
## 1144              0.001776831           17.0     FailedGo
## 1145              0.001770002           17.1     FailedGo
## 1146              0.001825122           17.2     FailedGo
## 1147              0.001803931           17.3     FailedGo
## 1148              0.001669931           17.4     FailedGo
## 1149              0.001521092           17.5     FailedGo
## 1150              0.001514760           17.6     FailedGo
## 1151              0.001516282           17.7     FailedGo
## 1152              0.001514777           17.8     FailedGo
## 1153              0.001337416           17.9     FailedGo
## 1154              0.001345027           18.0     FailedGo
## 1155              0.001339184           18.1     FailedGo
## 1156              0.001297759           18.2     FailedGo
## 1157              0.001309456           18.3     FailedGo
## 1158              0.001430126           18.4     FailedGo
## 1159              0.001569547           18.5     FailedGo
## 1160              0.001575808           18.6     FailedGo
## 1161              0.001574608           18.7     FailedGo
## 1162              0.001582381           18.8     FailedGo
## 1163              0.001782340           18.9     FailedGo
## 1164              0.001772989           19.0     FailedGo
```

```r
plot_final<-ggplot(df_offset,
       aes(x=offset_start, y=CueFollowing.CS.FS.striatal_cluster_combined,color=condition))+
  geom_line()+
  #facet_wrap(~ROI,ncol = 2)+
  ggplot_time_points_extras

  #geom_point()+
  #geom_smooth(method="loess",span=2,na.rm=TRUE) + #https://ggplot2.tidyverse.org/reference/geom_smooth
  #scale_y_continuous(limits=c(-2.5,2.5))
```

CS-FS

Let's now try to contrast these time series to see what the CS-FS looks like. This will be interesting because
it's similar to the simple GLM result I got earlier that set me down the path of trying to analyze this.

```r
trial_tps_compare_conditions<-df_offset %>% pivot_wider(id_cols=c(offset_start),names_from = "condition
trial_tps_compare_conditions$CS_minus_FS<-trial_tps_compare_conditions$CorrectStop-trial_tps_compare_co
```

Figure 2:

```r
ggplot(trial_tps_compare_conditions,
       aes(x=offset_start, y=CS_minus_FS))+
```

```
#geom_tile(data = next_trial_gradient, aes(x=tp,alpha=pct_in_range,y=0),fill="#000000",color="transpa
geom_tile(data = next_trial_gradient, aes(x=hrf_tp,alpha=pct_in_range,y=0),fill="#77ff77",color="tran
#annotate("text",x=4,y=0.25,label="Subsequent Go Trial\nTime Range",size=2)+
annotate("text",x=10,y=0.22,label="Subsequent Go Trial\nExpected HRF",size=2)+
scale_alpha_continuous(name="Subsequent go trial range", range=c(0,0.7),labels=scales::percent_format
geom_line(size=1,alpha=0.5)+
scale_color_viridis_d(option = "C")+
ggplot_time_points_extras+
coord_cartesian(ylim=c(-0.15,0.25))+
labs(y="CS-FS BOLD activity difference")
```
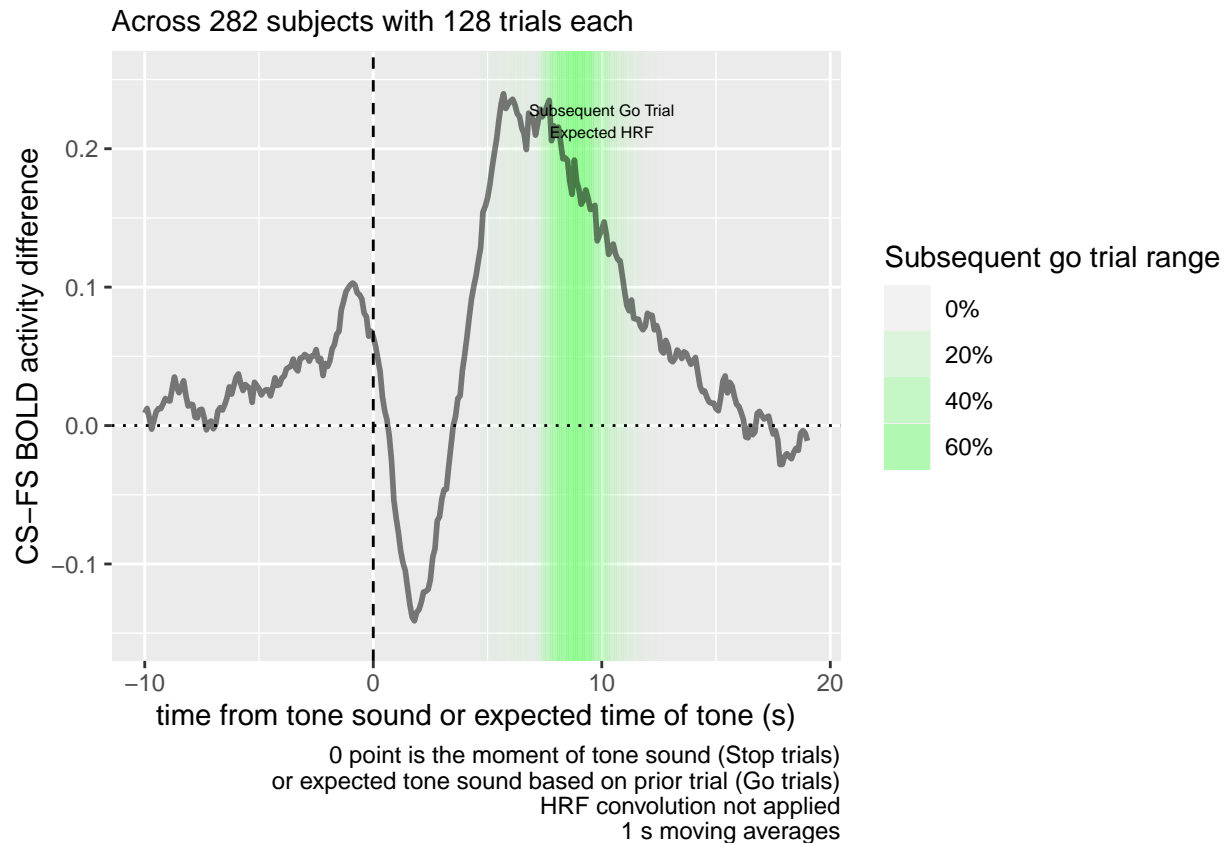

OK, so from this graph it is very clear why, during the subsequent trial, we're seeing positive striatum activity, and it is also clear there is a large dip in the same area right after the tone.

Figure 3:

```
count_subjs <- function(df){length(unique(df$subid))}
subj_count <- length(unique(time_points_c$subid))
ggplot(df_offset,
       aes(x=offset_start, y=CueFollowing.CS.FS.striatal_cluster_combined,color=condition))+
  geom_line()+
  #facet_wrap(~ROI,ncol = 2)+
  ggplot_time_points_extras
```

Across 282 subjects with 128 trials each

0 point is the moment of tone sound (Stop trials)
or expected tone sound based on prior trial (Go trials)
HRF convolution not applied
1 s moving averages