QPM II: Problem Set 5

Exponential Family

1. Assume $Y \sim Poisson(\lambda)$.

(1) Rewrite the pmf of Y in exponential family form $\exp[y\theta - b(\theta) + c(y)]$.

(2) Find the mean and variance of Y.

Exponential Family

1) $P(Y=y) = \frac{\lambda^y e^{-\lambda}}{y!}$, $y = 0, 1, 2 \ldots$ $\quad \lambda = e^{\theta}$

$$e^{\theta y} \propto \frac{(e^{\theta})^y e^{-e^{\theta}}}{y!} = \frac{e^{\theta y - e^{\theta}}}{y!} = \frac{e^{\theta y - e^{\theta}}}{\log(y!)} = e^{\theta y - e^{\theta} - \log(y!)}$$

$$P(Y=y) = \exp\left[y\theta - b(\theta) + c(y)\right]$$

$$\theta = \log \lambda$$
$$b(\theta) = e^{\theta}$$
$$c(y) = \log(y!)$$

$$\boxed{P(Y=y) = \exp\left[y\theta - e^{\theta} - \log(y!)\right]}$$

2) $E[Y] = b'(\theta)$ $\qquad Var[Y] = b''(\theta)$

$b(\theta) = e^{\theta}$

$b'(\theta) = e^{\theta} = \lambda$

$b''(\theta) = e^{\theta} = \lambda$

$$\boxed{E[Y] = Var[Y] = \lambda}$$

Linear Models

2. `hierarchypaperdata.dta` is a panel dataset where each observation is a country-year, so each country appears in the dataset multiple times. The dataset is available on canvas. We wish to test the theory that war (using a one-year lag) has a negative effect on gender hierarchies.

```
hierarchies <- read_dta("hierarchypaperdata.dta")

# Create one-year lag variable using warDummy. Assuming it's a one-year backward lag.
hierarchies <- hierarchies %>%
  arrange(ccode, year) %>%
  group_by(ccode) %>%
  mutate(war_lag = lag(warDummy, n = 1)) %>%
  ungroup()
```

(1) Fit a standard linear model to this dataset using clustered standard errors.

(2) Interpret the results and identify at least three ways that this modeling strategy might be incorrect. You should include control variables, but it definitely does not need to be perfect.

```
clustered_model <- lm_robust(
  polempowerment ~ war_lag + ccode + cleanelec + polity + lpop + neighborpolempowerment,
  data = hierarchies,
  clusters = ccode
)

summary(clustered_model)
```

```
##
## Call:
## lm_robust(formula = polempowerment ~ war_lag + ccode + cleanelec +
##     polity + lpop + neighborpolempowerment, data = hierarchies,
##     clusters = ccode)
##
## Standard error type:  CR2
##
```

```
## Coefficients:
##                            Estimate Std. Error t value  Pr(>|t|)   CI Lower
## (Intercept)              1.478e-01  6.362e-02  2.3233 2.432e-02  1.998e-02
## war_lag                 -3.054e-02  1.598e-02 -1.9116 6.043e-02 -6.246e-02
## ccode                    7.707e-05  4.364e-05  1.7658 8.319e-02 -1.047e-05
## cleanelec                3.965e-01  2.856e-02 13.8804 2.220e-21  3.395e-01
## polity                   8.539e-04  2.520e-04  3.3885 1.500e-03  3.459e-04
## lpop                     5.358e-03  6.372e-03  0.8408 4.053e-01 -7.509e-03
## neighborpolempowerment   2.618e-01  4.496e-02  5.8216 1.883e-07  1.720e-01
##                           CI Upper    DF
## (Intercept)             0.2756303 49.40
## war_lag                 0.0013792 63.61
## ccode                   0.0001646 52.95
## cleanelec               0.4534960 66.96
## polity                  0.0013619 43.64
## lpop                    0.0182244 41.12
## neighborpolempowerment 0.3515371 65.97
##
## Multiple R-squared:  0.5976 ,    Adjusted R-squared:  0.5973
## F-statistic: 104.7 on 6 and 155 DF,  p-value: < 2.2e-16
```

Interpretation & Improvements The following variables are considered to be statistically significant. The political empowerment of neighboring countries (neighborpolempowerment) has a strong positive effect on political empowerment within the country. Political empowerment of neighboring countries is associated with a 0.2618 increase in political empowerment within the country. This suggests political empowerment in neighboring countries may act as a spillover effect, where a country's political empowerment improves when its neighbors have stronger political empowerment of all genders.

Additionally, clean elections has a strong positive relationship with political empowerment, showing that a 1-unit increase in the presence of clean elections in a country is associated with a 0.3965 increase in political empowerment. This suggests that countries with clean elections tend to have higher political empowerment. On a side note, I would hypothesize that this could have an inverted causal relationship, where countries of higher political empowerment lead to cleaner elections.

- Better Controls: There could be other unobserved variables (e.g., cultural factors, economic development, education) that are influential in measures of political empowerment that are not accounted for in the model.
- Non-linear relationships: This model assumes a linear relationship between the predictors and the dependent variable, which might not be true. These could be non-linear.
- Clustering is not sufficient: Clustered standard errors account for potential within-group correlation, but there could be correlation between neighboring countries. Seeing as war is not necessarily within a single country – multi-country civil wars would create issues with this clustering decision.

GLM

3. Now we are going to turn things around and test the theory that the lagged measure of gender hierarchies has an "effect" on the probability of war.

(1) Fit a logistic regression to this data. There are ways to do clustered standard errors for this. But for this case, just go ahead and calculate the bootstrap standard errors. Make sure you are re-sampling **countries** and not observations, since each country appears multiple times.

(2) Interpret the results. You can provide additional plots or diagnostics that you think are helpful.

```r
logit_model <- glm(warDummy ~ l_polempowerment + cleanelec + polity + lpop + neighborpolempowerment,
                   family = binomial(link = "logit"), data = hierarchies)

# Standard Error f(n)
logit_coefs <- function(data, indices) {
  model <- glm(warDummy ~ l_polempowerment + cleanelec + polity + lpop + neighborpolempowerment,
               family = binomial(link = "logit"), data = data[indices, ])
  return(coef(model))
}

# Bootstrapping stratified by country code
boot_results <- boot(data = hierarchies, statistic = logit_coefs, R = 100, strata = hierarchies$ccode)
boot_ci <- boot.ci(boot_results, type = "perc")

# Calculate t-statistics for bootstrap results
t_stats <- boot_results$t0 / apply(boot_results$t, 2, sd)
p_values <- 2 * (1 - pnorm(abs(t_stats)))
significant_coeffs <- names(p_values[p_values < 0.05])
data.frame(coefficient = names(t_stats), t_stat = t_stats, p_value = p_values, significant = p_values <
```

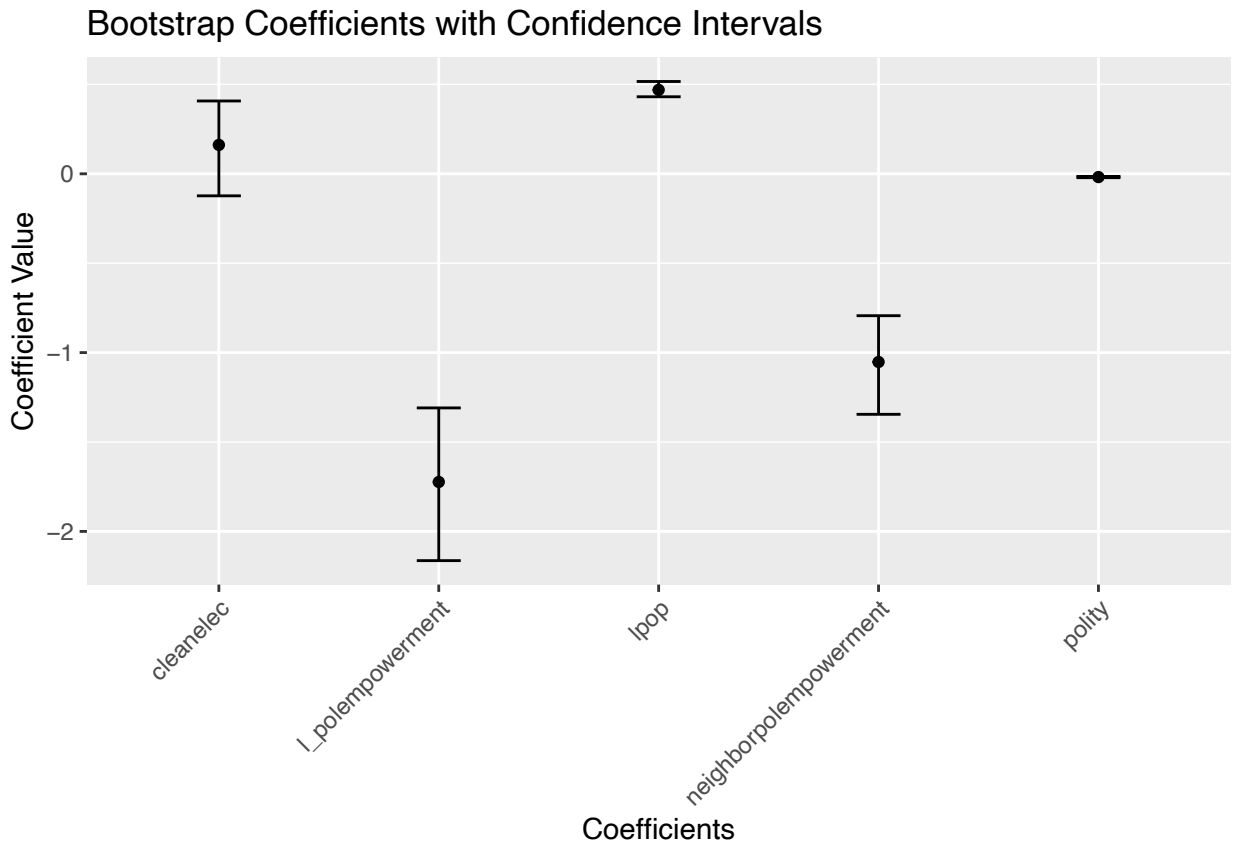
```
##                                   coefficient     t_stat      p_value
## (Intercept)                       (Intercept) -23.269660 0.000000e+00
## l_polempowerment             l_polempowerment  -7.432742 1.063594e-13
## cleanelec                           cleanelec   1.174087 2.403600e-01
## polity                                 polity -10.302027 0.000000e+00
## lpop                                     lpop  19.778986 0.000000e+00
## neighborpolempowerment neighborpolempowerment  -6.453889 1.090152e-10
##                        significant
## (Intercept)                   TRUE
## l_polempowerment              TRUE
## cleanelec                    FALSE
## polity                        TRUE
## lpop                          TRUE
## neighborpolempowerment        TRUE
```

```r
# Plot the coefficients with confidence intervals
boot_coefs <- data.frame(boot_results$t)
coef_names <- names(coef(logit_model))
colnames(boot_coefs) <- coef_names

boot_summary <- data.frame(
  Coefficients = coef_names[2:length(coef_names)],  # Offset by 1, starting from the second element
  Mean = colMeans(boot_coefs[, 2:ncol(boot_coefs)]),  # Adjust to exclude the first column if necessary
  Lower_CI = apply(boot_coefs[, 2:ncol(boot_coefs)], 2, function(x) quantile(x, probs = 0.025)),
  Upper_CI = apply(boot_coefs[, 2:ncol(boot_coefs)], 2, function(x) quantile(x, probs = 0.975))
)

boot_summary
```

```
##                                Coefficients       Mean    Lower_CI
## l_polempowerment             l_polempowerment -1.7234393 -2.16339098
## cleanelec                          cleanelec  0.1615675 -0.12312340
```

```
## polity                                polity -0.0183344 -0.02160881
## lpop                                    lpop  0.4693715  0.43087995
## neighborpolempowerment neighborpolempowerment -1.0523484 -1.34511470
##                           Upper_CI
## l_polempowerment       -1.30921947
## cleanelec               0.40722907
## polity                 -0.01469476
## lpop                    0.51635312
## neighborpolempowerment -0.79357430
```

```
ggplot(boot_summary, aes(x = Coefficients, y = Mean)) +
  geom_point() +
  geom_errorbar(aes(ymin = Lower_CI, ymax = Upper_CI), width = 0.2) +
  labs(title = "Bootstrap Coefficients with Confidence Intervals", y = "Coefficient Value") +
  theme(axis.text.x = element_text(angle = 45, hjust = 1))
```



Interpretation The bias values are small and generally close to zero, which indicates that the bootstrap has provided unbiased estimates for the coefficients, as each of the bootstrap samples are generally well-aligned with the original estimates. Given these controls, we can say that the lagged measure of gender hierarchies (l_polempowerment) is statistically signficant at the 95% threshold, and has a signficant negative effect. This suggests that higher political empowerment in the past is associated with lower probability of war in the present/future.

Count Models

4. Re-organize the data so that it is collapsed to one observation per country. The outcome variable should be the count of the number of total years where each country was at war. The explanatory variable should be the average `polity` score and the average `polempowerment` score across the time period.[1] Fit a Poisson regression to this model.

5. Is there evidence of zero-inflation and/or overdispersion? If so, choose an appropriate model to adjust. Again, be sure to interpret the results of your final model.

```
# Collapse data
country_data <- hierarchies %>%
  group_by(ccode) %>%
  summarise(
    total_wars = sum(warDummy, na.rm = TRUE),
    avg_polity = mean(polity, na.rm = TRUE),
    avg_polempowerment = mean(polempowerment, na.rm = TRUE)
  )


# Poisson!
poisson_model <- glm(total_wars ~ avg_polity + avg_polempowerment,
                     data = country_data,
                     family = poisson)
summary(poisson_model)
```

```
##
## Call:
## glm(formula = total_wars ~ avg_polity + avg_polempowerment, family = poisson,
##     data = country_data)
##
## Coefficients:
##                      Estimate Std. Error z value Pr(>|z|)
## (Intercept)          3.387102   0.106997  31.656   <2e-16 ***
## avg_polity           0.005840   0.003669   1.592    0.111
## avg_polempowerment -2.666815   0.200602 -13.294   <2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## (Dispersion parameter for poisson family taken to be 1)
##
##     Null deviance: 1806.0  on 159  degrees of freedom
## Residual deviance: 1585.5  on 157  degrees of freedom
##   (46 observations deleted due to missingness)
## AIC: 2024.9
##
## Number of Fisher Scoring iterations: 6
```

```
# Dispersion??
dispersion <- sum(resid(poisson_model, type = "pearson")^2) / poisson_model$df.residual
dispersion
```

[1] Yes, this is bad for causal inference but I need a Poisson example.

```
## [1] 11.85848
```

```r
# Deal with overdispersion w/ negative binomial
nb_model <- glm.nb(total_wars ~ avg_polity + avg_polempowerment, data = country_data)
summary(nb_model)
```

```
##
## Call:
## glm.nb(formula = total_wars ~ avg_polity + avg_polempowerment,
##     data = country_data, init.theta = 0.5522879096, link = log)
##
## Coefficients:
##                     Estimate Std. Error z value Pr(>|z|)
## (Intercept)           3.7293     0.4287   8.700  < 2e-16 ***
## avg_polity            0.0103     0.0132   0.780    0.436
## avg_polempowerment   -3.3164     0.7399  -4.482 7.38e-06 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## (Dispersion parameter for Negative Binomial(0.5523) family taken to be 1)
##
##     Null deviance: 197.78  on 159  degrees of freedom
## Residual deviance: 179.39  on 157  degrees of freedom
##   (46 observations deleted due to missingness)
## AIC: 947.93
##
## Number of Fisher Scoring iterations: 1
##
##
##               Theta:  0.5523
##           Std. Err.:  0.0725
##
##  2 x log-likelihood:  -939.9320
```

```r
# Expected decrease in number of wars when moving from 0 to 1 in polempowerment
expected_decrease <- 1 - exp(-3.3164)
print(paste("Expected decrease in wars (0 -> 1 polempowerment):", expected_decrease))
```

```
## [1] "Expected decrease in wars (0 -> 1 polempowerment): 0.963716783499912"
```

Interpretation Dispersion statistic = 11.85848 $>$ 1 –> overdispersion is present! After running the negative binomial, we see that the theta $<$ 1, so this is an appropriate model for the data. The results show that avg_polempowerment is statistically signficant at the 95% threshold, and has a strong negative relationship with the number of wars. If we were to compare a country with no political empowerment (0) to full (1), the model indicates there is a 96.3% decrease in the expected number of wars.

Bayesian Model

6. We will continue to use the same dataset `hierarchypaperdata.dta`. The data is measured over multiple years for all countries, so we would like to use a hierarchical model on countries.

Let

- y_i be the number of total years the country was at war for country i.
- n_i be the number of years for country i.
- θ_i be the expected number of wars per country-year.

Assume that

- $y_i \sim Poission(n_i\theta_i)$.
- $\theta_i \sim Gamma(\alpha, \beta)$ for a convenient conjugate prior.
- Here we can assume vague uniform priors for α and β.

Fit a Bayesian model and provide basic diagnostics.

```
# Create stan dataset
country_data <- data.frame(
  country_id = unique(hierarchies$ccode),
  y = tapply(hierarchies$warDummy, hierarchies$ccode, sum),  # sum(wars) for each country & all years
  n = tapply(hierarchies$year, hierarchies$ccode, length)  # num years for each country
)

stan_data <- list(
  N = nrow(country_data),
  y = country_data$y,
  n = country_data$n
)

# Stan Model
fit <- stan(
  file = "poisson_war.stan",
  data = stan_data,
  iter = 2000,
  chains = 3,
  warmup = 500,
)
```

```
## Trying to compile a simple C file

## Running /Library/Frameworks/R.framework/Resources/bin/R CMD SHLIB foo.c
## using C compiler: 'Apple clang version 15.0.0 (clang-1500.3.9.4)'
## using SDK: 'MacOSX14.4.sdk'
## clang -arch arm64 -I"/Library/Frameworks/R.framework/Resources/include" -DNDEBUG   -I"/Library/Framew
## In file included from <built-in>:1:
## In file included from /Library/Frameworks/R.framework/Versions/4.4-arm64/Resources/library/StanHeade
## In file included from /Library/Frameworks/R.framework/Versions/4.4-arm64/Resources/library/RcppEigen
## In file included from /Library/Frameworks/R.framework/Versions/4.4-arm64/Resources/library/RcppEigen
## /Library/Frameworks/R.framework/Versions/4.4-arm64/Resources/library/RcppEigen/include/Eigen/src/Cor
## #include <cmath>
##          ^~~~~~
## 1 error generated.
## make: *** [foo.o] Error 1
##
```

```
## SAMPLING FOR MODEL 'anon_model' NOW (CHAIN 1).
## Chain 1:
## Chain 1: Gradient evaluation took 2.4e-05 seconds
## Chain 1: 1000 transitions using 10 leapfrog steps per transition would take 0.24 seconds.
## Chain 1: Adjust your expectations accordingly!
## Chain 1:
## Chain 1:
## Chain 1: Iteration:    1 / 2000 [  0%]  (Warmup)
## Chain 1: Iteration:  200 / 2000 [ 10%]  (Warmup)
## Chain 1: Iteration:  400 / 2000 [ 20%]  (Warmup)
## Chain 1: Iteration:  501 / 2000 [ 25%]  (Sampling)
## Chain 1: Iteration:  700 / 2000 [ 35%]  (Sampling)
## Chain 1: Iteration:  900 / 2000 [ 45%]  (Sampling)
## Chain 1: Iteration: 1100 / 2000 [ 55%]  (Sampling)
## Chain 1: Iteration: 1300 / 2000 [ 65%]  (Sampling)
## Chain 1: Iteration: 1500 / 2000 [ 75%]  (Sampling)
## Chain 1: Iteration: 1700 / 2000 [ 85%]  (Sampling)
## Chain 1: Iteration: 1900 / 2000 [ 95%]  (Sampling)
## Chain 1: Iteration: 2000 / 2000 [100%]  (Sampling)
## Chain 1:
## Chain 1:  Elapsed Time: 0.475 seconds (Warm-up)
## Chain 1:                0.773 seconds (Sampling)
## Chain 1:                1.248 seconds (Total)
## Chain 1:
##
## SAMPLING FOR MODEL 'anon_model' NOW (CHAIN 2).
## Chain 2:
## Chain 2: Gradient evaluation took 1.6e-05 seconds
## Chain 2: 1000 transitions using 10 leapfrog steps per transition would take 0.16 seconds.
## Chain 2: Adjust your expectations accordingly!
## Chain 2:
## Chain 2:
## Chain 2: Iteration:    1 / 2000 [  0%]  (Warmup)
## Chain 2: Iteration:  200 / 2000 [ 10%]  (Warmup)
## Chain 2: Iteration:  400 / 2000 [ 20%]  (Warmup)
## Chain 2: Iteration:  501 / 2000 [ 25%]  (Sampling)
## Chain 2: Iteration:  700 / 2000 [ 35%]  (Sampling)
## Chain 2: Iteration:  900 / 2000 [ 45%]  (Sampling)
## Chain 2: Iteration: 1100 / 2000 [ 55%]  (Sampling)
## Chain 2: Iteration: 1300 / 2000 [ 65%]  (Sampling)
## Chain 2: Iteration: 1500 / 2000 [ 75%]  (Sampling)
## Chain 2: Iteration: 1700 / 2000 [ 85%]  (Sampling)
## Chain 2: Iteration: 1900 / 2000 [ 95%]  (Sampling)
## Chain 2: Iteration: 2000 / 2000 [100%]  (Sampling)
## Chain 2:
## Chain 2:  Elapsed Time: 0.47 seconds (Warm-up)
## Chain 2:                0.816 seconds (Sampling)
## Chain 2:                1.286 seconds (Total)
## Chain 2:
##
## SAMPLING FOR MODEL 'anon_model' NOW (CHAIN 3).
## Chain 3:
## Chain 3: Gradient evaluation took 1.6e-05 seconds
## Chain 3: 1000 transitions using 10 leapfrog steps per transition would take 0.16 seconds.
```

```
## Chain 3: Adjust your expectations accordingly!
## Chain 3:
## Chain 3:
## Chain 3: Iteration:    1 / 2000 [  0%]  (Warmup)
## Chain 3: Iteration:  200 / 2000 [ 10%]  (Warmup)
## Chain 3: Iteration:  400 / 2000 [ 20%]  (Warmup)
## Chain 3: Iteration:  501 / 2000 [ 25%]  (Sampling)
## Chain 3: Iteration:  700 / 2000 [ 35%]  (Sampling)
## Chain 3: Iteration:  900 / 2000 [ 45%]  (Sampling)
## Chain 3: Iteration: 1100 / 2000 [ 55%]  (Sampling)
## Chain 3: Iteration: 1300 / 2000 [ 65%]  (Sampling)
## Chain 3: Iteration: 1500 / 2000 [ 75%]  (Sampling)
## Chain 3: Iteration: 1700 / 2000 [ 85%]  (Sampling)
## Chain 3: Iteration: 1900 / 2000 [ 95%]  (Sampling)
## Chain 3: Iteration: 2000 / 2000 [100%]  (Sampling)
## Chain 3:
## Chain 3:  Elapsed Time: 0.505 seconds (Warm-up)
## Chain 3:                0.823 seconds (Sampling)
## Chain 3:                1.328 seconds (Total)
## Chain 3:
```

```r
# Check model diagnostics
print(summary(fit), digits = 2)
```

```
## $summary
##                mean se_mean      sd    2.5%     25%     50%     75%   97.5%
## alpha_gamma 4.5e-01 1.6e-03  0.0574 3.5e-01 4.1e-01 4.5e-01 4.9e-01 5.7e-01
## beta_gamma  5.4e+00 1.9e-02  0.8809 3.8e+00 4.7e+00 5.3e+00 5.9e+00 7.3e+00
## theta[1]    2.1e-01 4.6e-04  0.0430 1.3e-01 1.8e-01 2.1e-01 2.4e-01 3.0e-01
## theta[2]    1.1e-01 3.0e-04  0.0307 5.9e-02 8.8e-02 1.1e-01 1.3e-01 1.8e-01
## theta[3]    9.7e-03 2.0e-04  0.0143 5.3e-06 8.6e-04 4.1e-03 1.2e-02 5.1e-02
## theta[4]    6.2e-02 2.7e-04  0.0232 2.5e-02 4.6e-02 6.0e-02 7.6e-02 1.2e-01
## theta[5]    1.4e-02 1.4e-04  0.0120 8.8e-04 5.2e-03 1.1e-02 1.9e-02 4.6e-02
## theta[6]    1.2e-02 1.2e-04  0.0101 7.9e-04 4.6e-03 9.3e-03 1.7e-02 3.9e-02
## theta[7]    8.0e-03 1.5e-04  0.0118 3.3e-06 5.8e-04 3.2e-03 1.0e-02 4.2e-02
## theta[8]    7.8e-03 1.5e-04  0.0117 2.6e-06 5.4e-04 3.2e-03 1.0e-02 4.1e-02
## theta[9]    8.2e-03 1.6e-04  0.0121 2.9e-06 7.3e-04 3.6e-03 1.1e-02 4.2e-02
## theta[10]   1.1e-02 2.0e-04  0.0159 5.0e-06 9.1e-04 4.6e-03 1.4e-02 5.6e-02
## theta[11]   9.5e-03 1.8e-04  0.0143 2.6e-06 7.1e-04 4.1e-03 1.2e-02 4.9e-02
## theta[12]   1.0e-02 2.1e-04  0.0154 5.0e-06 8.8e-04 4.4e-03 1.4e-02 5.6e-02
## theta[13]   1.1e-02 2.1e-04  0.0162 6.5e-06 8.4e-04 4.7e-03 1.4e-02 5.6e-02
## theta[14]   1.2e-02 2.3e-04  0.0172 6.3e-06 9.0e-04 4.6e-03 1.5e-02 6.0e-02
## theta[15]   1.2e-02 2.3e-04  0.0169 6.6e-06 9.5e-04 4.8e-03 1.5e-02 6.1e-02
## theta[16]   1.5e-01 3.5e-04  0.0348 9.1e-02 1.3e-01 1.5e-01 1.7e-01 2.3e-01
## theta[17]   1.1e-02 2.3e-04  0.0171 2.9e-06 8.8e-04 4.6e-03 1.5e-02 6.0e-02
## theta[18]   1.1e-01 3.1e-04  0.0298 6.1e-02 8.9e-02 1.1e-01 1.3e-01 1.7e-01
## theta[19]   3.7e-02 1.8e-04  0.0174 1.1e-02 2.4e-02 3.4e-02 4.6e-02 7.8e-02
## theta[20]   1.5e-01 3.4e-04  0.0355 9.2e-02 1.3e-01 1.5e-01 1.7e-01 2.3e-01
## theta[21]   1.0e-01 2.9e-04  0.0288 5.4e-02 8.2e-02 1.0e-01 1.2e-01 1.7e-01
## theta[22]   1.2e-02 1.0e-04  0.0099 7.7e-04 4.7e-03 9.3e-03 1.6e-02 3.7e-02
## theta[23]   3.9e-03 7.9e-05  0.0061 1.6e-06 2.9e-04 1.5e-03 5.0e-03 2.0e-02
## theta[24]   3.4e-01 5.3e-04  0.0520 2.5e-01 3.0e-01 3.4e-01 3.8e-01 4.5e-01
## theta[25]   2.9e-02 1.8e-04  0.0148 7.1e-03 1.8e-02 2.6e-02 3.7e-02 6.3e-02
## theta[26]   8.3e-03 1.7e-04  0.0123 2.3e-06 6.6e-04 3.5e-03 1.1e-02 4.2e-02
```

```
## theta[27]   9.7e-03 1.9e-04  0.0143 4.5e-06 8.7e-04 4.3e-03 1.2e-02 4.9e-02
## theta[28]   3.7e-02 1.9e-04  0.0170 1.1e-02 2.4e-02 3.4e-02 4.7e-02 7.7e-02
## theta[29]   1.1e-01 3.1e-04  0.0304 6.0e-02 8.9e-02 1.1e-01 1.3e-01 1.8e-01
## theta[30]   2.8e-02 1.7e-04  0.0149 7.0e-03 1.7e-02 2.6e-02 3.7e-02 6.4e-02
## theta[31]   4.5e-02 2.1e-04  0.0199 1.5e-02 3.1e-02 4.2e-02 5.7e-02 9.2e-02
## theta[32]   6.2e-02 2.4e-04  0.0224 2.6e-02 4.6e-02 5.9e-02 7.5e-02 1.1e-01
## theta[33]   1.2e-02 1.2e-04  0.0100 6.9e-04 4.7e-03 9.2e-03 1.6e-02 3.8e-02
## theta[34]   4.5e-02 2.0e-04  0.0192 1.6e-02 3.1e-02 4.2e-02 5.6e-02 9.0e-02
## theta[35]   1.2e-02 1.2e-04  0.0098 7.6e-04 4.7e-03 9.3e-03 1.6e-02 3.6e-02
## theta[36]   1.9e-01 4.0e-04  0.0406 1.2e-01 1.6e-01 1.9e-01 2.2e-01 2.8e-01
## theta[37]   4.6e-03 9.1e-05  0.0068 2.4e-06 3.4e-04 2.0e-03 6.0e-03 2.4e-02
## theta[38]   4.5e-02 2.2e-04  0.0196 1.6e-02 3.1e-02 4.2e-02 5.6e-02 9.1e-02
## theta[39]   7.7e-02 2.6e-04  0.0247 3.6e-02 6.0e-02 7.5e-02 9.2e-02 1.3e-01
## theta[40]   3.8e-03 7.8e-05  0.0057 2.4e-06 3.0e-04 1.6e-03 4.9e-03 2.1e-02
## theta[41]   1.9e-01 3.9e-04  0.0391 1.2e-01 1.6e-01 1.8e-01 2.1e-01 2.7e-01
## theta[42]   5.9e-03 1.1e-04  0.0087 3.1e-06 5.3e-04 2.5e-03 7.6e-03 3.1e-02
## theta[43]   6.0e-03 1.1e-04  0.0087 3.8e-06 5.0e-04 2.5e-03 7.8e-03 3.2e-02
## theta[44]   3.6e-03 7.2e-05  0.0053 1.1e-06 2.6e-04 1.4e-03 4.6e-03 1.9e-02
## theta[45]   7.8e-02 2.7e-04  0.0258 3.6e-02 5.9e-02 7.5e-02 9.4e-02 1.4e-01
## theta[46]   6.0e-03 1.2e-04  0.0090 1.7e-06 4.7e-04 2.5e-03 7.7e-03 3.3e-02
## theta[47]   2.8e-02 1.5e-04  0.0149 7.1e-03 1.7e-02 2.6e-02 3.6e-02 6.4e-02
## theta[48]   2.6e-01 7.4e-04  0.0682 1.4e-01 2.1e-01 2.6e-01 3.0e-01 4.1e-01
## theta[49]   6.3e-02 3.1e-04  0.0298 1.9e-02 4.1e-02 5.8e-02 7.9e-02 1.3e-01
## theta[50]   9.8e-03 1.9e-04  0.0144 2.8e-06 7.6e-04 4.1e-03 1.3e-02 5.2e-02
## theta[51]   6.2e-02 2.6e-04  0.0248 2.4e-02 4.4e-02 5.9e-02 7.7e-02 1.2e-01
## theta[52]   2.2e-01 1.0e-03  0.0952 7.7e-02 1.5e-01 2.1e-01 2.8e-01 4.5e-01
## theta[53]   4.3e-03 8.2e-05  0.0062 2.2e-06 3.5e-04 1.9e-03 5.5e-03 2.2e-02
## theta[54]   8.2e-02 2.9e-04  0.0281 3.6e-02 6.2e-02 7.8e-02 9.8e-02 1.5e-01
## theta[55]   1.8e-02 1.8e-04  0.0146 1.2e-03 7.2e-03 1.4e-02 2.5e-02 5.4e-02
## theta[56]   1.6e-02 3.2e-04  0.0239 5.0e-06 1.3e-03 6.8e-03 2.1e-02 8.5e-02
## theta[57]   1.6e-02 3.0e-04  0.0234 4.7e-06 1.2e-03 6.4e-03 2.0e-02 8.0e-02
## theta[58]   1.4e-01 3.6e-04  0.0331 7.9e-02 1.1e-01 1.3e-01 1.6e-01 2.1e-01
## theta[59]   6.1e-03 1.2e-04  0.0089 1.4e-06 4.4e-04 2.5e-03 8.0e-03 3.1e-02
## theta[60]   8.1e-03 1.6e-04  0.0122 2.5e-06 5.9e-04 3.0e-03 1.1e-02 4.4e-02
## theta[61]   4.1e-03 7.7e-05  0.0061 8.3e-07 2.9e-04 1.7e-03 5.2e-03 2.2e-02
## theta[62]   1.5e-02 2.9e-04  0.0219 5.7e-06 1.2e-03 6.1e-03 1.9e-02 7.8e-02
## theta[63]   1.4e-02 3.0e-04  0.0217 5.9e-06 1.1e-03 5.9e-03 1.9e-02 7.6e-02
## theta[64]   1.5e-02 3.2e-04  0.0234 1.1e-05 1.3e-03 6.1e-03 1.9e-02 8.1e-02
## theta[65]   8.4e-02 5.9e-04  0.0555 1.3e-02 4.4e-02 7.3e-02 1.1e-01 2.2e-01
## theta[66]   6.9e-02 2.7e-04  0.0271 2.7e-02 4.9e-02 6.5e-02 8.4e-02 1.3e-01
## theta[67]   1.2e-01 7.4e-04  0.0649 2.8e-02 7.1e-02 1.1e-01 1.5e-01 2.8e-01
## theta[68]   3.4e-02 7.2e-04  0.0529 7.4e-06 2.3e-03 1.3e-02 4.4e-02 1.8e-01
## theta[69]   1.5e-02 3.0e-04  0.0224 2.5e-06 1.1e-03 6.0e-03 1.9e-02 8.1e-02
## theta[70]   1.3e-01 3.4e-04  0.0332 7.1e-02 1.0e-01 1.2e-01 1.5e-01 2.0e-01
## theta[71]   2.4e-02 2.4e-04  0.0200 1.8e-03 9.7e-03 1.9e-02 3.3e-02 7.7e-02
## theta[72]   1.0e-01 3.2e-04  0.0280 5.4e-02 8.2e-02 9.9e-02 1.2e-01 1.6e-01
## theta[73]   5.0e-02 4.9e-04  0.0425 3.3e-03 1.9e-02 3.8e-02 6.8e-02 1.6e-01
## theta[74]   9.4e-02 2.9e-04  0.0282 4.8e-02 7.4e-02 9.1e-02 1.1e-01 1.6e-01
## theta[75]   3.4e-01 5.0e-04  0.0533 2.4e-01 3.0e-01 3.4e-01 3.7e-01 4.5e-01
## theta[76]   6.6e-02 4.0e-04  0.0367 1.5e-02 4.0e-02 6.0e-02 8.5e-02 1.6e-01
## theta[77]   6.6e-02 4.2e-04  0.0361 1.5e-02 4.0e-02 5.9e-02 8.5e-02 1.5e-01
## theta[78]   2.8e-02 2.8e-04  0.0240 1.7e-03 1.1e-02 2.2e-02 3.8e-02 9.3e-02
## theta[79]   5.0e-02 4.7e-04  0.0409 3.2e-03 2.1e-02 3.9e-02 6.8e-02 1.6e-01
## theta[80]   1.6e-02 3.0e-04  0.0236 6.9e-06 1.1e-03 6.2e-03 2.0e-02 8.4e-02
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## theta[81]   8.4e-02 6.1e-04  0.0544 1.3e-02 4.4e-02 7.3e-02 1.1e-01 2.2e-01
## theta[82]   1.2e-01 7.2e-04  0.0646 2.6e-02 6.8e-02 1.0e-01 1.5e-01 2.7e-01
## theta[83]   1.2e-01 6.9e-04  0.0640 2.8e-02 6.9e-02 1.0e-01 1.5e-01 2.7e-01
## theta[84]   9.0e-02 3.1e-04  0.0294 4.3e-02 6.9e-02 8.7e-02 1.1e-01 1.6e-01
## theta[85]   3.7e-03 7.7e-05  0.0056 1.3e-06 3.2e-04 1.6e-03 4.8e-03 1.9e-02
## theta[86]   1.2e-02 1.1e-04  0.0100 8.9e-04 4.9e-03 9.8e-03 1.7e-02 3.8e-02
## theta[87]   3.8e-03 7.0e-05  0.0055 1.4e-06 3.1e-04 1.6e-03 5.0e-03 2.0e-02
## theta[88]   5.8e-03 1.2e-04  0.0088 1.9e-06 4.2e-04 2.3e-03 7.7e-03 3.0e-02
## theta[89]   1.0e-02 2.0e-04  0.0152 2.4e-06 7.8e-04 4.2e-03 1.3e-02 5.3e-02
## theta[90]   1.0e-02 2.1e-04  0.0158 2.2e-06 6.5e-04 4.0e-03 1.3e-02 5.5e-02
## theta[91]   5.3e-02 4.0e-04  0.0336 8.4e-03 2.8e-02 4.6e-02 7.1e-02 1.4e-01
## theta[92]   8.7e-03 1.6e-04  0.0125 3.1e-06 7.2e-04 3.9e-03 1.1e-02 4.5e-02
## theta[93]   8.1e-03 1.6e-04  0.0119 4.3e-06 7.2e-04 3.4e-03 1.1e-02 4.2e-02
## theta[94]   1.1e-01 4.9e-04  0.0421 4.1e-02 7.6e-02 1.0e-01 1.3e-01 2.0e-01
## theta[95]   2.4e-02 2.4e-04  0.0200 1.8e-03 9.3e-03 1.9e-02 3.3e-02 7.6e-02
## theta[96]   7.7e-03 1.6e-04  0.0112 2.3e-06 5.8e-04 3.1e-03 1.0e-02 3.9e-02
## theta[97]   2.4e-02 2.5e-04  0.0203 1.5e-03 9.8e-03 1.9e-02 3.3e-02 7.8e-02
## theta[98]   4.1e-02 3.1e-04  0.0254 6.6e-03 2.2e-02 3.6e-02 5.4e-02 1.1e-01
## theta[99]   5.8e-02 3.3e-04  0.0309 1.4e-02 3.5e-02 5.3e-02 7.4e-02 1.3e-01
## theta[100]  4.0e-02 2.7e-04  0.0253 6.0e-03 2.1e-02 3.4e-02 5.3e-02 1.0e-01
## theta[101]  7.6e-03 1.5e-04  0.0112 3.0e-06 6.2e-04 3.1e-03 1.0e-02 4.1e-02
## theta[102]  7.8e-02 2.7e-04  0.0252 3.7e-02 6.0e-02 7.5e-02 9.3e-02 1.3e-01
## theta[103]  1.4e-01 5.1e-04  0.0474 6.2e-02 1.1e-01 1.4e-01 1.7e-01 2.5e-01
## theta[104]  7.0e-03 1.3e-04  0.0104 2.5e-06 5.6e-04 3.0e-03 8.9e-03 3.6e-02
## theta[105]  7.4e-03 1.4e-04  0.0110 2.2e-06 6.1e-04 3.2e-03 9.6e-03 3.9e-02
## theta[106]  7.4e-03 1.3e-04  0.0111 3.5e-06 5.9e-04 3.0e-03 9.5e-03 3.8e-02
## theta[107]  1.1e-01 4.3e-04  0.0416 4.3e-02 7.7e-02 1.0e-01 1.3e-01 2.0e-01
## theta[108]  7.5e-03 1.4e-04  0.0110 3.3e-06 6.1e-04 3.1e-03 9.8e-03 3.9e-02
## theta[109]  5.7e-02 3.3e-04  0.0302 1.4e-02 3.5e-02 5.2e-02 7.4e-02 1.3e-01
## theta[110]  3.6e-01 8.4e-04  0.0791 2.2e-01 3.0e-01 3.5e-01 4.1e-01 5.3e-01
## theta[111]  5.7e-02 3.3e-04  0.0308 1.3e-02 3.4e-02 5.2e-02 7.4e-02 1.3e-01
## theta[112]  3.0e-01 7.2e-04  0.0707 1.8e-01 2.5e-01 3.0e-01 3.5e-01 4.6e-01
## theta[113]  2.0e-01 6.3e-04  0.0575 1.0e-01 1.6e-01 1.9e-01 2.3e-01 3.3e-01
## theta[114]  2.6e-02 2.4e-04  0.0207 1.7e-03 1.0e-02 2.0e-02 3.6e-02 7.7e-02
## theta[115]  4.1e-02 2.6e-04  0.0255 7.1e-03 2.2e-02 3.6e-02 5.5e-02 1.0e-01
## theta[116]  2.1e-01 6.2e-04  0.0602 1.1e-01 1.7e-01 2.1e-01 2.5e-01 3.5e-01
## theta[117]  1.1e-01 4.8e-04  0.0419 4.2e-02 7.8e-02 1.0e-01 1.3e-01 2.0e-01
## theta[118]  2.6e-01 7.0e-04  0.0671 1.4e-01 2.1e-01 2.5e-01 3.0e-01 4.1e-01
## theta[119]  3.3e-02 3.1e-04  0.0278 1.9e-03 1.2e-02 2.5e-02 4.6e-02 1.0e-01
## theta[120]  2.8e-01 4.8e-04  0.0489 1.9e-01 2.4e-01 2.7e-01 3.1e-01 3.8e-01
## theta[121]  1.6e-01 8.1e-04  0.0755 4.5e-02 1.0e-01 1.4e-01 2.0e-01 3.3e-01
## theta[122]  5.4e-01 1.1e-03  0.1123 3.4e-01 4.6e-01 5.3e-01 6.1e-01 7.8e-01
## theta[123]  3.3e-01 8.6e-04  0.0870 1.9e-01 2.7e-01 3.2e-01 3.9e-01 5.2e-01
## theta[124]  7.9e-03 1.6e-04  0.0116 4.8e-06 6.6e-04 3.4e-03 1.0e-02 4.1e-02
## theta[125]  2.4e-01 6.4e-04  0.0638 1.4e-01 2.0e-01 2.4e-01 2.8e-01 3.8e-01
## theta[126]  8.1e-03 1.5e-04  0.0118 4.0e-06 6.8e-04 3.4e-03 1.1e-02 4.1e-02
## theta[127]  8.5e-02 2.7e-04  0.0268 4.0e-02 6.5e-02 8.2e-02 1.0e-01 1.4e-01
## theta[128]  2.8e-02 5.3e-04  0.0405 9.9e-06 2.0e-03 1.1e-02 3.6e-02 1.5e-01
## theta[129]  2.8e-02 5.2e-04  0.0411 1.1e-05 2.1e-03 1.1e-02 3.6e-02 1.5e-01
## theta[130]  1.4e-02 2.8e-04  0.0217 8.5e-06 1.0e-03 5.9e-03 1.8e-02 7.8e-02
## theta[131]  8.3e-03 1.6e-04  0.0121 4.2e-06 7.2e-04 3.4e-03 1.1e-02 4.2e-02
## theta[132]  8.5e-03 1.7e-04  0.0128 3.1e-06 6.4e-04 3.3e-03 1.1e-02 4.5e-02
## theta[133]  8.3e-03 1.7e-04  0.0126 3.4e-06 6.4e-04 3.2e-03 1.1e-02 4.5e-02
## theta[134]  7.5e-03 1.4e-04  0.0110 3.6e-06 5.9e-04 2.9e-03 9.8e-03 3.9e-02
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## theta[135]  1.0e-02 2.2e-04  0.0157 2.9e-06 7.1e-04 3.8e-03 1.3e-02 5.7e-02
## theta[136]  8.5e-03 1.6e-04  0.0128 4.6e-06 7.4e-04 3.5e-03 1.1e-02 4.5e-02
## theta[137]  1.0e-02 2.1e-04  0.0152 3.5e-06 7.2e-04 4.0e-03 1.3e-02 5.3e-02
## theta[138]  4.9e-02 2.8e-04  0.0249 1.3e-02 3.1e-02 4.5e-02 6.3e-02 1.1e-01
## theta[139]  2.1e-01 6.5e-04  0.0605 1.1e-01 1.7e-01 2.1e-01 2.5e-01 3.5e-01
## theta[140]  6.9e-03 1.3e-04  0.0098 4.7e-06 6.4e-04 3.0e-03 9.1e-03 3.5e-02
## theta[141]  9.3e-02 4.1e-04  0.0361 3.6e-02 6.6e-02 8.9e-02 1.1e-01 1.8e-01
## theta[142]  4.2e-01 8.4e-04  0.0798 2.8e-01 3.6e-01 4.1e-01 4.7e-01 5.9e-01
## theta[143]  2.6e-01 2.0e-03  0.1708 4.4e-02 1.4e-01 2.3e-01 3.4e-01 7.0e-01
## theta[144]  1.3e-01 3.5e-04  0.0330 7.1e-02 1.0e-01 1.2e-01 1.5e-01 2.0e-01
## theta[145]  3.1e-01 5.6e-04  0.0515 2.2e-01 2.7e-01 3.1e-01 3.4e-01 4.2e-01
## theta[146]  3.0e-01 6.1e-04  0.0598 1.9e-01 2.5e-01 2.9e-01 3.3e-01 4.2e-01
## theta[147]  1.1e-01 3.4e-04  0.0330 5.1e-02 8.2e-02 1.0e-01 1.2e-01 1.8e-01
## theta[148]  1.3e-01 4.1e-04  0.0416 5.8e-02 9.5e-02 1.2e-01 1.5e-01 2.2e-01
## theta[149]  1.4e-01 4.6e-04  0.0429 6.5e-02 1.0e-01 1.3e-01 1.6e-01 2.3e-01
## theta[150]  5.9e-02 3.4e-04  0.0276 1.7e-02 3.8e-02 5.5e-02 7.5e-02 1.2e-01
## theta[151]  2.5e-01 5.8e-04  0.0583 1.5e-01 2.1e-01 2.5e-01 2.9e-01 3.8e-01
## theta[152]  3.8e-02 2.4e-04  0.0205 9.0e-03 2.4e-02 3.5e-02 5.0e-02 8.6e-02
## theta[153]  1.1e-01 3.3e-04  0.0330 5.6e-02 8.7e-02 1.1e-01 1.3e-01 1.9e-01
## theta[154]  5.3e-02 5.4e-04  0.0434 4.0e-03 2.1e-02 4.2e-02 7.3e-02 1.6e-01
## theta[155]  4.0e-02 2.8e-04  0.0259 6.3e-03 2.2e-02 3.5e-02 5.4e-02 1.0e-01
## theta[156]  9.5e-03 1.8e-04  0.0140 4.1e-06 7.5e-04 3.9e-03 1.2e-02 4.9e-02
## theta[157]  2.9e-02 2.8e-04  0.0238 2.1e-03 1.2e-02 2.3e-02 4.0e-02 9.1e-02
## theta[158]  2.9e-02 2.6e-04  0.0239 2.1e-03 1.2e-02 2.3e-02 4.0e-02 8.9e-02
## theta[159]  3.7e-02 1.8e-04  0.0177 1.0e-02 2.4e-02 3.4e-02 4.7e-02 8.0e-02
## theta[160]  2.0e-01 4.6e-04  0.0440 1.2e-01 1.7e-01 2.0e-01 2.3e-01 2.9e-01
## theta[161]  1.6e-02 3.1e-04  0.0237 9.8e-06 1.2e-03 6.6e-03 2.0e-02 8.3e-02
## theta[162]  2.2e-01 9.8e-04  0.0839 8.4e-02 1.6e-01 2.1e-01 2.7e-01 4.2e-01
## theta[163]  1.6e-02 3.0e-04  0.0236 5.8e-06 1.1e-03 6.1e-03 2.0e-02 8.6e-02
## theta[164]  4.9e-02 5.0e-04  0.0400 3.5e-03 2.0e-02 3.9e-02 6.7e-02 1.5e-01
## theta[165]  1.5e-02 3.0e-04  0.0222 7.9e-06 1.2e-03 6.4e-03 2.1e-02 7.7e-02
## theta[166]  3.8e-01 6.4e-04  0.0564 2.8e-01 3.4e-01 3.8e-01 4.2e-01 5.0e-01
## theta[167]  1.2e-02 2.1e-04  0.0168 5.9e-06 1.0e-03 5.1e-03 1.5e-02 6.1e-02
## theta[168]  2.4e-02 1.7e-04  0.0155 3.9e-03 1.3e-02 2.1e-02 3.2e-02 6.3e-02
## theta[169]  4.8e-02 2.8e-04  0.0262 1.1e-02 3.0e-02 4.4e-02 6.2e-02 1.1e-01
## theta[170]  2.8e-02 6.0e-04  0.0423 1.5e-05 2.1e-03 1.2e-02 3.7e-02 1.5e-01
## theta[171]  6.2e-02 3.3e-04  0.0294 1.8e-02 4.0e-02 5.8e-02 7.8e-02 1.3e-01
## theta[172]  1.9e-01 5.6e-04  0.0517 9.9e-02 1.5e-01 1.8e-01 2.2e-01 3.0e-01
## theta[173]  1.7e-01 4.1e-04  0.0382 1.0e-01 1.4e-01 1.7e-01 1.9e-01 2.5e-01
## theta[174]  3.6e-01 7.8e-04  0.0698 2.4e-01 3.1e-01 3.6e-01 4.1e-01 5.1e-01
## theta[175]  6.3e-03 1.3e-04  0.0095 2.5e-06 5.0e-04 2.7e-03 8.0e-03 3.4e-02
## theta[176]  2.2e-01 5.9e-04  0.0544 1.3e-01 1.8e-01 2.2e-01 2.6e-01 3.4e-01
## theta[177]  4.9e-02 3.7e-04  0.0321 7.6e-03 2.6e-02 4.3e-02 6.5e-02 1.3e-01
## theta[178]  4.2e-01 7.3e-04  0.0774 2.8e-01 3.6e-01 4.1e-01 4.6e-01 5.8e-01
## theta[179]  3.5e-01 8.0e-04  0.0687 2.2e-01 3.0e-01 3.4e-01 3.9e-01 4.9e-01
## theta[180]  8.3e-03 1.6e-04  0.0124 4.0e-06 6.1e-04 3.3e-03 1.0e-02 4.6e-02
## theta[181]  5.3e-02 2.3e-04  0.0207 2.1e-02 3.8e-02 5.0e-02 6.5e-02 1.0e-01
## theta[182]  1.3e-01 3.3e-04  0.0329 7.7e-02 1.1e-01 1.3e-01 1.5e-01 2.1e-01
## theta[183]  2.8e-01 7.5e-04  0.0671 1.6e-01 2.3e-01 2.7e-01 3.2e-01 4.2e-01
## theta[184]  2.7e-01 6.5e-04  0.0636 1.6e-01 2.3e-01 2.7e-01 3.1e-01 4.1e-01
## theta[185]  2.3e-01 5.8e-04  0.0568 1.3e-01 1.9e-01 2.3e-01 2.6e-01 3.5e-01
## theta[186]  1.7e-02 3.5e-04  0.0255 6.6e-06 1.4e-03 7.3e-03 2.1e-02 9.3e-02
## theta[187]  2.3e-02 2.3e-04  0.0186 1.7e-03 9.1e-03 1.8e-02 3.1e-02 7.1e-02
## theta[188]  8.0e-03 1.6e-04  0.0119 4.5e-06 6.3e-04 3.4e-03 1.0e-02 4.2e-02
```

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## theta[189]  1.2e-02 2.4e-04  0.0186 2.5e-06 9.0e-04 4.6e-03 1.6e-02 6.4e-02
## theta[190]  5.4e-01 9.2e-04  0.0840 3.9e-01 4.9e-01 5.4e-01 6.0e-01 7.2e-01
## theta[191]  3.5e-01 7.5e-04  0.0666 2.3e-01 3.0e-01 3.4e-01 3.9e-01 4.9e-01
## theta[192]  2.4e-02 4.8e-04  0.0342 1.2e-05 1.9e-03 1.0e-02 3.1e-02 1.2e-01
## theta[193]  1.8e-01 3.8e-04  0.0387 1.1e-01 1.5e-01 1.8e-01 2.0e-01 2.6e-01
## theta[194]  9.9e-02 5.6e-04  0.0474 2.7e-02 6.4e-02 9.1e-02 1.3e-01 2.1e-01
## theta[195]  6.5e-02 2.7e-04  0.0240 2.8e-02 4.7e-02 6.2e-02 8.0e-02 1.2e-01
## theta[196]  1.1e-02 2.1e-04  0.0157 6.3e-06 9.9e-04 4.8e-03 1.5e-02 5.3e-02
## theta[197]  1.1e-02 2.2e-04  0.0159 3.0e-06 8.3e-04 4.2e-03 1.4e-02 5.5e-02
## theta[198]  8.9e-03 1.8e-04  0.0136 1.9e-06 6.1e-04 3.5e-03 1.1e-02 4.9e-02
## theta[199]  1.1e-02 2.0e-04  0.0159 5.6e-06 9.4e-04 4.7e-03 1.5e-02 5.7e-02
## theta[200]  8.4e-02 4.2e-04  0.0398 2.5e-02 5.5e-02 7.8e-02 1.1e-01 1.8e-01
## theta[201]  8.6e-02 4.6e-04  0.0415 2.5e-02 5.6e-02 8.0e-02 1.1e-01 1.8e-01
## theta[202]  8.2e-02 4.6e-04  0.0432 2.0e-02 4.9e-02 7.4e-02 1.1e-01 1.9e-01
## theta[203]  1.3e-02 2.6e-04  0.0204 3.1e-06 8.4e-04 4.7e-03 1.7e-02 7.4e-02
## theta[204]  1.7e-02 3.4e-04  0.0244 6.7e-06 1.3e-03 7.3e-03 2.2e-02 8.5e-02
## theta[205]  1.3e-02 2.7e-04  0.0197 3.8e-06 8.5e-04 4.9e-03 1.7e-02 6.8e-02
## theta[206]  7.6e-03 1.4e-04  0.0113 2.6e-06 6.2e-04 3.0e-03 9.9e-03 3.9e-02
## y_sim[1]    2.4e+01 9.2e-02  7.0410 1.2e+01 1.9e+01 2.4e+01 2.9e+01 3.9e+01
## y_sim[2]    1.3e+01 6.3e-02  4.9909 4.0e+00 9.0e+00 1.2e+01 1.6e+01 2.4e+01
## y_sim[3]    4.0e-01 1.2e-02  0.8601 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
## y_sim[4]    7.1e+00 5.0e-02  3.7118 1.0e+00 4.0e+00 7.0e+00 9.0e+00 1.6e+01
## y_sim[5]    1.4e+00 2.5e-02  1.6728 0.0e+00 0.0e+00 1.0e+00 2.0e+00 6.0e+00
## y_sim[6]    1.4e+00 2.3e-02  1.6611 0.0e+00 0.0e+00 1.0e+00 2.0e+00 6.0e+00
## y_sim[7]    4.1e-01 1.2e-02  0.8545 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
## y_sim[8]    4.1e-01 1.2e-02  0.8778 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
## y_sim[9]    4.0e-01 1.2e-02  0.8589 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
## y_sim[10]   3.9e-01 1.2e-02  0.8404 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
## y_sim[11]   4.0e-01 1.2e-02  0.8806 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
## y_sim[12]   4.0e-01 1.3e-02  0.8827 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
## y_sim[13]   4.0e-01 1.2e-02  0.8680 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
## y_sim[14]   3.9e-01 1.2e-02  0.8460 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
## y_sim[15]   3.7e-01 1.2e-02  0.8351 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
## y_sim[16]   1.8e+01 7.5e-02  5.8270 8.0e+00 1.3e+01 1.7e+01 2.1e+01 3.0e+01
## y_sim[17]   3.9e-01 1.2e-02  0.8254 0.0e+00 0.0e+00 0.0e+00 2.5e-01 3.0e+00
## y_sim[18]   1.3e+01 6.5e-02  5.0753 5.0e+00 9.0e+00 1.2e+01 1.6e+01 2.4e+01
## y_sim[19]   4.2e+00 3.6e-02  2.8028 0.0e+00 2.0e+00 4.0e+00 6.0e+00 1.1e+01
## y_sim[20]   1.8e+01 7.5e-02  5.8787 7.0e+00 1.3e+01 1.7e+01 2.1e+01 3.0e+01
## y_sim[21]   1.2e+01 6.3e-02  4.8342 4.0e+00 8.0e+00 1.1e+01 1.5e+01 2.3e+01
## y_sim[22]   1.3e+00 2.1e-02  1.5922 0.0e+00 0.0e+00 1.0e+00 2.0e+00 6.0e+00
## y_sim[23]   4.3e-01 1.3e-02  0.9375 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
## y_sim[24]   4.0e+01 1.1e-01  8.8439 2.4e+01 3.3e+01 3.9e+01 4.5e+01 5.8e+01
## y_sim[25]   3.4e+00 3.3e-02  2.5528 0.0e+00 1.0e+00 3.0e+00 5.0e+00 9.0e+00
## y_sim[26]   4.0e-01 1.3e-02  0.8855 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
## y_sim[27]   4.0e-01 1.2e-02  0.8608 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
## y_sim[28]   4.3e+00 3.8e-02  2.8088 0.0e+00 2.0e+00 4.0e+00 6.0e+00 1.1e+01
## y_sim[29]   1.3e+01 6.5e-02  4.9349 4.0e+00 9.0e+00 1.2e+01 1.6e+01 2.4e+01
## y_sim[30]   3.3e+00 3.3e-02  2.4755 0.0e+00 1.0e+00 3.0e+00 5.0e+00 9.0e+00
## y_sim[31]   5.2e+00 4.1e-02  3.3279 1.0e+00 3.0e+00 5.0e+00 7.0e+00 1.3e+01
## y_sim[32]   7.1e+00 4.9e-02  3.6866 1.0e+00 4.0e+00 7.0e+00 9.0e+00 1.6e+01
## y_sim[33]   1.4e+00 2.3e-02  1.6213 0.0e+00 0.0e+00 1.0e+00 2.0e+00 6.0e+00
## y_sim[34]   5.2e+00 4.1e-02  3.1990 1.0e+00 3.0e+00 5.0e+00 7.0e+00 1.3e+01
## y_sim[35]   1.4e+00 2.3e-02  1.6348 0.0e+00 0.0e+00 1.0e+00 2.0e+00 6.0e+00
## y_sim[36]   2.2e+01 8.4e-02  6.6109 1.1e+01 1.8e+01 2.2e+01 2.7e+01 3.7e+01
```

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## y_sim[37]   4.3e-01 1.3e-02  0.8877 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
## y_sim[38]   5.2e+00 4.3e-02  3.2189 0.0e+00 3.0e+00 5.0e+00 7.0e+00 1.3e+01
## y_sim[39]   9.0e+00 5.3e-02  4.1845 2.0e+00 6.0e+00 8.0e+00 1.2e+01 1.9e+01
## y_sim[40]   4.3e-01 1.4e-02  0.9341 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
## y_sim[41]   2.2e+01 8.3e-02  6.4148 1.0e+01 1.7e+01 2.1e+01 2.6e+01 3.5e+01
## y_sim[42]   4.1e-01 1.2e-02  0.8747 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
## y_sim[43]   4.1e-01 1.2e-02  0.8540 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
## y_sim[44]   4.0e-01 1.2e-02  0.8840 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
## y_sim[45]   9.1e+00 5.3e-02  4.2902 2.0e+00 6.0e+00 9.0e+00 1.2e+01 1.9e+01
## y_sim[46]   4.2e-01 1.3e-02  0.8978 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
## y_sim[47]   3.3e+00 3.2e-02  2.5118 0.0e+00 1.0e+00 3.0e+00 5.0e+00 9.0e+00
## y_sim[48]   1.2e+01 6.1e-02  4.7439 4.0e+00 9.0e+00 1.2e+01 1.5e+01 2.3e+01
## y_sim[49]   4.2e+00 3.7e-02  2.8756 0.0e+00 2.0e+00 4.0e+00 6.0e+00 1.1e+01
## y_sim[50]   4.1e-01 1.2e-02  0.8663 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
## y_sim[51]   6.1e+00 4.6e-02  3.4867 1.0e+00 4.0e+00 6.0e+00 8.0e+00 1.4e+01
## y_sim[52]   4.3e+00 3.6e-02  2.7319 0.0e+00 2.0e+00 4.0e+00 6.0e+00 1.1e+01
## y_sim[53]   4.2e-01 1.3e-02  0.8805 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
## y_sim[54]   8.1e+00 5.2e-02  3.9971 2.0e+00 5.0e+00 8.0e+00 1.0e+01 1.7e+01
## y_sim[55]   1.4e+00 2.3e-02  1.6161 0.0e+00 0.0e+00 1.0e+00 2.0e+00 6.0e+00
## y_sim[56]   3.7e-01 1.2e-02  0.8299 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
## y_sim[57]   3.7e-01 1.1e-02  0.8152 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
## y_sim[58]   1.6e+01 7.3e-02  5.4661 7.0e+00 1.2e+01 1.5e+01 1.9e+01 2.8e+01
## y_sim[59]   4.0e-01 1.3e-02  0.8838 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
## y_sim[60]   4.2e-01 1.3e-02  0.9001 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
## y_sim[61]   4.3e-01 1.3e-02  0.9102 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
## y_sim[62]   3.6e-01 1.2e-02  0.8393 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
## y_sim[63]   3.8e-01 1.2e-02  0.8524 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
## y_sim[64]   3.8e-01 1.2e-02  0.8472 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
## y_sim[65]   2.0e+00 2.6e-02  1.9533 0.0e+00 1.0e+00 2.0e+00 3.0e+00 7.0e+00
## y_sim[66]   6.1e+00 4.4e-02  3.4261 1.0e+00 4.0e+00 6.0e+00 8.0e+00 1.4e+01
## y_sim[67]   2.8e+00 3.1e-02  2.3054 0.0e+00 1.0e+00 2.0e+00 4.0e+00 9.0e+00
## y_sim[68]   2.8e-01 1.0e-02  0.6841 0.0e+00 0.0e+00 0.0e+00 0.0e+00 2.0e+00
## y_sim[69]   3.6e-01 1.1e-02  0.8008 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
## y_sim[70]   1.5e+01 6.8e-02  5.3845 6.0e+00 1.1e+01 1.4e+01 1.8e+01 2.7e+01
## y_sim[71]   1.3e+00 2.2e-02  1.5484 0.0e+00 0.0e+00 1.0e+00 2.0e+00 5.0e+00
## y_sim[72]   1.2e+01 6.3e-02  4.8186 4.0e+00 8.0e+00 1.1e+01 1.5e+01 2.3e+01
## y_sim[73]   1.2e+00 2.1e-02  1.5294 0.0e+00 0.0e+00 1.0e+00 2.0e+00 5.0e+00
## y_sim[74]   1.1e+01 6.1e-02  4.6643 3.0e+00 8.0e+00 1.0e+01 1.4e+01 2.1e+01
## y_sim[75]   3.9e+01 1.1e-01  8.7569 2.4e+01 3.3e+01 3.9e+01 4.5e+01 5.7e+01
## y_sim[76]   3.1e+00 3.4e-02  2.4829 0.0e+00 1.0e+00 3.0e+00 4.0e+00 9.0e+00
## y_sim[77]   3.1e+00 3.3e-02  2.3916 0.0e+00 1.0e+00 3.0e+00 4.0e+00 9.0e+00
## y_sim[78]   1.3e+00 2.1e-02  1.5830 0.0e+00 0.0e+00 1.0e+00 2.0e+00 6.0e+00
## y_sim[79]   1.2e+00 1.9e-02  1.4435 0.0e+00 0.0e+00 1.0e+00 2.0e+00 5.0e+00
## y_sim[80]   3.8e-01 1.1e-02  0.8219 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
## y_sim[81]   2.0e+00 2.8e-02  1.9340 0.0e+00 1.0e+00 2.0e+00 3.0e+00 7.0e+00
## y_sim[82]   2.8e+00 3.0e-02  2.2946 0.0e+00 1.0e+00 2.0e+00 4.0e+00 8.0e+00
## y_sim[83]   2.8e+00 3.1e-02  2.2995 0.0e+00 1.0e+00 2.0e+00 4.0e+00 8.0e+00
## y_sim[84]   9.0e+00 5.8e-02  4.2243 2.0e+00 6.0e+00 9.0e+00 1.1e+01 1.9e+01
## y_sim[85]   4.5e-01 1.4e-02  0.9327 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
## y_sim[86]   1.4e+00 2.2e-02  1.6096 0.0e+00 0.0e+00 1.0e+00 2.0e+00 5.0e+00
## y_sim[87]   4.4e-01 1.2e-02  0.9040 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
## y_sim[88]   4.0e-01 1.2e-02  0.8940 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
## y_sim[89]   3.9e-01 1.2e-02  0.8701 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
## y_sim[90]   4.3e-01 1.4e-02  0.9358 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
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## y_sim[91]   2.2e+00 2.7e-02  2.0158 0.0e+00 1.0e+00 2.0e+00 3.0e+00 7.0e+00
## y_sim[92]   4.1e-01 1.1e-02  0.8367 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
## y_sim[93]   4.1e-01 1.3e-02  0.8725 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
## y_sim[94]   5.9e+00 4.5e-02  3.3755 1.0e+00 3.0e+00 5.0e+00 8.0e+00 1.4e+01
## y_sim[95]   1.3e+00 2.2e-02  1.6112 0.0e+00 0.0e+00 1.0e+00 2.0e+00 6.0e+00
## y_sim[96]   4.3e-01 1.3e-02  0.9258 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
## y_sim[97]   1.3e+00 2.2e-02  1.6164 0.0e+00 0.0e+00 1.0e+00 2.0e+00 5.0e+00
## y_sim[98]   2.2e+00 2.7e-02  2.0078 0.0e+00 1.0e+00 2.0e+00 3.0e+00 7.0e+00
## y_sim[99]   3.2e+00 3.2e-02  2.4821 0.0e+00 1.0e+00 3.0e+00 5.0e+00 9.0e+00
## y_sim[100]  2.2e+00 2.7e-02  2.1025 0.0e+00 1.0e+00 2.0e+00 3.0e+00 7.5e+00
## y_sim[101]  4.2e-01 1.3e-02  0.8914 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
## y_sim[102]  9.1e+00 5.2e-02  4.1186 2.0e+00 6.0e+00 9.0e+00 1.2e+01 1.8e+01
## y_sim[103]  7.6e+00 5.2e-02  3.8362 2.0e+00 5.0e+00 7.0e+00 1.0e+01 1.7e+01
## y_sim[104]  4.2e-01 1.2e-02  0.8618 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
## y_sim[105]  4.3e-01 1.3e-02  0.9241 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
## y_sim[106]  4.1e-01 1.2e-02  0.8685 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
## y_sim[107]  5.9e+00 4.3e-02  3.2866 1.0e+00 4.0e+00 6.0e+00 8.0e+00 1.3e+01
## y_sim[108]  4.1e-01 1.2e-02  0.8650 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
## y_sim[109]  3.1e+00 3.2e-02  2.4491 0.0e+00 1.0e+00 3.0e+00 4.0e+00 9.0e+00
## y_sim[110]  2.0e+01 7.8e-02  6.1510 9.0e+00 1.5e+01 1.9e+01 2.4e+01 3.3e+01
## y_sim[111]  3.1e+00 3.2e-02  2.4356 0.0e+00 1.0e+00 3.0e+00 4.0e+00 9.0e+00
## y_sim[112]  1.7e+01 7.1e-02  5.7513 7.0e+00 1.3e+01 1.6e+01 2.0e+01 3.0e+01
## y_sim[113]  1.0e+01 6.0e-02  4.3627 3.0e+00 7.0e+00 1.0e+01 1.3e+01 2.0e+01
## y_sim[114]  1.3e+00 2.1e-02  1.5458 0.0e+00 0.0e+00 1.0e+00 2.0e+00 5.0e+00
## y_sim[115]  2.2e+00 2.6e-02  2.0144 0.0e+00 1.0e+00 2.0e+00 3.0e+00 7.0e+00
## y_sim[116]  1.1e+01 5.8e-02  4.6713 4.0e+00 8.0e+00 1.1e+01 1.4e+01 2.2e+01
## y_sim[117]  5.9e+00 4.8e-02  3.3144 1.0e+00 3.0e+00 5.0e+00 8.0e+00 1.3e+01
## y_sim[118]  1.4e+01 6.5e-02  5.3164 5.0e+00 1.0e+01 1.4e+01 1.8e+01 2.6e+01
## y_sim[119]  1.3e+00 2.1e-02  1.5745 0.0e+00 0.0e+00 1.0e+00 2.0e+00 5.0e+00
## y_sim[120]  3.2e+01 1.0e-01  7.9244 1.8e+01 2.6e+01 3.2e+01 3.7e+01 4.9e+01
## y_sim[121]  3.7e+00 3.3e-02  2.6167 0.0e+00 2.0e+00 3.0e+00 5.0e+00 1.0e+01
## y_sim[122]  2.2e+01 8.4e-02  6.4730 1.0e+01 1.7e+01 2.1e+01 2.6e+01 3.5e+01
## y_sim[123]  1.4e+01 6.5e-02  5.1248 5.0e+00 1.0e+01 1.3e+01 1.7e+01 2.5e+01
## y_sim[124]  4.0e-01 1.3e-02  0.8748 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
## y_sim[125]  1.2e+01 6.4e-02  4.7032 4.0e+00 9.0e+00 1.2e+01 1.5e+01 2.3e+01
## y_sim[126]  4.1e-01 1.3e-02  0.9008 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
## y_sim[127]  8.9e+00 5.4e-02  4.1845 2.0e+00 6.0e+00 9.0e+00 1.1e+01 1.8e+01
## y_sim[128]  3.0e-01 9.6e-03  0.6983 0.0e+00 0.0e+00 0.0e+00 0.0e+00 2.0e+00
## y_sim[129]  3.0e-01 9.9e-03  0.6964 0.0e+00 0.0e+00 0.0e+00 0.0e+00 2.0e+00
## y_sim[130]  3.8e-01 1.2e-02  0.8383 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
## y_sim[131]  3.9e-01 1.2e-02  0.8618 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
## y_sim[132]  4.1e-01 1.2e-02  0.8712 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
## y_sim[133]  3.8e-01 1.2e-02  0.8536 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
## y_sim[134]  4.2e-01 1.3e-02  0.9003 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
## y_sim[135]  4.3e-01 1.4e-02  0.9507 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
## y_sim[136]  4.1e-01 1.2e-02  0.8790 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
## y_sim[137]  4.0e-01 1.3e-02  0.8754 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
## y_sim[138]  3.2e+00 3.2e-02  2.4058 0.0e+00 1.0e+00 3.0e+00 5.0e+00 9.0e+00
## y_sim[139]  1.1e+01 6.3e-02  4.7411 4.0e+00 8.0e+00 1.1e+01 1.4e+01 2.2e+01
## y_sim[140]  4.1e-01 1.2e-02  0.8520 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
## y_sim[141]  5.9e+00 4.6e-02  3.4113 1.0e+00 3.0e+00 5.0e+00 8.0e+00 1.4e+01
## y_sim[142]  2.5e+01 8.8e-02  6.7459 1.4e+01 2.0e+01 2.5e+01 2.9e+01 3.9e+01
## y_sim[143]  1.1e+00 1.8e-02  1.2416 0.0e+00 0.0e+00 1.0e+00 2.0e+00 4.0e+00
## y_sim[144]  1.5e+01 7.3e-02  5.3934 6.0e+00 1.1e+01 1.4e+01 1.8e+01 2.6e+01
```

```
## y_sim[145]  3.6e+01 1.1e-01  8.4211 2.1e+01 3.0e+01 3.5e+01 4.1e+01 5.3e+01
## y_sim[146]  2.5e+01 8.9e-02  7.1499 1.2e+01 2.0e+01 2.4e+01 2.9e+01 4.1e+01
## y_sim[147]  9.8e+00 5.4e-02  4.3883 3.0e+00 7.0e+00 9.0e+00 1.2e+01 2.0e+01
## y_sim[148]  8.7e+00 5.3e-02  4.0705 2.0e+00 6.0e+00 8.0e+00 1.1e+01 1.8e+01
## y_sim[149]  9.7e+00 6.0e-02  4.3926 3.0e+00 7.0e+00 9.0e+00 1.2e+01 1.9e+01
## y_sim[150]  4.2e+00 3.9e-02  2.8826 0.0e+00 2.0e+00 4.0e+00 6.0e+00 1.1e+01
## y_sim[151]  1.7e+01 7.4e-02  5.8081 7.0e+00 1.3e+01 1.7e+01 2.1e+01 3.0e+01
## y_sim[152]  3.2e+00 3.1e-02  2.4803 0.0e+00 1.0e+00 3.0e+00 5.0e+00 9.0e+00
## y_sim[153]  1.1e+01 5.9e-02  4.5693 4.0e+00 7.8e+00 1.0e+01 1.4e+01 2.1e+01
## y_sim[154]  1.2e+00 2.2e-02  1.4905 0.0e+00 0.0e+00 1.0e+00 2.0e+00 5.0e+00
## y_sim[155]  2.2e+00 2.7e-02  2.1185 0.0e+00 1.0e+00 2.0e+00 3.0e+00 8.0e+00
## y_sim[156]  4.2e-01 1.3e-02  0.8802 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
## y_sim[157]  1.3e+00 2.1e-02  1.5301 0.0e+00 0.0e+00 1.0e+00 2.0e+00 5.0e+00
## y_sim[158]  1.3e+00 2.0e-02  1.5168 0.0e+00 0.0e+00 1.0e+00 2.0e+00 5.0e+00
## y_sim[159]  4.3e+00 3.6e-02  2.9048 0.0e+00 2.0e+00 4.0e+00 6.0e+00 1.1e+01
## y_sim[160]  1.9e+01 7.8e-02  6.2110 9.0e+00 1.5e+01 1.9e+01 2.3e+01 3.3e+01
## y_sim[161]  3.7e-01 1.2e-02  0.8250 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
## y_sim[162]  5.3e+00 4.2e-02  3.0838 1.0e+00 3.0e+00 5.0e+00 7.0e+00 1.2e+01
## y_sim[163]  3.8e-01 1.2e-02  0.8342 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
## y_sim[164]  1.2e+00 2.0e-02  1.4448 0.0e+00 0.0e+00 1.0e+00 2.0e+00 5.0e+00
## y_sim[165]  3.6e-01 1.1e-02  0.7845 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
## y_sim[166]  4.4e+01 1.3e-01  9.2628 2.7e+01 3.8e+01 4.4e+01 5.0e+01 6.3e+01
## y_sim[167]  3.8e-01 1.2e-02  0.8323 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
## y_sim[168]  2.3e+00 2.6e-02  2.0998 0.0e+00 1.0e+00 2.0e+00 3.0e+00 8.0e+00
## y_sim[169]  3.2e+00 3.3e-02  2.5325 0.0e+00 1.0e+00 3.0e+00 4.0e+00 9.5e+00
## y_sim[170]  3.1e-01 1.0e-02  0.7101 0.0e+00 0.0e+00 0.0e+00 0.0e+00 2.0e+00
## y_sim[171]  4.1e+00 3.6e-02  2.7500 0.0e+00 2.0e+00 4.0e+00 6.0e+00 1.1e+01
## y_sim[172]  1.2e+01 6.6e-02  4.9333 4.0e+00 9.0e+00 1.2e+01 1.5e+01 2.3e+01
## y_sim[173]  2.0e+01 7.9e-02  6.2368 9.0e+00 1.5e+01 1.9e+01 2.3e+01 3.4e+01
## y_sim[174]  2.5e+01 8.5e-02  6.7597 1.3e+01 2.0e+01 2.4e+01 2.9e+01 3.9e+01
## y_sim[175]  4.2e-01 1.2e-02  0.8889 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
## y_sim[176]  1.5e+01 7.4e-02  5.4305 6.0e+00 1.1e+01 1.5e+01 1.9e+01 2.7e+01
## y_sim[177]  2.2e+00 2.7e-02  2.0504 0.0e+00 1.0e+00 2.0e+00 3.0e+00 7.0e+00
## y_sim[178]  2.8e+01 8.9e-02  7.3958 1.5e+01 2.3e+01 2.8e+01 3.3e+01 4.5e+01
## y_sim[179]  2.4e+01 8.6e-02  6.7936 1.1e+01 1.9e+01 2.3e+01 2.8e+01 3.8e+01
## y_sim[180]  4.4e-01 1.4e-02  0.9277 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
## y_sim[181]  6.2e+00 4.9e-02  3.4493 1.0e+00 4.0e+00 6.0e+00 8.0e+00 1.4e+01
## y_sim[182]  1.6e+01 6.8e-02  5.4469 6.0e+00 1.2e+01 1.5e+01 1.9e+01 2.7e+01
## y_sim[183]  1.7e+01 8.1e-02  5.8404 7.0e+00 1.3e+01 1.7e+01 2.1e+01 3.0e+01
## y_sim[184]  1.7e+01 7.5e-02  5.6931 7.0e+00 1.3e+01 1.6e+01 2.0e+01 3.0e+01
## y_sim[185]  1.4e+01 6.8e-02  5.1398 5.0e+00 1.1e+01 1.4e+01 1.7e+01 2.6e+01
## y_sim[186]  3.5e-01 1.2e-02  0.8134 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
## y_sim[187]  1.3e+00 2.2e-02  1.5858 0.0e+00 0.0e+00 1.0e+00 2.0e+00 6.0e+00
## y_sim[188]  4.0e-01 1.3e-02  0.8910 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
## y_sim[189]  3.8e-01 1.2e-02  0.8283 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
## y_sim[190]  3.8e+01 1.1e-01  8.3171 2.3e+01 3.2e+01 3.7e+01 4.3e+01 5.5e+01
## y_sim[191]  2.5e+01 9.2e-02  6.8423 1.3e+01 2.0e+01 2.4e+01 2.9e+01 3.9e+01
## y_sim[192]  3.3e-01 1.1e-02  0.7295 0.0e+00 0.0e+00 0.0e+00 0.0e+00 2.0e+00
## y_sim[193]  2.1e+01 7.7e-02  6.2960 9.0e+00 1.6e+01 2.0e+01 2.4e+01 3.4e+01
## y_sim[194]  4.0e+00 3.8e-02  2.7528 0.0e+00 2.0e+00 3.0e+00 5.0e+00 1.0e+01
## y_sim[195]  7.1e+00 4.5e-02  3.7285 1.0e+00 4.0e+00 7.0e+00 9.0e+00 1.6e+01
## y_sim[196]  3.8e-01 1.2e-02  0.8153 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
## y_sim[197]  3.8e-01 1.1e-02  0.8287 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
## y_sim[198]  4.0e-01 1.3e-02  0.8732 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
```

```
## y_sim[199]  4.0e-01 1.2e-02  0.8492 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
## y_sim[200]  3.9e+00 3.4e-02  2.6911 0.0e+00 2.0e+00 4.0e+00 5.0e+00 1.0e+01
## y_sim[201]  4.0e+00 3.9e-02  2.7590 0.0e+00 2.0e+00 3.0e+00 5.0e+00 1.0e+01
## y_sim[202]  3.0e+00 3.1e-02  2.3705 0.0e+00 1.0e+00 3.0e+00 4.0e+00 9.0e+00
## y_sim[203]  3.9e-01 1.3e-02  0.8772 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
## y_sim[204]  3.5e-01 1.1e-02  0.7510 0.0e+00 0.0e+00 0.0e+00 0.0e+00 2.0e+00
## y_sim[205]  3.8e-01 1.2e-02  0.8240 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
## y_sim[206]  3.9e-01 1.2e-02  0.8630 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
## lp__        1.7e+03 4.9e-01 14.1101 1.6e+03 1.7e+03 1.7e+03 1.7e+03 1.7e+03
##             n_eff Rhat
## alpha_gamma  1245    1
## beta_gamma   2047    1
## theta[1]     8851    1
## theta[2]    10616    1
## theta[3]     5244    1
## theta[4]     7584    1
## theta[5]     7257    1
## theta[6]     7282    1
## theta[7]     6098    1
## theta[8]     5819    1
## theta[9]     5553    1
## theta[10]    6490    1
## theta[11]    6037    1
## theta[12]    5399    1
## theta[13]    5842    1
## theta[14]    5614    1
## theta[15]    5614    1
## theta[16]   10073    1
## theta[17]    5344    1
## theta[18]    9015    1
## theta[19]    9418    1
## theta[20]   10637    1
## theta[21]    9691    1
## theta[22]    8910    1
## theta[23]    5886    1
## theta[24]    9514    1
## theta[25]    6692    1
## theta[26]    5065    1
## theta[27]    5606    1
## theta[28]    7750    1
## theta[29]    9333    1
## theta[30]    7520    1
## theta[31]    9375    1
## theta[32]    8837    1
## theta[33]    6724    1
## theta[34]    9440    1
## theta[35]    7131    1
## theta[36]   10116    1
## theta[37]    5538    1
## theta[38]    8238    1
## theta[39]    9041    1
## theta[40]    5459    1
## theta[41]   10284    1
## theta[42]    5887    1
```

```
## theta[43]    6195    1
## theta[44]    5532    1
## theta[45]    8880    1
## theta[46]    5593    1
## theta[47]    9376    1
## theta[48]    8568    1
## theta[49]    9303    1
## theta[50]    5754    1
## theta[51]    9066    1
## theta[52]    8942    1
## theta[53]    5720    1
## theta[54]    9245    1
## theta[55]    6281    1
## theta[56]    5736    1
## theta[57]    6215    1
## theta[58]    8599    1
## theta[59]    5879    1
## theta[60]    5773    1
## theta[61]    6422    1
## theta[62]    5712    1
## theta[63]    5349    1
## theta[64]    5362    1
## theta[65]    8939    1
## theta[66]    9770    1
## theta[67]    7627    1
## theta[68]    5453    1
## theta[69]    5423    1
## theta[70]    9549    1
## theta[71]    7153    1
## theta[72]    7464    1
## theta[73]    7387    1
## theta[74]    9430    1
## theta[75]   11392    1
## theta[76]    8448    1
## theta[77]    7245    1
## theta[78]    7250    1
## theta[79]    7688    1
## theta[80]    6393    1
## theta[81]    7998    1
## theta[82]    8114    1
## theta[83]    8538    1
## theta[84]    9117    1
## theta[85]    5353    1
## theta[86]    7653    1
## theta[87]    6173    1
## theta[88]    5634    1
## theta[89]    6003    1
## theta[90]    5792    1
## theta[91]    7227    1
## theta[92]    5999    1
## theta[93]    5478    1
## theta[94]    7452    1
## theta[95]    7186    1
## theta[96]    5249    1
```

```
## theta[97]    6852    1
## theta[98]    6653    1
## theta[99]    8714    1
## theta[100]   8597    1
## theta[101]   5935    1
## theta[102]   8642    1
## theta[103]   8609    1
## theta[104]   6188    1
## theta[105]   6126    1
## theta[106]   6782    1
## theta[107]   9429    1
## theta[108]   6291    1
## theta[109]   8317    1
## theta[110]   8936    1
## theta[111]   8586    1
## theta[112]   9640    1
## theta[113]   8237    1
## theta[114]   7185    1
## theta[115]   9369    1
## theta[116]   9276    1
## theta[117]   7720    1
## theta[118]   9176    1
## theta[119]   8277    1
## theta[120]  10420    1
## theta[121]   8667    1
## theta[122]  10734    1
## theta[123]  10206    1
## theta[124]   5607    1
## theta[125]   9939    1
## theta[126]   5870    1
## theta[127]   9984    1
## theta[128]   5858    1
## theta[129]   6211    1
## theta[130]   5842    1
## theta[131]   5457    1
## theta[132]   5392    1
## theta[133]   5588    1
## theta[134]   5754    1
## theta[135]   5327    1
## theta[136]   6126    1
## theta[137]   5464    1
## theta[138]   8017    1
## theta[139]   8594    1
## theta[140]   5650    1
## theta[141]   7704    1
## theta[142]   8946    1
## theta[143]   7212    1
## theta[144]   8725    1
## theta[145]   8297    1
## theta[146]   9691    1
## theta[147]   9273    1
## theta[148]  10122    1
## theta[149]   8684    1
## theta[150]   6621    1
```

```
## theta[151]  10030    1
## theta[152]   7551    1
## theta[153]   9913    1
## theta[154]   6443    1
## theta[155]   8305    1
## theta[156]   6099    1
## theta[157]   7426    1
## theta[158]   8186    1
## theta[159]   9685    1
## theta[160]   9296    1
## theta[161]   5682    1
## theta[162]   7337    1
## theta[163]   6047    1
## theta[164]   6524    1
## theta[165]   5339    1
## theta[166]   7659    1
## theta[167]   6369    1
## theta[168]   8323    1
## theta[169]   8456    1
## theta[170]   4925    1
## theta[171]   8162    1
## theta[172]   8438    1
## theta[173]   8840    1
## theta[174]   8041    1
## theta[175]   5584    1
## theta[176]   8490    1
## theta[177]   7562    1
## theta[178]  11339    1
## theta[179]   7307    1
## theta[180]   5742    1
## theta[181]   8018    1
## theta[182]  10085    1
## theta[183]   8039    1
## theta[184]   9462    1
## theta[185]   9592    1
## theta[186]   5346    1
## theta[187]   6571    1
## theta[188]   5857    1
## theta[189]   6050    1
## theta[190]   8254    1
## theta[191]   7992    1
## theta[192]   5072    1
## theta[193]  10241    1
## theta[194]   7216    1
## theta[195]   8002    1
## theta[196]   5511    1
## theta[197]   5019    1
## theta[198]   5871    1
## theta[199]   6205    1
## theta[200]   9005    1
## theta[201]   8103    1
## theta[202]   8707    1
## theta[203]   6295    1
## theta[204]   5295    1
```

```
## theta[205]   5378    1
## theta[206]   6321    1
## y_sim[1]     5825    1
## y_sim[2]     6280    1
## y_sim[3]     5016    1
## y_sim[4]     5611    1
## y_sim[5]     4507    1
## y_sim[6]     5387    1
## y_sim[7]     5145    1
## y_sim[8]     5217    1
## y_sim[9]     5153    1
## y_sim[10]    5008    1
## y_sim[11]    5210    1
## y_sim[12]    4853    1
## y_sim[13]    4952    1
## y_sim[14]    4843    1
## y_sim[15]    5005    1
## y_sim[16]    6116    1
## y_sim[17]    4798    1
## y_sim[18]    6182    1
## y_sim[19]    6134    1
## y_sim[20]    6141    1
## y_sim[21]    5961    1
## y_sim[22]    5494    1
## y_sim[23]    5125    1
## y_sim[24]    6705    1
## y_sim[25]    6156    1
## y_sim[26]    4391    1
## y_sim[27]    5162    1
## y_sim[28]    5574    1
## y_sim[29]    5832    1
## y_sim[30]    5492    1
## y_sim[31]    6448    1
## y_sim[32]    5703    1
## y_sim[33]    5139    1
## y_sim[34]    6054    1
## y_sim[35]    5119    1
## y_sim[36]    6132    1
## y_sim[37]    4622    1
## y_sim[38]    5660    1
## y_sim[39]    6153    1
## y_sim[40]    4777    1
## y_sim[41]    6028    1
## y_sim[42]    5248    1
## y_sim[43]    4819    1
## y_sim[44]    5008    1
## y_sim[45]    6594    1
## y_sim[46]    4962    1
## y_sim[47]    6237    1
## y_sim[48]    6002    1
## y_sim[49]    6087    1
## y_sim[50]    4936    1
## y_sim[51]    5789    1
## y_sim[52]    5848    1
```

```
## y_sim[53]    4409    1
## y_sim[54]    5882    1
## y_sim[55]    5071    1
## y_sim[56]    5002    1
## y_sim[57]    5279    1
## y_sim[58]    5597    1
## y_sim[59]    4902    1
## y_sim[60]    5179    1
## y_sim[61]    5280    1
## y_sim[62]    4953    1
## y_sim[63]    4873    1
## y_sim[64]    5157    1
## y_sim[65]    5480    1
## y_sim[66]    5939    1
## y_sim[67]    5462    1
## y_sim[68]    4664    1
## y_sim[69]    5195    1
## y_sim[70]    6298    1
## y_sim[71]    5173    1
## y_sim[72]    5864    1
## y_sim[73]    5541    1
## y_sim[74]    5867    1
## y_sim[75]    6418    1
## y_sim[76]    5300    1
## y_sim[77]    5274    1
## y_sim[78]    5896    1
## y_sim[79]    5850    1
## y_sim[80]    5284    1
## y_sim[81]    4918    1
## y_sim[82]    5845    1
## y_sim[83]    5635    1
## y_sim[84]    5333    1
## y_sim[85]    4696    1
## y_sim[86]    5365    1
## y_sim[87]    5391    1
## y_sim[88]    5318    1
## y_sim[89]    4960    1
## y_sim[90]    4712    1
## y_sim[91]    5679    1
## y_sim[92]    5468    1
## y_sim[93]    4803    1
## y_sim[94]    5540    1
## y_sim[95]    5217    1
## y_sim[96]    5381    1
## y_sim[97]    5283    1
## y_sim[98]    5700    1
## y_sim[99]    5995    1
## y_sim[100]   6112    1
## y_sim[101]   4997    1
## y_sim[102]   6256    1
## y_sim[103]   5369    1
## y_sim[104]   5190    1
## y_sim[105]   5397    1
## y_sim[106]   5674    1
```

```
## y_sim[107]   5717    1
## y_sim[108]   5280    1
## y_sim[109]   5906    1
## y_sim[110]   6144    1
## y_sim[111]   5939    1
## y_sim[112]   6570    1
## y_sim[113]   5319    1
## y_sim[114]   5341    1
## y_sim[115]   6141    1
## y_sim[116]   6390    1
## y_sim[117]   4816    1
## y_sim[118]   6724    1
## y_sim[119]   5829    1
## y_sim[120]   6132    1
## y_sim[121]   6299    1
## y_sim[122]   5958    1
## y_sim[123]   6255    1
## y_sim[124]   4719    1
## y_sim[125]   5421    1
## y_sim[126]   4851    1
## y_sim[127]   5975    1
## y_sim[128]   5322    1
## y_sim[129]   4938    1
## y_sim[130]   4768    1
## y_sim[131]   4924    1
## y_sim[132]   5099    1
## y_sim[133]   5114    1
## y_sim[134]   4846    1
## y_sim[135]   4553    1
## y_sim[136]   5141    1
## y_sim[137]   4865    1
## y_sim[138]   5772    1
## y_sim[139]   5680    1
## y_sim[140]   4996    1
## y_sim[141]   5441    1
## y_sim[142]   5934    1
## y_sim[143]   5027    1
## y_sim[144]   5501    1
## y_sim[145]   6016    1
## y_sim[146]   6430    1
## y_sim[147]   6558    1
## y_sim[148]   5801    1
## y_sim[149]   5369    1
## y_sim[150]   5343    1
## y_sim[151]   6170    1
## y_sim[152]   6343    1
## y_sim[153]   5926    1
## y_sim[154]   4582    1
## y_sim[155]   6026    1
## y_sim[156]   4929    1
## y_sim[157]   5548    1
## y_sim[158]   5815    1
## y_sim[159]   6345    1
## y_sim[160]   6291    1
```

```
## y_sim[161]   4871    1
## y_sim[162]   5412    1
## y_sim[163]   5204    1
## y_sim[164]   5143    1
## y_sim[165]   4887    1
## y_sim[166]   5427    1
## y_sim[167]   4931    1
## y_sim[168]   6309    1
## y_sim[169]   5965    1
## y_sim[170]   4591    1
## y_sim[171]   5817    1
## y_sim[172]   5565    1
## y_sim[173]   6217    1
## y_sim[174]   6373    1
## y_sim[175]   5246    1
## y_sim[176]   5444    1
## y_sim[177]   5593    1
## y_sim[178]   6892    1
## y_sim[179]   6234    1
## y_sim[180]   4452    1
## y_sim[181]   5048    1
## y_sim[182]   6499    1
## y_sim[183]   5187    1
## y_sim[184]   5739    1
## y_sim[185]   5702    1
## y_sim[186]   4928    1
## y_sim[187]   5143    1
## y_sim[188]   5014    1
## y_sim[189]   5115    1
## y_sim[190]   5753    1
## y_sim[191]   5487    1
## y_sim[192]   4510    1
## y_sim[193]   6611    1
## y_sim[194]   5320    1
## y_sim[195]   6747    1
## y_sim[196]   4938    1
## y_sim[197]   5306    1
## y_sim[198]   4703    1
## y_sim[199]   5038    1
## y_sim[200]   6151    1
## y_sim[201]   5083    1
## y_sim[202]   5786    1
## y_sim[203]   4888    1
## y_sim[204]   4615    1
## y_sim[205]   4704    1
## y_sim[206]   5125    1
## lp__          838    1
##
## $c_summary
## , , chains = chain:1
##
##              stats
## parameter        mean      sd    2.5%     25%     50%     75%   97.5%
##   alpha_gamma 4.5e-01  0.0569 3.5e-01 4.1e-01 4.5e-01 4.9e-01 5.7e-01
```

```
##   beta_gamma  5.4e+00  0.8815 3.8e+00 4.7e+00 5.3e+00 6.0e+00 7.3e+00
##   theta[1]    2.1e-01  0.0425 1.4e-01 1.8e-01 2.1e-01 2.4e-01 3.0e-01
##   theta[2]    1.1e-01  0.0308 5.8e-02 8.9e-02 1.1e-01 1.3e-01 1.8e-01
##   theta[3]    9.6e-03  0.0138 1.3e-05 9.4e-04 4.2e-03 1.3e-02 4.7e-02
##   theta[4]    6.2e-02  0.0227 2.6e-02 4.6e-02 6.0e-02 7.6e-02 1.1e-01
##   theta[5]    1.4e-02  0.0117 9.6e-04 5.0e-03 1.0e-02 1.9e-02 4.3e-02
##   theta[6]    1.2e-02  0.0108 6.2e-04 4.3e-03 8.9e-03 1.7e-02 4.0e-02
##   theta[7]    8.2e-03  0.0126 7.0e-07 4.7e-04 2.8e-03 1.1e-02 4.8e-02
##   theta[8]    8.1e-03  0.0116 2.9e-06 6.1e-04 3.5e-03 1.1e-02 4.2e-02
##   theta[9]    8.1e-03  0.0122 4.1e-06 6.4e-04 3.4e-03 1.0e-02 4.3e-02
##   theta[10]   1.0e-02  0.0149 3.6e-06 1.0e-03 4.8e-03 1.3e-02 5.4e-02
##   theta[11]   9.5e-03  0.0147 3.2e-06 6.3e-04 3.9e-03 1.2e-02 5.1e-02
##   theta[12]   1.0e-02  0.0152 6.8e-06 9.6e-04 4.0e-03 1.3e-02 5.3e-02
##   theta[13]   1.1e-02  0.0159 6.5e-06 8.2e-04 4.4e-03 1.4e-02 5.5e-02
##   theta[14]   1.2e-02  0.0169 5.3e-06 1.0e-03 4.6e-03 1.6e-02 5.8e-02
##   theta[15]   1.2e-02  0.0186 4.8e-06 7.9e-04 4.1e-03 1.5e-02 6.5e-02
##   theta[16]   1.5e-01  0.0362 9.0e-02 1.3e-01 1.5e-01 1.8e-01 2.3e-01
##   theta[17]   1.2e-02  0.0179 1.3e-06 8.3e-04 4.6e-03 1.4e-02 6.1e-02
##   theta[18]   1.1e-01  0.0314 5.7e-02 8.8e-02 1.1e-01 1.3e-01 1.8e-01
##   theta[19]   3.6e-02  0.0172 1.1e-02 2.4e-02 3.4e-02 4.6e-02 7.8e-02
##   theta[20]   1.5e-01  0.0352 9.1e-02 1.3e-01 1.5e-01 1.7e-01 2.3e-01
##   theta[21]   1.0e-01  0.0295 5.2e-02 8.2e-02 1.0e-01 1.2e-01 1.7e-01
##   theta[22]   1.2e-02  0.0096 8.8e-04 4.9e-03 9.2e-03 1.6e-02 3.7e-02
##   theta[23]   3.9e-03  0.0061 1.8e-06 2.7e-04 1.5e-03 5.1e-03 1.9e-02
##   theta[24]   3.4e-01  0.0528 2.5e-01 3.0e-01 3.4e-01 3.8e-01 4.5e-01
##   theta[25]   2.9e-02  0.0156 6.2e-03 1.8e-02 2.6e-02 3.7e-02 6.5e-02
##   theta[26]   8.4e-03  0.0126 2.2e-06 7.6e-04 3.3e-03 1.1e-02 4.3e-02
##   theta[27]   9.6e-03  0.0138 8.2e-06 8.8e-04 4.3e-03 1.3e-02 4.5e-02
##   theta[28]   3.7e-02  0.0169 1.1e-02 2.4e-02 3.4e-02 4.7e-02 7.7e-02
##   theta[29]   1.1e-01  0.0298 5.9e-02 8.8e-02 1.1e-01 1.3e-01 1.8e-01
##   theta[30]   2.8e-02  0.0154 7.1e-03 1.7e-02 2.5e-02 3.7e-02 6.5e-02
##   theta[31]   4.5e-02  0.0200 1.5e-02 3.0e-02 4.2e-02 5.6e-02 8.9e-02
##   theta[32]   6.2e-02  0.0229 2.5e-02 4.5e-02 6.0e-02 7.6e-02 1.1e-01
##   theta[33]   1.2e-02  0.0103 6.0e-04 4.4e-03 9.1e-03 1.6e-02 3.9e-02
##   theta[34]   4.5e-02  0.0189 1.6e-02 3.1e-02 4.3e-02 5.6e-02 9.1e-02
##   theta[35]   1.2e-02  0.0103 8.7e-04 4.5e-03 9.1e-03 1.6e-02 3.8e-02
##   theta[36]   1.9e-01  0.0392 1.2e-01 1.6e-01 1.9e-01 2.2e-01 2.8e-01
##   theta[37]   4.5e-03  0.0067 9.2e-07 2.7e-04 1.9e-03 5.8e-03 2.4e-02
##   theta[38]   4.5e-02  0.0197 1.6e-02 3.1e-02 4.2e-02 5.6e-02 9.1e-02
##   theta[39]   7.7e-02  0.0243 3.5e-02 6.0e-02 7.5e-02 9.2e-02 1.3e-01
##   theta[40]   3.8e-03  0.0057 3.9e-06 3.7e-04 1.7e-03 4.8e-03 2.0e-02
##   theta[41]   1.9e-01  0.0401 1.1e-01 1.6e-01 1.8e-01 2.1e-01 2.7e-01
##   theta[42]   5.9e-03  0.0085 2.7e-06 5.7e-04 2.6e-03 7.8e-03 2.8e-02
##   theta[43]   6.0e-03  0.0088 2.5e-06 4.8e-04 2.4e-03 7.6e-03 3.3e-02
##   theta[44]   3.5e-03  0.0051 9.4e-07 2.9e-04 1.3e-03 4.6e-03 1.9e-02
##   theta[45]   7.8e-02  0.0254 3.7e-02 5.9e-02 7.5e-02 9.4e-02 1.4e-01
##   theta[46]   6.0e-03  0.0089 2.8e-06 5.2e-04 2.7e-03 7.6e-03 3.2e-02
##   theta[47]   2.8e-02  0.0153 7.3e-03 1.8e-02 2.6e-02 3.6e-02 6.5e-02
##   theta[48]   2.6e-01  0.0695 1.4e-01 2.1e-01 2.5e-01 3.0e-01 4.1e-01
##   theta[49]   6.2e-02  0.0299 1.9e-02 4.0e-02 5.7e-02 7.9e-02 1.4e-01
##   theta[50]   9.9e-03  0.0143 3.4e-06 9.2e-04 4.3e-03 1.3e-02 4.7e-02
##   theta[51]   6.3e-02  0.0244 2.5e-02 4.5e-02 6.0e-02 7.7e-02 1.2e-01
##   theta[52]   2.2e-01  0.0966 7.7e-02 1.5e-01 2.1e-01 2.8e-01 4.5e-01
##   theta[53]   4.3e-03  0.0062 1.6e-06 3.6e-04 1.8e-03 5.6e-03 2.1e-02
```

```
##   theta[54]   8.2e-02  0.0278 3.7e-02 6.2e-02 7.9e-02 9.8e-02 1.5e-01
##   theta[55]   1.8e-02  0.0150 1.3e-03 7.1e-03 1.4e-02 2.5e-02 5.5e-02
##   theta[56]   1.6e-02  0.0228 8.1e-06 1.4e-03 7.1e-03 2.0e-02 8.2e-02
##   theta[57]   1.6e-02  0.0237 6.3e-06 1.4e-03 6.3e-03 2.0e-02 8.5e-02
##   theta[58]   1.4e-01  0.0333 8.1e-02 1.1e-01 1.3e-01 1.6e-01 2.1e-01
##   theta[59]   5.9e-03  0.0082 1.2e-06 5.1e-04 2.7e-03 8.0e-03 3.0e-02
##   theta[60]   8.2e-03  0.0122 3.3e-06 6.6e-04 3.0e-03 1.1e-02 4.2e-02
##   theta[61]   4.2e-03  0.0065 2.0e-06 2.7e-04 1.6e-03 5.2e-03 2.4e-02
##   theta[62]   1.5e-02  0.0218 5.6e-06 1.2e-03 5.8e-03 1.9e-02 8.0e-02
##   theta[63]   1.4e-02  0.0216 5.2e-06 1.1e-03 5.7e-03 1.9e-02 7.5e-02
##   theta[64]   1.6e-02  0.0247 1.3e-05 1.3e-03 5.9e-03 1.9e-02 8.8e-02
##   theta[65]   8.3e-02  0.0550 1.4e-02 4.3e-02 7.1e-02 1.1e-01 2.2e-01
##   theta[66]   6.9e-02  0.0266 2.7e-02 5.0e-02 6.5e-02 8.4e-02 1.3e-01
##   theta[67]   1.2e-01  0.0647 2.5e-02 7.2e-02 1.1e-01 1.5e-01 2.8e-01
##   theta[68]   3.5e-02  0.0543 5.7e-06 2.0e-03 1.3e-02 4.9e-02 1.8e-01
##   theta[69]   1.5e-02  0.0226 1.6e-06 8.4e-04 5.5e-03 1.9e-02 8.3e-02
##   theta[70]   1.3e-01  0.0331 7.2e-02 1.0e-01 1.2e-01 1.5e-01 2.0e-01
##   theta[71]   2.4e-02  0.0187 1.9e-03 1.0e-02 2.0e-02 3.3e-02 7.0e-02
##   theta[72]   1.0e-01  0.0273 5.5e-02 8.2e-02 9.8e-02 1.2e-01 1.6e-01
##   theta[73]   5.0e-02  0.0433 3.3e-03 1.8e-02 3.8e-02 6.7e-02 1.7e-01
##   theta[74]   9.4e-02  0.0293 4.8e-02 7.3e-02 9.2e-02 1.1e-01 1.6e-01
##   theta[75]   3.4e-01  0.0542 2.4e-01 3.0e-01 3.4e-01 3.7e-01 4.6e-01
##   theta[76]   6.6e-02  0.0369 1.6e-02 3.9e-02 6.0e-02 8.6e-02 1.6e-01
##   theta[77]   6.5e-02  0.0365 1.5e-02 3.9e-02 5.9e-02 8.6e-02 1.6e-01
##   theta[78]   2.8e-02  0.0244 1.7e-03 1.0e-02 2.2e-02 3.8e-02 9.3e-02
##   theta[79]   5.1e-02  0.0428 2.7e-03 2.1e-02 4.1e-02 6.8e-02 1.6e-01
##   theta[80]   1.6e-02  0.0242 8.2e-06 8.4e-04 5.9e-03 1.9e-02 8.6e-02
##   theta[81]   8.4e-02  0.0536 1.4e-02 4.6e-02 7.3e-02 1.1e-01 2.2e-01
##   theta[82]   1.2e-01  0.0627 2.8e-02 6.9e-02 1.1e-01 1.5e-01 2.8e-01
##   theta[83]   1.2e-01  0.0644 2.7e-02 6.9e-02 1.0e-01 1.5e-01 2.7e-01
##   theta[84]   9.0e-02  0.0286 4.3e-02 7.0e-02 8.8e-02 1.1e-01 1.6e-01
##   theta[85]   3.8e-03  0.0059 1.3e-06 3.4e-04 1.6e-03 4.8e-03 2.0e-02
##   theta[86]   1.2e-02  0.0101 7.5e-04 4.9e-03 9.9e-03 1.7e-02 3.8e-02
##   theta[87]   3.6e-03  0.0050 2.1e-06 3.9e-04 1.8e-03 5.0e-03 1.8e-02
##   theta[88]   5.9e-03  0.0087 1.3e-06 4.9e-04 2.7e-03 8.0e-03 3.1e-02
##   theta[89]   1.0e-02  0.0158 2.2e-06 7.8e-04 4.3e-03 1.3e-02 5.6e-02
##   theta[90]   1.0e-02  0.0154 2.1e-06 6.2e-04 4.0e-03 1.4e-02 5.4e-02
##   theta[91]   5.3e-02  0.0342 8.4e-03 2.8e-02 4.5e-02 7.0e-02 1.4e-01
##   theta[92]   9.0e-03  0.0132 4.6e-06 5.9e-04 3.6e-03 1.2e-02 4.8e-02
##   theta[93]   8.4e-03  0.0120 5.3e-06 8.3e-04 3.6e-03 1.1e-02 4.1e-02
##   theta[94]   1.1e-01  0.0450 4.0e-02 7.6e-02 1.0e-01 1.3e-01 2.1e-01
##   theta[95]   2.4e-02  0.0195 2.0e-03 1.0e-02 1.9e-02 3.3e-02 7.6e-02
##   theta[96]   7.8e-03  0.0113 3.7e-06 6.5e-04 3.5e-03 1.0e-02 3.8e-02
##   theta[97]   2.5e-02  0.0209 1.6e-03 1.0e-02 1.9e-02 3.3e-02 7.8e-02
##   theta[98]   4.1e-02  0.0258 7.5e-03 2.2e-02 3.5e-02 5.4e-02 1.1e-01
##   theta[99]   5.7e-02  0.0308 1.4e-02 3.5e-02 5.2e-02 7.4e-02 1.3e-01
##   theta[100]  4.0e-02  0.0256 6.7e-03 2.1e-02 3.4e-02 5.3e-02 1.0e-01
##   theta[101]  7.6e-03  0.0120 1.6e-06 5.8e-04 2.8e-03 9.4e-03 4.2e-02
##   theta[102]  7.8e-02  0.0264 3.7e-02 5.9e-02 7.5e-02 9.3e-02 1.4e-01
##   theta[103]  1.4e-01  0.0457 6.4e-02 1.1e-01 1.4e-01 1.7e-01 2.4e-01
##   theta[104]  7.0e-03  0.0105 1.7e-06 5.6e-04 3.1e-03 9.2e-03 3.8e-02
##   theta[105]  7.6e-03  0.0111 3.7e-06 5.7e-04 3.4e-03 9.8e-03 4.1e-02
##   theta[106]  7.1e-03  0.0105 3.0e-06 5.7e-04 3.0e-03 8.9e-03 3.8e-02
##   theta[107]  1.1e-01  0.0425 4.4e-02 7.8e-02 1.0e-01 1.3e-01 2.0e-01
```

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##   theta[108]  7.8e-03  0.0115 2.5e-06 5.4e-04 3.1e-03 1.0e-02 4.2e-02
##   theta[109]  5.7e-02  0.0307 1.4e-02 3.4e-02 5.1e-02 7.5e-02 1.3e-01
##   theta[110]  3.6e-01  0.0816 2.1e-01 3.0e-01 3.5e-01 4.1e-01 5.4e-01
##   theta[111]  5.7e-02  0.0298 1.3e-02 3.4e-02 5.3e-02 7.4e-02 1.3e-01
##   theta[112]  3.0e-01  0.0692 1.8e-01 2.5e-01 2.9e-01 3.4e-01 4.5e-01
##   theta[113]  2.0e-01  0.0573 1.0e-01 1.6e-01 1.9e-01 2.3e-01 3.3e-01
##   theta[114]  2.6e-02  0.0214 1.8e-03 1.0e-02 2.0e-02 3.5e-02 8.0e-02
##   theta[115]  4.1e-02  0.0244 7.0e-03 2.3e-02 3.7e-02 5.4e-02 9.3e-02
##   theta[116]  2.1e-01  0.0585 1.2e-01 1.7e-01 2.1e-01 2.5e-01 3.4e-01
##   theta[117]  1.1e-01  0.0433 4.1e-02 7.9e-02 1.0e-01 1.4e-01 2.1e-01
##   theta[118]  2.6e-01  0.0642 1.4e-01 2.1e-01 2.5e-01 2.9e-01 4.0e-01
##   theta[119]  3.3e-02  0.0288 1.8e-03 1.2e-02 2.5e-02 4.6e-02 1.1e-01
##   theta[120]  2.8e-01  0.0476 1.9e-01 2.4e-01 2.7e-01 3.1e-01 3.8e-01
##   theta[121]  1.6e-01  0.0751 4.3e-02 1.0e-01 1.4e-01 2.0e-01 3.4e-01
##   theta[122]  5.4e-01  0.1073 3.4e-01 4.6e-01 5.3e-01 6.0e-01 7.7e-01
##   theta[123]  3.3e-01  0.0861 1.9e-01 2.7e-01 3.3e-01 3.9e-01 5.2e-01
##   theta[124]  8.0e-03  0.0120 2.8e-06 5.8e-04 3.5e-03 1.1e-02 4.0e-02
##   theta[125]  2.4e-01  0.0624 1.4e-01 2.0e-01 2.4e-01 2.8e-01 3.8e-01
##   theta[126]  8.1e-03  0.0115 7.1e-06 6.6e-04 3.3e-03 1.1e-02 4.1e-02
##   theta[127]  8.4e-02  0.0270 4.0e-02 6.4e-02 8.1e-02 1.0e-01 1.5e-01
##   theta[128]  2.8e-02  0.0404 1.1e-05 2.3e-03 1.1e-02 3.8e-02 1.4e-01
##   theta[129]  2.8e-02  0.0408 2.6e-05 2.2e-03 1.2e-02 3.5e-02 1.4e-01
##   theta[130]  1.4e-02  0.0225 4.8e-06 8.8e-04 5.1e-03 1.8e-02 7.7e-02
##   theta[131]  8.5e-03  0.0125 3.7e-06 7.1e-04 3.5e-03 1.1e-02 4.5e-02
##   theta[132]  8.2e-03  0.0125 2.1e-06 6.4e-04 3.1e-03 1.1e-02 4.4e-02
##   theta[133]  8.7e-03  0.0128 6.1e-06 7.2e-04 3.6e-03 1.2e-02 4.6e-02
##   theta[134]  7.8e-03  0.0119 5.4e-06 5.9e-04 2.8e-03 1.0e-02 4.2e-02
##   theta[135]  1.0e-02  0.0154 6.6e-06 7.5e-04 4.2e-03 1.3e-02 5.7e-02
##   theta[136]  8.9e-03  0.0139 8.0e-06 7.9e-04 3.6e-03 1.1e-02 4.5e-02
##   theta[137]  9.5e-03  0.0136 6.0e-06 8.5e-04 4.1e-03 1.3e-02 5.1e-02
##   theta[138]  4.9e-02  0.0253 1.2e-02 3.0e-02 4.6e-02 6.4e-02 1.1e-01
##   theta[139]  2.1e-01  0.0604 1.1e-01 1.7e-01 2.1e-01 2.5e-01 3.5e-01
##   theta[140]  6.6e-03  0.0092 4.7e-06 6.4e-04 2.6e-03 9.0e-03 3.2e-02
##   theta[141]  9.3e-02  0.0349 3.8e-02 6.7e-02 8.9e-02 1.1e-01 1.7e-01
##   theta[142]  4.2e-01  0.0790 2.8e-01 3.6e-01 4.1e-01 4.7e-01 5.9e-01
##   theta[143]  2.6e-01  0.1700 4.4e-02 1.4e-01 2.3e-01 3.4e-01 6.8e-01
##   theta[144]  1.3e-01  0.0322 7.2e-02 1.1e-01 1.2e-01 1.5e-01 2.0e-01
##   theta[145]  3.1e-01  0.0518 2.2e-01 2.8e-01 3.1e-01 3.4e-01 4.3e-01
##   theta[146]  3.0e-01  0.0614 1.9e-01 2.5e-01 2.9e-01 3.4e-01 4.2e-01
##   theta[147]  1.0e-01  0.0330 5.0e-02 8.0e-02 1.0e-01 1.3e-01 1.8e-01
##   theta[148]  1.3e-01  0.0421 5.5e-02 9.6e-02 1.2e-01 1.5e-01 2.3e-01
##   theta[149]  1.3e-01  0.0428 6.4e-02 1.0e-01 1.3e-01 1.6e-01 2.3e-01
##   theta[150]  5.9e-02  0.0274 1.7e-02 3.9e-02 5.5e-02 7.4e-02 1.2e-01
##   theta[151]  2.5e-01  0.0570 1.6e-01 2.1e-01 2.5e-01 2.9e-01 3.8e-01
##   theta[152]  3.8e-02  0.0207 8.3e-03 2.4e-02 3.4e-02 4.9e-02 8.7e-02
##   theta[153]  1.1e-01  0.0322 5.6e-02 8.7e-02 1.1e-01 1.3e-01 1.9e-01
##   theta[154]  5.3e-02  0.0432 4.0e-03 2.2e-02 4.2e-02 7.0e-02 1.6e-01
##   theta[155]  4.0e-02  0.0250 7.3e-03 2.2e-02 3.5e-02 5.3e-02 1.0e-01
##   theta[156]  9.6e-03  0.0151 3.0e-06 6.0e-04 3.3e-03 1.2e-02 5.3e-02
##   theta[157]  2.9e-02  0.0230 2.3e-03 1.2e-02 2.3e-02 4.0e-02 8.5e-02
##   theta[158]  3.0e-02  0.0244 2.2e-03 1.2e-02 2.3e-02 4.0e-02 8.9e-02
##   theta[159]  3.7e-02  0.0179 1.0e-02 2.4e-02 3.4e-02 4.7e-02 8.1e-02
##   theta[160]  2.0e-01  0.0419 1.3e-01 1.7e-01 2.0e-01 2.3e-01 2.9e-01
##   theta[161]  1.5e-02  0.0233 1.2e-05 1.3e-03 6.3e-03 1.8e-02 7.6e-02
```

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##   theta[162]  2.2e-01  0.0828 8.6e-02 1.6e-01 2.1e-01 2.7e-01 4.1e-01
##   theta[163]  1.6e-02  0.0238 3.6e-06 1.3e-03 6.3e-03 2.1e-02 7.8e-02
##   theta[164]  5.1e-02  0.0413 4.4e-03 2.1e-02 4.1e-02 7.0e-02 1.5e-01
##   theta[165]  1.5e-02  0.0222 8.1e-06 1.0e-03 6.3e-03 1.9e-02 7.3e-02
##   theta[166]  3.8e-01  0.0535 2.9e-01 3.5e-01 3.8e-01 4.2e-01 5.0e-01
##   theta[167]  1.2e-02  0.0177 1.2e-06 8.0e-04 4.8e-03 1.5e-02 6.3e-02
##   theta[168]  2.4e-02  0.0159 3.6e-03 1.3e-02 2.1e-02 3.1e-02 6.4e-02
##   theta[169]  4.8e-02  0.0271 1.0e-02 2.9e-02 4.4e-02 6.2e-02 1.1e-01
##   theta[170]  2.9e-02  0.0434 1.7e-05 2.4e-03 1.2e-02 3.9e-02 1.6e-01
##   theta[171]  6.2e-02  0.0292 2.0e-02 4.0e-02 5.9e-02 7.9e-02 1.3e-01
##   theta[172]  1.9e-01  0.0511 1.0e-01 1.5e-01 1.8e-01 2.2e-01 3.0e-01
##   theta[173]  1.7e-01  0.0376 1.0e-01 1.4e-01 1.7e-01 1.9e-01 2.5e-01
##   theta[174]  3.6e-01  0.0687 2.4e-01 3.1e-01 3.6e-01 4.1e-01 5.0e-01
##   theta[175]  6.1e-03  0.0092 4.9e-06 5.2e-04 2.7e-03 7.8e-03 3.4e-02
##   theta[176]  2.2e-01  0.0548 1.3e-01 1.8e-01 2.2e-01 2.6e-01 3.5e-01
##   theta[177]  5.0e-02  0.0328 7.5e-03 2.7e-02 4.3e-02 6.5e-02 1.3e-01
##   theta[178]  4.2e-01  0.0800 2.8e-01 3.6e-01 4.1e-01 4.6e-01 5.8e-01
##   theta[179]  3.5e-01  0.0708 2.2e-01 3.0e-01 3.4e-01 3.9e-01 5.0e-01
##   theta[180]  8.5e-03  0.0122 2.6e-06 6.4e-04 3.6e-03 1.1e-02 4.6e-02
##   theta[181]  5.3e-02  0.0208 1.9e-02 3.9e-02 5.0e-02 6.4e-02 1.0e-01
##   theta[182]  1.3e-01  0.0334 7.8e-02 1.1e-01 1.3e-01 1.6e-01 2.1e-01
##   theta[183]  2.8e-01  0.0666 1.6e-01 2.3e-01 2.7e-01 3.2e-01 4.3e-01
##   theta[184]  2.7e-01  0.0604 1.7e-01 2.3e-01 2.7e-01 3.1e-01 4.0e-01
##   theta[185]  2.3e-01  0.0581 1.3e-01 1.9e-01 2.2e-01 2.6e-01 3.5e-01
##   theta[186]  1.6e-02  0.0261 3.8e-06 1.1e-03 6.2e-03 2.0e-02 8.9e-02
##   theta[187]  2.3e-02  0.0185 2.0e-03 9.2e-03 1.8e-02 3.1e-02 7.1e-02
##   theta[188]  8.1e-03  0.0125 3.1e-06 5.4e-04 3.2e-03 1.0e-02 4.3e-02
##   theta[189]  1.3e-02  0.0199 1.8e-06 9.4e-04 4.7e-03 1.6e-02 6.4e-02
##   theta[190]  5.4e-01  0.0843 3.9e-01 4.8e-01 5.4e-01 6.0e-01 7.1e-01
##   theta[191]  3.5e-01  0.0686 2.2e-01 3.0e-01 3.4e-01 3.9e-01 4.9e-01
##   theta[192]  2.3e-02  0.0345 8.5e-06 2.1e-03 9.6e-03 3.1e-02 1.2e-01
##   theta[193]  1.8e-01  0.0406 1.1e-01 1.5e-01 1.8e-01 2.0e-01 2.7e-01
##   theta[194]  9.9e-02  0.0455 3.1e-02 6.6e-02 9.1e-02 1.3e-01 2.0e-01
##   theta[195]  6.5e-02  0.0243 2.8e-02 4.7e-02 6.2e-02 8.1e-02 1.2e-01
##   theta[196]  1.1e-02  0.0153 8.2e-06 9.8e-04 4.7e-03 1.5e-02 5.0e-02
##   theta[197]  1.0e-02  0.0152 1.8e-06 6.5e-04 3.6e-03 1.3e-02 5.4e-02
##   theta[198]  8.8e-03  0.0130 1.9e-06 5.5e-04 3.6e-03 1.1e-02 4.7e-02
##   theta[199]  1.1e-02  0.0151 1.4e-05 1.0e-03 4.8e-03 1.5e-02 5.4e-02
##   theta[200]  8.5e-02  0.0422 2.5e-02 5.4e-02 7.7e-02 1.1e-01 1.9e-01
##   theta[201]  8.6e-02  0.0431 2.3e-02 5.5e-02 7.8e-02 1.1e-01 1.9e-01
##   theta[202]  8.3e-02  0.0430 2.1e-02 5.0e-02 7.5e-02 1.1e-01 1.8e-01
##   theta[203]  1.3e-02  0.0201 2.3e-06 7.9e-04 4.5e-03 1.7e-02 6.9e-02
##   theta[204]  1.7e-02  0.0237 8.8e-06 1.4e-03 8.3e-03 2.2e-02 8.3e-02
##   theta[205]  1.3e-02  0.0184 5.5e-06 8.2e-04 5.0e-03 1.6e-02 6.6e-02
##   theta[206]  7.5e-03  0.0109 4.6e-06 7.2e-04 3.1e-03 9.9e-03 3.8e-02
##   y_sim[1]    2.4e+01  7.0859 1.2e+01 1.9e+01 2.4e+01 2.9e+01 3.9e+01
##   y_sim[2]    1.3e+01  5.0057 4.0e+00 1.0e+01 1.2e+01 1.6e+01 2.4e+01
##   y_sim[3]    3.9e-01  0.8368 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[4]    7.0e+00  3.7102 2.0e+00 4.0e+00 6.0e+00 9.0e+00 1.6e+01
##   y_sim[5]    1.3e+00  1.6278 0.0e+00 0.0e+00 1.0e+00 2.0e+00 6.0e+00
##   y_sim[6]    1.4e+00  1.7472 0.0e+00 0.0e+00 1.0e+00 2.0e+00 6.0e+00
##   y_sim[7]    4.4e-01  0.9117 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[8]    4.3e-01  0.9386 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[9]    3.8e-01  0.8275 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
```

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##   y_sim[10]   3.7e-01  0.7816 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[11]   3.8e-01  0.8605 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[12]   3.8e-01  0.8828 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[13]   4.0e-01  0.8990 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[14]   4.0e-01  0.8610 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[15]   3.8e-01  0.8659 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[16]   1.8e+01  5.8862 8.0e+00 1.4e+01 1.7e+01 2.1e+01 3.1e+01
##   y_sim[17]   3.7e-01  0.8429 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[18]   1.3e+01  5.1786 4.0e+00 9.0e+00 1.2e+01 1.6e+01 2.4e+01
##   y_sim[19]   4.1e+00  2.7509 0.0e+00 2.0e+00 4.0e+00 6.0e+00 1.0e+01
##   y_sim[20]   1.8e+01  5.9179 8.0e+00 1.4e+01 1.7e+01 2.1e+01 3.1e+01
##   y_sim[21]   1.2e+01  4.8619 4.0e+00 8.0e+00 1.2e+01 1.5e+01 2.3e+01
##   y_sim[22]   1.4e+00  1.6355 0.0e+00 0.0e+00 1.0e+00 2.0e+00 6.0e+00
##   y_sim[23]   4.1e-01  0.9284 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[24]   4.0e+01  8.9936 2.4e+01 3.3e+01 3.9e+01 4.6e+01 5.8e+01
##   y_sim[25]   3.4e+00  2.5626 0.0e+00 2.0e+00 3.0e+00 5.0e+00 9.0e+00
##   y_sim[26]   4.0e-01  0.9230 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[27]   3.9e-01  0.8505 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[28]   4.2e+00  2.7183 0.0e+00 2.0e+00 4.0e+00 6.0e+00 1.0e+01
##   y_sim[29]   1.3e+01  4.9530 4.0e+00 9.0e+00 1.2e+01 1.6e+01 2.4e+01
##   y_sim[30]   3.3e+00  2.5385 0.0e+00 1.0e+00 3.0e+00 5.0e+00 1.0e+01
##   y_sim[31]   5.2e+00  3.3449 0.0e+00 3.0e+00 5.0e+00 7.0e+00 1.3e+01
##   y_sim[32]   7.1e+00  3.7077 1.0e+00 4.0e+00 7.0e+00 9.0e+00 1.5e+01
##   y_sim[33]   1.4e+00  1.6323 0.0e+00 0.0e+00 1.0e+00 2.0e+00 6.0e+00
##   y_sim[34]   5.3e+00  3.2624 1.0e+00 3.0e+00 5.0e+00 7.0e+00 1.3e+01
##   y_sim[35]   1.4e+00  1.7306 0.0e+00 0.0e+00 1.0e+00 2.0e+00 6.0e+00
##   y_sim[36]   2.3e+01  6.5327 1.1e+01 1.8e+01 2.2e+01 2.7e+01 3.6e+01
##   y_sim[37]   4.3e-01  0.8731 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[38]   5.2e+00  3.1777 0.0e+00 3.0e+00 5.0e+00 7.0e+00 1.3e+01
##   y_sim[39]   8.9e+00  4.0722 2.0e+00 6.0e+00 8.0e+00 1.1e+01 1.8e+01
##   y_sim[40]   4.1e-01  0.9406 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[41]   2.2e+01  6.3459 1.1e+01 1.7e+01 2.1e+01 2.6e+01 3.5e+01
##   y_sim[42]   4.4e-01  0.9194 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[43]   3.9e-01  0.8304 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[44]   4.0e-01  0.8682 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[45]   9.1e+00  4.1916 2.0e+00 6.0e+00 9.0e+00 1.2e+01 1.9e+01
##   y_sim[46]   4.2e-01  0.9170 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[47]   3.3e+00  2.5138 0.0e+00 1.0e+00 3.0e+00 5.0e+00 9.0e+00
##   y_sim[48]   1.2e+01  4.8510 4.0e+00 9.0e+00 1.1e+01 1.5e+01 2.3e+01
##   y_sim[49]   4.1e+00  2.8671 0.0e+00 2.0e+00 4.0e+00 6.0e+00 1.1e+01
##   y_sim[50]   4.3e-01  0.9059 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[51]   6.1e+00  3.3948 1.0e+00 4.0e+00 6.0e+00 8.0e+00 1.4e+01
##   y_sim[52]   4.3e+00  2.8375 0.0e+00 2.0e+00 4.0e+00 6.0e+00 1.2e+01
##   y_sim[53]   4.2e-01  0.8830 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[54]   8.0e+00  3.9752 2.0e+00 5.0e+00 8.0e+00 1.1e+01 1.6e+01
##   y_sim[55]   1.3e+00  1.6100 0.0e+00 0.0e+00 1.0e+00 2.0e+00 6.0e+00
##   y_sim[56]   3.6e-01  0.8251 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[57]   3.9e-01  0.8605 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[58]   1.6e+01  5.3844 6.0e+00 1.2e+01 1.6e+01 1.9e+01 2.8e+01
##   y_sim[59]   3.9e-01  0.8166 0.0e+00 0.0e+00 0.0e+00 2.5e-01 3.0e+00
##   y_sim[60]   4.1e-01  0.9337 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[61]   4.4e-01  0.9440 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[62]   3.8e-01  0.8732 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[63]   4.0e-01  0.8679 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
```

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##   y_sim[64]   3.9e-01  0.8764 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[65]   2.0e+00  1.9529 0.0e+00 1.0e+00 2.0e+00 3.0e+00 7.0e+00
##   y_sim[66]   6.2e+00  3.3871 1.0e+00 4.0e+00 6.0e+00 8.0e+00 1.4e+01
##   y_sim[67]   2.8e+00  2.3095 0.0e+00 1.0e+00 2.0e+00 4.0e+00 9.0e+00
##   y_sim[68]   3.1e-01  0.7373 0.0e+00 0.0e+00 0.0e+00 0.0e+00 2.0e+00
##   y_sim[69]   3.5e-01  0.7865 0.0e+00 0.0e+00 0.0e+00 0.0e+00 2.5e+00
##   y_sim[70]   1.5e+01  5.3552 6.0e+00 1.1e+01 1.4e+01 1.8e+01 2.7e+01
##   y_sim[71]   1.3e+00  1.5694 0.0e+00 0.0e+00 1.0e+00 2.0e+00 5.0e+00
##   y_sim[72]   1.2e+01  4.7488 4.0e+00 8.0e+00 1.1e+01 1.5e+01 2.2e+01
##   y_sim[73]   1.2e+00  1.5729 0.0e+00 0.0e+00 1.0e+00 2.0e+00 5.0e+00
##   y_sim[74]   1.1e+01  4.6398 3.0e+00 8.0e+00 1.1e+01 1.4e+01 2.1e+01
##   y_sim[75]   3.9e+01  8.7467 2.3e+01 3.3e+01 3.9e+01 4.5e+01 5.8e+01
##   y_sim[76]   3.1e+00  2.5857 0.0e+00 1.0e+00 3.0e+00 4.0e+00 9.0e+00
##   y_sim[77]   3.0e+00  2.3797 0.0e+00 1.0e+00 3.0e+00 4.0e+00 9.0e+00
##   y_sim[78]   1.3e+00  1.6083 0.0e+00 0.0e+00 1.0e+00 2.0e+00 6.0e+00
##   y_sim[79]   1.2e+00  1.5159 0.0e+00 0.0e+00 1.0e+00 2.0e+00 5.0e+00
##   y_sim[80]   3.8e-01  0.8184 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[81]   2.1e+00  1.9999 0.0e+00 1.0e+00 2.0e+00 3.0e+00 7.0e+00
##   y_sim[82]   2.7e+00  2.2307 0.0e+00 1.0e+00 2.0e+00 4.0e+00 8.0e+00
##   y_sim[83]   2.7e+00  2.2881 0.0e+00 1.0e+00 2.0e+00 4.0e+00 8.0e+00
##   y_sim[84]   9.1e+00  4.1571 2.0e+00 6.0e+00 9.0e+00 1.1e+01 1.8e+01
##   y_sim[85]   4.5e-01  0.9345 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[86]   1.4e+00  1.6235 0.0e+00 0.0e+00 1.0e+00 2.0e+00 5.0e+00
##   y_sim[87]   4.3e-01  0.8929 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[88]   4.1e-01  0.9155 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[89]   4.2e-01  0.9574 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[90]   4.4e-01  0.9091 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[91]   2.1e+00  2.0354 0.0e+00 1.0e+00 2.0e+00 3.0e+00 7.0e+00
##   y_sim[92]   4.3e-01  0.8620 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[93]   4.2e-01  0.8836 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[94]   6.0e+00  3.5453 1.0e+00 3.0e+00 5.0e+00 8.0e+00 1.4e+01
##   y_sim[95]   1.3e+00  1.5909 0.0e+00 0.0e+00 1.0e+00 2.0e+00 5.5e+00
##   y_sim[96]   4.3e-01  0.9115 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[97]   1.4e+00  1.7092 0.0e+00 0.0e+00 1.0e+00 2.0e+00 5.0e+00
##   y_sim[98]   2.2e+00  2.0048 0.0e+00 1.0e+00 2.0e+00 3.0e+00 7.0e+00
##   y_sim[99]   3.2e+00  2.5269 0.0e+00 1.0e+00 3.0e+00 4.2e+00 9.0e+00
##   y_sim[100]  2.2e+00  2.0768 0.0e+00 1.0e+00 2.0e+00 3.0e+00 7.0e+00
##   y_sim[101]  4.0e-01  0.8792 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[102]  9.1e+00  4.1275 2.0e+00 6.0e+00 9.0e+00 1.2e+01 1.9e+01
##   y_sim[103]  7.7e+00  3.7610 2.0e+00 5.0e+00 7.0e+00 1.0e+01 1.6e+01
##   y_sim[104]  4.3e-01  0.8798 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[105]  4.2e-01  0.9207 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[106]  4.1e-01  0.8566 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[107]  6.1e+00  3.3695 1.0e+00 4.0e+00 6.0e+00 8.0e+00 1.4e+01
##   y_sim[108]  4.4e-01  0.9147 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[109]  3.2e+00  2.4844 0.0e+00 1.0e+00 3.0e+00 4.2e+00 9.5e+00
##   y_sim[110]  2.0e+01  6.2882 9.0e+00 1.5e+01 1.9e+01 2.4e+01 3.3e+01
##   y_sim[111]  3.2e+00  2.4336 0.0e+00 1.0e+00 3.0e+00 4.0e+00 9.0e+00
##   y_sim[112]  1.7e+01  5.8037 7.0e+00 1.3e+01 1.6e+01 2.0e+01 3.0e+01
##   y_sim[113]  1.0e+01  4.3572 3.0e+00 7.0e+00 1.0e+01 1.3e+01 2.1e+01
##   y_sim[114]  1.3e+00  1.5472 0.0e+00 0.0e+00 1.0e+00 2.0e+00 5.0e+00
##   y_sim[115]  2.2e+00  2.0250 0.0e+00 1.0e+00 2.0e+00 3.0e+00 7.0e+00
##   y_sim[116]  1.1e+01  4.7451 4.0e+00 8.0e+00 1.1e+01 1.4e+01 2.2e+01
##   y_sim[117]  6.0e+00  3.4258 1.0e+00 3.0e+00 5.5e+00 8.0e+00 1.3e+01
```

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##   y_sim[118]  1.4e+01  5.3343 5.0e+00 1.0e+01 1.4e+01 1.7e+01 2.6e+01
##   y_sim[119]  1.3e+00  1.6112 0.0e+00 0.0e+00 1.0e+00 2.0e+00 6.0e+00
##   y_sim[120]  3.2e+01  7.7969 1.8e+01 2.7e+01 3.1e+01 3.7e+01 4.9e+01
##   y_sim[121]  3.7e+00  2.6600 0.0e+00 2.0e+00 3.0e+00 5.0e+00 1.0e+01
##   y_sim[122]  2.2e+01  6.3751 1.0e+01 1.7e+01 2.1e+01 2.6e+01 3.6e+01
##   y_sim[123]  1.4e+01  5.1124 5.5e+00 1.0e+01 1.3e+01 1.7e+01 2.5e+01
##   y_sim[124]  4.0e-01  0.8773 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[125]  1.2e+01  4.6536 4.0e+00 9.0e+00 1.2e+01 1.5e+01 2.2e+01
##   y_sim[126]  4.1e-01  0.8734 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[127]  9.0e+00  4.2244 2.0e+00 6.0e+00 8.0e+00 1.1e+01 1.8e+01
##   y_sim[128]  3.0e-01  0.6744 0.0e+00 0.0e+00 0.0e+00 0.0e+00 2.0e+00
##   y_sim[129]  2.9e-01  0.6968 0.0e+00 0.0e+00 0.0e+00 0.0e+00 2.0e+00
##   y_sim[130]  4.0e-01  0.8659 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[131]  4.1e-01  0.8827 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[132]  4.1e-01  0.8814 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[133]  4.0e-01  0.8708 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[134]  4.3e-01  0.9003 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[135]  4.3e-01  0.9368 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[136]  4.4e-01  0.9312 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[137]  3.6e-01  0.7976 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[138]  3.2e+00  2.4318 0.0e+00 1.0e+00 3.0e+00 5.0e+00 9.0e+00
##   y_sim[139]  1.1e+01  4.7004 4.0e+00 8.0e+00 1.1e+01 1.4e+01 2.2e+01
##   y_sim[140]  4.1e-01  0.8272 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[141]  5.9e+00  3.2951 1.0e+00 3.8e+00 6.0e+00 8.0e+00 1.4e+01
##   y_sim[142]  2.6e+01  6.7521 1.4e+01 2.1e+01 2.5e+01 3.0e+01 4.0e+01
##   y_sim[143]  1.1e+00  1.2284 0.0e+00 0.0e+00 1.0e+00 2.0e+00 4.0e+00
##   y_sim[144]  1.5e+01  5.3127 6.0e+00 1.1e+01 1.4e+01 1.8e+01 2.6e+01
##   y_sim[145]  3.6e+01  8.4977 2.1e+01 3.0e+01 3.5e+01 4.2e+01 5.4e+01
##   y_sim[146]  2.5e+01  7.2353 1.2e+01 2.0e+01 2.4e+01 2.9e+01 4.1e+01
##   y_sim[147]  9.7e+00  4.3763 3.0e+00 7.0e+00 9.0e+00 1.2e+01 1.9e+01
##   y_sim[148]  8.8e+00  4.1314 2.0e+00 6.0e+00 8.0e+00 1.1e+01 1.8e+01
##   y_sim[149]  9.7e+00  4.4111 3.0e+00 6.0e+00 9.0e+00 1.2e+01 1.9e+01
##   y_sim[150]  4.2e+00  2.8459 0.0e+00 2.0e+00 4.0e+00 6.0e+00 1.1e+01
##   y_sim[151]  1.7e+01  5.8338 7.0e+00 1.3e+01 1.7e+01 2.1e+01 3.1e+01
##   y_sim[152]  3.2e+00  2.4865 0.0e+00 1.0e+00 3.0e+00 5.0e+00 9.0e+00
##   y_sim[153]  1.1e+01  4.4619 4.0e+00 7.0e+00 1.0e+01 1.3e+01 2.0e+01
##   y_sim[154]  1.2e+00  1.5444 0.0e+00 0.0e+00 1.0e+00 2.0e+00 5.0e+00
##   y_sim[155]  2.2e+00  2.0787 0.0e+00 1.0e+00 2.0e+00 3.0e+00 7.0e+00
##   y_sim[156]  4.0e-01  0.9192 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[157]  1.3e+00  1.4997 0.0e+00 0.0e+00 1.0e+00 2.0e+00 5.0e+00
##   y_sim[158]  1.3e+00  1.4803 0.0e+00 0.0e+00 1.0e+00 2.0e+00 5.0e+00
##   y_sim[159]  4.3e+00  2.9829 0.0e+00 2.0e+00 4.0e+00 6.0e+00 1.1e+01
##   y_sim[160]  1.9e+01  6.1016 9.0e+00 1.5e+01 1.9e+01 2.3e+01 3.2e+01
##   y_sim[161]  3.5e-01  0.8218 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[162]  5.4e+00  3.1154 1.0e+00 3.0e+00 5.0e+00 7.0e+00 1.3e+01
##   y_sim[163]  3.8e-01  0.8513 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[164]  1.2e+00  1.4190 0.0e+00 0.0e+00 1.0e+00 2.0e+00 5.0e+00
##   y_sim[165]  3.4e-01  0.7585 0.0e+00 0.0e+00 0.0e+00 0.0e+00 2.5e+00
##   y_sim[166]  4.5e+01  8.9173 2.8e+01 3.8e+01 4.4e+01 5.0e+01 6.2e+01
##   y_sim[167]  3.6e-01  0.8773 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[168]  2.3e+00  2.1249 0.0e+00 1.0e+00 2.0e+00 3.0e+00 8.0e+00
##   y_sim[169]  3.2e+00  2.5699 0.0e+00 1.0e+00 3.0e+00 4.0e+00 9.0e+00
##   y_sim[170]  3.3e-01  0.7386 0.0e+00 0.0e+00 0.0e+00 0.0e+00 2.0e+00
##   y_sim[171]  4.2e+00  2.7657 0.0e+00 2.0e+00 4.0e+00 6.0e+00 1.1e+01
```

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##   y_sim[172]  1.2e+01  5.0062 4.0e+00 9.0e+00 1.2e+01 1.5e+01 2.3e+01
##   y_sim[173]  2.0e+01  6.2692 9.0e+00 1.5e+01 1.9e+01 2.3e+01 3.4e+01
##   y_sim[174]  2.5e+01  6.6416 1.3e+01 2.0e+01 2.4e+01 2.9e+01 3.9e+01
##   y_sim[175]  3.9e-01  0.8247 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[176]  1.5e+01  5.3758 6.0e+00 1.1e+01 1.5e+01 1.9e+01 2.7e+01
##   y_sim[177]  2.2e+00  2.1019 0.0e+00 1.0e+00 2.0e+00 3.0e+00 8.0e+00
##   y_sim[178]  2.8e+01  7.5453 1.5e+01 2.3e+01 2.8e+01 3.3e+01 4.5e+01
##   y_sim[179]  2.4e+01  6.7725 1.2e+01 1.9e+01 2.3e+01 2.8e+01 3.7e+01
##   y_sim[180]  4.6e-01  0.9307 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[181]  6.1e+00  3.4226 1.0e+00 4.0e+00 6.0e+00 8.0e+00 1.4e+01
##   y_sim[182]  1.6e+01  5.3821 6.0e+00 1.2e+01 1.5e+01 1.9e+01 2.7e+01
##   y_sim[183]  1.7e+01  5.6948 7.0e+00 1.3e+01 1.7e+01 2.1e+01 3.0e+01
##   y_sim[184]  1.7e+01  5.5345 7.0e+00 1.3e+01 1.6e+01 2.0e+01 2.9e+01
##   y_sim[185]  1.4e+01  5.1922 5.0e+00 1.1e+01 1.4e+01 1.7e+01 2.6e+01
##   y_sim[186]  3.2e-01  0.7692 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[187]  1.3e+00  1.5611 0.0e+00 0.0e+00 1.0e+00 2.0e+00 5.0e+00
##   y_sim[188]  4.1e-01  0.9317 0.0e+00 0.0e+00 0.0e+00 2.5e-01 3.0e+00
##   y_sim[189]  3.7e-01  0.8335 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[190]  3.8e+01  8.4300 2.2e+01 3.2e+01 3.7e+01 4.3e+01 5.5e+01
##   y_sim[191]  2.5e+01  7.0354 1.3e+01 2.0e+01 2.4e+01 2.9e+01 3.9e+01
##   y_sim[192]  3.3e-01  0.7216 0.0e+00 0.0e+00 0.0e+00 0.0e+00 2.0e+00
##   y_sim[193]  2.1e+01  6.4656 1.0e+01 1.6e+01 2.0e+01 2.4e+01 3.5e+01
##   y_sim[194]  3.9e+00  2.7682 0.0e+00 2.0e+00 3.0e+00 5.0e+00 1.0e+01
##   y_sim[195]  7.0e+00  3.6365 1.0e+00 4.0e+00 7.0e+00 9.0e+00 1.6e+01
##   y_sim[196]  3.8e-01  0.8364 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[197]  3.7e-01  0.8127 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[198]  4.0e-01  0.8769 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[199]  3.7e-01  0.7846 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[200]  3.9e+00  2.8051 0.0e+00 2.0e+00 3.0e+00 5.0e+00 1.1e+01
##   y_sim[201]  3.9e+00  2.7328 0.0e+00 2.0e+00 3.0e+00 6.0e+00 1.0e+01
##   y_sim[202]  3.0e+00  2.3786 0.0e+00 1.0e+00 2.0e+00 4.0e+00 9.0e+00
##   y_sim[203]  3.4e-01  0.8190 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[204]  3.5e-01  0.7247 0.0e+00 0.0e+00 0.0e+00 0.0e+00 2.0e+00
##   y_sim[205]  3.5e-01  0.7763 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[206]  4.0e-01  0.8933 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   lp__        1.7e+03 14.3524 1.6e+03 1.7e+03 1.7e+03 1.7e+03 1.7e+03
##
## , , chains = chain:2
##
##              stats
## parameter        mean      sd    2.5%     25%     50%     75%   97.5%
##   alpha_gamma 4.6e-01  0.0568 3.6e-01 4.2e-01 4.5e-01 4.9e-01 5.7e-01
##   beta_gamma  5.4e+00  0.8586 3.9e+00 4.8e+00 5.3e+00 5.9e+00 7.2e+00
##   theta[1]    2.1e-01  0.0437 1.3e-01 1.8e-01 2.1e-01 2.4e-01 3.0e-01
##   theta[2]    1.1e-01  0.0304 6.1e-02 8.8e-02 1.1e-01 1.3e-01 1.7e-01
##   theta[3]    9.6e-03  0.0142 3.4e-06 7.8e-04 4.1e-03 1.2e-02 5.1e-02
##   theta[4]    6.2e-02  0.0225 2.5e-02 4.6e-02 6.0e-02 7.5e-02 1.1e-01
##   theta[5]    1.4e-02  0.0124 9.9e-04 5.5e-03 1.1e-02 1.9e-02 4.7e-02
##   theta[6]    1.2e-02  0.0102 8.7e-04 4.9e-03 9.5e-03 1.6e-02 3.9e-02
##   theta[7]    8.1e-03  0.0115 7.1e-06 6.3e-04 3.7e-03 1.1e-02 4.1e-02
##   theta[8]    8.0e-03  0.0121 4.2e-06 5.9e-04 3.2e-03 1.0e-02 4.2e-02
##   theta[9]    8.3e-03  0.0121 1.3e-06 7.8e-04 3.6e-03 1.1e-02 4.0e-02
##   theta[10]   1.1e-02  0.0169 9.7e-06 9.1e-04 4.7e-03 1.5e-02 5.7e-02
##   theta[11]   9.3e-03  0.0133 1.8e-06 8.5e-04 4.4e-03 1.3e-02 4.4e-02
```

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##   theta[12]   1.1e-02  0.0162 2.8e-06 7.5e-04 4.2e-03 1.5e-02 6.0e-02
##   theta[13]   1.1e-02  0.0154 8.1e-06 9.1e-04 5.1e-03 1.5e-02 5.5e-02
##   theta[14]   1.2e-02  0.0165 8.4e-06 9.5e-04 4.8e-03 1.6e-02 5.8e-02
##   theta[15]   1.1e-02  0.0151 1.4e-05 1.2e-03 5.5e-03 1.5e-02 5.4e-02
##   theta[16]   1.5e-01  0.0329 9.5e-02 1.3e-01 1.5e-01 1.7e-01 2.2e-01
##   theta[17]   1.2e-02  0.0178 5.1e-06 9.3e-04 4.8e-03 1.6e-02 6.3e-02
##   theta[18]   1.1e-01  0.0293 6.1e-02 9.0e-02 1.1e-01 1.3e-01 1.8e-01
##   theta[19]   3.7e-02  0.0178 1.0e-02 2.4e-02 3.4e-02 4.7e-02 7.7e-02
##   theta[20]   1.5e-01  0.0344 9.3e-02 1.3e-01 1.5e-01 1.8e-01 2.2e-01
##   theta[21]   1.0e-01  0.0298 5.1e-02 8.2e-02 1.0e-01 1.2e-01 1.7e-01
##   theta[22]   1.2e-02  0.0095 8.1e-04 4.7e-03 9.1e-03 1.6e-02 3.6e-02
##   theta[23]   3.9e-03  0.0060 2.5e-06 3.3e-04 1.6e-03 4.9e-03 2.1e-02
##   theta[24]   3.4e-01  0.0516 2.5e-01 3.0e-01 3.4e-01 3.8e-01 4.5e-01
##   theta[25]   2.8e-02  0.0146 7.3e-03 1.8e-02 2.6e-02 3.7e-02 6.3e-02
##   theta[26]   8.4e-03  0.0128 2.7e-06 6.2e-04 3.6e-03 1.1e-02 4.3e-02
##   theta[27]   1.0e-02  0.0148 6.7e-06 8.4e-04 4.6e-03 1.3e-02 5.1e-02
##   theta[28]   3.7e-02  0.0171 1.1e-02 2.5e-02 3.4e-02 4.7e-02 7.7e-02
##   theta[29]   1.1e-01  0.0315 6.0e-02 8.9e-02 1.1e-01 1.3e-01 1.8e-01
##   theta[30]   2.8e-02  0.0149 6.9e-03 1.7e-02 2.6e-02 3.6e-02 6.4e-02
##   theta[31]   4.5e-02  0.0192 1.5e-02 3.1e-02 4.2e-02 5.7e-02 9.2e-02
##   theta[32]   6.1e-02  0.0215 2.6e-02 4.6e-02 5.9e-02 7.4e-02 1.1e-01
##   theta[33]   1.2e-02  0.0101 8.0e-04 4.8e-03 9.3e-03 1.6e-02 3.9e-02
##   theta[34]   4.5e-02  0.0185 1.6e-02 3.1e-02 4.2e-02 5.5e-02 8.9e-02
##   theta[35]   1.2e-02  0.0099 6.8e-04 4.8e-03 9.2e-03 1.7e-02 3.6e-02
##   theta[36]   1.9e-01  0.0423 1.2e-01 1.6e-01 1.9e-01 2.2e-01 2.9e-01
##   theta[37]   4.7e-03  0.0070 3.4e-06 3.8e-04 2.1e-03 6.1e-03 2.4e-02
##   theta[38]   4.5e-02  0.0204 1.5e-02 3.0e-02 4.2e-02 5.6e-02 9.4e-02
##   theta[39]   7.7e-02  0.0245 3.7e-02 6.0e-02 7.5e-02 9.2e-02 1.3e-01
##   theta[40]   3.8e-03  0.0056 3.6e-06 2.9e-04 1.5e-03 4.9e-03 2.1e-02
##   theta[41]   1.8e-01  0.0374 1.2e-01 1.6e-01 1.8e-01 2.1e-01 2.6e-01
##   theta[42]   6.2e-03  0.0094 2.9e-06 5.3e-04 2.4e-03 7.7e-03 3.5e-02
##   theta[43]   5.8e-03  0.0083 5.8e-06 4.8e-04 2.3e-03 8.0e-03 2.9e-02
##   theta[44]   3.6e-03  0.0055 1.3e-06 2.7e-04 1.4e-03 4.7e-03 1.8e-02
##   theta[45]   7.8e-02  0.0268 3.5e-02 5.8e-02 7.5e-02 9.5e-02 1.4e-01
##   theta[46]   6.1e-03  0.0092 1.4e-06 4.0e-04 2.5e-03 7.7e-03 3.4e-02
##   theta[47]   2.8e-02  0.0146 6.9e-03 1.7e-02 2.5e-02 3.6e-02 6.3e-02
##   theta[48]   2.6e-01  0.0691 1.4e-01 2.1e-01 2.6e-01 3.0e-01 4.2e-01
##   theta[49]   6.2e-02  0.0296 1.8e-02 4.0e-02 5.7e-02 7.8e-02 1.3e-01
##   theta[50]   1.0e-02  0.0152 2.9e-06 5.8e-04 3.8e-03 1.4e-02 5.5e-02
##   theta[51]   6.2e-02  0.0243 2.4e-02 4.4e-02 5.9e-02 7.6e-02 1.2e-01
##   theta[52]   2.2e-01  0.0950 7.8e-02 1.5e-01 2.1e-01 2.8e-01 4.4e-01
##   theta[53]   4.4e-03  0.0066 2.6e-06 3.1e-04 2.0e-03 5.6e-03 2.4e-02
##   theta[54]   8.2e-02  0.0279 3.8e-02 6.2e-02 7.8e-02 9.8e-02 1.4e-01
##   theta[55]   1.8e-02  0.0147 9.5e-04 7.3e-03 1.3e-02 2.4e-02 5.5e-02
##   theta[56]   1.6e-02  0.0246 3.1e-06 1.4e-03 6.4e-03 2.1e-02 8.6e-02
##   theta[57]   1.5e-02  0.0233 3.0e-06 1.3e-03 6.6e-03 1.9e-02 7.6e-02
##   theta[58]   1.4e-01  0.0342 7.6e-02 1.1e-01 1.3e-01 1.6e-01 2.1e-01
##   theta[59]   6.3e-03  0.0089 1.9e-06 4.0e-04 2.6e-03 8.6e-03 3.1e-02
##   theta[60]   8.0e-03  0.0120 2.1e-06 5.8e-04 3.2e-03 1.0e-02 4.2e-02
##   theta[61]   4.1e-03  0.0058 1.0e-06 3.5e-04 1.9e-03 5.2e-03 2.1e-02
##   theta[62]   1.5e-02  0.0210 8.8e-06 1.4e-03 6.7e-03 1.9e-02 7.7e-02
##   theta[63]   1.4e-02  0.0219 5.9e-06 1.0e-03 5.6e-03 1.9e-02 8.2e-02
##   theta[64]   1.6e-02  0.0243 1.2e-05 1.3e-03 6.4e-03 2.0e-02 7.9e-02
##   theta[65]   8.4e-02  0.0549 1.3e-02 4.5e-02 7.4e-02 1.1e-01 2.2e-01
```

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##   theta[66]   6.9e-02  0.0270 2.6e-02 4.9e-02 6.6e-02 8.4e-02 1.3e-01
##   theta[67]   1.2e-01  0.0633 3.2e-02 7.2e-02 1.1e-01 1.5e-01 2.8e-01
##   theta[68]   3.4e-02  0.0566 7.1e-06 2.5e-03 1.3e-02 4.2e-02 1.8e-01
##   theta[69]   1.6e-02  0.0230 5.0e-06 1.2e-03 6.5e-03 2.0e-02 8.1e-02
##   theta[70]   1.3e-01  0.0335 7.0e-02 1.0e-01 1.2e-01 1.5e-01 2.0e-01
##   theta[71]   2.4e-02  0.0200 1.8e-03 9.6e-03 1.8e-02 3.3e-02 7.7e-02
##   theta[72]   1.0e-01  0.0292 5.3e-02 8.1e-02 9.9e-02 1.2e-01 1.7e-01
##   theta[73]   5.1e-02  0.0454 2.9e-03 1.9e-02 3.9e-02 6.9e-02 1.7e-01
##   theta[74]   9.4e-02  0.0284 4.8e-02 7.3e-02 9.1e-02 1.1e-01 1.6e-01
##   theta[75]   3.4e-01  0.0527 2.5e-01 3.1e-01 3.4e-01 3.7e-01 4.5e-01
##   theta[76]   6.7e-02  0.0385 1.4e-02 3.9e-02 6.1e-02 8.6e-02 1.6e-01
##   theta[77]   6.6e-02  0.0363 1.5e-02 4.0e-02 5.9e-02 8.6e-02 1.5e-01
##   theta[78]   2.8e-02  0.0229 1.6e-03 1.2e-02 2.2e-02 3.8e-02 8.4e-02
##   theta[79]   4.9e-02  0.0408 3.4e-03 2.0e-02 3.9e-02 6.7e-02 1.6e-01
##   theta[80]   1.5e-02  0.0232 4.0e-06 1.2e-03 6.3e-03 2.0e-02 7.9e-02
##   theta[81]   8.4e-02  0.0537 1.3e-02 4.6e-02 7.4e-02 1.1e-01 2.1e-01
##   theta[82]   1.2e-01  0.0646 2.7e-02 6.9e-02 1.1e-01 1.5e-01 2.7e-01
##   theta[83]   1.2e-01  0.0639 2.8e-02 7.1e-02 1.1e-01 1.5e-01 2.7e-01
##   theta[84]   9.0e-02  0.0292 4.4e-02 6.9e-02 8.7e-02 1.1e-01 1.6e-01
##   theta[85]   3.7e-03  0.0056 1.4e-06 3.3e-04 1.6e-03 4.7e-03 1.8e-02
##   theta[86]   1.2e-02  0.0101 9.8e-04 4.8e-03 9.6e-03 1.6e-02 3.8e-02
##   theta[87]   3.8e-03  0.0059 2.0e-06 2.7e-04 1.6e-03 5.0e-03 2.1e-02
##   theta[88]   6.0e-03  0.0092 3.5e-06 4.2e-04 2.1e-03 7.9e-03 3.0e-02
##   theta[89]   1.0e-02  0.0151 3.9e-06 8.5e-04 4.2e-03 1.3e-02 5.2e-02
##   theta[90]   1.0e-02  0.0160 2.3e-06 7.2e-04 4.1e-03 1.3e-02 5.4e-02
##   theta[91]   5.3e-02  0.0344 7.1e-03 2.8e-02 4.6e-02 7.1e-02 1.4e-01
##   theta[92]   8.4e-03  0.0119 7.2e-06 8.0e-04 4.0e-03 1.1e-02 4.1e-02
##   theta[93]   8.0e-03  0.0118 3.9e-06 7.3e-04 3.3e-03 1.0e-02 4.3e-02
##   theta[94]   1.1e-01  0.0406 4.0e-02 7.6e-02 1.0e-01 1.3e-01 2.0e-01
##   theta[95]   2.4e-02  0.0195 2.0e-03 9.4e-03 1.9e-02 3.3e-02 7.4e-02
##   theta[96]   7.6e-03  0.0109 1.9e-06 5.5e-04 2.9e-03 1.0e-02 3.8e-02
##   theta[97]   2.4e-02  0.0210 1.6e-03 9.7e-03 1.8e-02 3.3e-02 7.9e-02
##   theta[98]   4.0e-02  0.0252 6.0e-03 2.1e-02 3.6e-02 5.3e-02 1.0e-01
##   theta[99]   5.8e-02  0.0300 1.5e-02 3.5e-02 5.4e-02 7.3e-02 1.3e-01
##   theta[100]  3.9e-02  0.0246 5.9e-03 2.1e-02 3.4e-02 5.3e-02 1.0e-01
##   theta[101]  7.6e-03  0.0106 4.2e-06 6.5e-04 3.3e-03 1.0e-02 3.8e-02
##   theta[102]  7.8e-02  0.0252 3.7e-02 6.0e-02 7.5e-02 9.4e-02 1.3e-01
##   theta[103]  1.4e-01  0.0486 6.0e-02 1.1e-01 1.4e-01 1.7e-01 2.5e-01
##   theta[104]  7.0e-03  0.0101 4.9e-06 6.3e-04 3.2e-03 9.1e-03 3.4e-02
##   theta[105]  7.4e-03  0.0109 3.5e-06 6.4e-04 3.0e-03 9.6e-03 3.9e-02
##   theta[106]  7.5e-03  0.0110 5.9e-06 5.6e-04 3.0e-03 9.9e-03 3.7e-02
##   theta[107]  1.1e-01  0.0417 4.3e-02 7.7e-02 1.0e-01 1.3e-01 2.1e-01
##   theta[108]  7.5e-03  0.0110 7.0e-06 6.5e-04 2.9e-03 9.6e-03 3.9e-02
##   theta[109]  5.7e-02  0.0304 1.5e-02 3.4e-02 5.2e-02 7.6e-02 1.2e-01
##   theta[110]  3.6e-01  0.0803 2.2e-01 3.0e-01 3.5e-01 4.1e-01 5.4e-01
##   theta[111]  5.7e-02  0.0308 1.3e-02 3.4e-02 5.1e-02 7.5e-02 1.3e-01
##   theta[112]  3.0e-01  0.0713 1.9e-01 2.5e-01 3.0e-01 3.4e-01 4.6e-01
##   theta[113]  2.0e-01  0.0583 9.6e-02 1.6e-01 1.9e-01 2.3e-01 3.3e-01
##   theta[114]  2.5e-02  0.0200 1.8e-03 1.0e-02 2.0e-02 3.6e-02 7.6e-02
##   theta[115]  4.1e-02  0.0261 7.7e-03 2.2e-02 3.5e-02 5.5e-02 1.1e-01
##   theta[116]  2.1e-01  0.0596 1.1e-01 1.7e-01 2.1e-01 2.5e-01 3.5e-01
##   theta[117]  1.1e-01  0.0425 4.1e-02 7.6e-02 1.0e-01 1.3e-01 2.0e-01
##   theta[118]  2.6e-01  0.0703 1.4e-01 2.1e-01 2.5e-01 3.0e-01 4.1e-01
##   theta[119]  3.3e-02  0.0275 2.6e-03 1.2e-02 2.5e-02 4.4e-02 1.0e-01
```

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##   theta[120]  2.8e-01  0.0497 1.9e-01 2.4e-01 2.7e-01 3.1e-01 3.8e-01
##   theta[121]  1.6e-01  0.0754 4.8e-02 1.0e-01 1.5e-01 2.0e-01 3.3e-01
##   theta[122]  5.4e-01  0.1187 3.4e-01 4.6e-01 5.3e-01 6.1e-01 8.1e-01
##   theta[123]  3.3e-01  0.0878 1.9e-01 2.6e-01 3.2e-01 3.8e-01 5.2e-01
##   theta[124]  8.1e-03  0.0121 6.2e-06 6.5e-04 3.3e-03 1.0e-02 4.3e-02
##   theta[125]  2.4e-01  0.0642 1.3e-01 2.0e-01 2.4e-01 2.8e-01 3.8e-01
##   theta[126]  8.4e-03  0.0124 3.2e-06 7.0e-04 3.4e-03 1.1e-02 4.4e-02
##   theta[127]  8.5e-02  0.0279 4.0e-02 6.5e-02 8.2e-02 1.0e-01 1.5e-01
##   theta[128]  2.8e-02  0.0429 7.3e-06 1.9e-03 1.1e-02 3.6e-02 1.6e-01
##   theta[129]  2.7e-02  0.0402 1.4e-05 2.2e-03 1.1e-02 3.5e-02 1.4e-01
##   theta[130]  1.4e-02  0.0207 1.4e-05 1.2e-03 6.1e-03 1.8e-02 7.6e-02
##   theta[131]  8.2e-03  0.0111 7.1e-06 9.9e-04 3.9e-03 1.1e-02 4.0e-02
##   theta[132]  9.0e-03  0.0135 2.4e-06 5.7e-04 3.1e-03 1.2e-02 4.8e-02
##   theta[133]  8.0e-03  0.0123 1.7e-06 5.4e-04 3.0e-03 1.0e-02 4.5e-02
##   theta[134]  7.3e-03  0.0101 4.1e-06 6.9e-04 3.1e-03 9.8e-03 3.4e-02
##   theta[135]  1.0e-02  0.0154 2.9e-06 7.0e-04 3.7e-03 1.3e-02 5.3e-02
##   theta[136]  8.6e-03  0.0126 6.9e-06 7.6e-04 3.6e-03 1.1e-02 4.7e-02
##   theta[137]  1.0e-02  0.0155 3.7e-06 7.0e-04 4.1e-03 1.3e-02 5.5e-02
##   theta[138]  5.0e-02  0.0255 1.4e-02 3.1e-02 4.5e-02 6.3e-02 1.1e-01
##   theta[139]  2.1e-01  0.0628 1.1e-01 1.7e-01 2.1e-01 2.5e-01 3.6e-01
##   theta[140]  7.0e-03  0.0100 4.3e-06 6.6e-04 3.1e-03 9.3e-03 3.6e-02
##   theta[141]  9.3e-02  0.0377 3.5e-02 6.5e-02 8.7e-02 1.1e-01 1.8e-01
##   theta[142]  4.2e-01  0.0834 2.7e-01 3.6e-01 4.1e-01 4.7e-01 5.9e-01
##   theta[143]  2.6e-01  0.1721 3.8e-02 1.4e-01 2.3e-01 3.5e-01 6.8e-01
##   theta[144]  1.3e-01  0.0328 7.2e-02 1.0e-01 1.2e-01 1.5e-01 2.0e-01
##   theta[145]  3.1e-01  0.0518 2.2e-01 2.7e-01 3.1e-01 3.4e-01 4.2e-01
##   theta[146]  3.0e-01  0.0611 1.9e-01 2.5e-01 2.9e-01 3.3e-01 4.2e-01
##   theta[147]  1.1e-01  0.0333 5.1e-02 8.2e-02 1.0e-01 1.2e-01 1.8e-01
##   theta[148]  1.3e-01  0.0410 6.0e-02 9.7e-02 1.2e-01 1.5e-01 2.2e-01
##   theta[149]  1.4e-01  0.0414 6.6e-02 1.1e-01 1.3e-01 1.6e-01 2.3e-01
##   theta[150]  5.9e-02  0.0279 1.7e-02 3.8e-02 5.6e-02 7.6e-02 1.2e-01
##   theta[151]  2.5e-01  0.0571 1.5e-01 2.1e-01 2.5e-01 2.8e-01 3.7e-01
##   theta[152]  3.9e-02  0.0193 1.0e-02 2.5e-02 3.6e-02 4.9e-02 8.3e-02
##   theta[153]  1.1e-01  0.0334 5.6e-02 8.7e-02 1.1e-01 1.3e-01 1.8e-01
##   theta[154]  5.4e-02  0.0443 4.0e-03 2.1e-02 4.3e-02 7.5e-02 1.7e-01
##   theta[155]  4.0e-02  0.0261 5.1e-03 2.1e-02 3.5e-02 5.4e-02 1.0e-01
##   theta[156]  9.6e-03  0.0133 1.6e-05 8.7e-04 4.4e-03 1.3e-02 4.6e-02
##   theta[157]  3.0e-02  0.0237 1.9e-03 1.2e-02 2.3e-02 4.0e-02 8.8e-02
##   theta[158]  2.9e-02  0.0228 2.2e-03 1.2e-02 2.3e-02 4.0e-02 8.6e-02
##   theta[159]  3.7e-02  0.0184 1.0e-02 2.4e-02 3.4e-02 4.7e-02 8.1e-02
##   theta[160]  2.0e-01  0.0444 1.2e-01 1.7e-01 2.0e-01 2.3e-01 2.9e-01
##   theta[161]  1.6e-02  0.0235 1.3e-05 1.4e-03 6.9e-03 2.0e-02 8.0e-02
##   theta[162]  2.2e-01  0.0821 8.7e-02 1.6e-01 2.1e-01 2.7e-01 4.2e-01
##   theta[163]  1.5e-02  0.0229 6.9e-06 1.2e-03 6.3e-03 2.0e-02 8.5e-02
##   theta[164]  4.9e-02  0.0399 3.0e-03 2.1e-02 4.0e-02 6.6e-02 1.6e-01
##   theta[165]  1.5e-02  0.0228 6.8e-06 1.1e-03 5.7e-03 2.1e-02 7.8e-02
##   theta[166]  3.8e-01  0.0584 2.8e-01 3.4e-01 3.8e-01 4.2e-01 5.1e-01
##   theta[167]  1.1e-02  0.0154 1.8e-05 1.1e-03 5.2e-03 1.5e-02 5.8e-02
##   theta[168]  2.4e-02  0.0156 3.9e-03 1.3e-02 2.1e-02 3.2e-02 6.3e-02
##   theta[169]  4.8e-02  0.0256 1.3e-02 3.0e-02 4.3e-02 6.2e-02 1.1e-01
##   theta[170]  2.9e-02  0.0428 8.2e-06 1.7e-03 1.2e-02 3.6e-02 1.6e-01
##   theta[171]  6.1e-02  0.0303 1.7e-02 4.1e-02 5.7e-02 7.6e-02 1.3e-01
##   theta[172]  1.9e-01  0.0525 9.7e-02 1.5e-01 1.8e-01 2.1e-01 3.1e-01
##   theta[173]  1.7e-01  0.0374 1.0e-01 1.4e-01 1.7e-01 1.9e-01 2.5e-01
```

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##   theta[174]  3.6e-01  0.0693 2.4e-01 3.1e-01 3.6e-01 4.1e-01 5.1e-01
##   theta[175]  6.3e-03  0.0099 2.1e-06 3.8e-04 2.3e-03 7.8e-03 3.5e-02
##   theta[176]  2.2e-01  0.0544 1.3e-01 1.8e-01 2.2e-01 2.6e-01 3.4e-01
##   theta[177]  5.0e-02  0.0320 8.5e-03 2.7e-02 4.2e-02 6.6e-02 1.3e-01
##   theta[178]  4.2e-01  0.0785 2.8e-01 3.6e-01 4.1e-01 4.7e-01 5.8e-01
##   theta[179]  3.4e-01  0.0659 2.3e-01 3.0e-01 3.4e-01 3.9e-01 4.8e-01
##   theta[180]  8.0e-03  0.0118 9.8e-06 8.0e-04 3.2e-03 1.1e-02 4.5e-02
##   theta[181]  5.4e-02  0.0208 2.2e-02 3.8e-02 5.0e-02 6.5e-02 1.0e-01
##   theta[182]  1.3e-01  0.0328 7.6e-02 1.1e-01 1.3e-01 1.5e-01 2.1e-01
##   theta[183]  2.7e-01  0.0685 1.6e-01 2.2e-01 2.7e-01 3.2e-01 4.2e-01
##   theta[184]  2.7e-01  0.0649 1.6e-01 2.3e-01 2.7e-01 3.1e-01 4.0e-01
##   theta[185]  2.3e-01  0.0564 1.3e-01 1.9e-01 2.2e-01 2.6e-01 3.5e-01
##   theta[186]  1.8e-02  0.0261 5.5e-06 1.2e-03 7.2e-03 2.2e-02 9.6e-02
##   theta[187]  2.2e-02  0.0190 1.4e-03 9.0e-03 1.7e-02 3.1e-02 7.4e-02
##   theta[188]  8.0e-03  0.0112 6.5e-06 7.7e-04 3.7e-03 1.0e-02 4.1e-02
##   theta[189]  1.2e-02  0.0171 1.1e-06 8.9e-04 4.5e-03 1.6e-02 6.0e-02
##   theta[190]  5.4e-01  0.0801 3.9e-01 4.9e-01 5.4e-01 5.9e-01 7.2e-01
##   theta[191]  3.5e-01  0.0627 2.4e-01 3.0e-01 3.5e-01 3.9e-01 4.7e-01
##   theta[192]  2.4e-02  0.0346 1.3e-05 1.8e-03 1.1e-02 3.2e-02 1.2e-01
##   theta[193]  1.8e-01  0.0369 1.1e-01 1.5e-01 1.7e-01 2.0e-01 2.6e-01
##   theta[194]  9.8e-02  0.0480 2.6e-02 6.2e-02 9.1e-02 1.2e-01 2.1e-01
##   theta[195]  6.5e-02  0.0243 2.7e-02 4.7e-02 6.2e-02 7.9e-02 1.2e-01
##   theta[196]  1.1e-02  0.0158 6.2e-06 1.2e-03 5.2e-03 1.4e-02 5.2e-02
##   theta[197]  1.1e-02  0.0154 7.2e-06 8.8e-04 4.7e-03 1.5e-02 5.5e-02
##   theta[198]  9.0e-03  0.0138 1.6e-06 6.1e-04 3.3e-03 1.2e-02 5.0e-02
##   theta[199]  1.1e-02  0.0165 1.9e-06 1.0e-03 5.0e-03 1.5e-02 5.7e-02
##   theta[200]  8.4e-02  0.0375 2.6e-02 5.6e-02 7.9e-02 1.1e-01 1.7e-01
##   theta[201]  8.7e-02  0.0408 2.5e-02 5.7e-02 8.2e-02 1.1e-01 1.8e-01
##   theta[202]  8.1e-02  0.0417 1.9e-02 5.1e-02 7.4e-02 1.1e-01 1.8e-01
##   theta[203]  1.4e-02  0.0199 6.3e-06 1.2e-03 5.4e-03 1.8e-02 7.1e-02
##   theta[204]  1.8e-02  0.0262 5.2e-06 1.1e-03 6.8e-03 2.4e-02 9.2e-02
##   theta[205]  1.3e-02  0.0204 1.9e-06 9.3e-04 4.7e-03 1.8e-02 6.8e-02
##   theta[206]  7.6e-03  0.0119 1.1e-06 5.1e-04 2.6e-03 9.8e-03 4.1e-02
##   y_sim[1]    2.4e+01  7.0646 1.2e+01 1.9e+01 2.4e+01 2.9e+01 4.0e+01
##   y_sim[2]    1.3e+01  5.0010 5.0e+00 9.0e+00 1.2e+01 1.6e+01 2.4e+01
##   y_sim[3]    4.2e-01  0.8795 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[4]    7.1e+00  3.6606 1.0e+00 4.0e+00 7.0e+00 9.0e+00 1.6e+01
##   y_sim[5]    1.5e+00  1.7850 0.0e+00 0.0e+00 1.0e+00 2.0e+00 6.0e+00
##   y_sim[6]    1.4e+00  1.6622 0.0e+00 0.0e+00 1.0e+00 2.0e+00 6.0e+00
##   y_sim[7]    4.2e-01  0.8497 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[8]    4.1e-01  0.8603 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[9]    3.9e-01  0.8611 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[10]   4.0e-01  0.9002 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[11]   3.7e-01  0.8364 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[12]   4.0e-01  0.8847 0.0e+00 0.0e+00 0.0e+00 2.5e-01 3.0e+00
##   y_sim[13]   4.0e-01  0.8453 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[14]   4.0e-01  0.8487 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[15]   3.5e-01  0.7712 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[16]   1.8e+01  5.7077 7.5e+00 1.4e+01 1.7e+01 2.1e+01 2.9e+01
##   y_sim[17]   4.4e-01  0.8678 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[18]   1.3e+01  5.0594 5.0e+00 9.0e+00 1.2e+01 1.6e+01 2.5e+01
##   y_sim[19]   4.2e+00  2.8071 0.0e+00 2.0e+00 4.0e+00 6.0e+00 1.1e+01
##   y_sim[20]   1.8e+01  5.7421 7.0e+00 1.4e+01 1.7e+01 2.1e+01 3.0e+01
##   y_sim[21]   1.2e+01  4.8627 4.0e+00 8.0e+00 1.1e+01 1.5e+01 2.3e+01
```

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##   y_sim[22]   1.3e+00  1.5243 0.0e+00 0.0e+00 1.0e+00 2.0e+00 5.0e+00
##   y_sim[23]   4.5e-01  0.9364 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[24]   4.0e+01  8.8335 2.4e+01 3.4e+01 3.9e+01 4.6e+01 5.7e+01
##   y_sim[25]   3.4e+00  2.5566 0.0e+00 1.0e+00 3.0e+00 5.0e+00 9.0e+00
##   y_sim[26]   4.1e-01  0.9054 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[27]   3.9e-01  0.8433 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[28]   4.4e+00  2.8411 0.0e+00 2.0e+00 4.0e+00 6.0e+00 1.1e+01
##   y_sim[29]   1.3e+01  4.9655 4.0e+00 9.0e+00 1.2e+01 1.6e+01 2.4e+01
##   y_sim[30]   3.2e+00  2.4170 0.0e+00 1.0e+00 3.0e+00 4.0e+00 9.0e+00
##   y_sim[31]   5.2e+00  3.2428 1.0e+00 3.0e+00 5.0e+00 7.0e+00 1.3e+01
##   y_sim[32]   7.1e+00  3.5651 2.0e+00 5.0e+00 7.0e+00 9.0e+00 1.5e+01
##   y_sim[33]   1.4e+00  1.6799 0.0e+00 0.0e+00 1.0e+00 2.0e+00 6.0e+00
##   y_sim[34]   5.2e+00  3.1229 1.0e+00 3.0e+00 5.0e+00 7.0e+00 1.3e+01
##   y_sim[35]   1.3e+00  1.6012 0.0e+00 0.0e+00 1.0e+00 2.0e+00 5.0e+00
##   y_sim[36]   2.2e+01  6.5838 1.1e+01 1.8e+01 2.2e+01 2.6e+01 3.7e+01
##   y_sim[37]   4.1e-01  0.8453 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[38]   5.3e+00  3.3639 0.0e+00 3.0e+00 5.0e+00 7.0e+00 1.4e+01
##   y_sim[39]   9.0e+00  4.2639 2.0e+00 6.0e+00 8.0e+00 1.2e+01 1.9e+01
##   y_sim[40]   4.3e-01  0.9171 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[41]   2.1e+01  6.3393 1.0e+01 1.7e+01 2.1e+01 2.5e+01 3.5e+01
##   y_sim[42]   4.3e-01  0.8913 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[43]   3.9e-01  0.8210 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[44]   4.0e-01  0.8732 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[45]   9.1e+00  4.4789 2.0e+00 6.0e+00 8.0e+00 1.2e+01 1.9e+01
##   y_sim[46]   4.1e-01  0.8681 0.0e+00 0.0e+00 0.0e+00 2.5e-01 3.0e+00
##   y_sim[47]   3.3e+00  2.5352 0.0e+00 1.0e+00 3.0e+00 5.0e+00 9.0e+00
##   y_sim[48]   1.2e+01  4.7423 4.0e+00 9.0e+00 1.2e+01 1.5e+01 2.3e+01
##   y_sim[49]   4.2e+00  2.9046 0.0e+00 2.0e+00 4.0e+00 6.0e+00 1.1e+01
##   y_sim[50]   4.1e-01  0.8656 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[51]   6.1e+00  3.4330 1.0e+00 4.0e+00 6.0e+00 8.0e+00 1.4e+01
##   y_sim[52]   4.3e+00  2.6657 0.0e+00 2.0e+00 4.0e+00 6.0e+00 1.0e+01
##   y_sim[53]   4.4e-01  0.9230 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[54]   8.1e+00  3.9267 2.0e+00 5.0e+00 8.0e+00 1.0e+01 1.7e+01
##   y_sim[55]   1.3e+00  1.6135 0.0e+00 0.0e+00 1.0e+00 2.0e+00 5.0e+00
##   y_sim[56]   3.7e-01  0.8375 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[57]   3.6e-01  0.7909 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[58]   1.6e+01  5.6490 6.0e+00 1.2e+01 1.5e+01 1.9e+01 2.8e+01
##   y_sim[59]   4.1e-01  0.8946 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[60]   4.1e-01  0.8584 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[61]   4.0e-01  0.8332 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[62]   3.6e-01  0.7873 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[63]   3.9e-01  0.8573 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[64]   4.0e-01  0.8689 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[65]   2.0e+00  1.9254 0.0e+00 1.0e+00 2.0e+00 3.0e+00 7.0e+00
##   y_sim[66]   6.1e+00  3.4459 1.0e+00 3.0e+00 6.0e+00 8.0e+00 1.4e+01
##   y_sim[67]   2.8e+00  2.3302 0.0e+00 1.0e+00 2.0e+00 4.0e+00 8.0e+00
##   y_sim[68]   2.7e-01  0.6713 0.0e+00 0.0e+00 0.0e+00 0.0e+00 2.0e+00
##   y_sim[69]   3.8e-01  0.8133 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[70]   1.5e+01  5.4429 6.0e+00 1.1e+01 1.4e+01 1.8e+01 2.7e+01
##   y_sim[71]   1.2e+00  1.5012 0.0e+00 0.0e+00 1.0e+00 2.0e+00 5.0e+00
##   y_sim[72]   1.2e+01  4.9163 4.0e+00 8.0e+00 1.2e+01 1.5e+01 2.3e+01
##   y_sim[73]   1.3e+00  1.5819 0.0e+00 0.0e+00 1.0e+00 2.0e+00 5.0e+00
##   y_sim[74]   1.1e+01  4.8229 3.0e+00 8.0e+00 1.0e+01 1.4e+01 2.2e+01
##   y_sim[75]   4.0e+01  8.7390 2.4e+01 3.3e+01 3.9e+01 4.5e+01 5.7e+01
```

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##   y_sim[76]   3.2e+00  2.5304 0.0e+00 1.0e+00 3.0e+00 5.0e+00 1.0e+01
##   y_sim[77]   3.1e+00  2.3868 0.0e+00 1.0e+00 3.0e+00 4.0e+00 9.0e+00
##   y_sim[78]   1.3e+00  1.5271 0.0e+00 0.0e+00 1.0e+00 2.0e+00 6.0e+00
##   y_sim[79]   1.2e+00  1.4304 0.0e+00 0.0e+00 1.0e+00 2.0e+00 5.0e+00
##   y_sim[80]   3.6e-01  0.8130 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[81]   2.0e+00  1.8856 0.0e+00 1.0e+00 2.0e+00 3.0e+00 7.0e+00
##   y_sim[82]   2.8e+00  2.2891 0.0e+00 1.0e+00 2.0e+00 4.0e+00 8.0e+00
##   y_sim[83]   2.9e+00  2.3576 0.0e+00 1.0e+00 2.0e+00 4.0e+00 9.0e+00
##   y_sim[84]   9.0e+00  4.2589 2.0e+00 6.0e+00 9.0e+00 1.2e+01 1.9e+01
##   y_sim[85]   4.4e-01  0.9067 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[86]   1.4e+00  1.6254 0.0e+00 0.0e+00 1.0e+00 2.0e+00 5.5e+00
##   y_sim[87]   4.3e-01  0.9248 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[88]   4.1e-01  0.8984 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[89]   3.9e-01  0.8302 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[90]   4.3e-01  0.9289 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[91]   2.2e+00  2.0437 0.0e+00 1.0e+00 2.0e+00 3.0e+00 7.0e+00
##   y_sim[92]   4.0e-01  0.7921 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[93]   4.1e-01  0.8415 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[94]   5.8e+00  3.3370 1.0e+00 3.0e+00 5.0e+00 8.0e+00 1.3e+01
##   y_sim[95]   1.3e+00  1.5718 0.0e+00 0.0e+00 1.0e+00 2.0e+00 6.0e+00
##   y_sim[96]   4.2e-01  0.9009 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[97]   1.3e+00  1.5431 0.0e+00 0.0e+00 1.0e+00 2.0e+00 5.0e+00
##   y_sim[98]   2.2e+00  1.9806 0.0e+00 1.0e+00 2.0e+00 3.0e+00 7.0e+00
##   y_sim[99]   3.2e+00  2.4199 0.0e+00 1.0e+00 3.0e+00 5.0e+00 9.0e+00
##   y_sim[100]  2.2e+00  2.1026 0.0e+00 1.0e+00 2.0e+00 3.0e+00 8.0e+00
##   y_sim[101]  4.4e-01  0.8937 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[102]  9.0e+00  4.0536 2.0e+00 6.0e+00 9.0e+00 1.1e+01 1.8e+01
##   y_sim[103]  7.6e+00  3.9913 1.0e+00 5.0e+00 7.0e+00 1.0e+01 1.7e+01
##   y_sim[104]  4.2e-01  0.8513 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[105]  4.2e-01  0.9132 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[106]  4.2e-01  0.8880 0.0e+00 0.0e+00 0.0e+00 2.5e-01 3.0e+00
##   y_sim[107]  5.8e+00  3.2618 1.0e+00 3.0e+00 5.0e+00 8.0e+00 1.3e+01
##   y_sim[108]  4.1e-01  0.8614 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[109]  3.1e+00  2.4240 0.0e+00 1.0e+00 3.0e+00 4.0e+00 9.0e+00
##   y_sim[110]  2.0e+01  6.2098 9.0e+00 1.5e+01 1.9e+01 2.3e+01 3.4e+01
##   y_sim[111]  3.0e+00  2.3660 0.0e+00 1.0e+00 3.0e+00 4.0e+00 9.0e+00
##   y_sim[112]  1.7e+01  5.6729 7.0e+00 1.3e+01 1.6e+01 2.0e+01 3.0e+01
##   y_sim[113]  1.0e+01  4.4377 3.0e+00 7.0e+00 1.0e+01 1.3e+01 2.0e+01
##   y_sim[114]  1.3e+00  1.5231 0.0e+00 0.0e+00 1.0e+00 2.0e+00 5.0e+00
##   y_sim[115]  2.2e+00  2.0172 0.0e+00 1.0e+00 2.0e+00 3.0e+00 7.0e+00
##   y_sim[116]  1.1e+01  4.5657 4.0e+00 8.0e+00 1.1e+01 1.4e+01 2.2e+01
##   y_sim[117]  5.8e+00  3.3410 1.0e+00 3.0e+00 5.0e+00 8.0e+00 1.4e+01
##   y_sim[118]  1.4e+01  5.2949 5.0e+00 1.0e+01 1.4e+01 1.7e+01 2.6e+01
##   y_sim[119]  1.3e+00  1.5409 0.0e+00 0.0e+00 1.0e+00 2.0e+00 5.0e+00
##   y_sim[120]  3.2e+01  7.9334 1.8e+01 2.6e+01 3.2e+01 3.7e+01 4.8e+01
##   y_sim[121]  3.6e+00  2.5776 0.0e+00 2.0e+00 3.0e+00 5.0e+00 1.0e+01
##   y_sim[122]  2.2e+01  6.7079 1.0e+01 1.7e+01 2.1e+01 2.6e+01 3.6e+01
##   y_sim[123]  1.3e+01  5.1091 5.0e+00 1.0e+01 1.3e+01 1.6e+01 2.5e+01
##   y_sim[124]  4.4e-01  0.9251 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[125]  1.2e+01  4.7599 4.0e+00 9.0e+00 1.2e+01 1.5e+01 2.3e+01
##   y_sim[126]  4.0e-01  0.9079 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[127]  8.9e+00  4.1918 2.0e+00 6.0e+00 9.0e+00 1.1e+01 1.9e+01
##   y_sim[128]  3.0e-01  0.7116 0.0e+00 0.0e+00 0.0e+00 0.0e+00 2.0e+00
##   y_sim[129]  3.0e-01  0.6457 0.0e+00 0.0e+00 0.0e+00 0.0e+00 2.0e+00
```

```
##   y_sim[130]  3.6e-01  0.7795 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[131]  3.9e-01  0.8006 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[132]  4.5e-01  0.9433 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[133]  3.6e-01  0.8239 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[134]  4.3e-01  0.8806 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[135]  4.4e-01  0.9823 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[136]  4.1e-01  0.8719 0.0e+00 0.0e+00 0.0e+00 2.5e-01 3.0e+00
##   y_sim[137]  4.2e-01  0.8996 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[138]  3.2e+00  2.4245 0.0e+00 1.0e+00 3.0e+00 4.0e+00 9.0e+00
##   y_sim[139]  1.1e+01  4.8549 4.0e+00 8.0e+00 1.1e+01 1.4e+01 2.2e+01
##   y_sim[140]  4.0e-01  0.8349 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[141]  5.9e+00  3.5016 1.0e+00 3.0e+00 5.0e+00 8.0e+00 1.4e+01
##   y_sim[142]  2.5e+01  6.9640 1.3e+01 2.0e+01 2.5e+01 2.9e+01 4.0e+01
##   y_sim[143]  1.1e+00  1.2231 0.0e+00 0.0e+00 1.0e+00 2.0e+00 4.0e+00
##   y_sim[144]  1.5e+01  5.3106 6.0e+00 1.1e+01 1.4e+01 1.8e+01 2.7e+01
##   y_sim[145]  3.6e+01  8.4051 2.1e+01 3.0e+01 3.5e+01 4.1e+01 5.3e+01
##   y_sim[146]  2.5e+01  7.2763 1.2e+01 2.0e+01 2.4e+01 2.9e+01 4.1e+01
##   y_sim[147]  9.9e+00  4.4040 3.0e+00 7.0e+00 9.0e+00 1.2e+01 2.0e+01
##   y_sim[148]  8.6e+00  4.0418 2.0e+00 6.0e+00 8.0e+00 1.1e+01 1.8e+01
##   y_sim[149]  9.8e+00  4.4257 3.0e+00 7.0e+00 9.0e+00 1.3e+01 2.0e+01
##   y_sim[150]  4.2e+00  2.8751 0.0e+00 2.0e+00 4.0e+00 6.0e+00 1.1e+01
##   y_sim[151]  1.7e+01  5.7919 7.0e+00 1.3e+01 1.7e+01 2.1e+01 3.0e+01
##   y_sim[152]  3.2e+00  2.4965 0.0e+00 1.0e+00 3.0e+00 4.0e+00 9.5e+00
##   y_sim[153]  1.1e+01  4.6174 4.0e+00 7.0e+00 1.0e+01 1.3e+01 2.1e+01
##   y_sim[154]  1.2e+00  1.4730 0.0e+00 0.0e+00 1.0e+00 2.0e+00 5.0e+00
##   y_sim[155]  2.2e+00  2.0799 0.0e+00 1.0e+00 2.0e+00 3.0e+00 7.0e+00
##   y_sim[156]  4.3e-01  0.8502 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[157]  1.3e+00  1.5432 0.0e+00 0.0e+00 1.0e+00 2.0e+00 5.0e+00
##   y_sim[158]  1.2e+00  1.4849 0.0e+00 0.0e+00 1.0e+00 2.0e+00 5.0e+00
##   y_sim[159]  4.2e+00  2.9182 0.0e+00 2.0e+00 4.0e+00 6.0e+00 1.1e+01
##   y_sim[160]  2.0e+01  6.2737 9.0e+00 1.5e+01 1.9e+01 2.3e+01 3.3e+01
##   y_sim[161]  3.7e-01  0.8128 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[162]  5.2e+00  3.0105 4.8e-01 3.0e+00 5.0e+00 7.0e+00 1.2e+01
##   y_sim[163]  3.6e-01  0.7905 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[164]  1.2e+00  1.4781 0.0e+00 0.0e+00 1.0e+00 2.0e+00 5.0e+00
##   y_sim[165]  3.7e-01  0.8063 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[166]  4.4e+01  9.6396 2.6e+01 3.8e+01 4.4e+01 5.0e+01 6.5e+01
##   y_sim[167]  3.8e-01  0.8033 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[168]  2.3e+00  2.1348 0.0e+00 1.0e+00 2.0e+00 3.0e+00 8.0e+00
##   y_sim[169]  3.2e+00  2.4647 0.0e+00 1.0e+00 3.0e+00 4.0e+00 9.0e+00
##   y_sim[170]  3.0e-01  0.7138 0.0e+00 0.0e+00 0.0e+00 0.0e+00 2.0e+00
##   y_sim[171]  4.0e+00  2.7512 0.0e+00 2.0e+00 4.0e+00 6.0e+00 1.1e+01
##   y_sim[172]  1.2e+01  4.8579 4.0e+00 9.0e+00 1.2e+01 1.6e+01 2.3e+01
##   y_sim[173]  2.0e+01  6.1326 9.0e+00 1.5e+01 1.9e+01 2.3e+01 3.3e+01
##   y_sim[174]  2.5e+01  6.8032 1.2e+01 2.0e+01 2.4e+01 2.9e+01 3.9e+01
##   y_sim[175]  4.3e-01  0.9213 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[176]  1.5e+01  5.4748 6.0e+00 1.1e+01 1.5e+01 1.9e+01 2.7e+01
##   y_sim[177]  2.2e+00  2.0689 0.0e+00 1.0e+00 2.0e+00 3.0e+00 7.0e+00
##   y_sim[178]  2.8e+01  7.4561 1.5e+01 2.3e+01 2.8e+01 3.3e+01 4.5e+01
##   y_sim[179]  2.3e+01  6.6253 1.1e+01 1.9e+01 2.3e+01 2.7e+01 3.8e+01
##   y_sim[180]  4.2e-01  0.8975 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[181]  6.3e+00  3.4516 1.0e+00 4.0e+00 6.0e+00 8.0e+00 1.4e+01
##   y_sim[182]  1.6e+01  5.4861 7.0e+00 1.2e+01 1.5e+01 1.9e+01 2.8e+01
##   y_sim[183]  1.7e+01  5.8573 7.0e+00 1.3e+01 1.6e+01 2.0e+01 3.0e+01
```

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##   y_sim[184]  1.7e+01  5.6819 7.0e+00 1.3e+01 1.7e+01 2.0e+01 3.0e+01
##   y_sim[185]  1.4e+01  5.1270 5.0e+00 1.1e+01 1.4e+01 1.8e+01 2.5e+01
##   y_sim[186]  3.8e-01  0.8266 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[187]  1.3e+00  1.5781 0.0e+00 0.0e+00 1.0e+00 2.0e+00 5.0e+00
##   y_sim[188]  4.1e-01  0.8650 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[189]  3.5e-01  0.7476 0.0e+00 0.0e+00 0.0e+00 0.0e+00 2.0e+00
##   y_sim[190]  3.7e+01  8.2361 2.3e+01 3.2e+01 3.7e+01 4.3e+01 5.5e+01
##   y_sim[191]  2.5e+01  6.5775 1.3e+01 2.0e+01 2.4e+01 2.9e+01 3.9e+01
##   y_sim[192]  3.3e-01  0.7395 0.0e+00 0.0e+00 0.0e+00 0.0e+00 2.0e+00
##   y_sim[193]  2.0e+01  6.1024 1.0e+01 1.6e+01 2.0e+01 2.4e+01 3.3e+01
##   y_sim[194]  3.9e+00  2.7550 0.0e+00 2.0e+00 4.0e+00 5.0e+00 1.0e+01
##   y_sim[195]  7.1e+00  3.8318 1.0e+00 4.0e+00 6.0e+00 9.0e+00 1.6e+01
##   y_sim[196]  3.8e-01  0.7915 0.0e+00 0.0e+00 0.0e+00 1.0e+00 2.5e+00
##   y_sim[197]  3.9e-01  0.8512 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[198]  4.0e-01  0.8540 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[199]  4.3e-01  0.8957 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[200]  3.9e+00  2.5845 0.0e+00 2.0e+00 4.0e+00 5.0e+00 1.0e+01
##   y_sim[201]  4.1e+00  2.8132 0.0e+00 2.0e+00 4.0e+00 6.0e+00 1.1e+01
##   y_sim[202]  3.0e+00  2.3326 0.0e+00 1.0e+00 3.0e+00 4.0e+00 9.0e+00
##   y_sim[203]  4.2e-01  0.8639 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[204]  3.6e-01  0.7858 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[205]  4.0e-01  0.8588 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[206]  3.8e-01  0.8086 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   lp__        1.7e+03 13.6319 1.6e+03 1.7e+03 1.7e+03 1.7e+03 1.7e+03
##
## , , chains = chain:3
##
##              stats
## parameter        mean      sd    2.5%     25%     50%     75%   97.5%
##   alpha_gamma 4.5e-01  0.0586 3.5e-01 4.1e-01 4.5e-01 4.9e-01 5.8e-01
##   beta_gamma  5.3e+00  0.9015 3.7e+00 4.7e+00 5.2e+00 5.9e+00 7.2e+00
##   theta[1]    2.1e-01  0.0430 1.3e-01 1.8e-01 2.1e-01 2.4e-01 3.0e-01
##   theta[2]    1.1e-01  0.0309 5.9e-02 8.8e-02 1.1e-01 1.3e-01 1.8e-01
##   theta[3]    9.8e-03  0.0150 3.4e-06 8.9e-04 4.0e-03 1.2e-02 5.4e-02
##   theta[4]    6.2e-02  0.0243 2.3e-02 4.5e-02 5.9e-02 7.6e-02 1.2e-01
##   theta[5]    1.4e-02  0.0118 8.0e-04 5.3e-03 1.1e-02 1.9e-02 4.3e-02
##   theta[6]    1.2e-02  0.0094 9.7e-04 4.8e-03 9.5e-03 1.7e-02 3.6e-02
##   theta[7]    7.6e-03  0.0112 8.3e-06 6.2e-04 3.1e-03 9.5e-03 4.0e-02
##   theta[8]    7.4e-03  0.0115 1.3e-06 4.7e-04 3.1e-03 9.6e-03 4.0e-02
##   theta[9]    8.2e-03  0.0120 4.3e-06 8.1e-04 3.7e-03 1.1e-02 4.1e-02
##   theta[10]   1.1e-02  0.0159 4.2e-06 7.8e-04 4.4e-03 1.4e-02 5.7e-02
##   theta[11]   9.7e-03  0.0149 4.2e-06 6.6e-04 3.9e-03 1.2e-02 5.1e-02
##   theta[12]   1.0e-02  0.0148 7.9e-06 9.5e-04 5.1e-03 1.4e-02 5.4e-02
##   theta[13]   1.1e-02  0.0173 4.8e-06 7.8e-04 4.3e-03 1.4e-02 5.8e-02
##   theta[14]   1.2e-02  0.0181 5.8e-06 7.2e-04 4.2e-03 1.5e-02 6.4e-02
##   theta[15]   1.2e-02  0.0167 5.8e-06 9.2e-04 5.1e-03 1.6e-02 6.0e-02
##   theta[16]   1.5e-01  0.0351 8.8e-02 1.3e-01 1.5e-01 1.7e-01 2.3e-01
##   theta[17]   1.1e-02  0.0154 3.9e-06 8.2e-04 4.6e-03 1.5e-02 5.7e-02
##   theta[18]   1.1e-01  0.0286 6.3e-02 9.0e-02 1.1e-01 1.3e-01 1.7e-01
##   theta[19]   3.7e-02  0.0170 1.1e-02 2.5e-02 3.4e-02 4.6e-02 7.8e-02
##   theta[20]   1.5e-01  0.0370 9.2e-02 1.2e-01 1.5e-01 1.7e-01 2.3e-01
##   theta[21]   1.0e-01  0.0272 5.6e-02 8.3e-02 1.0e-01 1.2e-01 1.6e-01
##   theta[22]   1.2e-02  0.0104 6.5e-04 4.6e-03 9.5e-03 1.7e-02 3.9e-02
##   theta[23]   3.9e-03  0.0062 7.6e-07 2.6e-04 1.6e-03 4.9e-03 2.0e-02
```

```
##   theta[24]   3.4e-01  0.0516 2.5e-01 3.1e-01 3.4e-01 3.7e-01 4.5e-01
##   theta[25]   2.8e-02  0.0143 7.5e-03 1.8e-02 2.6e-02 3.7e-02 6.2e-02
##   theta[26]   8.0e-03  0.0115 2.0e-06 5.9e-04 3.5e-03 1.1e-02 4.0e-02
##   theta[27]   9.4e-03  0.0143 1.9e-06 8.9e-04 4.1e-03 1.2e-02 4.8e-02
##   theta[28]   3.7e-02  0.0171 1.1e-02 2.4e-02 3.4e-02 4.6e-02 7.7e-02
##   theta[29]   1.1e-01  0.0298 6.1e-02 9.0e-02 1.1e-01 1.3e-01 1.8e-01
##   theta[30]   2.8e-02  0.0145 7.1e-03 1.8e-02 2.6e-02 3.7e-02 6.3e-02
##   theta[31]   4.5e-02  0.0204 1.5e-02 3.1e-02 4.2e-02 5.7e-02 9.6e-02
##   theta[32]   6.2e-02  0.0228 2.6e-02 4.6e-02 5.9e-02 7.5e-02 1.2e-01
##   theta[33]   1.2e-02  0.0095 7.5e-04 4.9e-03 9.3e-03 1.6e-02 3.6e-02
##   theta[34]   4.5e-02  0.0200 1.5e-02 3.0e-02 4.2e-02 5.6e-02 9.0e-02
##   theta[35]   1.2e-02  0.0094 7.4e-04 4.8e-03 9.7e-03 1.6e-02 3.5e-02
##   theta[36]   1.9e-01  0.0402 1.2e-01 1.7e-01 1.9e-01 2.2e-01 2.8e-01
##   theta[37]   4.6e-03  0.0066 3.6e-06 3.8e-04 2.0e-03 5.9e-03 2.5e-02
##   theta[38]   4.5e-02  0.0187 1.6e-02 3.1e-02 4.2e-02 5.5e-02 8.6e-02
##   theta[39]   7.8e-02  0.0253 3.7e-02 6.0e-02 7.5e-02 9.3e-02 1.4e-01
##   theta[40]   3.9e-03  0.0059 1.5e-06 2.5e-04 1.5e-03 4.9e-03 2.1e-02
##   theta[41]   1.9e-01  0.0398 1.2e-01 1.6e-01 1.8e-01 2.1e-01 2.7e-01
##   theta[42]   5.6e-03  0.0080 5.0e-06 4.9e-04 2.6e-03 7.6e-03 2.9e-02
##   theta[43]   6.1e-03  0.0089 4.3e-06 5.5e-04 2.5e-03 7.8e-03 3.3e-02
##   theta[44]   3.6e-03  0.0055 1.5e-06 2.3e-04 1.5e-03 4.5e-03 2.1e-02
##   theta[45]   7.8e-02  0.0252 3.7e-02 6.0e-02 7.5e-02 9.3e-02 1.4e-01
##   theta[46]   6.0e-03  0.0088 8.7e-07 4.9e-04 2.5e-03 7.6e-03 3.2e-02
##   theta[47]   2.8e-02  0.0148 7.5e-03 1.7e-02 2.6e-02 3.6e-02 6.4e-02
##   theta[48]   2.6e-01  0.0661 1.5e-01 2.2e-01 2.6e-01 3.0e-01 4.0e-01
##   theta[49]   6.4e-02  0.0301 1.9e-02 4.1e-02 5.9e-02 8.1e-02 1.4e-01
##   theta[50]   9.4e-03  0.0136 1.6e-06 8.3e-04 4.3e-03 1.3e-02 5.2e-02
##   theta[51]   6.2e-02  0.0255 2.3e-02 4.4e-02 5.9e-02 7.7e-02 1.2e-01
##   theta[52]   2.2e-01  0.0941 7.8e-02 1.5e-01 2.1e-01 2.8e-01 4.5e-01
##   theta[53]   4.1e-03  0.0058 2.7e-06 3.6e-04 2.0e-03 5.4e-03 2.1e-02
##   theta[54]   8.2e-02  0.0286 3.4e-02 6.1e-02 7.8e-02 9.9e-02 1.5e-01
##   theta[55]   1.8e-02  0.0139 1.6e-03 7.5e-03 1.4e-02 2.5e-02 5.4e-02
##   theta[56]   1.6e-02  0.0241 8.6e-06 1.1e-03 6.3e-03 2.2e-02 8.7e-02
##   theta[57]   1.6e-02  0.0232 4.5e-06 1.1e-03 6.2e-03 2.1e-02 8.6e-02
##   theta[58]   1.3e-01  0.0319 7.9e-02 1.1e-01 1.3e-01 1.5e-01 2.0e-01
##   theta[59]   6.0e-03  0.0095 1.4e-06 3.6e-04 2.3e-03 7.4e-03 3.2e-02
##   theta[60]   8.3e-03  0.0124 2.4e-06 5.4e-04 3.0e-03 1.1e-02 4.4e-02
##   theta[61]   4.0e-03  0.0061 4.2e-07 2.8e-04 1.5e-03 5.3e-03 2.1e-02
##   theta[62]   1.5e-02  0.0227 3.4e-06 1.1e-03 5.9e-03 1.9e-02 7.7e-02
##   theta[63]   1.4e-02  0.0216 6.6e-06 1.1e-03 6.4e-03 1.8e-02 7.9e-02
##   theta[64]   1.4e-02  0.0212 8.9e-06 1.3e-03 6.0e-03 1.8e-02 7.6e-02
##   theta[65]   8.4e-02  0.0566 1.2e-02 4.3e-02 7.2e-02 1.1e-01 2.2e-01
##   theta[66]   6.9e-02  0.0276 2.6e-02 4.9e-02 6.5e-02 8.4e-02 1.4e-01
##   theta[67]   1.2e-01  0.0668 2.6e-02 6.9e-02 1.0e-01 1.6e-01 2.7e-01
##   theta[68]   3.2e-02  0.0473 9.6e-06 2.4e-03 1.3e-02 4.2e-02 1.7e-01
##   theta[69]   1.5e-02  0.0217 1.5e-06 1.3e-03 6.0e-03 1.9e-02 7.6e-02
##   theta[70]   1.3e-01  0.0329 7.1e-02 1.0e-01 1.2e-01 1.5e-01 2.0e-01
##   theta[71]   2.5e-02  0.0212 1.9e-03 9.5e-03 1.9e-02 3.3e-02 8.3e-02
##   theta[72]   1.0e-01  0.0275 5.6e-02 8.3e-02 1.0e-01 1.2e-01 1.6e-01
##   theta[73]   4.9e-02  0.0386 3.8e-03 1.9e-02 3.9e-02 6.9e-02 1.5e-01
##   theta[74]   9.4e-02  0.0269 4.7e-02 7.5e-02 9.1e-02 1.1e-01 1.5e-01
##   theta[75]   3.4e-01  0.0531 2.5e-01 3.0e-01 3.4e-01 3.8e-01 4.5e-01
##   theta[76]   6.5e-02  0.0345 1.6e-02 4.0e-02 5.9e-02 8.4e-02 1.5e-01
##   theta[77]   6.6e-02  0.0356 1.6e-02 4.0e-02 6.0e-02 8.4e-02 1.5e-01
```

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##   theta[78]   2.8e-02  0.0246 2.0e-03 1.1e-02 2.2e-02 3.8e-02 9.6e-02
##   theta[79]   4.9e-02  0.0392 3.6e-03 2.1e-02 3.8e-02 6.8e-02 1.5e-01
##   theta[80]   1.6e-02  0.0236 1.0e-05 1.3e-03 6.5e-03 2.1e-02 8.5e-02
##   theta[81]   8.4e-02  0.0558 1.2e-02 4.1e-02 7.2e-02 1.1e-01 2.2e-01
##   theta[82]   1.2e-01  0.0664 2.5e-02 6.6e-02 1.0e-01 1.5e-01 2.7e-01
##   theta[83]   1.2e-01  0.0639 2.7e-02 6.8e-02 1.0e-01 1.5e-01 2.7e-01
##   theta[84]   9.0e-02  0.0303 4.2e-02 6.9e-02 8.6e-02 1.1e-01 1.6e-01
##   theta[85]   3.7e-03  0.0055 1.3e-06 2.8e-04 1.6e-03 4.8e-03 1.9e-02
##   theta[86]   1.2e-02  0.0099 9.9e-04 4.8e-03 9.9e-03 1.8e-02 3.8e-02
##   theta[87]   3.8e-03  0.0056 6.4e-07 2.8e-04 1.5e-03 4.9e-03 2.0e-02
##   theta[88]   5.7e-03  0.0086 1.5e-06 3.6e-04 2.1e-03 7.3e-03 3.1e-02
##   theta[89]   9.7e-03  0.0148 1.8e-06 6.7e-04 4.0e-03 1.2e-02 5.3e-02
##   theta[90]   1.0e-02  0.0160 1.7e-06 6.2e-04 3.7e-03 1.4e-02 5.6e-02
##   theta[91]   5.3e-02  0.0324 1.1e-02 2.8e-02 4.7e-02 7.1e-02 1.3e-01
##   theta[92]   8.6e-03  0.0126 1.6e-06 8.3e-04 4.0e-03 1.1e-02 4.3e-02
##   theta[93]   7.9e-03  0.0118 2.8e-06 6.7e-04 3.3e-03 1.0e-02 4.1e-02
##   theta[94]   1.1e-01  0.0406 4.3e-02 7.6e-02 1.0e-01 1.3e-01 2.0e-01
##   theta[95]   2.4e-02  0.0210 1.3e-03 8.6e-03 1.8e-02 3.3e-02 7.8e-02
##   theta[96]   7.6e-03  0.0115 2.2e-06 5.5e-04 3.0e-03 9.6e-03 4.3e-02
##   theta[97]   2.4e-02  0.0190 1.3e-03 9.8e-03 2.0e-02 3.2e-02 7.4e-02
##   theta[98]   4.1e-02  0.0253 6.5e-03 2.2e-02 3.6e-02 5.4e-02 1.1e-01
##   theta[99]   5.8e-02  0.0319 1.2e-02 3.5e-02 5.2e-02 7.5e-02 1.3e-01
##   theta[100]  4.0e-02  0.0256 5.5e-03 2.0e-02 3.5e-02 5.4e-02 1.0e-01
##   theta[101]  7.7e-03  0.0110 3.5e-06 6.2e-04 3.2e-03 1.1e-02 4.3e-02
##   theta[102]  7.8e-02  0.0240 3.8e-02 6.0e-02 7.6e-02 9.2e-02 1.3e-01
##   theta[103]  1.4e-01  0.0479 6.3e-02 1.0e-01 1.3e-01 1.7e-01 2.5e-01
##   theta[104]  6.9e-03  0.0106 2.2e-06 4.9e-04 2.8e-03 8.6e-03 3.6e-02
##   theta[105]  7.2e-03  0.0111 9.2e-07 6.2e-04 3.2e-03 9.4e-03 3.7e-02
##   theta[106]  7.6e-03  0.0118 2.4e-06 6.2e-04 3.1e-03 9.9e-03 3.9e-02
##   theta[107]  1.1e-01  0.0405 4.2e-02 7.5e-02 1.0e-01 1.3e-01 1.9e-01
##   theta[108]  7.3e-03  0.0105 3.3e-06 6.5e-04 3.3e-03 9.7e-03 3.4e-02
##   theta[109]  5.7e-02  0.0295 1.3e-02 3.5e-02 5.3e-02 7.3e-02 1.3e-01
##   theta[110]  3.6e-01  0.0754 2.3e-01 3.0e-01 3.5e-01 4.0e-01 5.2e-01
##   theta[111]  5.8e-02  0.0318 1.4e-02 3.5e-02 5.2e-02 7.4e-02 1.3e-01
##   theta[112]  3.0e-01  0.0717 1.7e-01 2.5e-01 2.9e-01 3.5e-01 4.6e-01
##   theta[113]  2.0e-01  0.0568 1.0e-01 1.5e-01 1.9e-01 2.3e-01 3.2e-01
##   theta[114]  2.5e-02  0.0208 1.6e-03 1.0e-02 2.1e-02 3.5e-02 7.6e-02
##   theta[115]  4.1e-02  0.0261 6.7e-03 2.2e-02 3.5e-02 5.6e-02 1.1e-01
##   theta[116]  2.2e-01  0.0624 1.1e-01 1.7e-01 2.1e-01 2.5e-01 3.6e-01
##   theta[117]  1.1e-01  0.0398 4.3e-02 7.8e-02 1.0e-01 1.3e-01 1.9e-01
##   theta[118]  2.6e-01  0.0669 1.4e-01 2.1e-01 2.5e-01 3.0e-01 4.0e-01
##   theta[119]  3.3e-02  0.0272 1.7e-03 1.3e-02 2.6e-02 4.7e-02 1.0e-01
##   theta[120]  2.8e-01  0.0493 1.9e-01 2.4e-01 2.7e-01 3.1e-01 3.8e-01
##   theta[121]  1.6e-01  0.0761 4.5e-02 1.0e-01 1.5e-01 2.0e-01 3.4e-01
##   theta[122]  5.4e-01  0.1106 3.4e-01 4.6e-01 5.3e-01 6.1e-01 7.7e-01
##   theta[123]  3.3e-01  0.0872 1.9e-01 2.7e-01 3.2e-01 3.9e-01 5.2e-01
##   theta[124]  7.7e-03  0.0107 8.2e-06 7.5e-04 3.5e-03 1.0e-02 3.7e-02
##   theta[125]  2.4e-01  0.0648 1.4e-01 2.0e-01 2.4e-01 2.8e-01 3.8e-01
##   theta[126]  7.7e-03  0.0115 3.4e-06 7.0e-04 3.4e-03 1.1e-02 3.7e-02
##   theta[127]  8.5e-02  0.0254 4.2e-02 6.7e-02 8.3e-02 1.0e-01 1.4e-01
##   theta[128]  2.6e-02  0.0380 1.2e-05 2.0e-03 1.1e-02 3.5e-02 1.4e-01
##   theta[129]  2.9e-02  0.0423 6.7e-06 1.9e-03 1.1e-02 3.8e-02 1.6e-01
##   theta[130]  1.5e-02  0.0218 1.0e-05 1.0e-03 6.2e-03 1.9e-02 8.1e-02
##   theta[131]  8.1e-03  0.0127 3.1e-06 5.4e-04 2.9e-03 1.0e-02 4.3e-02
```

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##   theta[132]  8.2e-03  0.0122 6.7e-06 7.4e-04 3.6e-03 1.0e-02 4.3e-02
##   theta[133]  8.3e-03  0.0125 2.3e-06 6.5e-04 3.3e-03 1.1e-02 4.5e-02
##   theta[134]  7.3e-03  0.0108 2.2e-06 5.3e-04 2.7e-03 9.6e-03 3.9e-02
##   theta[135]  1.0e-02  0.0162 1.7e-06 6.8e-04 3.6e-03 1.3e-02 5.9e-02
##   theta[136]  8.0e-03  0.0118 1.8e-06 6.0e-04 3.4e-03 1.1e-02 4.2e-02
##   theta[137]  1.1e-02  0.0164 2.2e-06 6.5e-04 3.9e-03 1.5e-02 5.6e-02
##   theta[138]  4.8e-02  0.0239 1.3e-02 3.1e-02 4.4e-02 6.1e-02 1.1e-01
##   theta[139]  2.2e-01  0.0582 1.2e-01 1.7e-01 2.1e-01 2.5e-01 3.4e-01
##   theta[140]  7.0e-03  0.0101 5.6e-06 6.1e-04 3.1e-03 9.1e-03 3.6e-02
##   theta[141]  9.3e-02  0.0358 3.7e-02 6.6e-02 8.9e-02 1.1e-01 1.8e-01
##   theta[142]  4.2e-01  0.0770 2.8e-01 3.7e-01 4.1e-01 4.7e-01 5.9e-01
##   theta[143]  2.7e-01  0.1702 4.6e-02 1.5e-01 2.4e-01 3.4e-01 7.2e-01
##   theta[144]  1.3e-01  0.0339 6.9e-02 1.0e-01 1.2e-01 1.5e-01 2.0e-01
##   theta[145]  3.1e-01  0.0508 2.2e-01 2.7e-01 3.1e-01 3.4e-01 4.1e-01
##   theta[146]  3.0e-01  0.0569 2.0e-01 2.6e-01 2.9e-01 3.3e-01 4.2e-01
##   theta[147]  1.1e-01  0.0326 5.1e-02 8.3e-02 1.0e-01 1.2e-01 1.8e-01
##   theta[148]  1.2e-01  0.0418 5.8e-02 9.3e-02 1.2e-01 1.5e-01 2.2e-01
##   theta[149]  1.4e-01  0.0445 6.5e-02 1.0e-01 1.3e-01 1.6e-01 2.4e-01
##   theta[150]  5.9e-02  0.0277 1.6e-02 3.9e-02 5.4e-02 7.5e-02 1.2e-01
##   theta[151]  2.5e-01  0.0609 1.5e-01 2.1e-01 2.5e-01 2.9e-01 3.9e-01
##   theta[152]  3.8e-02  0.0214 8.8e-03 2.2e-02 3.4e-02 5.0e-02 8.9e-02
##   theta[153]  1.1e-01  0.0332 5.8e-02 8.8e-02 1.1e-01 1.3e-01 1.9e-01
##   theta[154]  5.2e-02  0.0426 3.9e-03 2.1e-02 4.1e-02 7.4e-02 1.6e-01
##   theta[155]  4.1e-02  0.0267 6.8e-03 2.2e-02 3.4e-02 5.6e-02 1.1e-01
##   theta[156]  9.2e-03  0.0135 1.9e-06 8.1e-04 4.0e-03 1.1e-02 4.6e-02
##   theta[157]  3.0e-02  0.0247 2.2e-03 1.2e-02 2.3e-02 4.0e-02 9.6e-02
##   theta[158]  2.9e-02  0.0244 2.1e-03 1.1e-02 2.2e-02 4.0e-02 8.9e-02
##   theta[159]  3.7e-02  0.0169 1.1e-02 2.5e-02 3.4e-02 4.6e-02 7.9e-02
##   theta[160]  2.0e-01  0.0455 1.2e-01 1.7e-01 2.0e-01 2.3e-01 3.0e-01
##   theta[161]  1.6e-02  0.0243 9.2e-06 1.0e-03 6.5e-03 2.0e-02 9.0e-02
##   theta[162]  2.2e-01  0.0867 8.0e-02 1.6e-01 2.1e-01 2.7e-01 4.3e-01
##   theta[163]  1.6e-02  0.0242 6.7e-06 9.7e-04 5.7e-03 2.0e-02 8.9e-02
##   theta[164]  4.8e-02  0.0386 3.4e-03 1.9e-02 3.7e-02 6.6e-02 1.4e-01
##   theta[165]  1.6e-02  0.0215 8.3e-06 1.5e-03 6.9e-03 2.1e-02 7.6e-02
##   theta[166]  3.8e-01  0.0572 2.8e-01 3.4e-01 3.8e-01 4.2e-01 5.0e-01
##   theta[167]  1.2e-02  0.0171 9.0e-06 1.0e-03 5.3e-03 1.6e-02 6.3e-02
##   theta[168]  2.4e-02  0.0151 4.3e-03 1.3e-02 2.1e-02 3.2e-02 6.2e-02
##   theta[169]  4.9e-02  0.0258 1.1e-02 3.0e-02 4.4e-02 6.2e-02 1.1e-01
##   theta[170]  2.7e-02  0.0407 2.5e-05 2.2e-03 1.1e-02 3.6e-02 1.3e-01
##   theta[171]  6.2e-02  0.0288 1.8e-02 4.0e-02 5.7e-02 7.8e-02 1.3e-01
##   theta[172]  1.9e-01  0.0516 9.9e-02 1.5e-01 1.8e-01 2.2e-01 3.0e-01
##   theta[173]  1.7e-01  0.0396 1.0e-01 1.4e-01 1.7e-01 1.9e-01 2.6e-01
##   theta[174]  3.6e-01  0.0715 2.4e-01 3.1e-01 3.6e-01 4.1e-01 5.1e-01
##   theta[175]  6.5e-03  0.0096 1.9e-06 5.8e-04 2.9e-03 8.3e-03 3.2e-02
##   theta[176]  2.2e-01  0.0540 1.3e-01 1.9e-01 2.2e-01 2.6e-01 3.4e-01
##   theta[177]  4.9e-02  0.0314 7.1e-03 2.5e-02 4.2e-02 6.4e-02 1.3e-01
##   theta[178]  4.2e-01  0.0737 2.9e-01 3.6e-01 4.1e-01 4.6e-01 5.7e-01
##   theta[179]  3.5e-01  0.0692 2.2e-01 3.0e-01 3.5e-01 3.9e-01 5.0e-01
##   theta[180]  8.3e-03  0.0132 2.3e-06 4.3e-04 3.0e-03 1.0e-02 4.9e-02
##   theta[181]  5.3e-02  0.0205 2.1e-02 3.8e-02 5.1e-02 6.5e-02 9.8e-02
##   theta[182]  1.3e-01  0.0326 7.8e-02 1.1e-01 1.3e-01 1.6e-01 2.0e-01
##   theta[183]  2.7e-01  0.0662 1.6e-01 2.3e-01 2.7e-01 3.2e-01 4.2e-01
##   theta[184]  2.7e-01  0.0655 1.6e-01 2.3e-01 2.7e-01 3.1e-01 4.2e-01
##   theta[185]  2.3e-01  0.0557 1.3e-01 1.9e-01 2.3e-01 2.6e-01 3.6e-01
```

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##   theta[186]  1.7e-02  0.0244 1.4e-05 1.8e-03 8.5e-03 2.2e-02 8.6e-02
##   theta[187]  2.2e-02  0.0183 1.7e-03 9.0e-03 1.8e-02 3.0e-02 6.7e-02
##   theta[188]  7.8e-03  0.0119 4.5e-06 6.0e-04 3.2e-03 1.0e-02 4.1e-02
##   theta[189]  1.2e-02  0.0188 6.6e-06 9.0e-04 4.6e-03 1.6e-02 6.6e-02
##   theta[190]  5.5e-01  0.0875 3.9e-01 4.9e-01 5.4e-01 6.0e-01 7.3e-01
##   theta[191]  3.5e-01  0.0685 2.2e-01 3.0e-01 3.4e-01 3.9e-01 5.0e-01
##   theta[192]  2.4e-02  0.0334 1.4e-05 1.7e-03 1.0e-02 3.1e-02 1.2e-01
##   theta[193]  1.8e-01  0.0385 1.1e-01 1.5e-01 1.7e-01 2.0e-01 2.6e-01
##   theta[194]  9.9e-02  0.0487 2.7e-02 6.4e-02 9.1e-02 1.3e-01 2.1e-01
##   theta[195]  6.5e-02  0.0234 2.9e-02 4.8e-02 6.3e-02 7.9e-02 1.2e-01
##   theta[196]  1.1e-02  0.0160 4.9e-06 8.5e-04 4.5e-03 1.5e-02 5.7e-02
##   theta[197]  1.1e-02  0.0169 4.3e-06 9.5e-04 4.7e-03 1.4e-02 5.9e-02
##   theta[198]  8.9e-03  0.0140 2.3e-06 6.9e-04 3.6e-03 1.1e-02 5.0e-02
##   theta[199]  1.1e-02  0.0159 5.6e-06 7.4e-04 4.4e-03 1.4e-02 5.8e-02
##   theta[200]  8.4e-02  0.0396 2.5e-02 5.5e-02 7.9e-02 1.1e-01 1.8e-01
##   theta[201]  8.6e-02  0.0407 2.5e-02 5.6e-02 7.9e-02 1.1e-01 1.8e-01
##   theta[202]  8.1e-02  0.0449 1.9e-02 4.7e-02 7.2e-02 1.1e-01 1.9e-01
##   theta[203]  1.4e-02  0.0213 1.7e-06 6.5e-04 4.6e-03 1.7e-02 7.5e-02
##   theta[204]  1.6e-02  0.0233 7.6e-06 1.3e-03 6.7e-03 2.1e-02 7.9e-02
##   theta[205]  1.3e-02  0.0201 5.0e-06 8.3e-04 5.0e-03 1.7e-02 7.1e-02
##   theta[206]  7.6e-03  0.0111 4.5e-06 6.4e-04 3.4e-03 9.9e-03 3.8e-02
##   y_sim[1]    2.4e+01  6.9767 1.1e+01 2.0e+01 2.4e+01 2.9e+01 3.9e+01
##   y_sim[2]    1.3e+01  4.9679 4.0e+00 9.0e+00 1.2e+01 1.6e+01 2.4e+01
##   y_sim[3]    4.0e-01  0.8638 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[4]    7.1e+00  3.7657 1.0e+00 4.0e+00 6.0e+00 9.0e+00 1.6e+01
##   y_sim[5]    1.3e+00  1.5956 0.0e+00 0.0e+00 1.0e+00 2.0e+00 6.0e+00
##   y_sim[6]    1.4e+00  1.5700 0.0e+00 0.0e+00 1.0e+00 2.0e+00 5.0e+00
##   y_sim[7]    3.7e-01  0.7974 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[8]    3.9e-01  0.8311 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[9]    4.4e-01  0.8868 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[10]   4.1e-01  0.8352 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[11]   4.4e-01  0.9409 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[12]   4.1e-01  0.8810 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[13]   4.0e-01  0.8593 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[14]   3.8e-01  0.8285 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[15]   3.8e-01  0.8648 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[16]   1.7e+01  5.8859 8.0e+00 1.3e+01 1.7e+01 2.1e+01 3.1e+01
##   y_sim[17]   3.6e-01  0.7603 0.0e+00 0.0e+00 0.0e+00 0.0e+00 2.0e+00
##   y_sim[18]   1.3e+01  4.9891 4.5e+00 9.0e+00 1.2e+01 1.6e+01 2.4e+01
##   y_sim[19]   4.3e+00  2.8489 0.0e+00 2.0e+00 4.0e+00 6.0e+00 1.1e+01
##   y_sim[20]   1.7e+01  5.9742 7.0e+00 1.3e+01 1.7e+01 2.1e+01 3.0e+01
##   y_sim[21]   1.2e+01  4.7797 4.0e+00 9.0e+00 1.2e+01 1.5e+01 2.2e+01
##   y_sim[22]   1.3e+00  1.6143 0.0e+00 0.0e+00 1.0e+00 2.0e+00 6.0e+00
##   y_sim[23]   4.4e-01  0.9475 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[24]   4.0e+01  8.7073 2.4e+01 3.4e+01 4.0e+01 4.5e+01 5.9e+01
##   y_sim[25]   3.4e+00  2.5406 0.0e+00 1.0e+00 3.0e+00 5.0e+00 9.0e+00
##   y_sim[26]   3.9e-01  0.8255 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[27]   4.1e-01  0.8886 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[28]   4.3e+00  2.8627 0.0e+00 2.0e+00 4.0e+00 6.0e+00 1.1e+01
##   y_sim[29]   1.3e+01  4.8869 4.0e+00 9.0e+00 1.2e+01 1.6e+01 2.4e+01
##   y_sim[30]   3.3e+00  2.4696 0.0e+00 2.0e+00 3.0e+00 5.0e+00 9.0e+00
##   y_sim[31]   5.2e+00  3.3963 0.0e+00 3.0e+00 5.0e+00 7.0e+00 1.3e+01
##   y_sim[32]   7.2e+00  3.7855 1.0e+00 4.0e+00 7.0e+00 9.0e+00 1.6e+01
##   y_sim[33]   1.3e+00  1.5495 0.0e+00 0.0e+00 1.0e+00 2.0e+00 5.0e+00
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##   y_sim[34]   5.1e+00  3.2079 0.0e+00 3.0e+00 5.0e+00 7.0e+00 1.2e+01
##   y_sim[35]   1.4e+00  1.5683 0.0e+00 0.0e+00 1.0e+00 2.0e+00 5.0e+00
##   y_sim[36]   2.2e+01  6.7124 1.0e+01 1.8e+01 2.2e+01 2.7e+01 3.7e+01
##   y_sim[37]   4.5e-01  0.9421 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[38]   5.2e+00  3.1100 1.0e+00 3.0e+00 5.0e+00 7.0e+00 1.2e+01
##   y_sim[39]   9.1e+00  4.2139 2.0e+00 6.0e+00 9.0e+00 1.2e+01 1.9e+01
##   y_sim[40]   4.6e-01  0.9443 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[41]   2.2e+01  6.5573 1.1e+01 1.7e+01 2.1e+01 2.6e+01 3.5e+01
##   y_sim[42]   3.8e-01  0.8091 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[43]   4.3e-01  0.9080 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[44]   4.2e-01  0.9105 0.0e+00 0.0e+00 0.0e+00 2.5e-01 3.0e+00
##   y_sim[45]   9.0e+00  4.1958 2.0e+00 6.0e+00 9.0e+00 1.1e+01 1.9e+01
##   y_sim[46]   4.2e-01  0.9081 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[47]   3.3e+00  2.4875 0.0e+00 1.0e+00 3.0e+00 5.0e+00 9.0e+00
##   y_sim[48]   1.2e+01  4.6386 4.5e+00 9.0e+00 1.1e+01 1.5e+01 2.2e+01
##   y_sim[49]   4.2e+00  2.8545 0.0e+00 2.0e+00 4.0e+00 6.0e+00 1.1e+01
##   y_sim[50]   3.8e-01  0.8253 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[51]   6.2e+00  3.6298 1.0e+00 4.0e+00 6.0e+00 8.0e+00 1.5e+01
##   y_sim[52]   4.2e+00  2.6896 0.0e+00 2.0e+00 4.0e+00 6.0e+00 1.1e+01
##   y_sim[53]   4.0e-01  0.8334 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[54]   8.0e+00  4.0898 2.0e+00 5.0e+00 7.0e+00 1.0e+01 1.7e+01
##   y_sim[55]   1.4e+00  1.6254 0.0e+00 0.0e+00 1.0e+00 2.0e+00 6.0e+00
##   y_sim[56]   3.8e-01  0.8274 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[57]   3.6e-01  0.7923 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[58]   1.6e+01  5.3615 7.0e+00 1.2e+01 1.5e+01 1.9e+01 2.7e+01
##   y_sim[59]   4.0e-01  0.9365 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[60]   4.3e-01  0.9070 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[61]   4.5e-01  0.9486 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[62]   3.5e-01  0.8552 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[63]   3.6e-01  0.8318 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[64]   3.5e-01  0.7940 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[65]   2.1e+00  1.9817 0.0e+00 1.0e+00 2.0e+00 3.0e+00 7.0e+00
##   y_sim[66]   6.0e+00  3.4435 1.0e+00 4.0e+00 6.0e+00 8.0e+00 1.4e+01
##   y_sim[67]   2.8e+00  2.2765 0.0e+00 1.0e+00 2.0e+00 4.0e+00 9.0e+00
##   y_sim[68]   2.6e-01  0.6395 0.0e+00 0.0e+00 0.0e+00 0.0e+00 2.0e+00
##   y_sim[69]   3.6e-01  0.8026 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[70]   1.5e+01  5.3585 6.0e+00 1.1e+01 1.4e+01 1.8e+01 2.6e+01
##   y_sim[71]   1.3e+00  1.5735 0.0e+00 0.0e+00 1.0e+00 2.0e+00 5.0e+00
##   y_sim[72]   1.2e+01  4.7915 4.0e+00 8.0e+00 1.1e+01 1.5e+01 2.3e+01
##   y_sim[73]   1.2e+00  1.4289 0.0e+00 0.0e+00 1.0e+00 2.0e+00 5.0e+00
##   y_sim[74]   1.1e+01  4.5273 3.0e+00 8.0e+00 1.0e+01 1.4e+01 2.1e+01
##   y_sim[75]   3.9e+01  8.7889 2.4e+01 3.3e+01 3.9e+01 4.5e+01 5.7e+01
##   y_sim[76]   3.0e+00  2.3213 0.0e+00 1.0e+00 2.5e+00 4.0e+00 9.0e+00
##   y_sim[77]   3.1e+00  2.4088 0.0e+00 1.0e+00 3.0e+00 4.0e+00 9.0e+00
##   y_sim[78]   1.3e+00  1.6129 0.0e+00 0.0e+00 1.0e+00 2.0e+00 5.5e+00
##   y_sim[79]   1.2e+00  1.3813 0.0e+00 0.0e+00 1.0e+00 2.0e+00 5.0e+00
##   y_sim[80]   4.0e-01  0.8342 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[81]   2.0e+00  1.9146 0.0e+00 1.0e+00 2.0e+00 3.0e+00 7.0e+00
##   y_sim[82]   2.8e+00  2.3627 0.0e+00 1.0e+00 2.0e+00 4.0e+00 9.0e+00
##   y_sim[83]   2.8e+00  2.2512 0.0e+00 1.0e+00 2.0e+00 4.0e+00 8.0e+00
##   y_sim[84]   8.8e+00  4.2546 2.0e+00 6.0e+00 8.0e+00 1.1e+01 1.9e+01
##   y_sim[85]   4.5e-01  0.9570 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[86]   1.4e+00  1.5803 0.0e+00 0.0e+00 1.0e+00 2.0e+00 5.0e+00
##   y_sim[87]   4.5e-01  0.8944 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
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##   y_sim[88]   4.0e-01  0.8681 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[89]   3.7e-01  0.8156 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[90]   4.4e-01  0.9690 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[91]   2.2e+00  1.9679 0.0e+00 1.0e+00 2.0e+00 3.0e+00 7.0e+00
##   y_sim[92]   4.1e-01  0.8545 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[93]   4.1e-01  0.8923 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[94]   5.9e+00  3.2365 1.0e+00 3.0e+00 5.0e+00 8.0e+00 1.3e+01
##   y_sim[95]   1.3e+00  1.6702 0.0e+00 0.0e+00 1.0e+00 2.0e+00 5.5e+00
##   y_sim[96]   4.5e-01  0.9641 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[97]   1.4e+00  1.5926 0.0e+00 0.0e+00 1.0e+00 2.0e+00 5.5e+00
##   y_sim[98]   2.2e+00  2.0381 0.0e+00 1.0e+00 2.0e+00 3.0e+00 7.0e+00
##   y_sim[99]   3.2e+00  2.4997 0.0e+00 1.0e+00 3.0e+00 5.0e+00 9.0e+00
##   y_sim[100]  2.3e+00  2.1277 0.0e+00 1.0e+00 2.0e+00 3.0e+00 7.0e+00
##   y_sim[101]  4.2e-01  0.9014 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[102]  9.1e+00  4.1764 2.0e+00 6.0e+00 9.0e+00 1.2e+01 1.8e+01
##   y_sim[103]  7.6e+00  3.7539 2.0e+00 5.0e+00 7.0e+00 1.0e+01 1.6e+01
##   y_sim[104]  4.1e-01  0.8543 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[105]  4.4e-01  0.9388 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[106]  4.0e-01  0.8610 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[107]  5.9e+00  3.2216 1.0e+00 4.0e+00 5.0e+00 8.0e+00 1.3e+01
##   y_sim[108]  3.8e-01  0.8152 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[109]  3.1e+00  2.4394 0.0e+00 1.0e+00 3.0e+00 4.0e+00 9.0e+00
##   y_sim[110]  2.0e+01  5.9524 9.0e+00 1.5e+01 1.9e+01 2.4e+01 3.3e+01
##   y_sim[111]  3.2e+00  2.5046 0.0e+00 1.0e+00 3.0e+00 5.0e+00 9.0e+00
##   y_sim[112]  1.7e+01  5.7802 7.0e+00 1.3e+01 1.7e+01 2.0e+01 2.9e+01
##   y_sim[113]  1.0e+01  4.2927 3.0e+00 7.0e+00 1.0e+01 1.3e+01 2.0e+01
##   y_sim[114]  1.3e+00  1.5678 0.0e+00 0.0e+00 1.0e+00 2.0e+00 6.0e+00
##   y_sim[115]  2.2e+00  2.0020 0.0e+00 1.0e+00 2.0e+00 3.0e+00 7.0e+00
##   y_sim[116]  1.1e+01  4.7027 3.0e+00 8.0e+00 1.1e+01 1.4e+01 2.2e+01
##   y_sim[117]  5.9e+00  3.1693 1.0e+00 4.0e+00 5.5e+00 8.0e+00 1.3e+01
##   y_sim[118]  1.4e+01  5.3234 5.0e+00 1.0e+01 1.4e+01 1.8e+01 2.6e+01
##   y_sim[119]  1.3e+00  1.5716 0.0e+00 0.0e+00 1.0e+00 2.0e+00 5.0e+00
##   y_sim[120]  3.2e+01  8.0430 1.7e+01 2.6e+01 3.2e+01 3.7e+01 5.0e+01
##   y_sim[121]  3.7e+00  2.6121 0.0e+00 2.0e+00 3.0e+00 5.0e+00 1.0e+01
##   y_sim[122]  2.2e+01  6.3314 1.1e+01 1.7e+01 2.1e+01 2.6e+01 3.5e+01
##   y_sim[123]  1.4e+01  5.1498 5.0e+00 1.0e+01 1.3e+01 1.7e+01 2.5e+01
##   y_sim[124]  3.8e-01  0.8183 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[125]  1.2e+01  4.6953 4.0e+00 9.0e+00 1.2e+01 1.5e+01 2.2e+01
##   y_sim[126]  4.1e-01  0.9211 0.0e+00 0.0e+00 0.0e+00 2.5e-01 3.0e+00
##   y_sim[127]  8.9e+00  4.1395 2.0e+00 6.0e+00 9.0e+00 1.1e+01 1.8e+01
##   y_sim[128]  3.0e-01  0.7087 0.0e+00 0.0e+00 0.0e+00 0.0e+00 2.0e+00
##   y_sim[129]  3.2e-01  0.7435 0.0e+00 0.0e+00 0.0e+00 0.0e+00 2.0e+00
##   y_sim[130]  3.7e-01  0.8664 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[131]  3.8e-01  0.8990 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[132]  3.7e-01  0.7794 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[133]  3.9e-01  0.8657 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[134]  4.1e-01  0.9200 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[135]  4.1e-01  0.9326 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[136]  3.8e-01  0.8305 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[137]  4.1e-01  0.9236 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[138]  3.2e+00  2.3616 0.0e+00 1.0e+00 3.0e+00 5.0e+00 8.5e+00
##   y_sim[139]  1.1e+01  4.6670 4.0e+00 8.0e+00 1.1e+01 1.4e+01 2.2e+01
##   y_sim[140]  4.3e-01  0.8926 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[141]  6.0e+00  3.4343 1.0e+00 3.0e+00 6.0e+00 8.0e+00 1.4e+01
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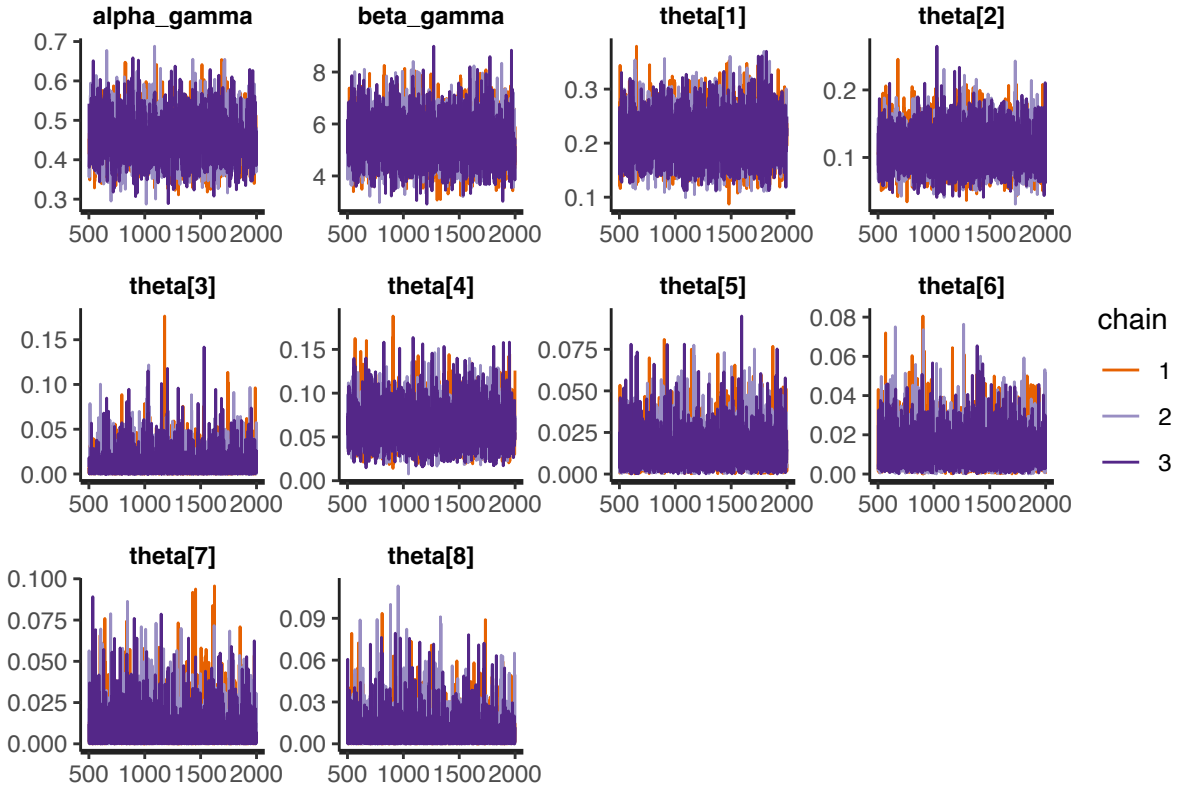
##   y_sim[142]  2.5e+01  6.5077 1.4e+01 2.1e+01 2.5e+01 2.9e+01 3.9e+01
##   y_sim[143]  1.1e+00  1.2731 0.0e+00 0.0e+00 1.0e+00 2.0e+00 4.0e+00
##   y_sim[144]  1.5e+01  5.5550 5.0e+00 1.1e+01 1.4e+01 1.8e+01 2.7e+01
##   y_sim[145]  3.6e+01  8.3633 2.1e+01 3.0e+01 3.5e+01 4.1e+01 5.3e+01
##   y_sim[146]  2.5e+01  6.9374 1.3e+01 2.0e+01 2.4e+01 2.9e+01 4.0e+01
##   y_sim[147]  9.9e+00  4.3851 3.0e+00 7.0e+00 1.0e+01 1.2e+01 2.0e+01
##   y_sim[148]  8.7e+00  4.0362 2.0e+00 6.0e+00 8.0e+00 1.1e+01 1.8e+01
##   y_sim[149]  9.7e+00  4.3426 3.0e+00 7.0e+00 9.0e+00 1.2e+01 1.9e+01
##   y_sim[150]  4.2e+00  2.9269 0.0e+00 2.0e+00 4.0e+00 6.0e+00 1.1e+01
##   y_sim[151]  1.7e+01  5.8012 7.0e+00 1.3e+01 1.7e+01 2.1e+01 3.0e+01
##   y_sim[152]  3.2e+00  2.4592 0.0e+00 1.0e+00 3.0e+00 4.0e+00 9.0e+00
##   y_sim[153]  1.1e+01  4.6191 3.5e+00 8.0e+00 1.1e+01 1.4e+01 2.2e+01
##   y_sim[154]  1.2e+00  1.4531 0.0e+00 0.0e+00 1.0e+00 2.0e+00 5.0e+00
##   y_sim[155]  2.3e+00  2.1945 0.0e+00 1.0e+00 2.0e+00 3.0e+00 8.0e+00
##   y_sim[156]  4.2e-01  0.8698 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[157]  1.3e+00  1.5475 0.0e+00 0.0e+00 1.0e+00 2.0e+00 5.0e+00
##   y_sim[158]  1.3e+00  1.5830 0.0e+00 0.0e+00 1.0e+00 2.0e+00 6.0e+00
##   y_sim[159]  4.3e+00  2.8123 0.0e+00 2.0e+00 4.0e+00 6.0e+00 1.1e+01
##   y_sim[160]  1.9e+01  6.2548 8.0e+00 1.5e+01 1.9e+01 2.4e+01 3.3e+01
##   y_sim[161]  3.9e-01  0.8403 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[162]  5.2e+00  3.1232 1.0e+00 3.0e+00 5.0e+00 7.0e+00 1.3e+01
##   y_sim[163]  3.9e-01  0.8595 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[164]  1.1e+00  1.4371 0.0e+00 0.0e+00 1.0e+00 2.0e+00 5.0e+00
##   y_sim[165]  3.9e-01  0.7874 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[166]  4.4e+01  9.2219 2.8e+01 3.8e+01 4.4e+01 5.0e+01 6.3e+01
##   y_sim[167]  4.1e-01  0.8144 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[168]  2.3e+00  2.0398 0.0e+00 1.0e+00 2.0e+00 3.0e+00 7.0e+00
##   y_sim[169]  3.2e+00  2.5632 0.0e+00 1.0e+00 3.0e+00 4.0e+00 1.0e+01
##   y_sim[170]  2.8e-01  0.6758 0.0e+00 0.0e+00 0.0e+00 0.0e+00 2.0e+00
##   y_sim[171]  4.1e+00  2.7339 0.0e+00 2.0e+00 4.0e+00 6.0e+00 1.1e+01
##   y_sim[172]  1.2e+01  4.9378 4.0e+00 9.0e+00 1.2e+01 1.5e+01 2.4e+01
##   y_sim[173]  2.0e+01  6.3110 9.0e+00 1.5e+01 1.9e+01 2.3e+01 3.4e+01
##   y_sim[174]  2.4e+01  6.8361 1.2e+01 2.0e+01 2.4e+01 2.9e+01 4.0e+01
##   y_sim[175]  4.3e-01  0.9175 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[176]  1.5e+01  5.4435 6.0e+00 1.1e+01 1.5e+01 1.9e+01 2.7e+01
##   y_sim[177]  2.1e+00  1.9784 0.0e+00 1.0e+00 2.0e+00 3.0e+00 7.0e+00
##   y_sim[178]  2.8e+01  7.1862 1.6e+01 2.3e+01 2.8e+01 3.3e+01 4.4e+01
##   y_sim[179]  2.4e+01  6.9719 1.1e+01 1.9e+01 2.3e+01 2.8e+01 3.9e+01
##   y_sim[180]  4.3e-01  0.9542 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[181]  6.2e+00  3.4741 1.0e+00 4.0e+00 6.0e+00 8.0e+00 1.4e+01
##   y_sim[182]  1.6e+01  5.4750 6.5e+00 1.2e+01 1.5e+01 1.9e+01 2.8e+01
##   y_sim[183]  1.7e+01  5.9606 7.0e+00 1.3e+01 1.7e+01 2.1e+01 3.0e+01
##   y_sim[184]  1.7e+01  5.8587 7.0e+00 1.3e+01 1.6e+01 2.0e+01 3.0e+01
##   y_sim[185]  1.4e+01  5.0999 6.0e+00 1.1e+01 1.4e+01 1.7e+01 2.6e+01
##   y_sim[186]  3.5e-01  0.8422 0.0e+00 0.0e+00 0.0e+00 0.0e+00 2.0e+00
##   y_sim[187]  1.3e+00  1.6185 0.0e+00 0.0e+00 1.0e+00 2.0e+00 6.0e+00
##   y_sim[188]  4.0e-01  0.8755 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[189]  4.1e-01  0.8965 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[190]  3.8e+01  8.2873 2.3e+01 3.2e+01 3.7e+01 4.3e+01 5.5e+01
##   y_sim[191]  2.5e+01  6.9076 1.2e+01 2.0e+01 2.4e+01 2.9e+01 3.9e+01
##   y_sim[192]  3.3e-01  0.7276 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[193]  2.1e+01  6.3169 9.0e+00 1.6e+01 2.0e+01 2.5e+01 3.4e+01
##   y_sim[194]  4.0e+00  2.7369 0.0e+00 2.0e+00 3.0e+00 5.2e+00 1.0e+01
##   y_sim[195]  7.2e+00  3.7156 1.0e+00 4.0e+00 7.0e+00 9.0e+00 1.5e+01
```

```
##   y_sim[196]  3.9e-01  0.8179 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[197]  3.9e-01  0.8220 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[198]  4.0e-01  0.8889 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[199]  4.2e-01  0.8630 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   y_sim[200]  4.0e+00  2.6806 0.0e+00 2.0e+00 4.0e+00 5.0e+00 1.0e+01
##   y_sim[201]  4.0e+00  2.7305 0.0e+00 2.0e+00 3.0e+00 5.0e+00 1.0e+01
##   y_sim[202]  3.1e+00  2.4013 0.0e+00 1.0e+00 3.0e+00 4.0e+00 9.0e+00
##   y_sim[203]  4.0e-01  0.9430 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[204]  3.4e-01  0.7416 0.0e+00 0.0e+00 0.0e+00 0.0e+00 2.0e+00
##   y_sim[205]  3.9e-01  0.8344 0.0e+00 0.0e+00 0.0e+00 0.0e+00 3.0e+00
##   y_sim[206]  4.1e-01  0.8849 0.0e+00 0.0e+00 0.0e+00 1.0e+00 3.0e+00
##   lp__        1.7e+03 14.3285 1.6e+03 1.7e+03 1.7e+03 1.7e+03 1.7e+03
```

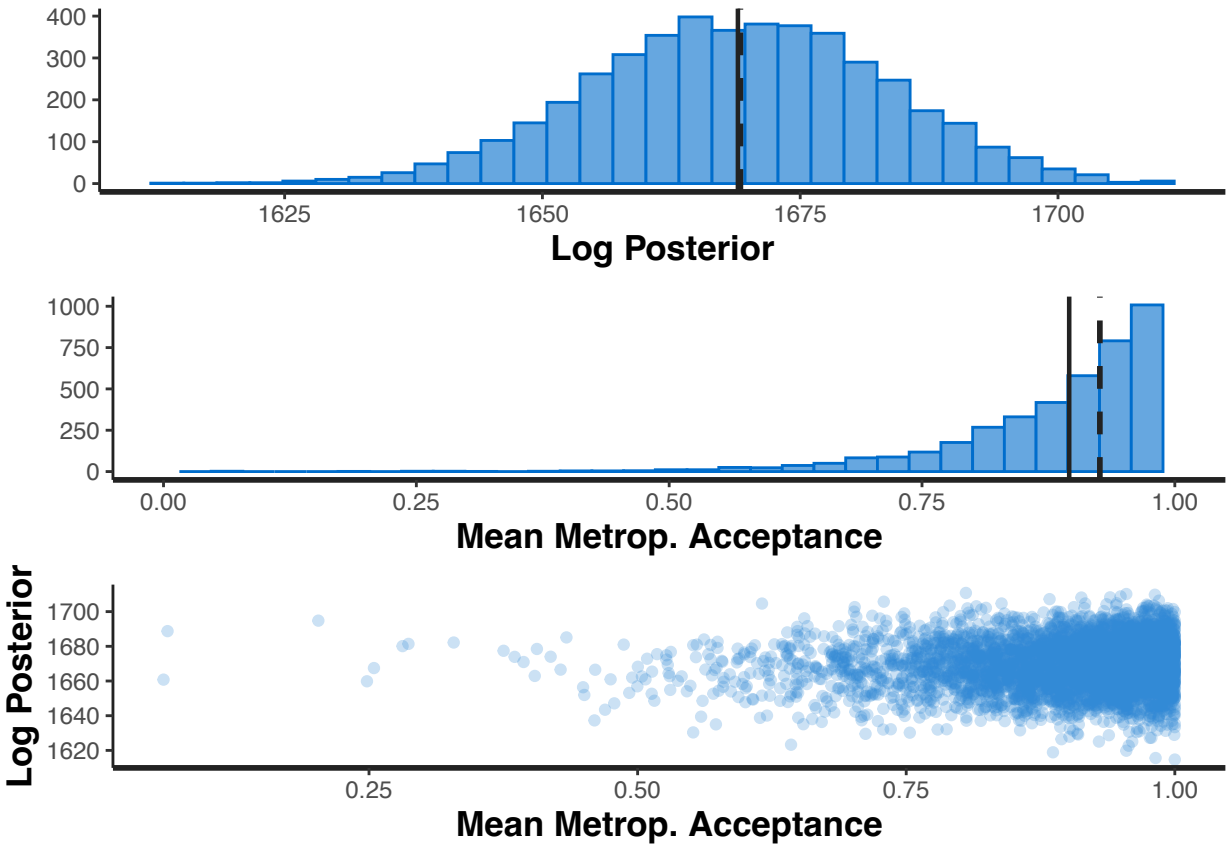
```
stan_trace(fit)
```

```
## 'pars' not specified. Showing first 10 parameters by default.
```




```
rstan::stan_diag(fit)
```

```
## Warning: Removed 2 rows containing missing values or values outside the scale range
## (`geom_bar()`).
```




```
# Check effective sample size and R-hat values
print(fit, probs = c(0.025, 0.975))
```

```
## Inference for Stan model: anon_model.
## 3 chains, each with iter=2000; warmup=500; thin=1;
## post-warmup draws per chain=1500, total post-warmup draws=4500.
##
##                mean se_mean    sd    2.5%   97.5% n_eff Rhat
## alpha_gamma    0.45    0.00  0.06    0.35    0.57  1245    1
## beta_gamma     5.36    0.02  0.88    3.81    7.25  2047    1
## theta[1]       0.21    0.00  0.04    0.13    0.30  8851    1
## theta[2]       0.11    0.00  0.03    0.06    0.18 10616    1
## theta[3]       0.01    0.00  0.01    0.00    0.05  5244    1
## theta[4]       0.06    0.00  0.02    0.02    0.12  7584    1
## theta[5]       0.01    0.00  0.01    0.00    0.05  7257    1
## theta[6]       0.01    0.00  0.01    0.00    0.04  7282    1
## theta[7]       0.01    0.00  0.01    0.00    0.04  6098    1
## theta[8]       0.01    0.00  0.01    0.00    0.04  5819    1
## theta[9]       0.01    0.00  0.01    0.00    0.04  5553    1
## theta[10]      0.01    0.00  0.02    0.00    0.06  6490    1
## theta[11]      0.01    0.00  0.01    0.00    0.05  6037    1
## theta[12]      0.01    0.00  0.02    0.00    0.06  5399    1
## theta[13]      0.01    0.00  0.02    0.00    0.06  5842    1
## theta[14]      0.01    0.00  0.02    0.00    0.06  5614    1
## theta[15]      0.01    0.00  0.02    0.00    0.06  5614    1
## theta[16]      0.15    0.00  0.03    0.09    0.23 10073    1
```

```
## theta[17]      0.01    0.00  0.02    0.00    0.06  5344    1
## theta[18]      0.11    0.00  0.03    0.06    0.17  9015    1
## theta[19]      0.04    0.00  0.02    0.01    0.08  9418    1
## theta[20]      0.15    0.00  0.04    0.09    0.23 10637    1
## theta[21]      0.10    0.00  0.03    0.05    0.17  9691    1
## theta[22]      0.01    0.00  0.01    0.00    0.04  8910    1
## theta[23]      0.00    0.00  0.01    0.00    0.02  5886    1
## theta[24]      0.34    0.00  0.05    0.25    0.45  9514    1
## theta[25]      0.03    0.00  0.01    0.01    0.06  6692    1
## theta[26]      0.01    0.00  0.01    0.00    0.04  5065    1
## theta[27]      0.01    0.00  0.01    0.00    0.05  5606    1
## theta[28]      0.04    0.00  0.02    0.01    0.08  7750    1
## theta[29]      0.11    0.00  0.03    0.06    0.18  9333    1
## theta[30]      0.03    0.00  0.01    0.01    0.06  7520    1
## theta[31]      0.04    0.00  0.02    0.02    0.09  9375    1
## theta[32]      0.06    0.00  0.02    0.03    0.11  8837    1
## theta[33]      0.01    0.00  0.01    0.00    0.04  6724    1
## theta[34]      0.04    0.00  0.02    0.02    0.09  9440    1
## theta[35]      0.01    0.00  0.01    0.00    0.04  7131    1
## theta[36]      0.19    0.00  0.04    0.12    0.28 10116    1
## theta[37]      0.00    0.00  0.01    0.00    0.02  5538    1
## theta[38]      0.04    0.00  0.02    0.02    0.09  8238    1
## theta[39]      0.08    0.00  0.02    0.04    0.13  9041    1
## theta[40]      0.00    0.00  0.01    0.00    0.02  5459    1
## theta[41]      0.19    0.00  0.04    0.12    0.27 10284    1
## theta[42]      0.01    0.00  0.01    0.00    0.03  5887    1
## theta[43]      0.01    0.00  0.01    0.00    0.03  6195    1
## theta[44]      0.00    0.00  0.01    0.00    0.02  5532    1
## theta[45]      0.08    0.00  0.03    0.04    0.14  8880    1
## theta[46]      0.01    0.00  0.01    0.00    0.03  5593    1
## theta[47]      0.03    0.00  0.01    0.01    0.06  9376    1
## theta[48]      0.26    0.00  0.07    0.14    0.41  8568    1
## theta[49]      0.06    0.00  0.03    0.02    0.13  9303    1
## theta[50]      0.01    0.00  0.01    0.00    0.05  5754    1
## theta[51]      0.06    0.00  0.02    0.02    0.12  9066    1
## theta[52]      0.22    0.00  0.10    0.08    0.45  8942    1
## theta[53]      0.00    0.00  0.01    0.00    0.02  5720    1
## theta[54]      0.08    0.00  0.03    0.04    0.15  9245    1
## theta[55]      0.02    0.00  0.01    0.00    0.05  6281    1
## theta[56]      0.02    0.00  0.02    0.00    0.09  5736    1
## theta[57]      0.02    0.00  0.02    0.00    0.08  6215    1
## theta[58]      0.14    0.00  0.03    0.08    0.21  8599    1
## theta[59]      0.01    0.00  0.01    0.00    0.03  5879    1
## theta[60]      0.01    0.00  0.01    0.00    0.04  5773    1
## theta[61]      0.00    0.00  0.01    0.00    0.02  6422    1
## theta[62]      0.01    0.00  0.02    0.00    0.08  5712    1
## theta[63]      0.01    0.00  0.02    0.00    0.08  5349    1
## theta[64]      0.02    0.00  0.02    0.00    0.08  5362    1
## theta[65]      0.08    0.00  0.06    0.01    0.22  8939    1
## theta[66]      0.07    0.00  0.03    0.03    0.13  9770    1
## theta[67]      0.12    0.00  0.06    0.03    0.28  7627    1
## theta[68]      0.03    0.00  0.05    0.00    0.18  5453    1
## theta[69]      0.02    0.00  0.02    0.00    0.08  5423    1
## theta[70]      0.13    0.00  0.03    0.07    0.20  9549    1
```

```
## theta[71]      0.02    0.00  0.02    0.00    0.08  7153    1
## theta[72]      0.10    0.00  0.03    0.05    0.16  7464    1
## theta[73]      0.05    0.00  0.04    0.00    0.16  7387    1
## theta[74]      0.09    0.00  0.03    0.05    0.16  9430    1
## theta[75]      0.34    0.00  0.05    0.24    0.45 11392    1
## theta[76]      0.07    0.00  0.04    0.02    0.16  8448    1
## theta[77]      0.07    0.00  0.04    0.02    0.15  7245    1
## theta[78]      0.03    0.00  0.02    0.00    0.09  7250    1
## theta[79]      0.05    0.00  0.04    0.00    0.16  7688    1
## theta[80]      0.02    0.00  0.02    0.00    0.08  6393    1
## theta[81]      0.08    0.00  0.05    0.01    0.22  7998    1
## theta[82]      0.12    0.00  0.06    0.03    0.27  8114    1
## theta[83]      0.12    0.00  0.06    0.03    0.27  8538    1
## theta[84]      0.09    0.00  0.03    0.04    0.16  9117    1
## theta[85]      0.00    0.00  0.01    0.00    0.02  5353    1
## theta[86]      0.01    0.00  0.01    0.00    0.04  7653    1
## theta[87]      0.00    0.00  0.01    0.00    0.02  6173    1
## theta[88]      0.01    0.00  0.01    0.00    0.03  5634    1
## theta[89]      0.01    0.00  0.02    0.00    0.05  6003    1
## theta[90]      0.01    0.00  0.02    0.00    0.06  5792    1
## theta[91]      0.05    0.00  0.03    0.01    0.14  7227    1
## theta[92]      0.01    0.00  0.01    0.00    0.04  5999    1
## theta[93]      0.01    0.00  0.01    0.00    0.04  5478    1
## theta[94]      0.11    0.00  0.04    0.04    0.20  7452    1
## theta[95]      0.02    0.00  0.02    0.00    0.08  7186    1
## theta[96]      0.01    0.00  0.01    0.00    0.04  5249    1
## theta[97]      0.02    0.00  0.02    0.00    0.08  6852    1
## theta[98]      0.04    0.00  0.03    0.01    0.11  6653    1
## theta[99]      0.06    0.00  0.03    0.01    0.13  8714    1
## theta[100]     0.04    0.00  0.03    0.01    0.10  8597    1
## theta[101]     0.01    0.00  0.01    0.00    0.04  5935    1
## theta[102]     0.08    0.00  0.03    0.04    0.13  8642    1
## theta[103]     0.14    0.00  0.05    0.06    0.25  8609    1
## theta[104]     0.01    0.00  0.01    0.00    0.04  6188    1
## theta[105]     0.01    0.00  0.01    0.00    0.04  6126    1
## theta[106]     0.01    0.00  0.01    0.00    0.04  6782    1
## theta[107]     0.11    0.00  0.04    0.04    0.20  9429    1
## theta[108]     0.01    0.00  0.01    0.00    0.04  6291    1
## theta[109]     0.06    0.00  0.03    0.01    0.13  8317    1
## theta[110]     0.36    0.00  0.08    0.22    0.53  8936    1
## theta[111]     0.06    0.00  0.03    0.01    0.13  8586    1
## theta[112]     0.30    0.00  0.07    0.18    0.46  9640    1
## theta[113]     0.20    0.00  0.06    0.10    0.33  8237    1
## theta[114]     0.03    0.00  0.02    0.00    0.08  7185    1
## theta[115]     0.04    0.00  0.03    0.01    0.10  9369    1
## theta[116]     0.21    0.00  0.06    0.11    0.35  9276    1
## theta[117]     0.11    0.00  0.04    0.04    0.20  7720    1
## theta[118]     0.26    0.00  0.07    0.14    0.41  9176    1
## theta[119]     0.03    0.00  0.03    0.00    0.10  8277    1
## theta[120]     0.28    0.00  0.05    0.19    0.38 10420    1
## theta[121]     0.16    0.00  0.08    0.05    0.33  8667    1
## theta[122]     0.54    0.00  0.11    0.34    0.78 10734    1
## theta[123]     0.33    0.00  0.09    0.19    0.52 10206    1
## theta[124]     0.01    0.00  0.01    0.00    0.04  5607    1
```

```
## theta[125]     0.24    0.00  0.06    0.14    0.38  9939    1
## theta[126]     0.01    0.00  0.01    0.00    0.04  5870    1
## theta[127]     0.08    0.00  0.03    0.04    0.14  9984    1
## theta[128]     0.03    0.00  0.04    0.00    0.15  5858    1
## theta[129]     0.03    0.00  0.04    0.00    0.15  6211    1
## theta[130]     0.01    0.00  0.02    0.00    0.08  5842    1
## theta[131]     0.01    0.00  0.01    0.00    0.04  5457    1
## theta[132]     0.01    0.00  0.01    0.00    0.04  5392    1
## theta[133]     0.01    0.00  0.01    0.00    0.05  5588    1
## theta[134]     0.01    0.00  0.01    0.00    0.04  5754    1
## theta[135]     0.01    0.00  0.02    0.00    0.06  5327    1
## theta[136]     0.01    0.00  0.01    0.00    0.05  6126    1
## theta[137]     0.01    0.00  0.02    0.00    0.05  5464    1
## theta[138]     0.05    0.00  0.02    0.01    0.11  8017    1
## theta[139]     0.21    0.00  0.06    0.11    0.35  8594    1
## theta[140]     0.01    0.00  0.01    0.00    0.04  5650    1
## theta[141]     0.09    0.00  0.04    0.04    0.18  7704    1
## theta[142]     0.42    0.00  0.08    0.28    0.59  8946    1
## theta[143]     0.26    0.00  0.17    0.04    0.70  7212    1
## theta[144]     0.13    0.00  0.03    0.07    0.20  8725    1
## theta[145]     0.31    0.00  0.05    0.22    0.42  8297    1
## theta[146]     0.30    0.00  0.06    0.19    0.42  9691    1
## theta[147]     0.11    0.00  0.03    0.05    0.18  9273    1
## theta[148]     0.13    0.00  0.04    0.06    0.22 10122    1
## theta[149]     0.14    0.00  0.04    0.07    0.23  8684    1
## theta[150]     0.06    0.00  0.03    0.02    0.12  6621    1
## theta[151]     0.25    0.00  0.06    0.15    0.38 10030    1
## theta[152]     0.04    0.00  0.02    0.01    0.09  7551    1
## theta[153]     0.11    0.00  0.03    0.06    0.19  9913    1
## theta[154]     0.05    0.00  0.04    0.00    0.16  6443    1
## theta[155]     0.04    0.00  0.03    0.01    0.10  8305    1
## theta[156]     0.01    0.00  0.01    0.00    0.05  6099    1
## theta[157]     0.03    0.00  0.02    0.00    0.09  7426    1
## theta[158]     0.03    0.00  0.02    0.00    0.09  8186    1
## theta[159]     0.04    0.00  0.02    0.01    0.08  9685    1
## theta[160]     0.20    0.00  0.04    0.12    0.29  9296    1
## theta[161]     0.02    0.00  0.02    0.00    0.08  5682    1
## theta[162]     0.22    0.00  0.08    0.08    0.42  7337    1
## theta[163]     0.02    0.00  0.02    0.00    0.09  6047    1
## theta[164]     0.05    0.00  0.04    0.00    0.15  6524    1
## theta[165]     0.02    0.00  0.02    0.00    0.08  5339    1
## theta[166]     0.38    0.00  0.06    0.28    0.50  7659    1
## theta[167]     0.01    0.00  0.02    0.00    0.06  6369    1
## theta[168]     0.02    0.00  0.02    0.00    0.06  8323    1
## theta[169]     0.05    0.00  0.03    0.01    0.11  8456    1
## theta[170]     0.03    0.00  0.04    0.00    0.15  4925    1
## theta[171]     0.06    0.00  0.03    0.02    0.13  8162    1
## theta[172]     0.19    0.00  0.05    0.10    0.30  8438    1
## theta[173]     0.17    0.00  0.04    0.10    0.25  8840    1
## theta[174]     0.36    0.00  0.07    0.24    0.51  8041    1
## theta[175]     0.01    0.00  0.01    0.00    0.03  5584    1
## theta[176]     0.22    0.00  0.05    0.13    0.34  8490    1
## theta[177]     0.05    0.00  0.03    0.01    0.13  7562    1
## theta[178]     0.42    0.00  0.08    0.28    0.58 11339    1
```

```
## theta[179]     0.35    0.00  0.07    0.22    0.49  7307    1
## theta[180]     0.01    0.00  0.01    0.00    0.05  5742    1
## theta[181]     0.05    0.00  0.02    0.02    0.10  8018    1
## theta[182]     0.13    0.00  0.03    0.08    0.21 10085    1
## theta[183]     0.28    0.00  0.07    0.16    0.42  8039    1
## theta[184]     0.27    0.00  0.06    0.16    0.41  9462    1
## theta[185]     0.23    0.00  0.06    0.13    0.35  9592    1
## theta[186]     0.02    0.00  0.03    0.00    0.09  5346    1
## theta[187]     0.02    0.00  0.02    0.00    0.07  6571    1
## theta[188]     0.01    0.00  0.01    0.00    0.04  5857    1
## theta[189]     0.01    0.00  0.02    0.00    0.06  6050    1
## theta[190]     0.54    0.00  0.08    0.39    0.72  8254    1
## theta[191]     0.35    0.00  0.07    0.23    0.49  7992    1
## theta[192]     0.02    0.00  0.03    0.00    0.12  5072    1
## theta[193]     0.18    0.00  0.04    0.11    0.26 10241    1
## theta[194]     0.10    0.00  0.05    0.03    0.21  7216    1
## theta[195]     0.07    0.00  0.02    0.03    0.12  8002    1
## theta[196]     0.01    0.00  0.02    0.00    0.05  5511    1
## theta[197]     0.01    0.00  0.02    0.00    0.06  5019    1
## theta[198]     0.01    0.00  0.01    0.00    0.05  5871    1
## theta[199]     0.01    0.00  0.02    0.00    0.06  6205    1
## theta[200]     0.08    0.00  0.04    0.02    0.18  9005    1
## theta[201]     0.09    0.00  0.04    0.02    0.18  8103    1
## theta[202]     0.08    0.00  0.04    0.02    0.19  8707    1
## theta[203]     0.01    0.00  0.02    0.00    0.07  6295    1
## theta[204]     0.02    0.00  0.02    0.00    0.09  5295    1
## theta[205]     0.01    0.00  0.02    0.00    0.07  5378    1
## theta[206]     0.01    0.00  0.01    0.00    0.04  6321    1
## y_sim[1]      24.33    0.09  7.04   12.00   39.00  5825    1
## y_sim[2]      12.90    0.06  4.99    4.00   24.00  6280    1
## y_sim[3]       0.40    0.01  0.86    0.00    3.00  5016    1
## y_sim[4]       7.06    0.05  3.71    1.00   16.00  5611    1
## y_sim[5]       1.38    0.02  1.67    0.00    6.00  4507    1
## y_sim[6]       1.38    0.02  1.66    0.00    6.00  5387    1
## y_sim[7]       0.41    0.01  0.85    0.00    3.00  5145    1
## y_sim[8]       0.41    0.01  0.88    0.00    3.00  5217    1
## y_sim[9]       0.40    0.01  0.86    0.00    3.00  5153    1
## y_sim[10]      0.39    0.01  0.84    0.00    3.00  5008    1
## y_sim[11]      0.40    0.01  0.88    0.00    3.00  5210    1
## y_sim[12]      0.40    0.01  0.88    0.00    3.00  4853    1
## y_sim[13]      0.40    0.01  0.87    0.00    3.00  4952    1
## y_sim[14]      0.39    0.01  0.85    0.00    3.00  4843    1
## y_sim[15]      0.37    0.01  0.84    0.00    3.00  5005    1
## y_sim[16]     17.64    0.07  5.83    8.00   30.00  6116    1
## y_sim[17]      0.39    0.01  0.83    0.00    3.00  4798    1
## y_sim[18]     12.86    0.06  5.08    5.00   24.00  6182    1
## y_sim[19]      4.22    0.04  2.80    0.00   11.00  6134    1
## y_sim[20]     17.61    0.08  5.88    7.00   30.00  6141    1
## y_sim[21]     11.93    0.06  4.83    4.00   23.00  5961    1
## y_sim[22]      1.34    0.02  1.59    0.00    6.00  5494    1
## y_sim[23]      0.43    0.01  0.94    0.00    3.00  5125    1
## y_sim[24]     39.72    0.11  8.84   24.00   58.00  6705    1
## y_sim[25]      3.36    0.03  2.55    0.00    9.00  6156    1
## y_sim[26]      0.40    0.01  0.89    0.00    3.00  4391    1
```

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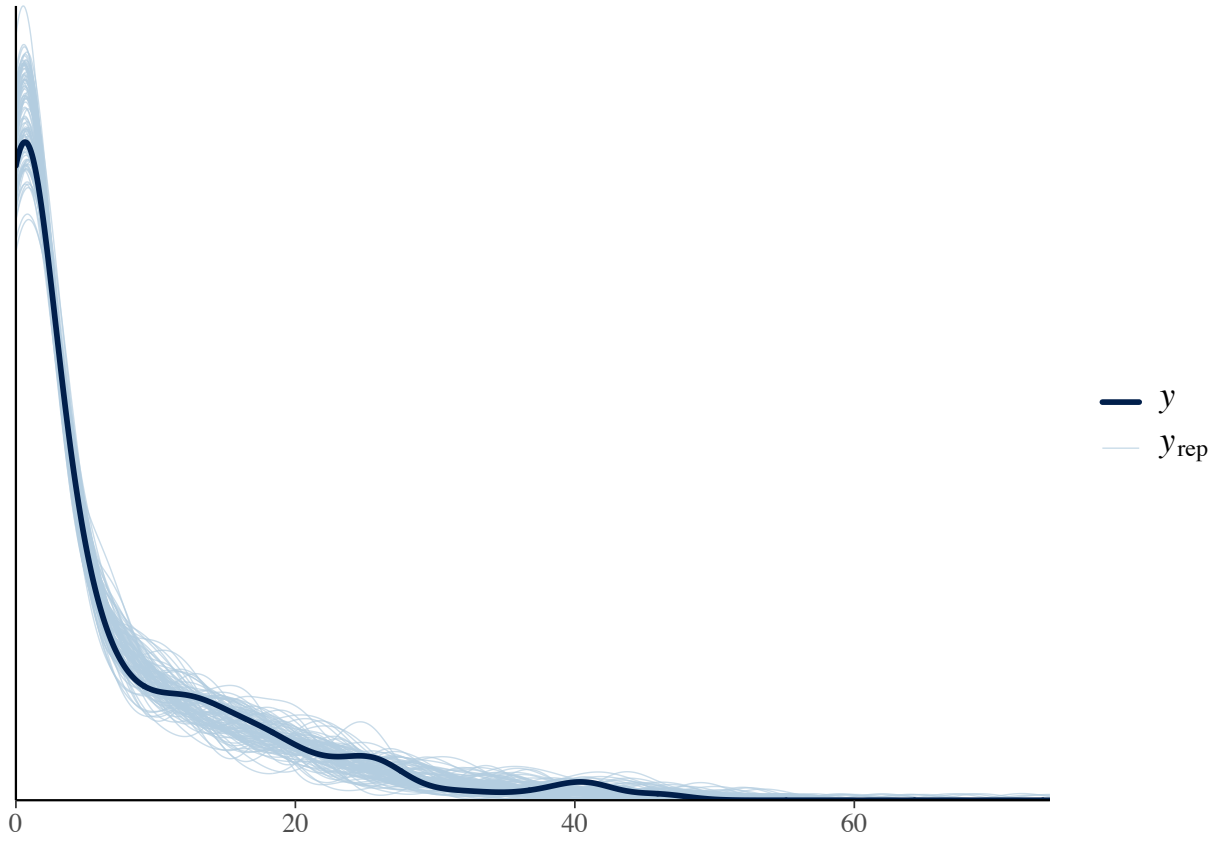
## y_sim[27]      0.40    0.01  0.86    0.00    3.00  5162    1
## y_sim[28]      4.26    0.04  2.81    0.00   11.00  5574    1
## y_sim[29]     12.68    0.06  4.93    4.00   24.00  5832    1
## y_sim[30]      3.28    0.03  2.48    0.00    9.00  5492    1
## y_sim[31]      5.21    0.04  3.33    1.00   13.00  6448    1
## y_sim[32]      7.11    0.05  3.69    1.00   16.00  5703    1
## y_sim[33]      1.37    0.02  1.62    0.00    6.00  5139    1
## y_sim[34]      5.18    0.04  3.20    1.00   13.00  6054    1
## y_sim[35]      1.38    0.02  1.63    0.00    6.00  5119    1
## y_sim[36]     22.34    0.08  6.61   11.00   36.52  6132    1
## y_sim[37]      0.43    0.01  0.89    0.00    3.00  4622    1
## y_sim[38]      5.23    0.04  3.22    0.00   13.00  5660    1
## y_sim[39]      9.00    0.05  4.18    2.00   19.00  6153    1
## y_sim[40]      0.43    0.01  0.93    0.00    3.00  4777    1
## y_sim[41]     21.51    0.08  6.41   10.00   35.00  6028    1
## y_sim[42]      0.41    0.01  0.87    0.00    3.00  5248    1
## y_sim[43]      0.41    0.01  0.85    0.00    3.00  4819    1
## y_sim[44]      0.40    0.01  0.88    0.00    3.00  5008    1
## y_sim[45]      9.07    0.05  4.29    2.00   19.00  6594    1
## y_sim[46]      0.42    0.01  0.90    0.00    3.00  4962    1
## y_sim[47]      3.28    0.03  2.51    0.00    9.00  6237    1
## y_sim[48]     12.09    0.06  4.74    4.00   23.00  6002    1
## y_sim[49]      4.15    0.04  2.88    0.00   11.00  6087    1
## y_sim[50]      0.41    0.01  0.87    0.00    3.00  4936    1
## y_sim[51]      6.14    0.05  3.49    1.00   14.00  5789    1
## y_sim[52]      4.26    0.04  2.73    0.00   11.00  5848    1
## y_sim[53]      0.42    0.01  0.88    0.00    3.00  4409    1
## y_sim[54]      8.05    0.05  4.00    2.00   17.00  5882    1
## y_sim[55]      1.35    0.02  1.62    0.00    6.00  5071    1
## y_sim[56]      0.37    0.01  0.83    0.00    3.00  5002    1
## y_sim[57]      0.37    0.01  0.82    0.00    3.00  5279    1
## y_sim[58]     15.76    0.07  5.47    7.00   28.00  5597    1
## y_sim[59]      0.40    0.01  0.88    0.00    3.00  4902    1
## y_sim[60]      0.42    0.01  0.90    0.00    3.00  5179    1
## y_sim[61]      0.43    0.01  0.91    0.00    3.00  5280    1
## y_sim[62]      0.36    0.01  0.84    0.00    3.00  4953    1
## y_sim[63]      0.38    0.01  0.85    0.00    3.00  4873    1
## y_sim[64]      0.38    0.01  0.85    0.00    3.00  5157    1
## y_sim[65]      2.04    0.03  1.95    0.00    7.00  5480    1
## y_sim[66]      6.11    0.04  3.43    1.00   14.00  5939    1
## y_sim[67]      2.81    0.03  2.31    0.00    9.00  5462    1
## y_sim[68]      0.28    0.01  0.68    0.00    2.00  4664    1
## y_sim[69]      0.36    0.01  0.80    0.00    3.00  5195    1
## y_sim[70]     14.84    0.07  5.38    6.00   27.00  6298    1
## y_sim[71]      1.28    0.02  1.55    0.00    5.00  5173    1
## y_sim[72]     11.89    0.06  4.82    4.00   23.00  5864    1
## y_sim[73]      1.22    0.02  1.53    0.00    5.00  5541    1
## y_sim[74]     10.93    0.06  4.66    3.00   21.00  5867    1
## y_sim[75]     39.49    0.11  8.76   24.00   57.00  6418    1
## y_sim[76]      3.10    0.03  2.48    0.00    9.00  5300    1
## y_sim[77]      3.09    0.03  2.39    0.00    9.00  5274    1
## y_sim[78]      1.31    0.02  1.58    0.00    6.00  5896    1
## y_sim[79]      1.18    0.02  1.44    0.00    5.00  5850    1
## y_sim[80]      0.38    0.01  0.82    0.00    3.00  5284    1
```

```
## y_sim[81]      2.04    0.03  1.93    0.00    7.00  4918    1
## y_sim[82]      2.79    0.03  2.29    0.00    8.00  5845    1
## y_sim[83]      2.81    0.03  2.30    0.00    8.00  5635    1
## y_sim[84]      8.98    0.06  4.22    2.00   19.00  5333    1
## y_sim[85]      0.45    0.01  0.93    0.00    3.00  4696    1
## y_sim[86]      1.37    0.02  1.61    0.00    5.00  5365    1
## y_sim[87]      0.44    0.01  0.90    0.00    3.00  5391    1
## y_sim[88]      0.40    0.01  0.89    0.00    3.00  5318    1
## y_sim[89]      0.39    0.01  0.87    0.00    3.00  4960    1
## y_sim[90]      0.43    0.01  0.94    0.00    3.00  4712    1
## y_sim[91]      2.15    0.03  2.02    0.00    7.00  5679    1
## y_sim[92]      0.41    0.01  0.84    0.00    3.00  5468    1
## y_sim[93]      0.41    0.01  0.87    0.00    3.00  4803    1
## y_sim[94]      5.88    0.05  3.38    1.00   14.00  5540    1
## y_sim[95]      1.33    0.02  1.61    0.00    6.00  5217    1
## y_sim[96]      0.43    0.01  0.93    0.00    3.00  5381    1
## y_sim[97]      1.34    0.02  1.62    0.00    5.00  5283    1
## y_sim[98]      2.20    0.03  2.01    0.00    7.00  5700    1
## y_sim[99]      3.18    0.03  2.48    0.00    9.00  5995    1
## y_sim[100]     2.25    0.03  2.10    0.00    7.52  6112    1
## y_sim[101]     0.42    0.01  0.89    0.00    3.00  4997    1
## y_sim[102]     9.06    0.05  4.12    2.00   18.00  6256    1
## y_sim[103]     7.64    0.05  3.84    2.00   17.00  5369    1
## y_sim[104]     0.42    0.01  0.86    0.00    3.00  5190    1
## y_sim[105]     0.43    0.01  0.92    0.00    3.00  5397    1
## y_sim[106]     0.41    0.01  0.87    0.00    3.00  5674    1
## y_sim[107]     5.94    0.04  3.29    1.00   13.00  5717    1
## y_sim[108]     0.41    0.01  0.86    0.00    3.00  5280    1
## y_sim[109]     3.14    0.03  2.45    0.00    9.00  5906    1
## y_sim[110]    19.71    0.08  6.15    9.00   33.00  6144    1
## y_sim[111]     3.13    0.03  2.44    0.00    9.00  5939    1
## y_sim[112]    16.91    0.07  5.75    7.00   30.00  6570    1
## y_sim[113]    10.33    0.06  4.36    3.00   20.00  5319    1
## y_sim[114]     1.32    0.02  1.55    0.00    5.00  5341    1
## y_sim[115]     2.20    0.03  2.01    0.00    7.00  6141    1
## y_sim[116]    11.35    0.06  4.67    4.00   22.00  6390    1
## y_sim[117]     5.88    0.05  3.31    1.00   13.00  4816    1
## y_sim[118]    14.20    0.06  5.32    5.00   26.00  6724    1
## y_sim[119]     1.29    0.02  1.57    0.00    5.00  5829    1
## y_sim[120]    31.99    0.10  7.92   18.00   49.00  6132    1
## y_sim[121]     3.65    0.03  2.62    0.00   10.00  6299    1
## y_sim[122]    21.62    0.08  6.47   10.48   35.00  5958    1
## y_sim[123]    13.65    0.06  5.12    5.00   25.00  6255    1
## y_sim[124]     0.40    0.01  0.87    0.00    3.00  4719    1
## y_sim[125]    12.08    0.06  4.70    4.00   23.00  5421    1
## y_sim[126]     0.41    0.01  0.90    0.00    3.00  4851    1
## y_sim[127]     8.94    0.05  4.18    2.00   18.00  5975    1
## y_sim[128]     0.30    0.01  0.70    0.00    2.00  5322    1
## y_sim[129]     0.30    0.01  0.70    0.00    2.00  4938    1
## y_sim[130]     0.38    0.01  0.84    0.00    3.00  4768    1
## y_sim[131]     0.39    0.01  0.86    0.00    3.00  4924    1
## y_sim[132]     0.41    0.01  0.87    0.00    3.00  5099    1
## y_sim[133]     0.38    0.01  0.85    0.00    3.00  5114    1
## y_sim[134]     0.42    0.01  0.90    0.00    3.00  4846    1
```

```
## y_sim[135]     0.43    0.01  0.95    0.00    3.00  4553    1
## y_sim[136]     0.41    0.01  0.88    0.00    3.00  5141    1
## y_sim[137]     0.40    0.01  0.88    0.00    3.00  4865    1
## y_sim[138]     3.19    0.03  2.41    0.00    9.00  5772    1
## y_sim[139]    11.34    0.06  4.74    4.00   22.00  5680    1
## y_sim[140]     0.41    0.01  0.85    0.00    3.00  4996    1
## y_sim[141]     5.93    0.05  3.41    1.00   14.00  5441    1
## y_sim[142]    25.22    0.09  6.75   14.00   39.00  5934    1
## y_sim[143]     1.07    0.02  1.24    0.00    4.00  5027    1
## y_sim[144]    14.75    0.07  5.39    6.00   26.00  5501    1
## y_sim[145]    35.80    0.11  8.42   21.00   53.00  6016    1
## y_sim[146]    24.90    0.09  7.15   12.00   41.00  6430    1
## y_sim[147]     9.85    0.05  4.39    3.00   20.00  6558    1
## y_sim[148]     8.70    0.05  4.07    2.00   18.00  5801    1
## y_sim[149]     9.73    0.06  4.39    3.00   19.00  5369    1
## y_sim[150]     4.19    0.04  2.88    0.00   11.00  5343    1
## y_sim[151]    17.17    0.07  5.81    7.00   30.00  6170    1
## y_sim[152]     3.22    0.03  2.48    0.00    9.00  6343    1
## y_sim[153]    10.81    0.06  4.57    4.00   21.00  5926    1
## y_sim[154]     1.19    0.02  1.49    0.00    5.00  4582    1
## y_sim[155]     2.24    0.03  2.12    0.00    8.00  6026    1
## y_sim[156]     0.42    0.01  0.88    0.00    3.00  4929    1
## y_sim[157]     1.30    0.02  1.53    0.00    5.00  5548    1
## y_sim[158]     1.28    0.02  1.52    0.00    5.00  5815    1
## y_sim[159]     4.29    0.04  2.90    0.00   11.00  6345    1
## y_sim[160]    19.42    0.08  6.21    9.00   33.00  6291    1
## y_sim[161]     0.37    0.01  0.83    0.00    3.00  4871    1
## y_sim[162]     5.30    0.04  3.08    1.00   12.00  5412    1
## y_sim[163]     0.38    0.01  0.83    0.00    3.00  5204    1
## y_sim[164]     1.18    0.02  1.44    0.00    5.00  5143    1
## y_sim[165]     0.36    0.01  0.78    0.00    3.00  4887    1
## y_sim[166]    44.44    0.13  9.26   27.00   63.00  5427    1
## y_sim[167]     0.38    0.01  0.83    0.00    3.00  4931    1
## y_sim[168]     2.28    0.03  2.10    0.00    8.00  6309    1
## y_sim[169]     3.18    0.03  2.53    0.00    9.52  5965    1
## y_sim[170]     0.31    0.01  0.71    0.00    2.00  4591    1
## y_sim[171]     4.10    0.04  2.75    0.00   11.00  5817    1
## y_sim[172]    12.35    0.07  4.93    4.00   23.00  5565    1
## y_sim[173]    19.58    0.08  6.24    9.00   33.52  6217    1
## y_sim[174]    24.53    0.08  6.76   13.00   39.00  6373    1
## y_sim[175]     0.42    0.01  0.89    0.00    3.00  5246    1
## y_sim[176]    15.26    0.07  5.43    6.00   27.00  5444    1
## y_sim[177]     2.19    0.03  2.05    0.00    7.00  5593    1
## y_sim[178]    28.33    0.09  7.40   15.00   45.00  6892    1
## y_sim[179]    23.57    0.09  6.79   11.00   38.00  6234    1
## y_sim[180]     0.44    0.01  0.93    0.00    3.00  4452    1
## y_sim[181]     6.19    0.05  3.45    1.00   14.00  5048    1
## y_sim[182]    15.59    0.07  5.45    6.00   27.00  6499    1
## y_sim[183]    17.07    0.08  5.84    7.00   30.00  5187    1
## y_sim[184]    16.93    0.08  5.69    7.00   30.00  5739    1
## y_sim[185]    14.23    0.07  5.14    5.00   26.00  5702    1
## y_sim[186]     0.35    0.01  0.81    0.00    3.00  4928    1
## y_sim[187]     1.33    0.02  1.59    0.00    6.00  5143    1
## y_sim[188]     0.40    0.01  0.89    0.00    3.00  5014    1
```

```
## y_sim[189]     0.38    0.01  0.83    0.00    3.00  5115    1
## y_sim[190]    37.58    0.11  8.32   23.00   55.00  5753    1
## y_sim[191]    24.71    0.09  6.84   13.00   39.00  5487    1
## y_sim[192]     0.33    0.01  0.73    0.00    2.00  4510    1
## y_sim[193]    20.54    0.08  6.30    9.00   34.00  6611    1
## y_sim[194]     3.95    0.04  2.75    0.00   10.00  5320    1
## y_sim[195]     7.09    0.05  3.73    1.00   16.00  6747    1
## y_sim[196]     0.38    0.01  0.82    0.00    3.00  4938    1
## y_sim[197]     0.38    0.01  0.83    0.00    3.00  5306    1
## y_sim[198]     0.40    0.01  0.87    0.00    3.00  4703    1
## y_sim[199]     0.40    0.01  0.85    0.00    3.00  5038    1
## y_sim[200]     3.93    0.03  2.69    0.00   10.00  6151    1
## y_sim[201]     3.99    0.04  2.76    0.00   10.00  5083    1
## y_sim[202]     3.05    0.03  2.37    0.00    9.00  5786    1
## y_sim[203]     0.39    0.01  0.88    0.00    3.00  4888    1
## y_sim[204]     0.35    0.01  0.75    0.00    2.00  4615    1
## y_sim[205]     0.38    0.01  0.82    0.00    3.00  4704    1
## y_sim[206]     0.39    0.01  0.86    0.00    3.00  5125    1
## lp__        1668.96    0.49 14.11 1641.01 1695.83   838    1
##
## Samples were drawn using NUTS(diag_e) at Wed Dec  4 16:01:35 2024.
## For each parameter, n_eff is a crude measure of effective sample size,
## and Rhat is the potential scale reduction factor on split chains (at
## convergence, Rhat=1).
```

```
# Posterior predictive checks
y_sim <- extract(fit, pars = "y_sim")$y_sim
ppc_dens_overlay(y = country_data$y, yrep = y_sim[1:100, ])
```

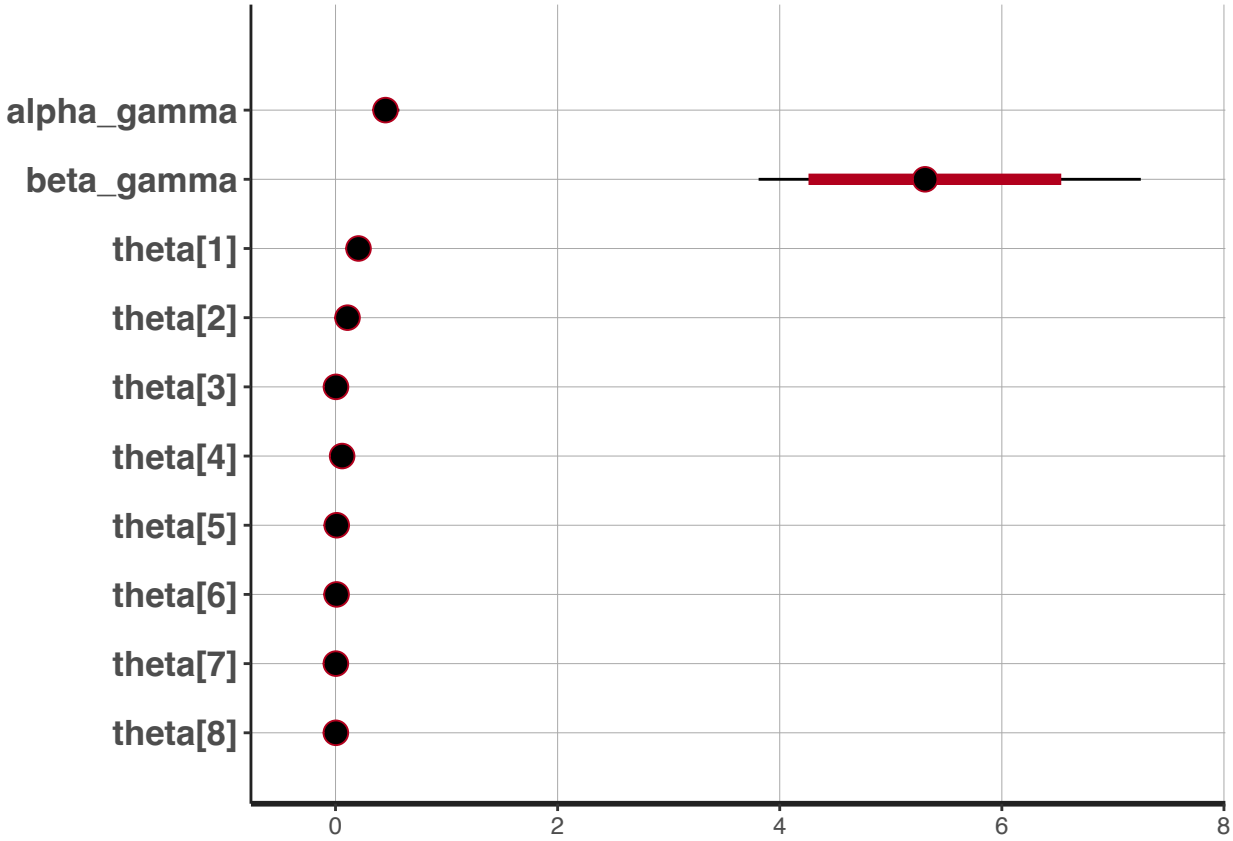



```
plot(fit)
```

```
## 'pars' not specified. Showing first 10 parameters by default.
```

```
## ci_level: 0.8 (80% intervals)
```

```
## outer_level: 0.95 (95% intervals)
```



Density of simulated (y_sim) and observed data (country_data$y) overlaps well, so the model seems to fit the data well. Rhat <1.01 and n_eff seem to be relatively large for all estimated thetas. Traceplots seem to show convergence with stable means, and fairly indistinct patterns.