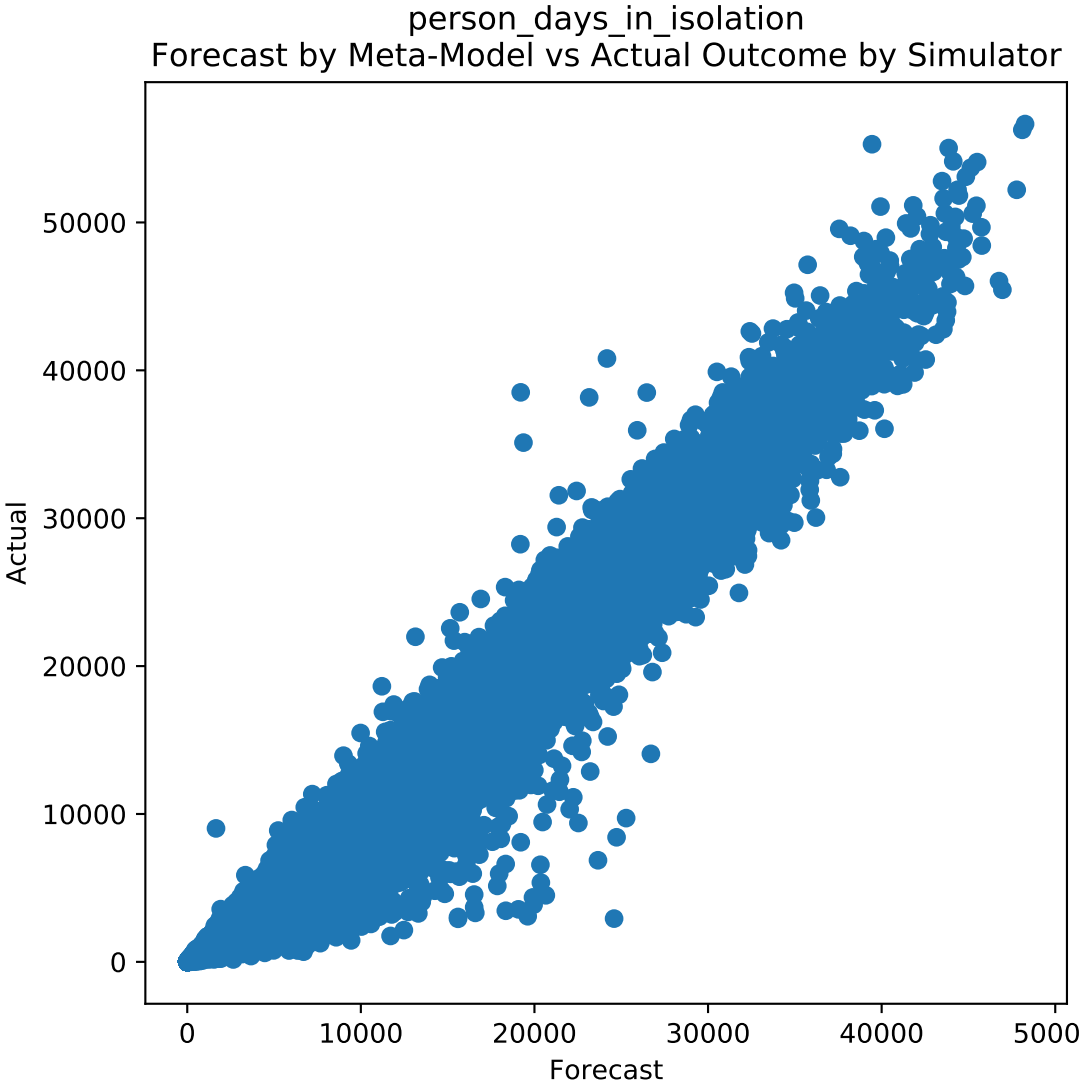
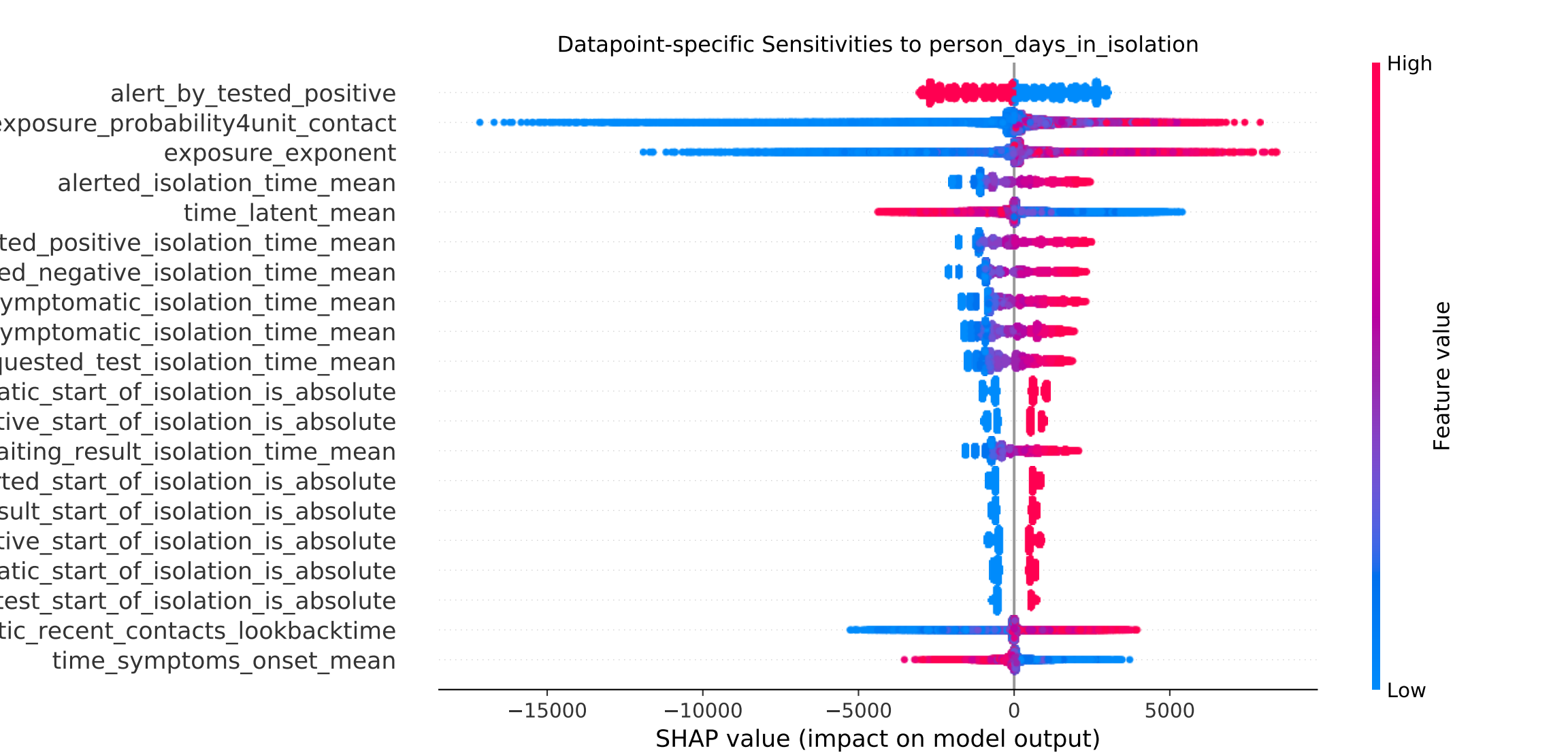
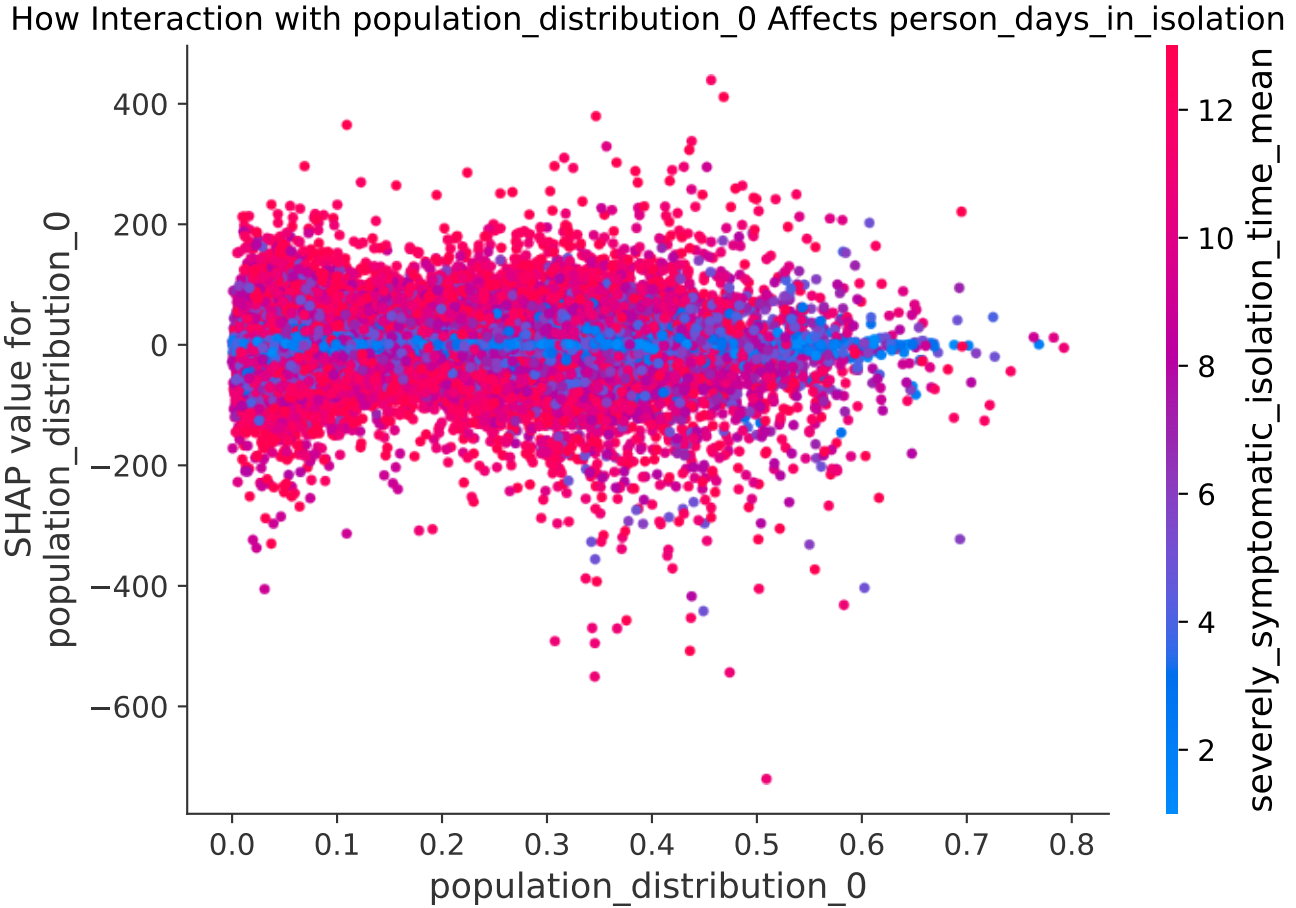
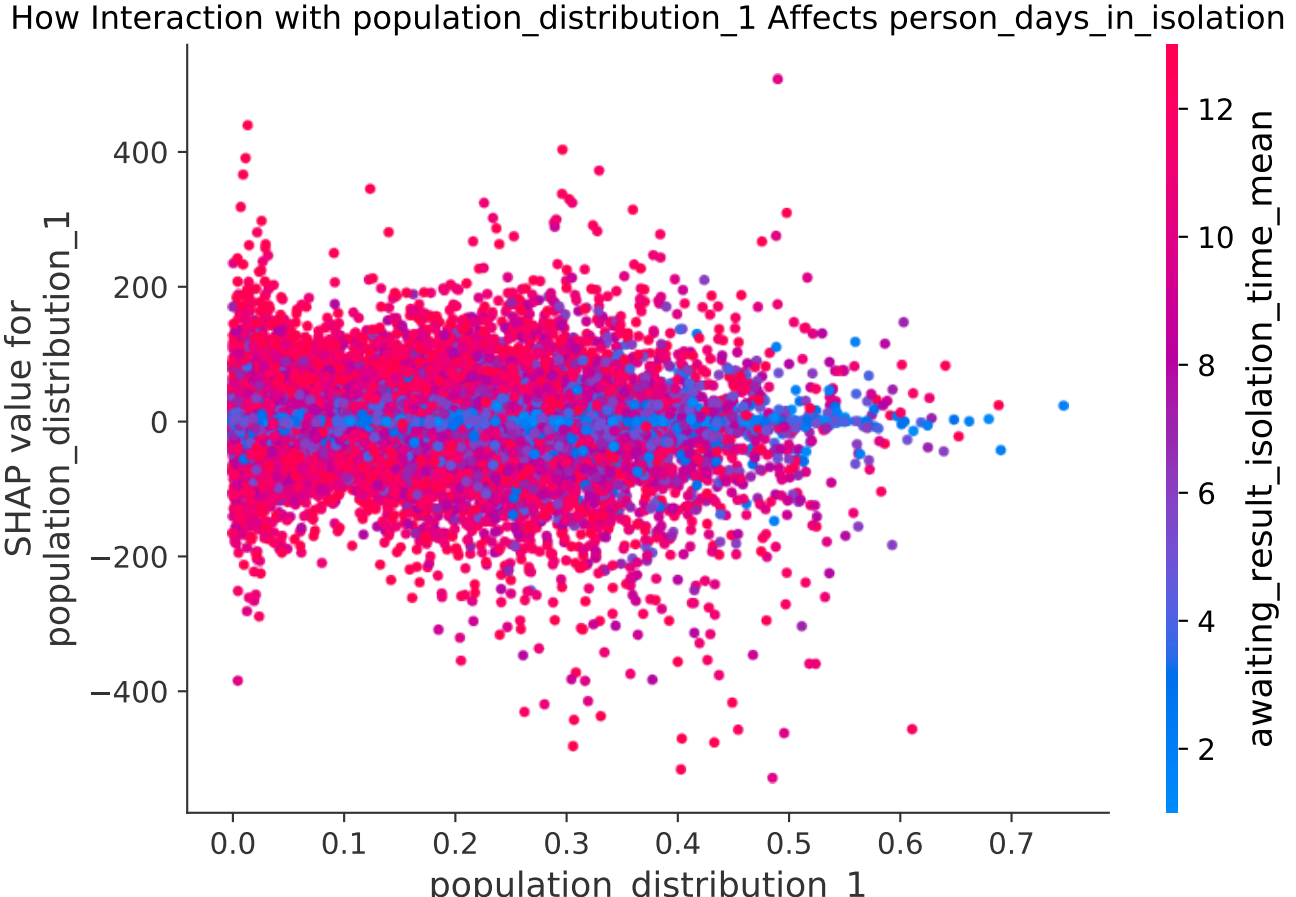
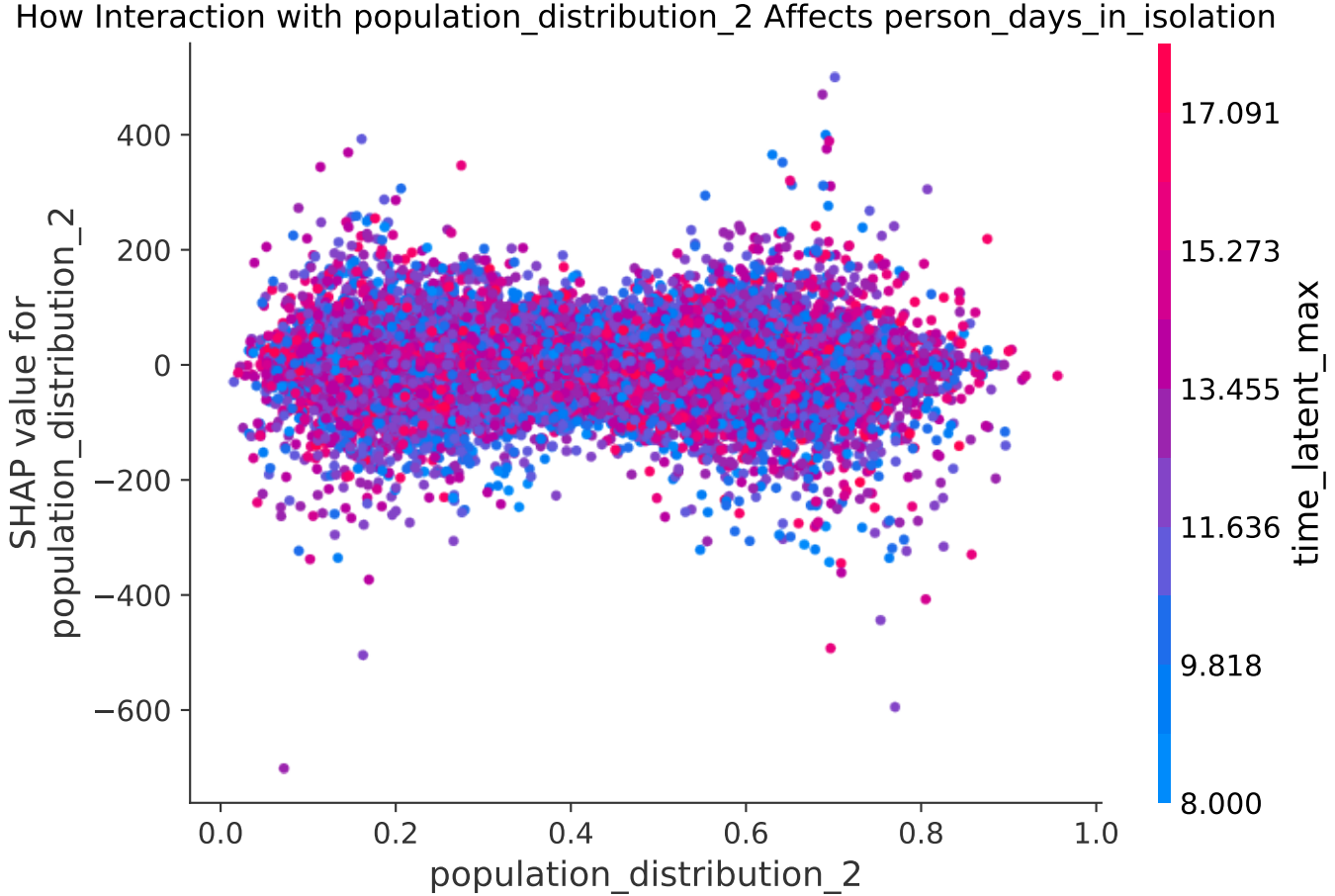
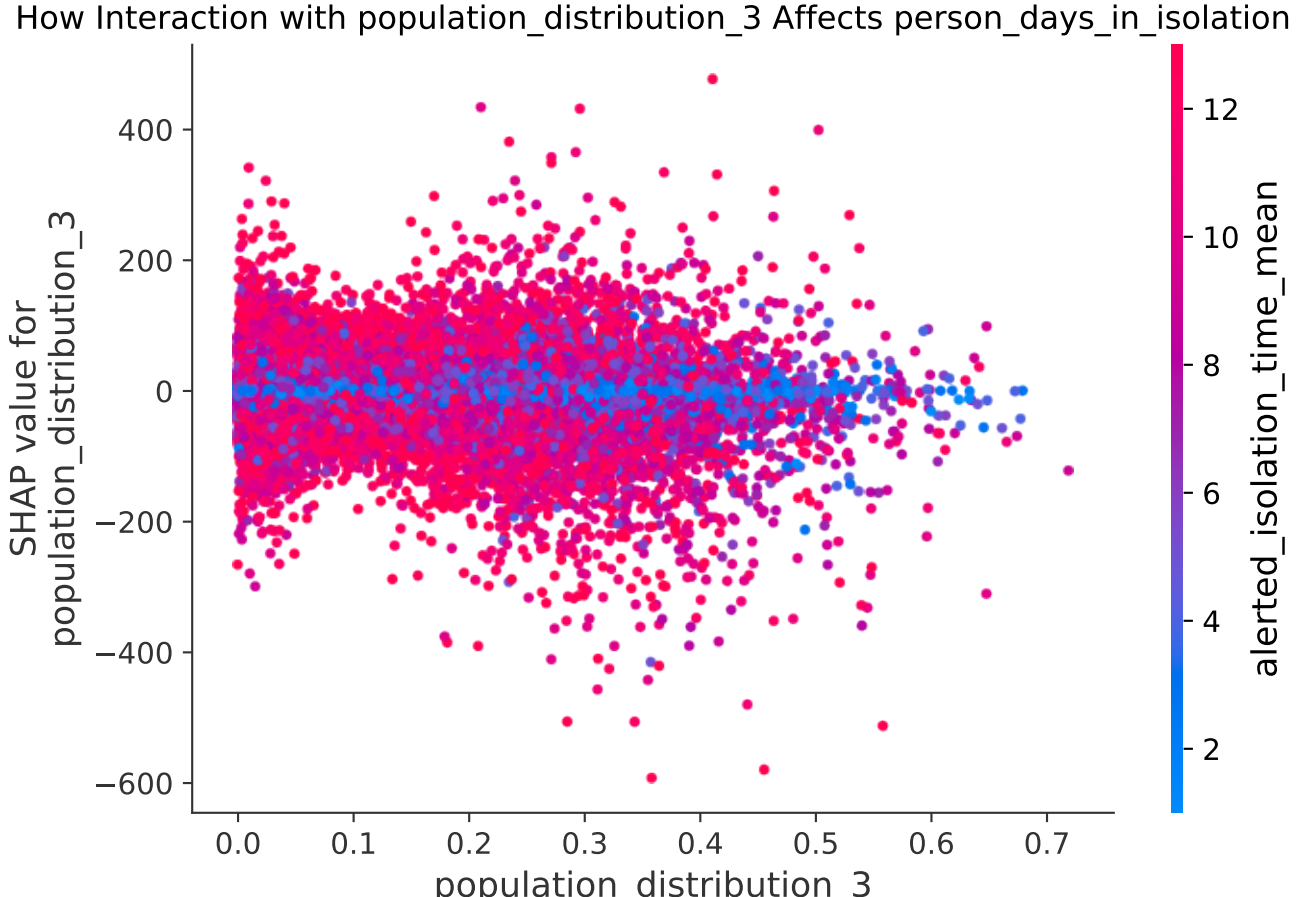

person_days_in_isolation
Forecast by Meta-Model vs Actual Outcome by Simulator
Actual
Forecast
0
10000
20000
30000
40000
50000

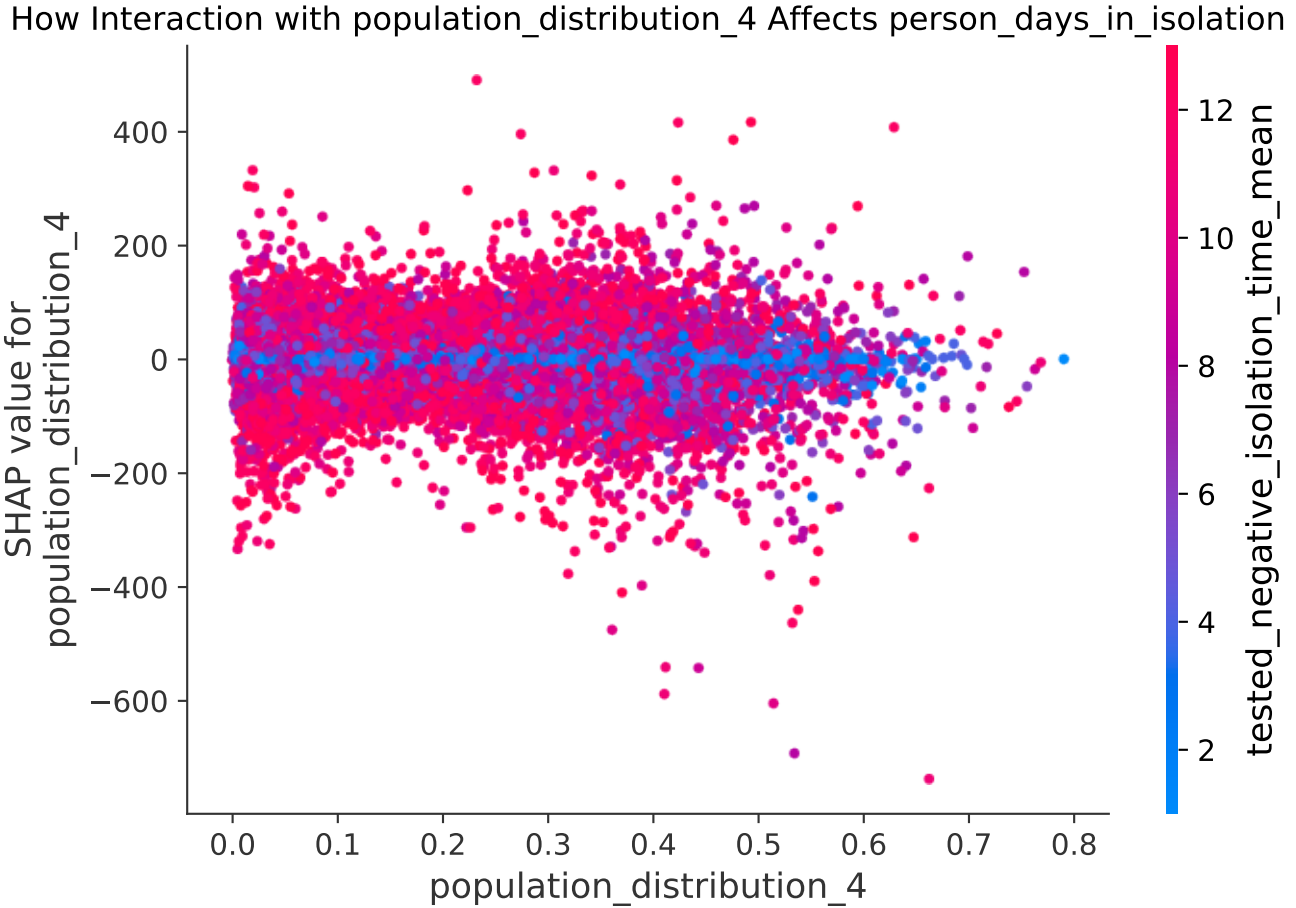

Datapoint-specific Sensitivities to person_days_in_isolation
alert_by_tested_positive
exposure_probability4unit_contact
exposure_exponent
alerted_isolation_time_mean
time_latent_mean
ted_positive_isolation_time_mean
ed_negative_isolation_time_mean
ymptomatic_isolation_time_mean
ymptomatic_isolation_time_mean
quested_test_isolation_time_mean
atic_start_of_isolation_is_absolute
tive_start_of_isolation_is_absolute
aiting_result_isolation_time_mean
rted_start_of_isolation_is_absolute
sult_start_of_isolation_is_absolute
tive_start_of_isolation_is_absolute
atic_start_of_isolation_is_absolute
test_start_of_isolation_is_absolute
tic_recent_contacts_lookbacktime
time_symptoms_onset_mean
−15000
−10000
−5000
0
5000
SHAP value (impact on model output)
High
Feature value
Low


How Interaction with population_distribution_0 Affects person_days_in_isolation
SHAP value for population_distribution_0
400
200
0
−200
−400
−600
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
population_distribution_0
severely_symptomatic_isolation_time_mean
12
10
8
6
4
2

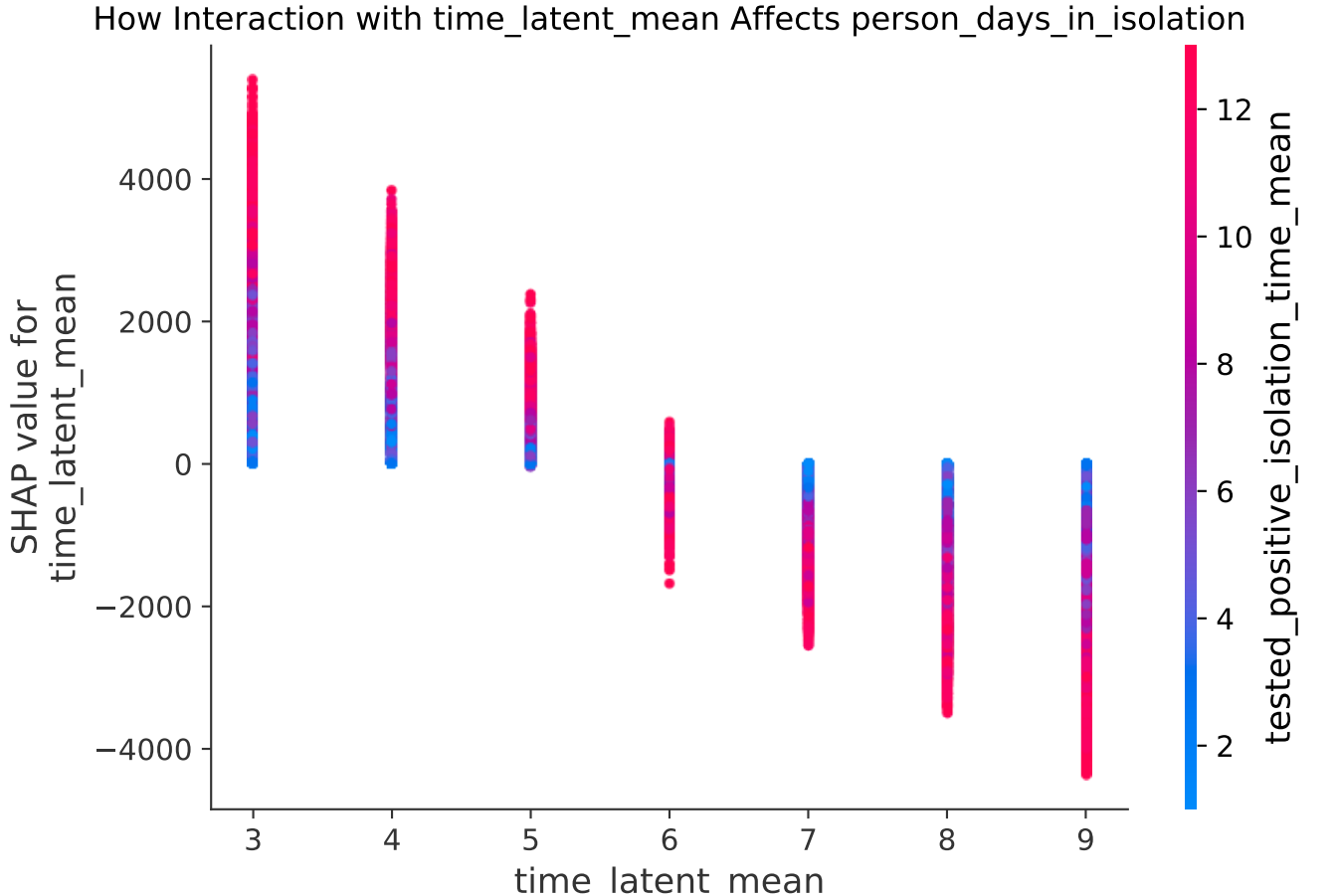

How Interaction with population_distribution_1 Affects person_days_in_isolation
SHAP value for population_distribution_1
400
200
0
−200
−400
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
population_distribution_1
awaiting_result_isolation_time_mean
12
10
8
6
4
2

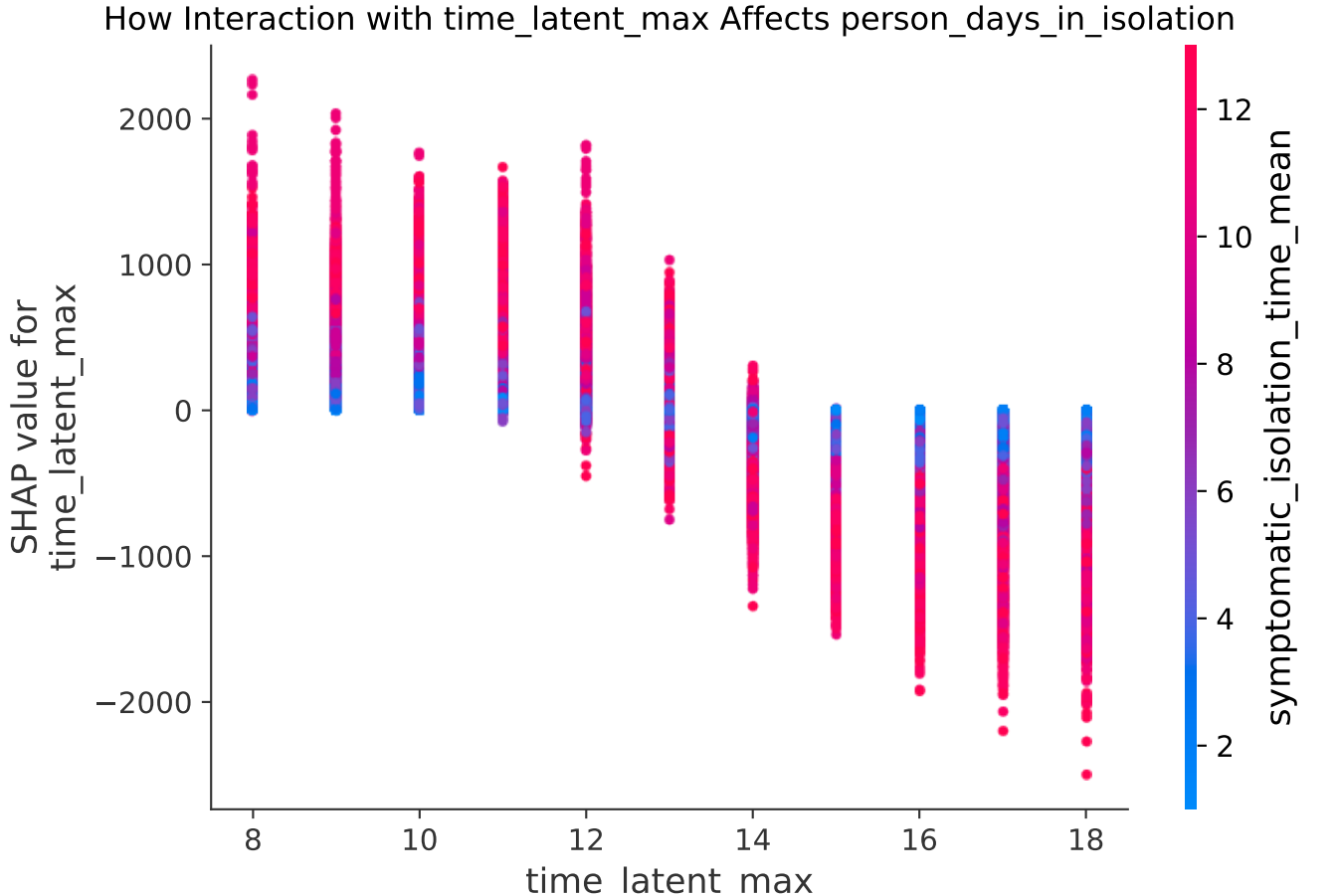

How Interaction with population_distribution_2 Affects person_days_in_isolation
SHAP value for population_distribution_2
400
200
0
−200
−400
−600
0.0
0.2
0.4
0.6
0.8
1.0
population_distribution_2
time_latent_max
17.091
15.273
13.455
11.636
9.818
8.000

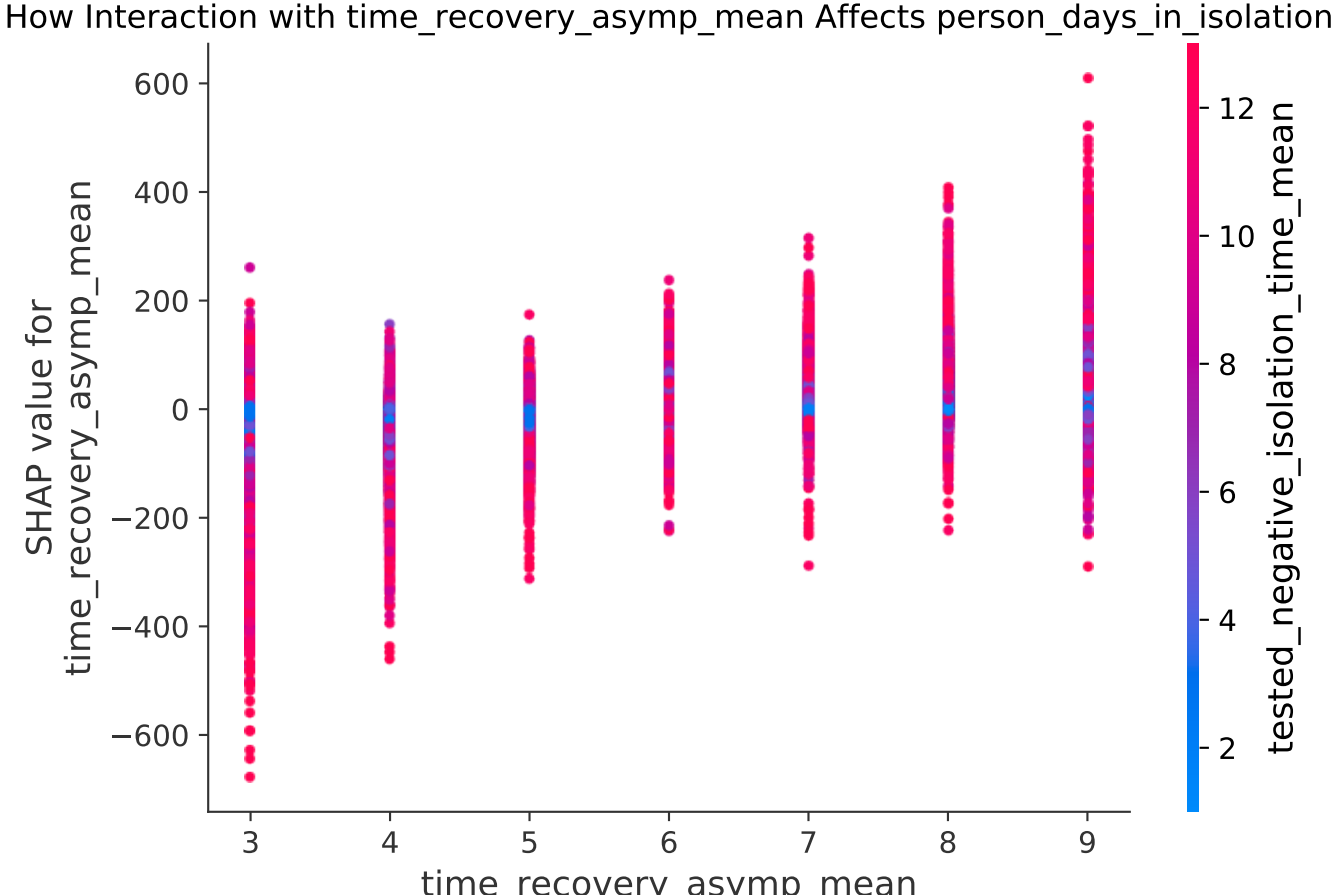

How Interaction with population_distribution_3 Affects person_days_in_isolation
SHAP value for population_distribution_3
400
200
0
−200
−400
−600
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
population_distribution_3
alerted_isolation_time_mean
12
10
8
6
4
2

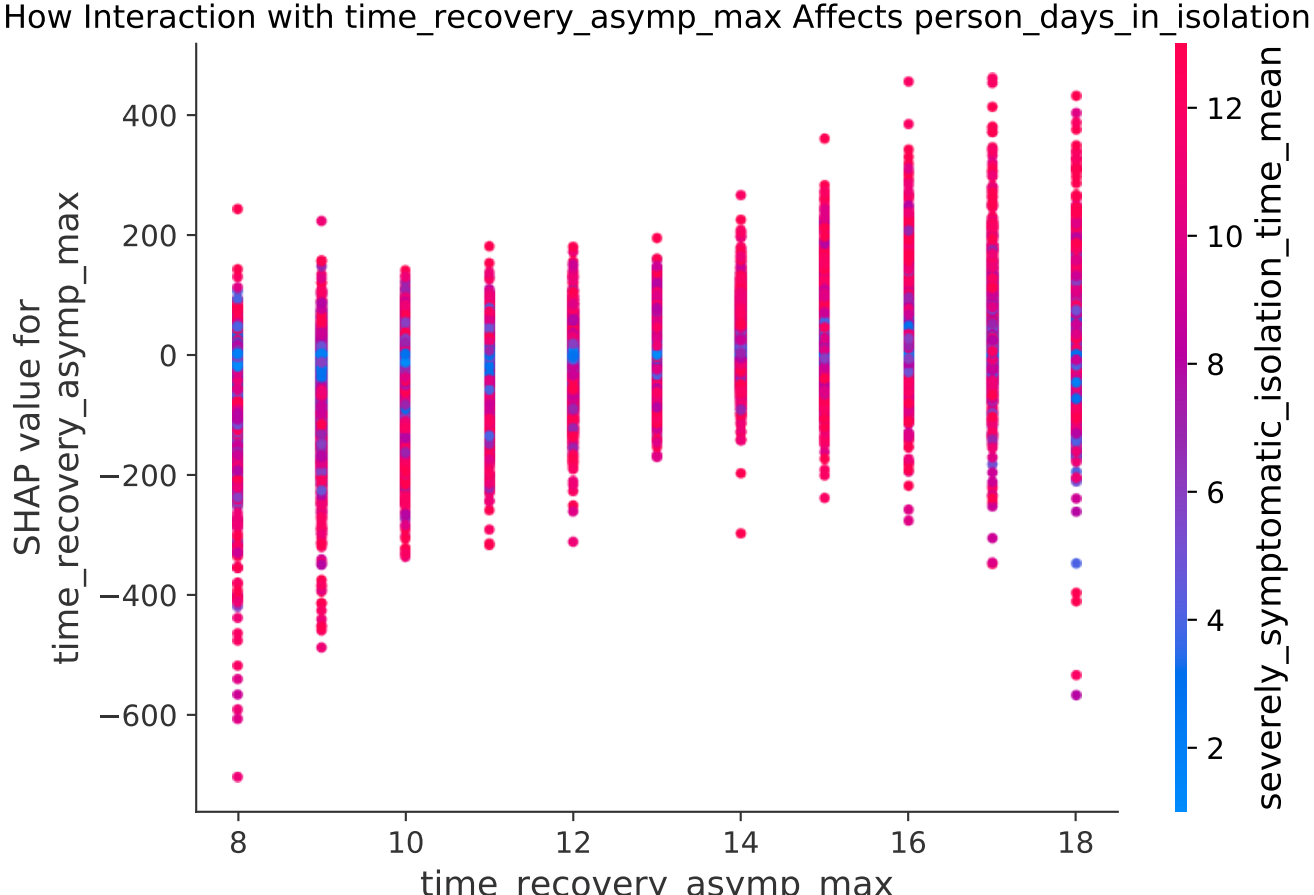

How Interaction with population_distribution_4 Affects person_days_in_isolation
SHAP value for population_distribution_4
400
200
0
−200
−400
−600
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
population_distribution_4
tested_negative_isolation_time_mean
12
10
8
6
4
2

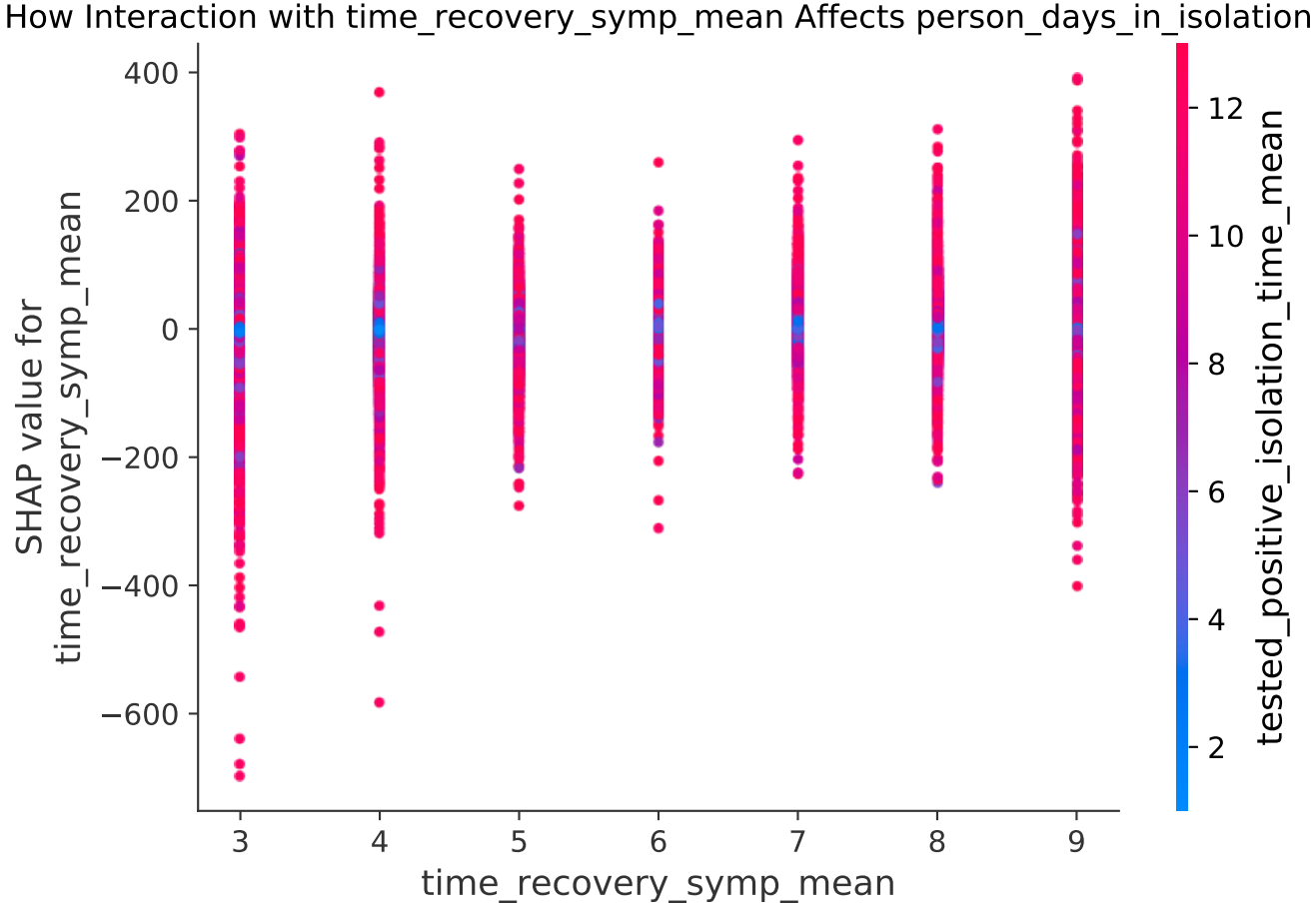
How Interaction with gender_balance Affects person_days_in_isolation
SHAP value for gender_balance
600
400
200
0
−200
−400
−600
−800
−1000
0.825
0.850
0.875
0.900
0.925
0.950
0.975
1.000
gender_balance
severely_symptomatic_isolation_time_mean
12
10
8
6
4
2

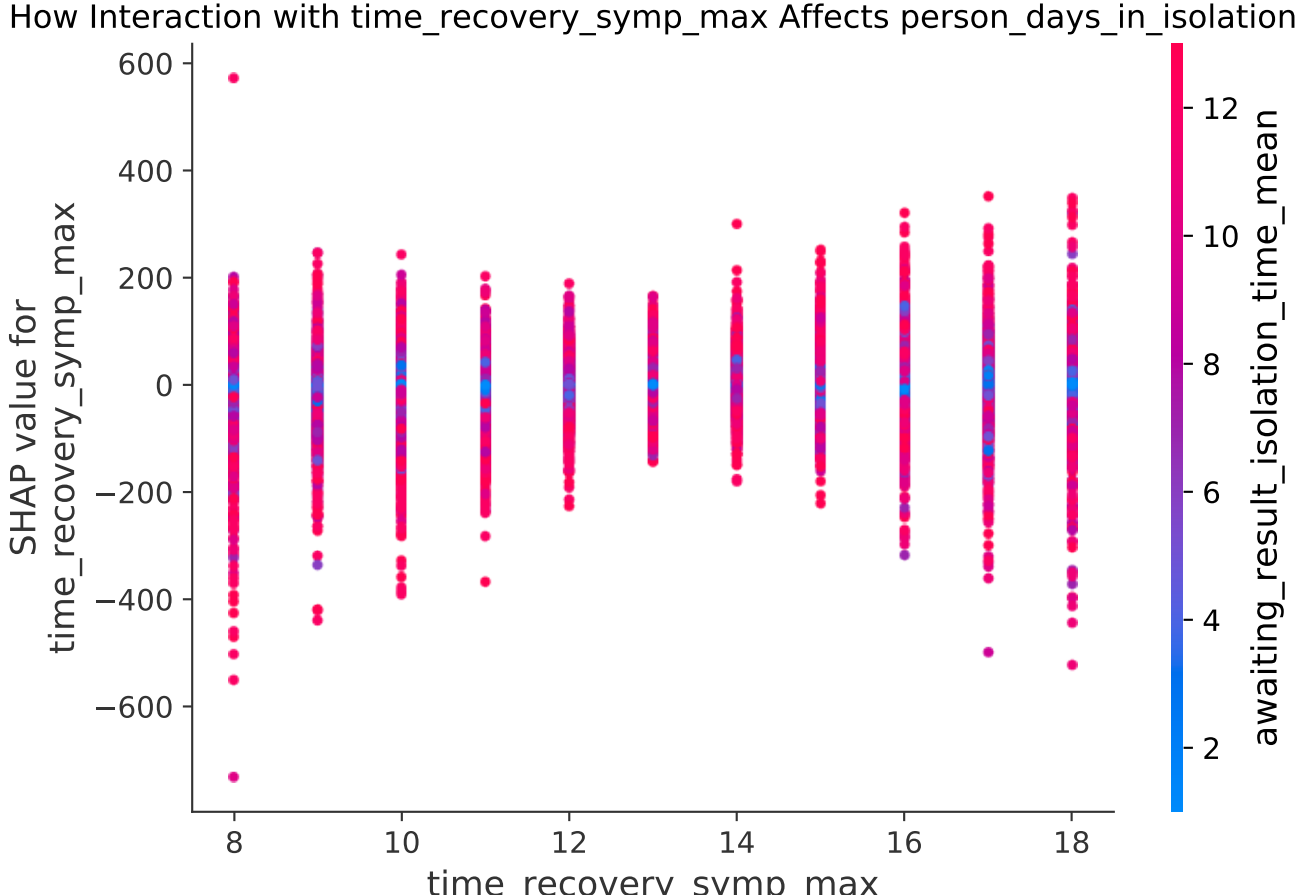

How Interaction with time_latent_mean Affects person_days_in_isolation
SHAP value for time_latent_mean
4000
2000
0
−2000
−4000
3
4
5
6
7
8
9
time_latent_mean
tested_positive_isolation_time_mean
12
10
8
6
4
2

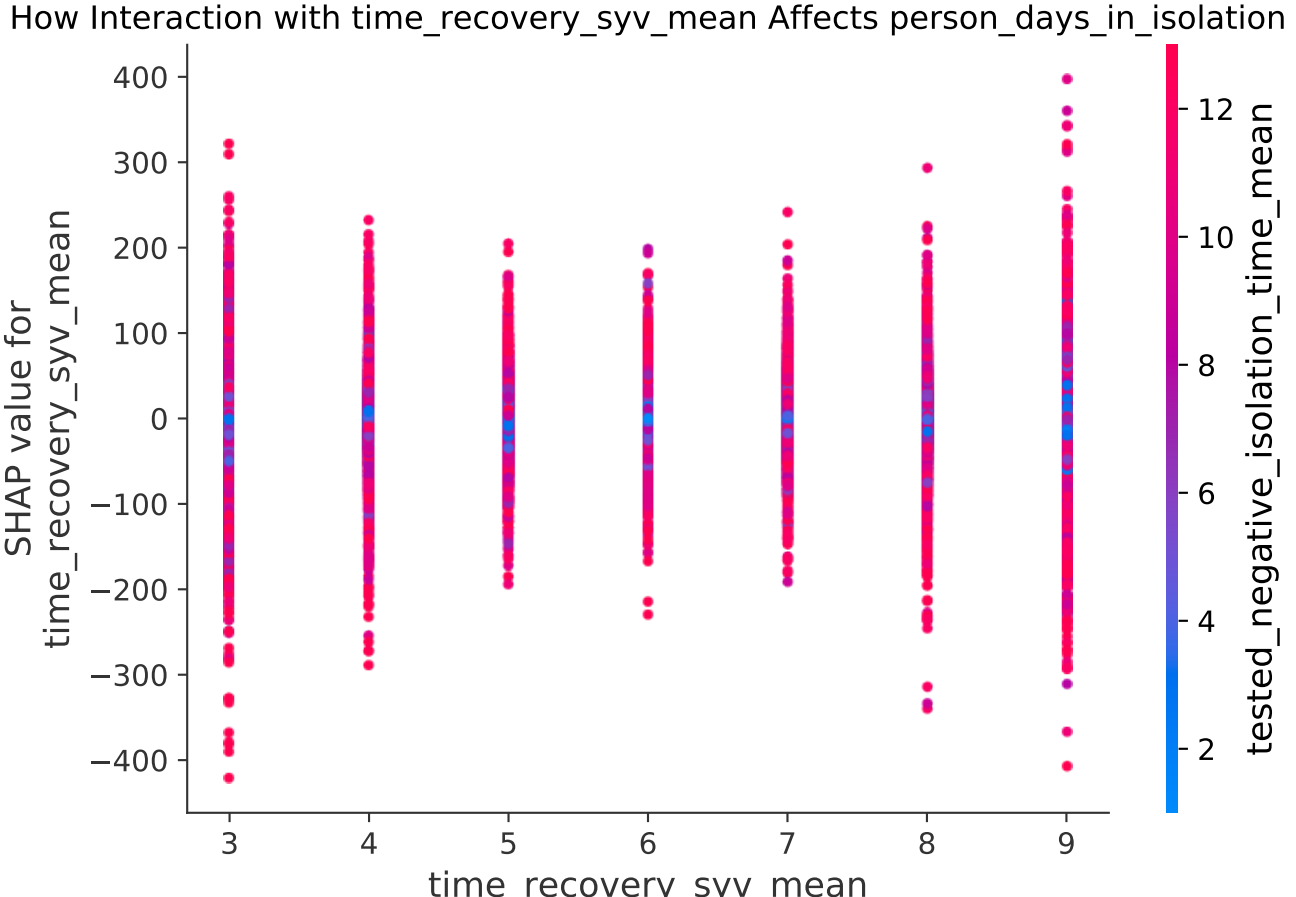

How Interaction with time_latent_max Affects person_days_in_isolation
SHAP value for time_latent_max
2000
1000
0
−1000
−2000
8
10
12
14
16
18
time_latent_max
symptomatic_isolation_time_mean
12
10
8
6
4
2

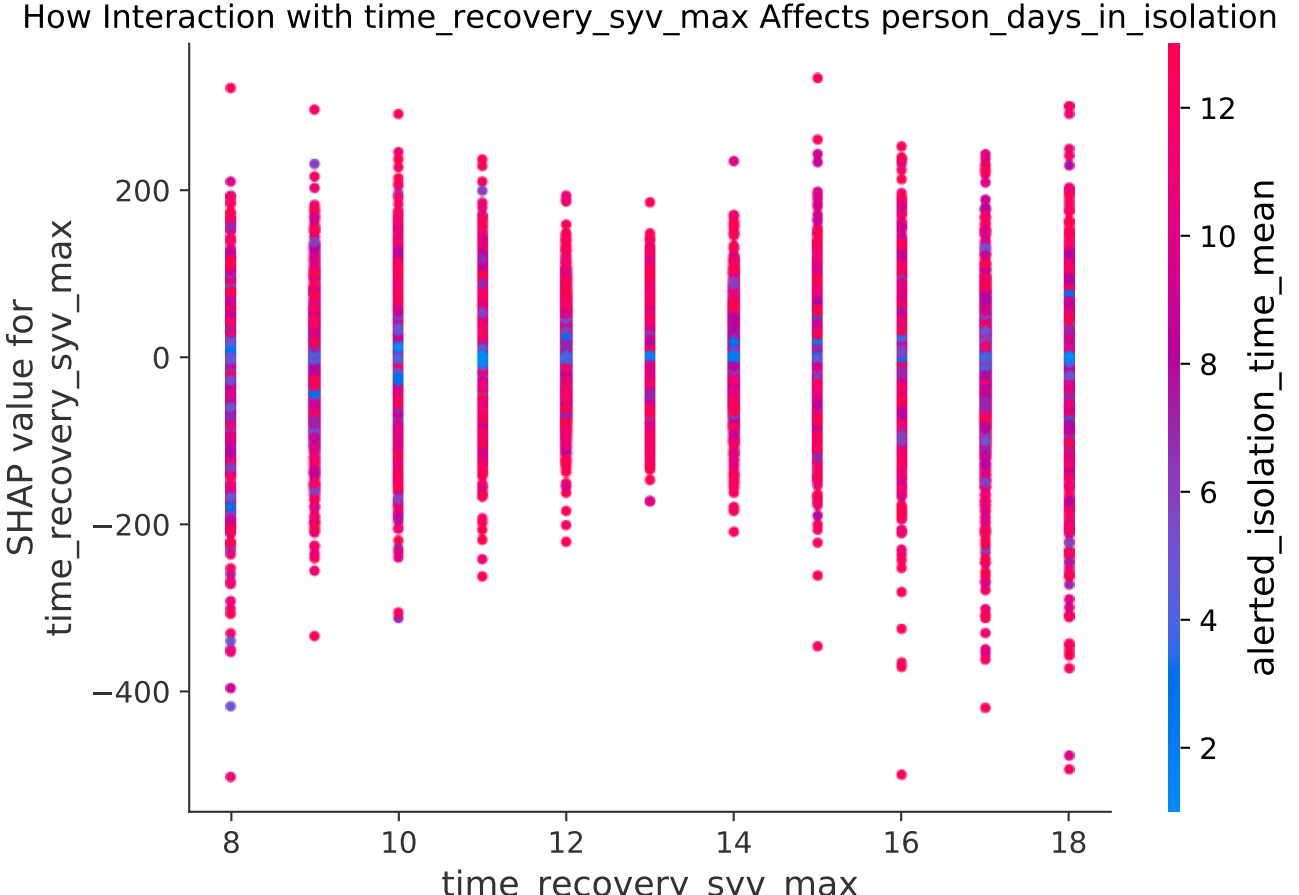

How Interaction with time_recovery_asymp_mean Affects person_days_in_isolation
SHAP value for time_recovery_asymp_mean
600
400
200
0
−200
−400
−600
3
4
5
6
7
8
9
time_recovery_asymp_mean
tested_negative_isolation_time_mean
12
10
8
6
4
2

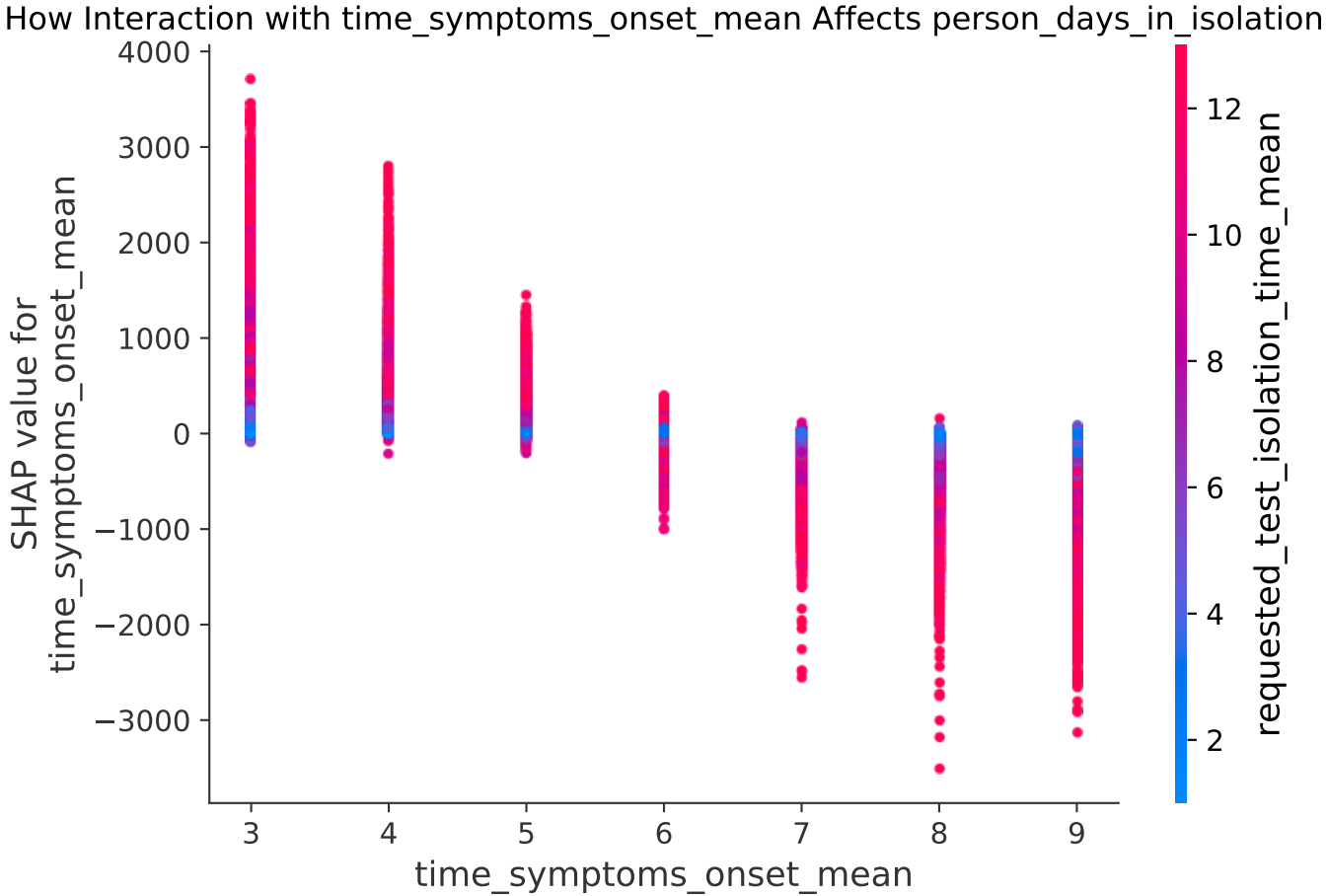

How Interaction with time_recovery_asymp_max Affects person_days_in_isolation
SHAP value for time_recovery_asymp_max
400
200
0
−200
−400
−600
8
10
12
14
16
18
time_recovery_asymp_max
12
10
8
6
4
2
severely_symptomatic_isolation_time_mean

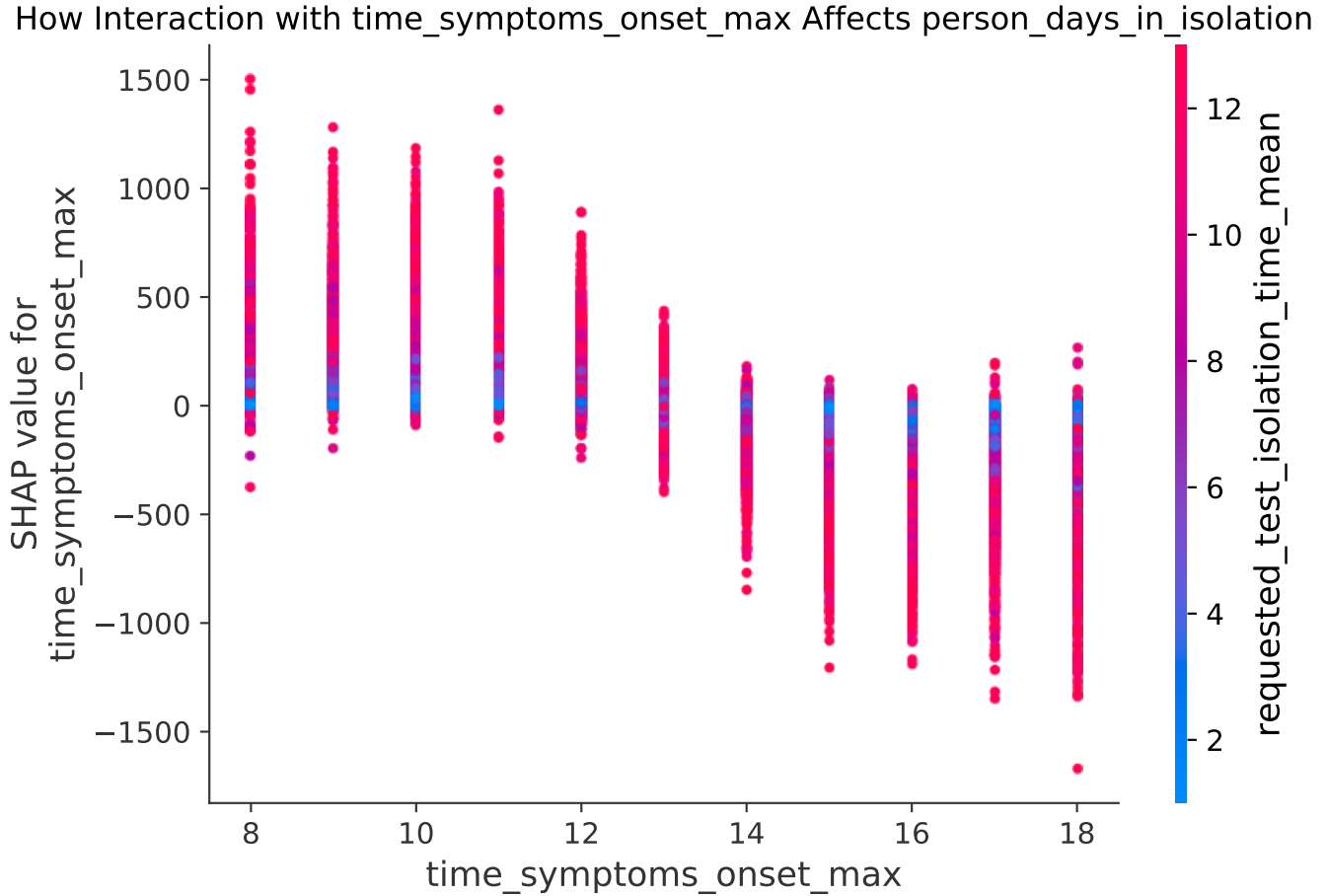

How Interaction with time_recovery_symp_mean Affects person_days_in_isolation
SHAP value for time_recovery_symp_mean
400
200
0
−200
−400
−600
3
4
5
6
7
8
9
time_recovery_symp_mean
tested_positive_isolation_time_mean
12
10
8
6
4
2

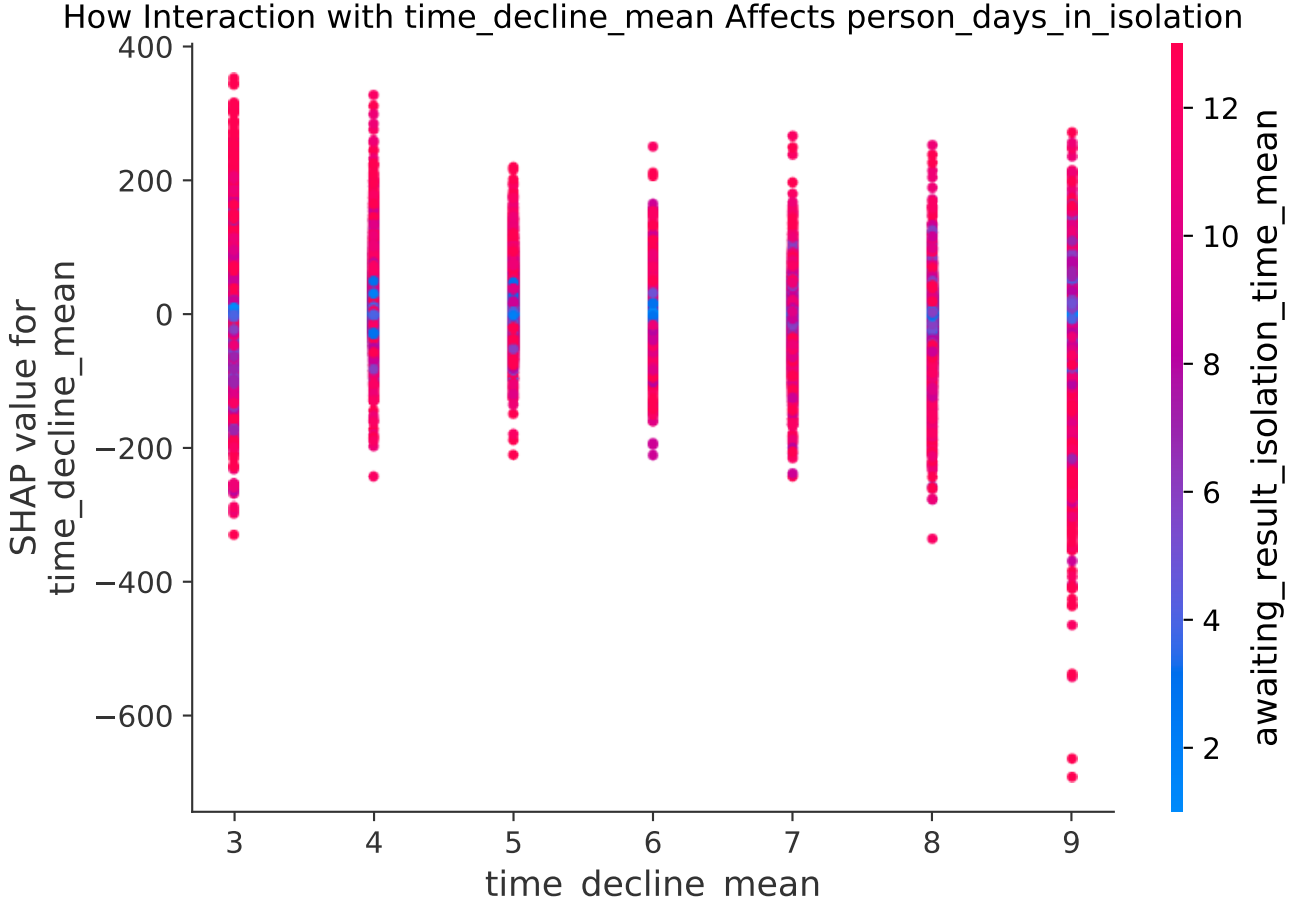

How Interaction with time_recovery_symp_max Affects person_days_in_isolation
SHAP value for time_recovery_symp_max
600
400
200
0
−200
−400
−600
8
10
12
14
16
18
time_recovery_symp_max
awaiting_result_isolation_time_mean
12
10
8
6
4
2

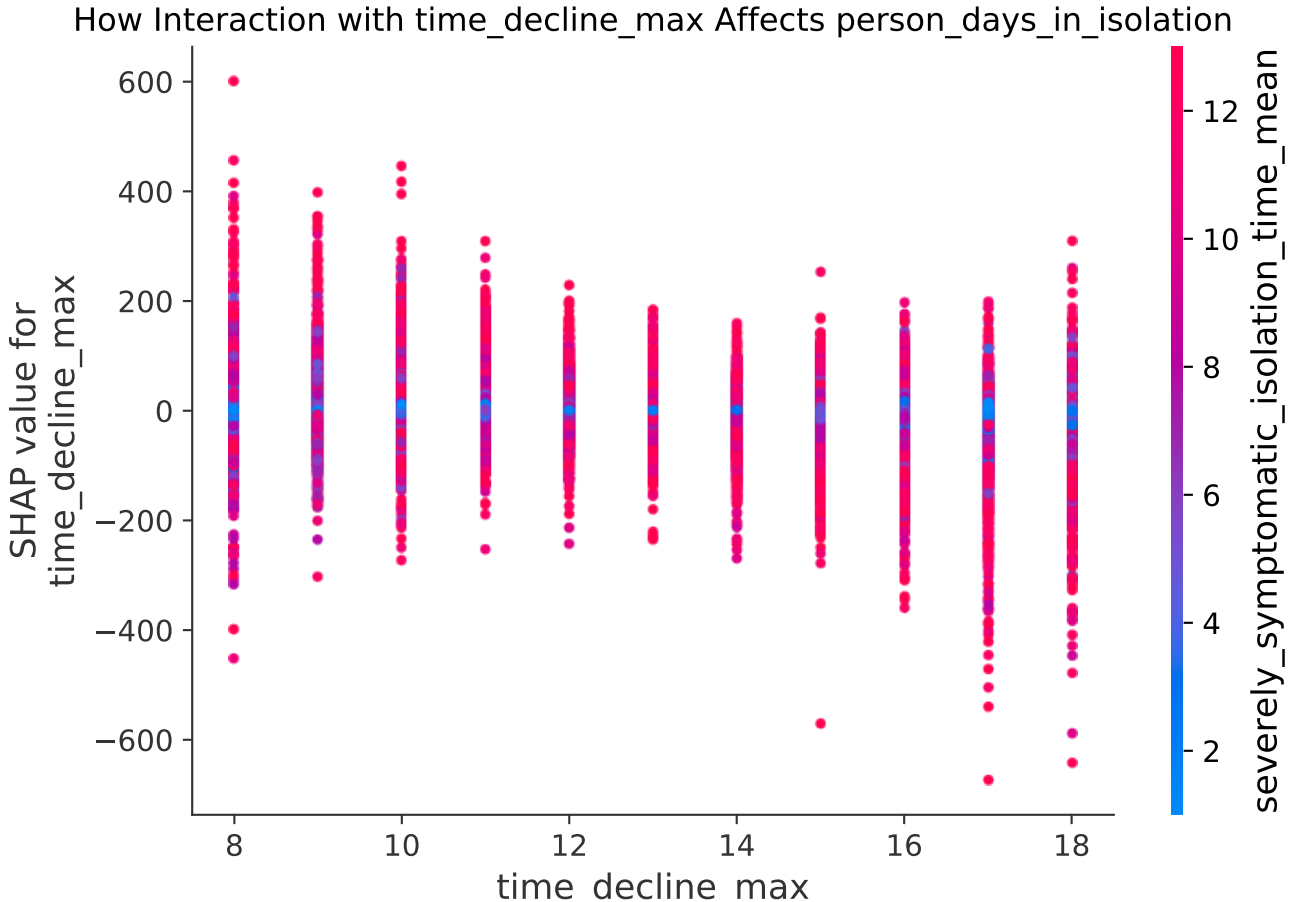

How Interaction with time_recovery_syv_mean Affects person_days_in_isolation
SHAP value for time_recovery_syv_mean
time_recovery_syv_mean
tested_negative_isolation_time_mean
400
300
200
100
0
−100
−200
−300
−400
3
4
5
6
7
8
9
12
10
8
6
4
2

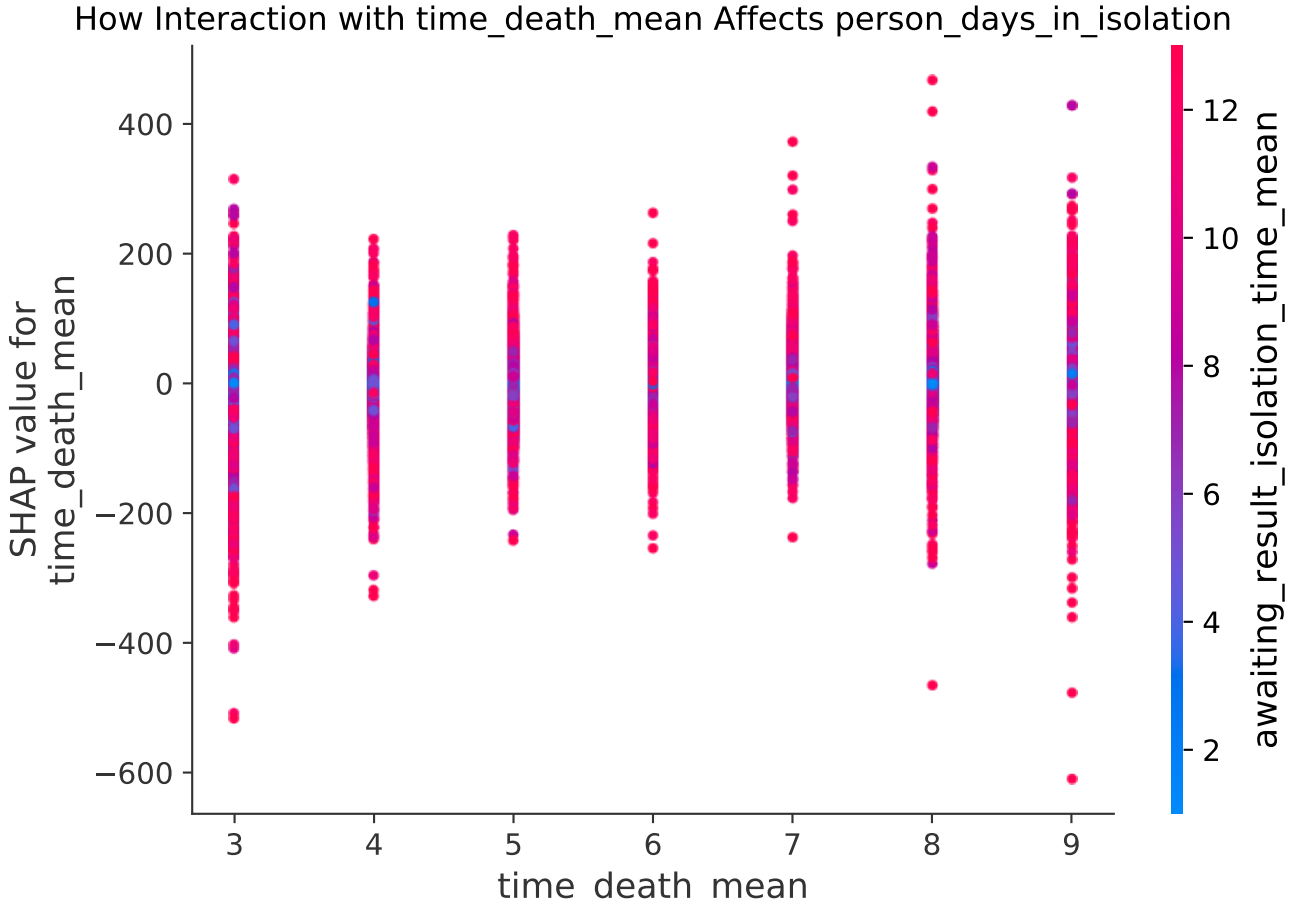

How Interaction with time_recovery_syv_max Affects person_days_in_isolation
SHAP value for time_recovery_syv_max
200
0
−200
−400
8
10
12
14
16
18
time_recovery_syv_max
alerted_isolation_time_mean
12
10
8
6
4
2

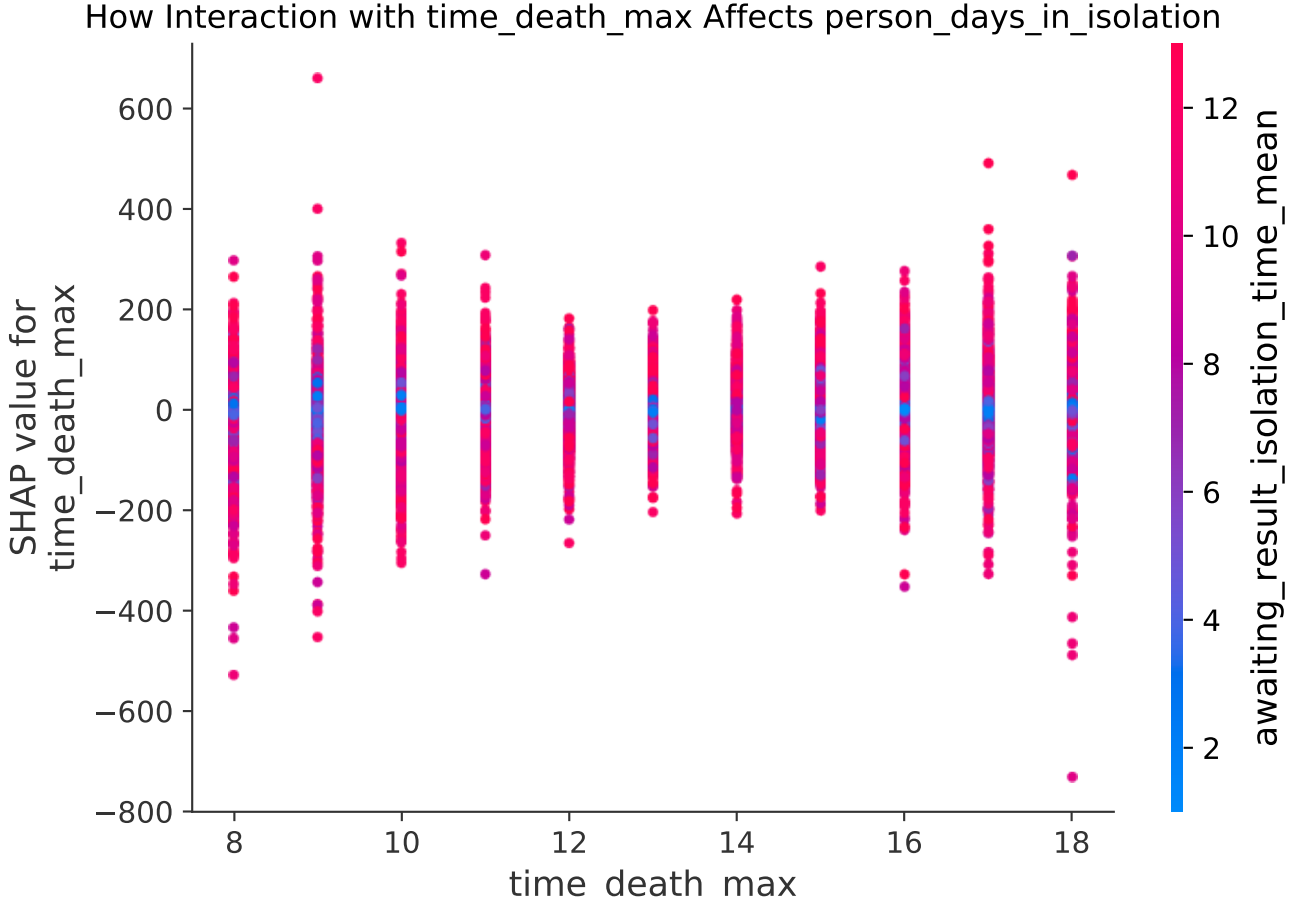

How Interaction with time_symptoms_onset_mean Affects person_days_in_isolation
SHAP value for time_symptoms_onset_mean
time_symptoms_onset_mean
requested_test_isolation_time_mean
4000
3000
2000
1000
0
−1000
−2000
−3000
3
4
5
6
7
8
9
12
10
8
6
4
2

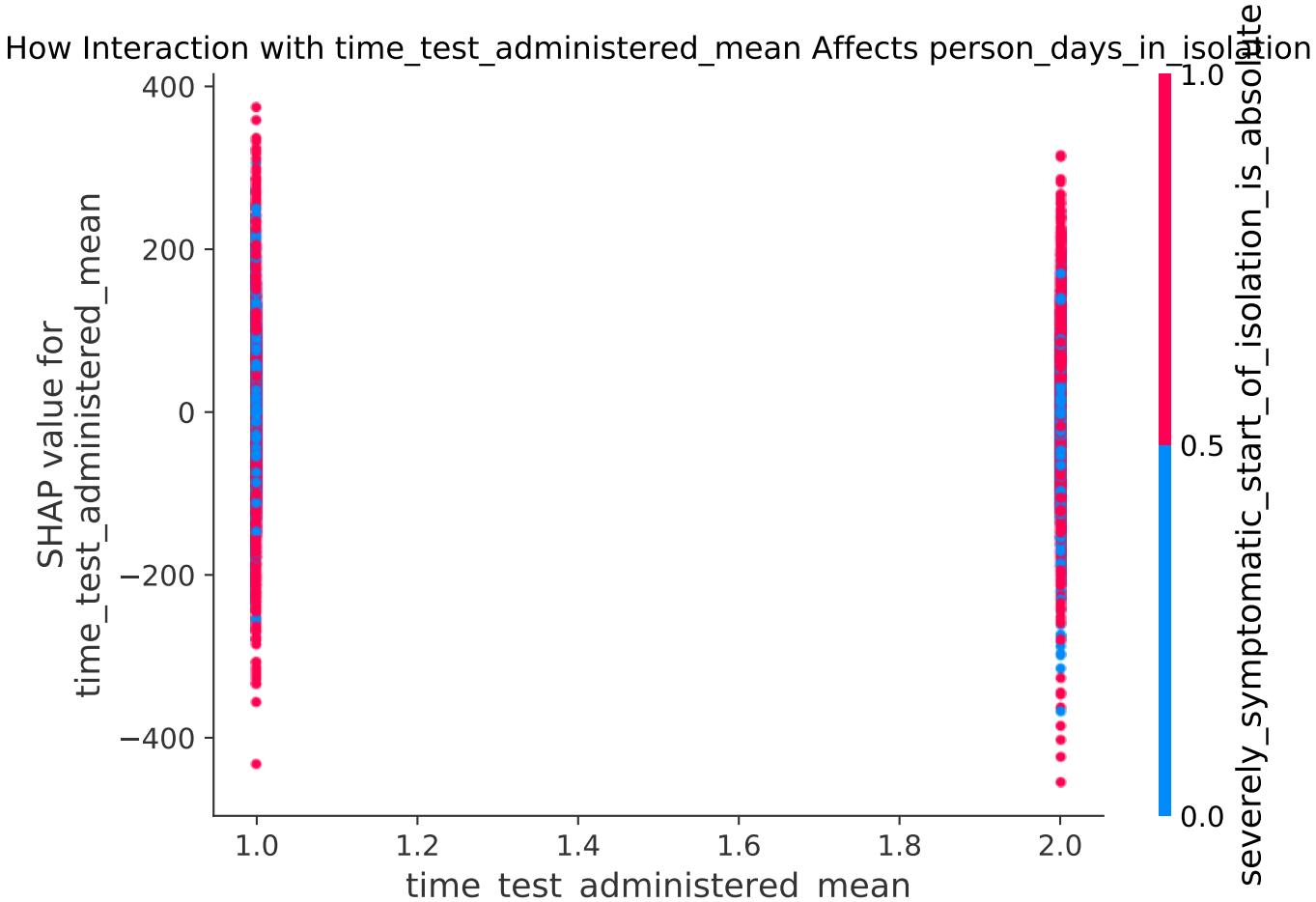

How Interaction with time_symptoms_onset_max Affects person_days_in_isolation
SHAP value for time_symptoms_onset_max
1500
1000
500
0
−500
−1000
−1500
8
10
12
14
16
18
time_symptoms_onset_max
requested_test_isolation_time_mean
12
10
8
6
4
2

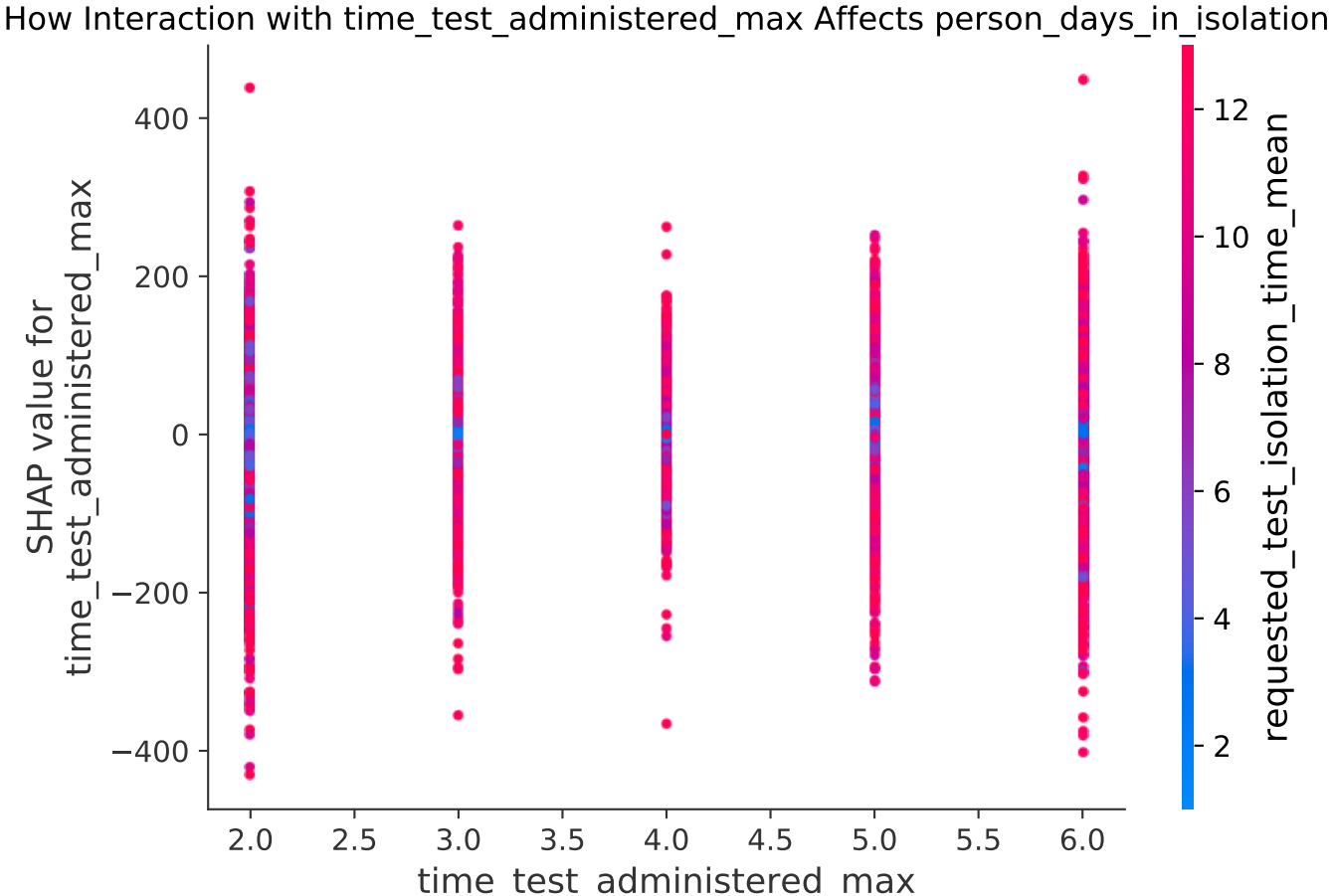

How Interaction with time_decline_mean Affects person_days_in_isolation
SHAP value for time_decline_mean
400
200
0
−200
−400
−600
3
4
5
6
7
8
9
time_decline_mean
awaiting_result_isolation_time_mean
12
10
8
6
4
2

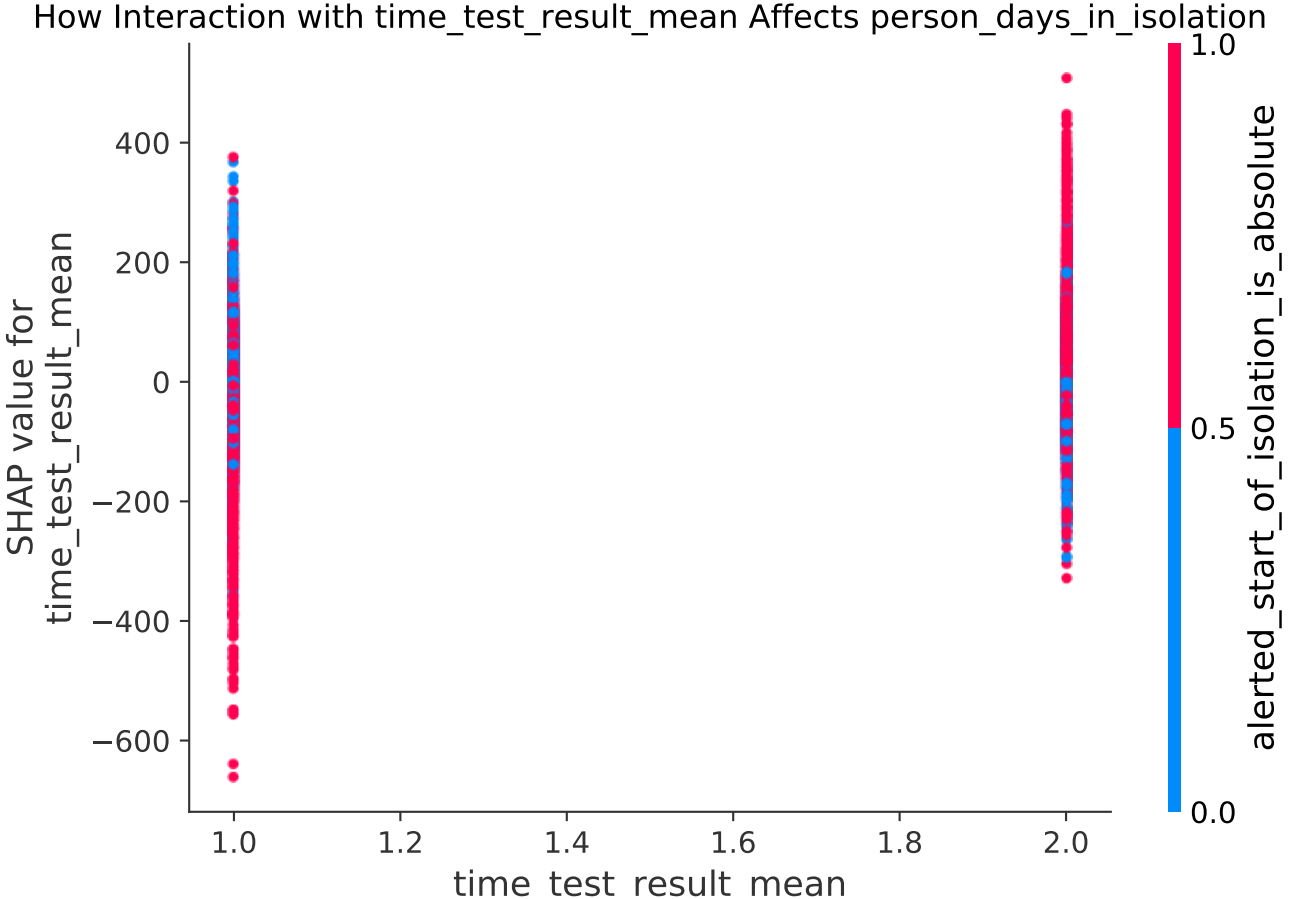

How Interaction with time_decline_max Affects person_days_in_isolation
SHAP value for time_decline_max
600
400
200
0
−200
−400
−600
8
10
12
14
16
18
time_decline_max
severely_symptomatic_isolation_time_mean
12
10
8
6
4
2

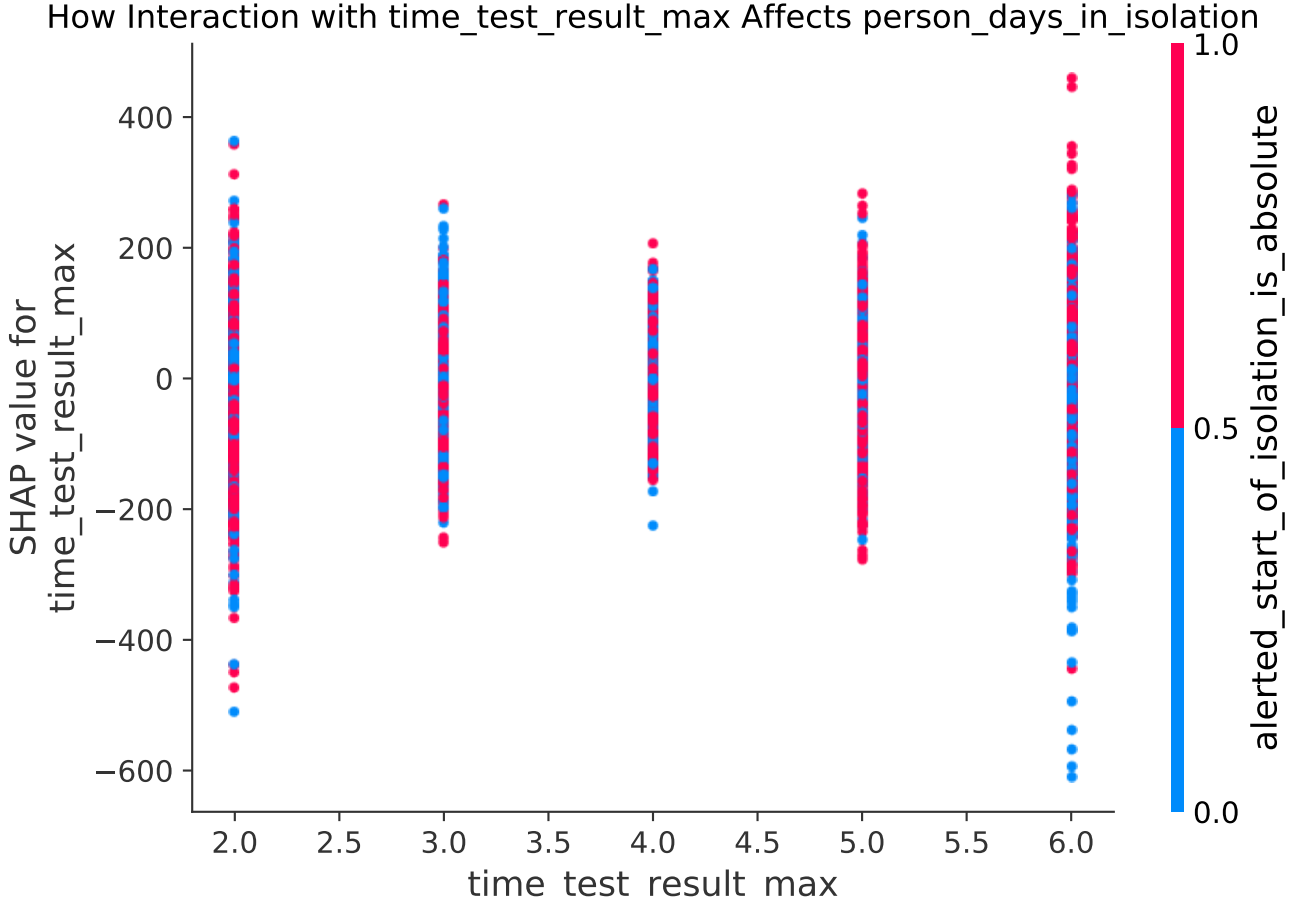

How Interaction with time_death_mean Affects person_days_in_isolation
SHAP value for time_death_mean
400
200
0
−200
−400
−600
3
4
5
6
7
8
9
time_death_mean
12
10
8
6
4
2
awaiting_result_isolation_time_mean

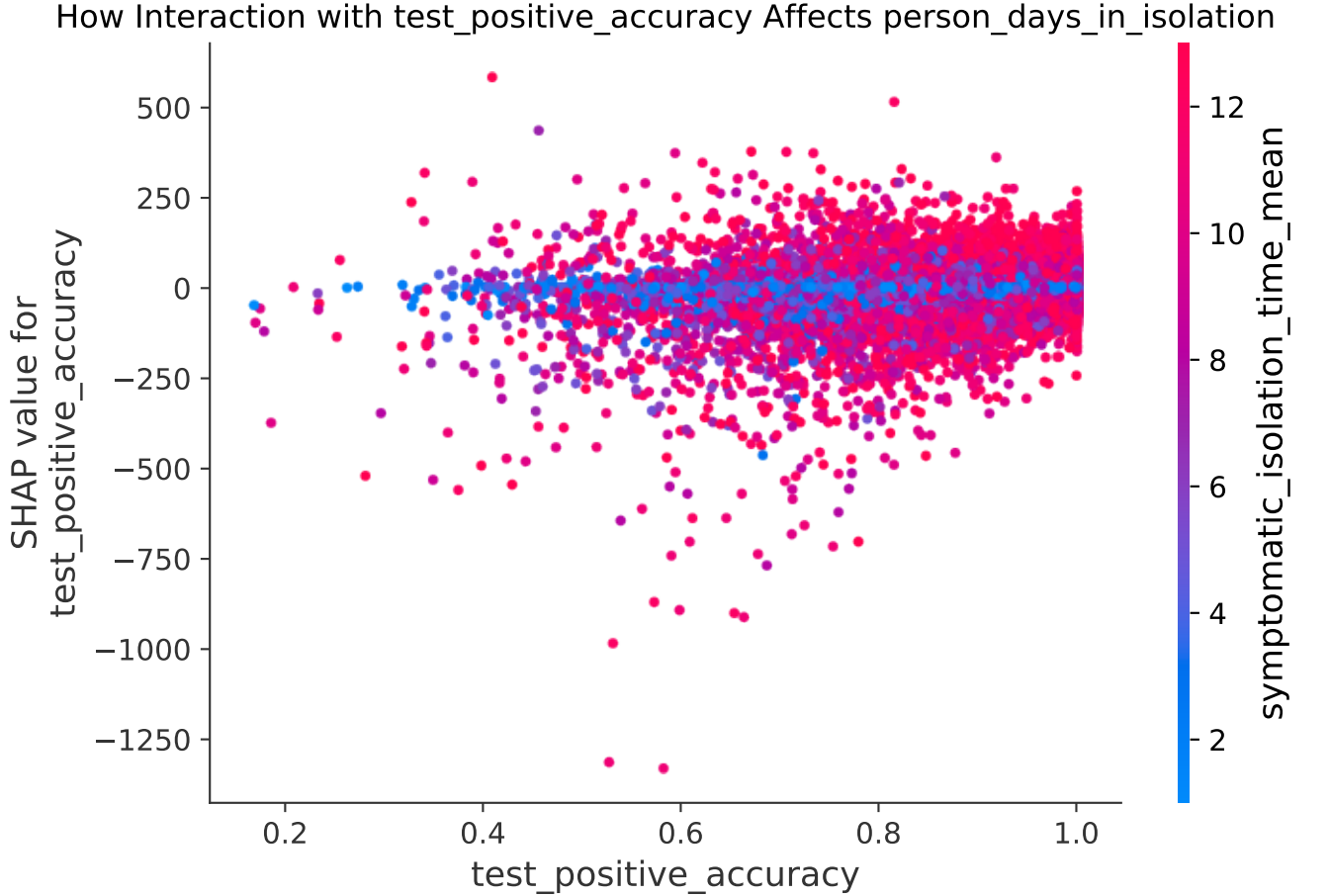

How Interaction with time_death_max Affects person_days_in_isolation
SHAP value for time_death_max
600
400
200
0
−200
−400
−600
−800
8
10
12
14
16
18
time_death_max
awaiting_result_isolation_time_mean
12
10
8
6
4
2

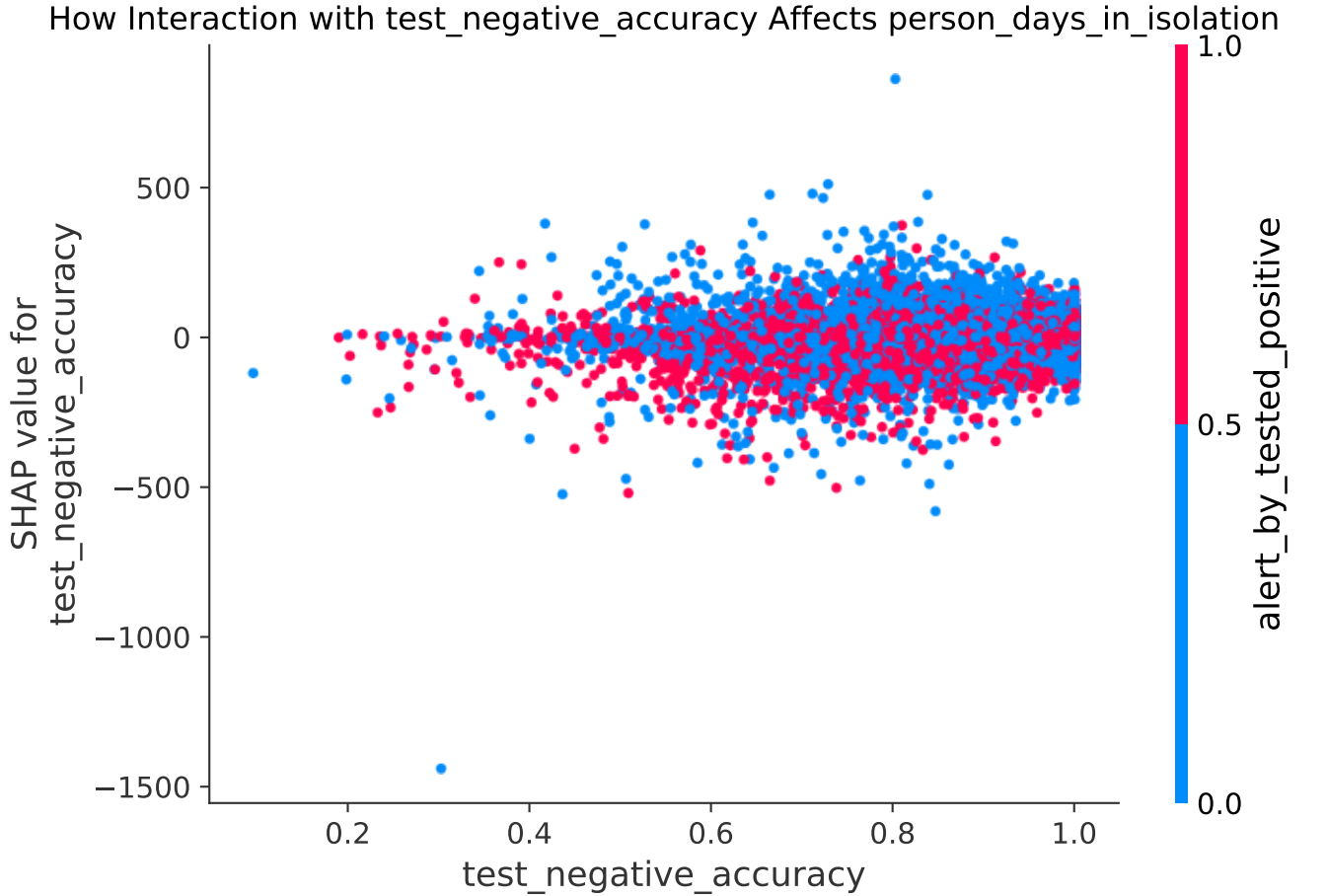

How Interaction with time_test_administered_mean Affects person_days_in_isolation
SHAP value for time_test_administered_mean
400
200
0
−200
−400
1.0
1.2
1.4
1.6
1.8
2.0
time_test_administered_mean
severely_symptomatic_start_of_isolation_is_absolute
1.0
0.5
0.0

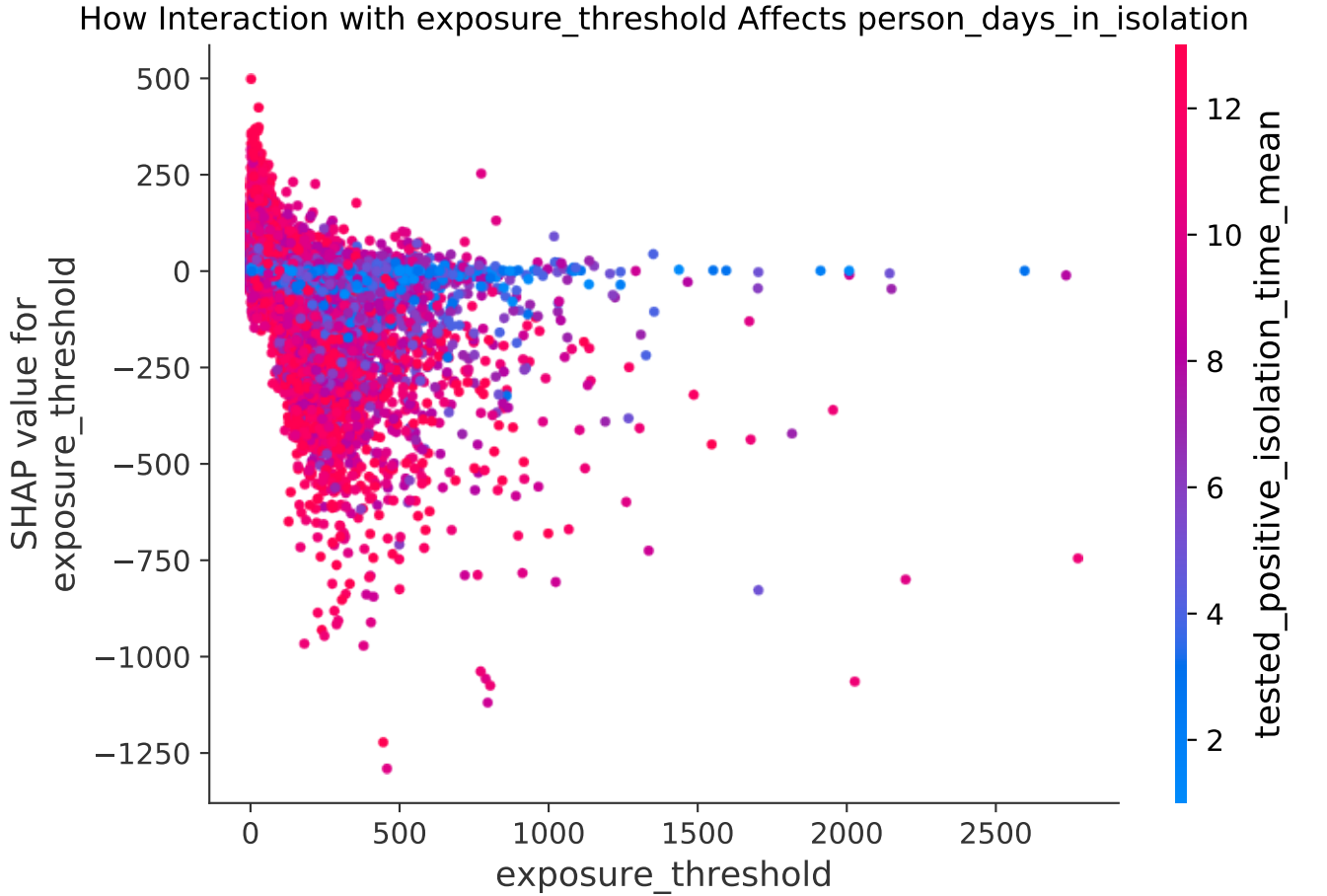

How Interaction with time_test_administered_max Affects person_days_in_isolation
SHAP value for time_test_administered_max
400
200
0
−200
−400
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
6.0
time_test_administered_max
requested_test_isolation_time_mean
12
10
8
6
4
2

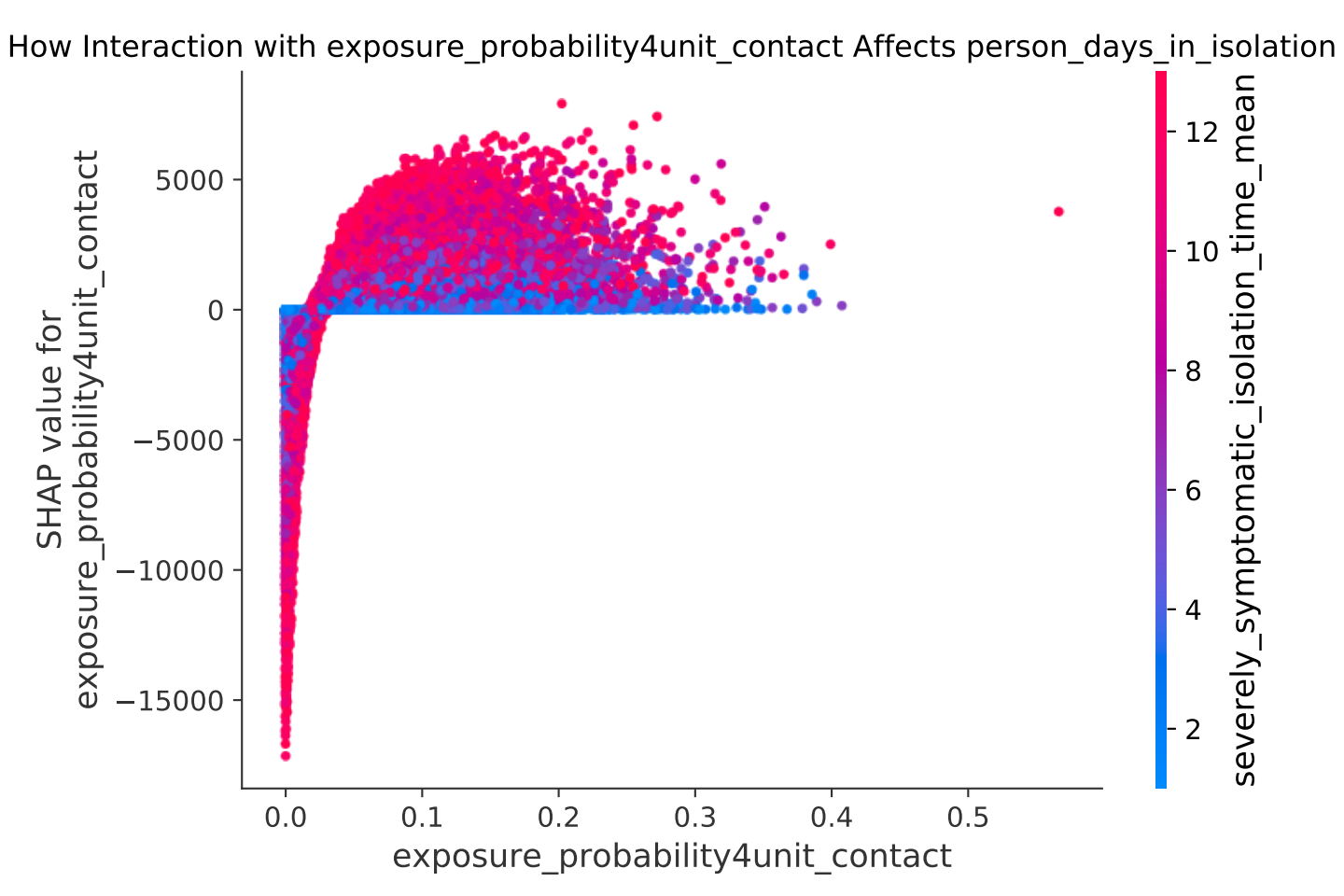

How Interaction with time_test_result_mean Affects person_days_in_isolation
SHAP value for time_test_result_mean
400
200
0
−200
−400
−600
1.0
1.2
1.4
1.6
1.8
2.0
time_test_result_mean
alerted_start_of_isolation_is_absolute
1.0
0.5
0.0

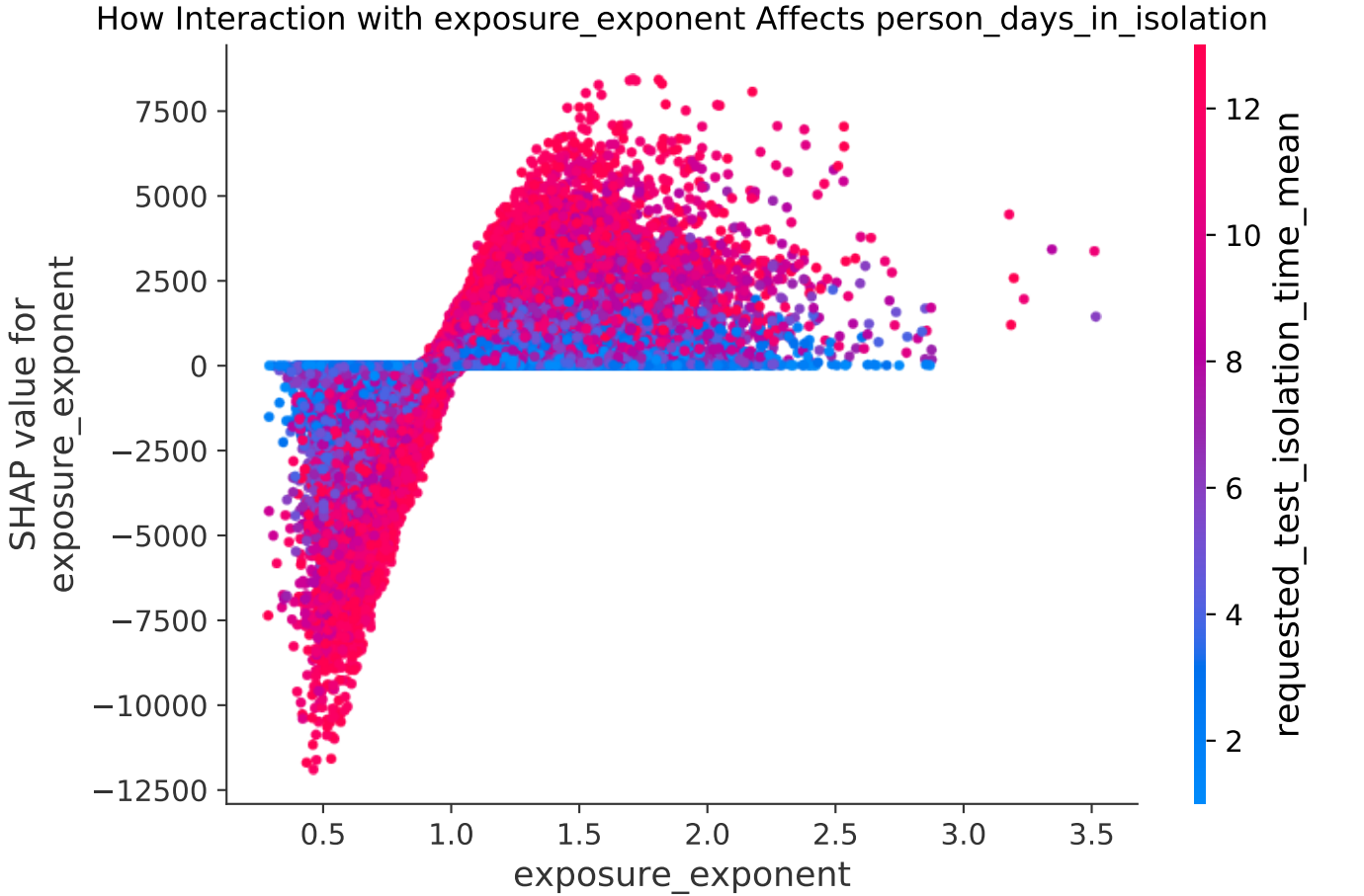

How Interaction with time_test_result_max Affects person_days_in_isolation
SHAP value for time_test_result_max
400
200
0
−200
−400
−600
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
6.0
time_test_result_max
alerted_start_of_isolation_is_absolute
1.0
0.5
0.0

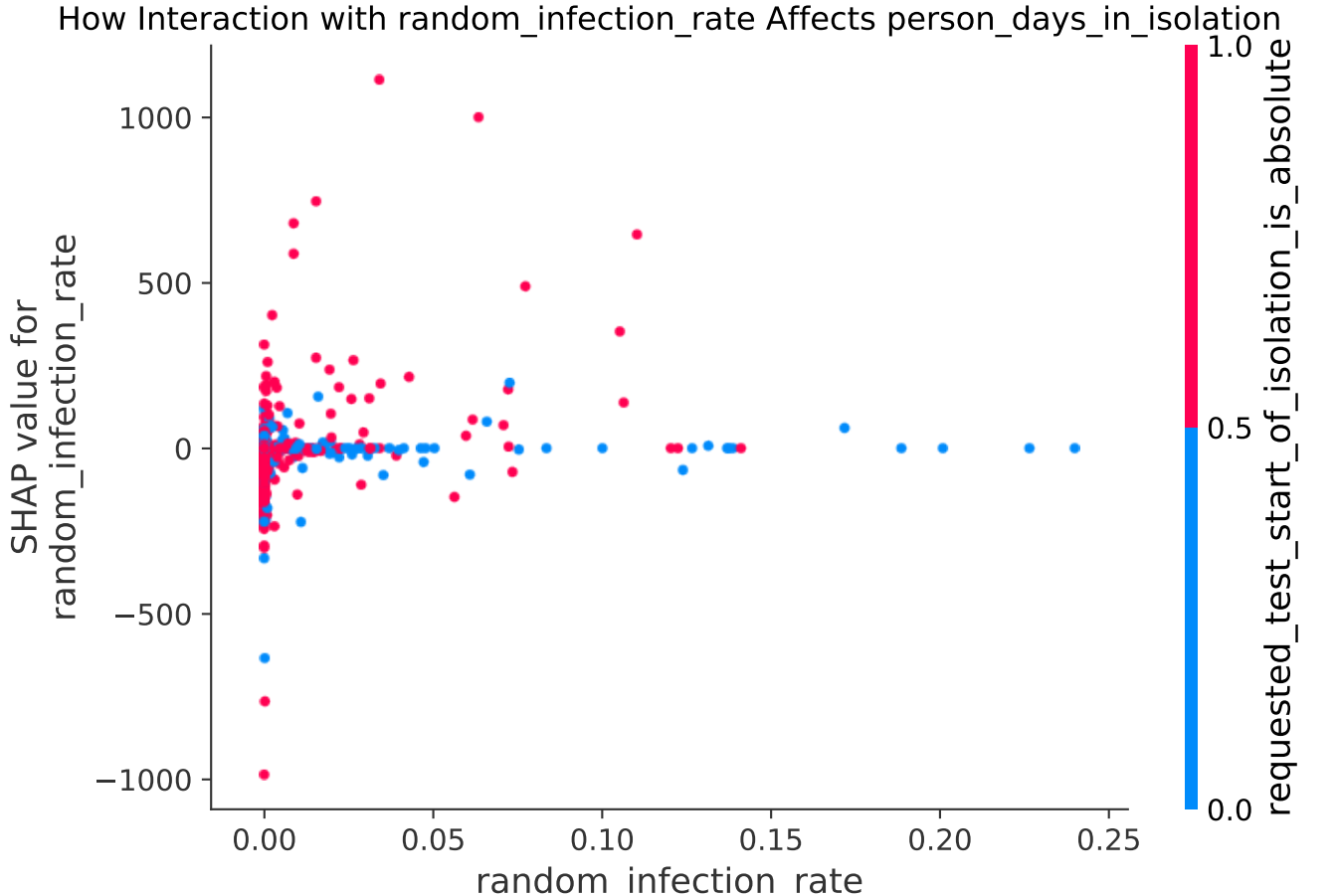

How Interaction with test_positive_accuracy Affects person_days_in_isolation
SHAP value for test_positive_accuracy
500
250
0
−250
−500
−750
−1000
−1250
0.2
0.4
0.6
0.8
1.0
test_positive_accuracy
symptomatic_isolation_time_mean
12
10
8
6
4
2

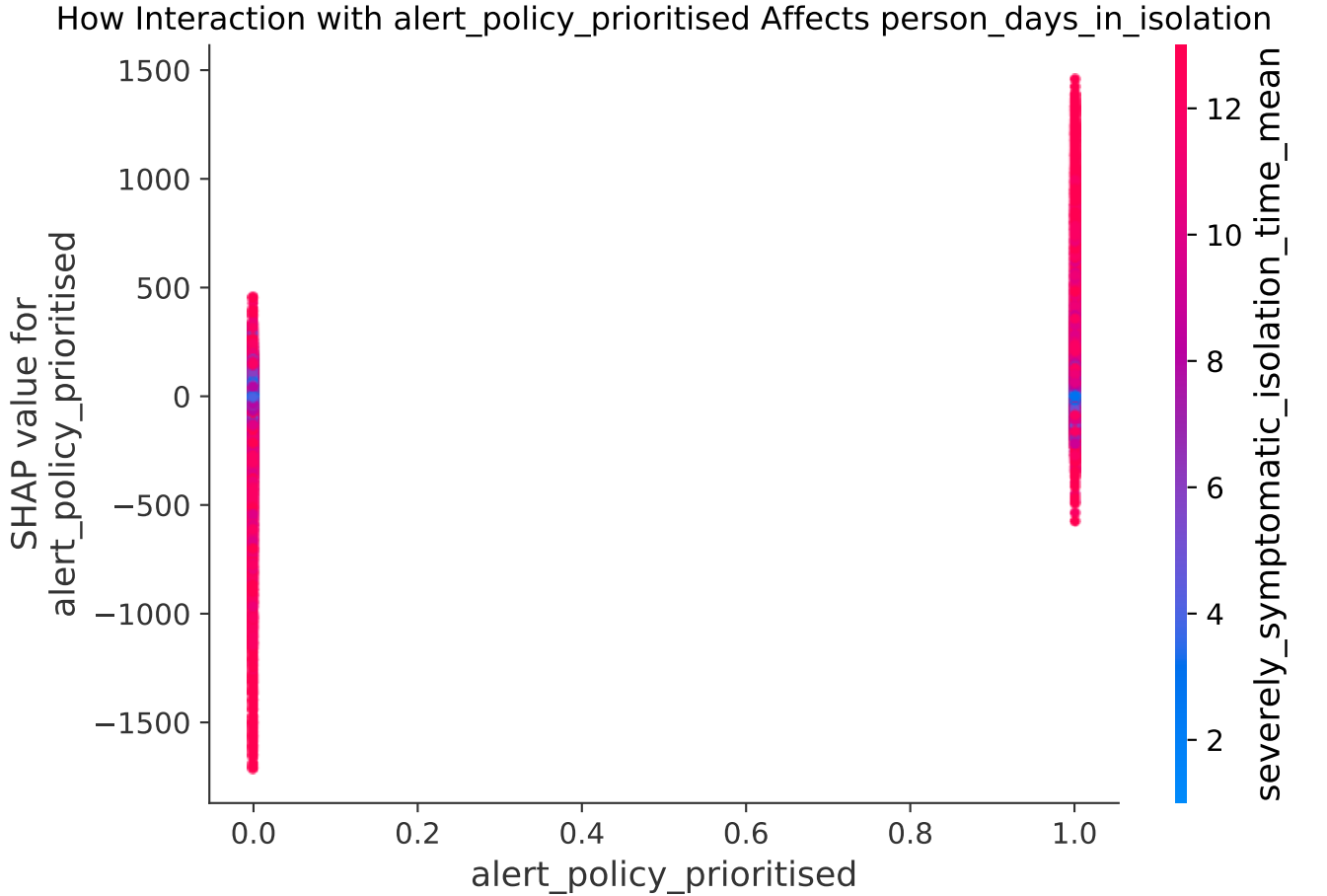

How Interaction with test_negative_accuracy Affects person_days_in_isolation
SHAP value for test_negative_accuracy
500
0
−500
−1000
−1500
0.2
0.4
0.6
0.8
1.0
test_negative_accuracy
alert_by_tested_positive
1.0
0.5
0.0

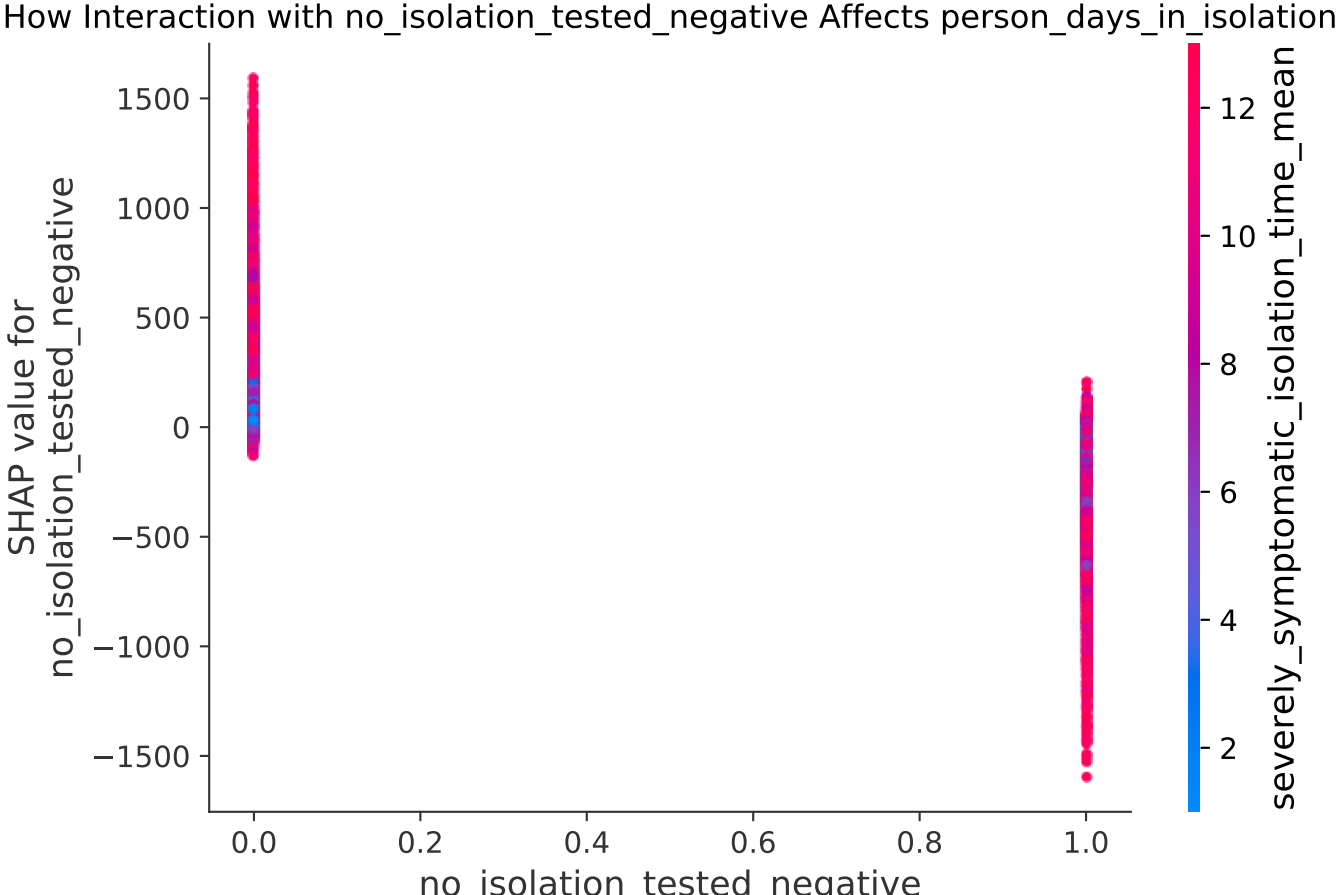

How Interaction with exposure_threshold Affects person_days_in_isolation
SHAP value for exposure_threshold
500
250
0
−250
−500
−750
−1000
−1250
0
500
1000
1500
2000
2500
exposure_threshold
tested_positive_isolation_time_mean
12
10
8
6
4
2

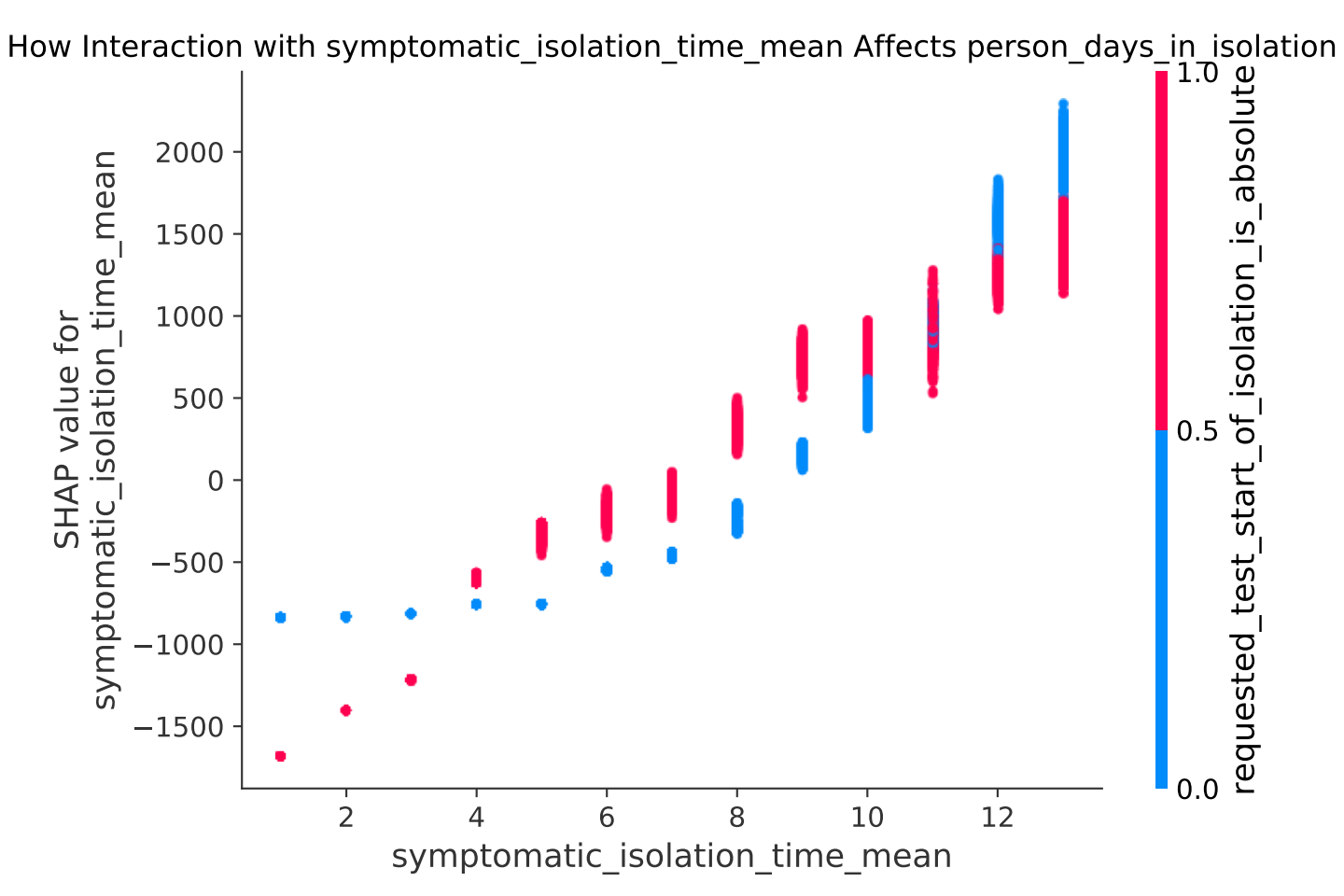

How Interaction with exposure_probability4unit_contact Affects person_days_in_isolation
SHAP value for exposure_probability4unit_contact
5000
0
−5000
−10000
−15000
0.0
0.1
0.2
0.3
0.4
0.5
exposure_probability4unit_contact
12
10
8
6
4
2
severely_symptomatic_isolation_time_mean

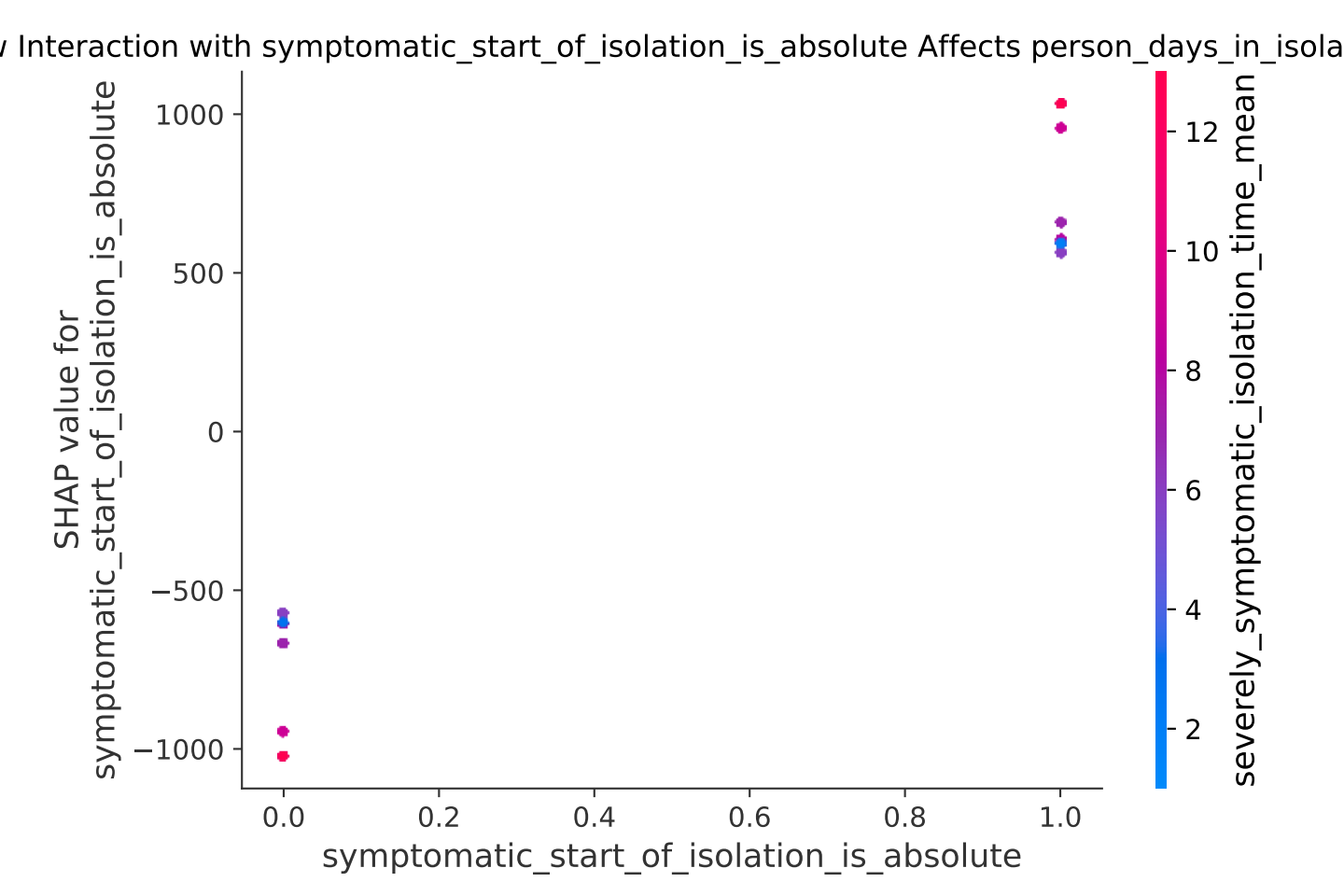

How Interaction with exposure_exponent Affects person_days_in_isolation
SHAP value for exposure_exponent
7500
5000
2500
0
−2500
−5000
−7500
−10000
−12500
0.5
1.0
1.5
2.0
2.5
3.0
3.5
exposure_exponent
requested_test_isolation_time_mean
12
10
8
6
4
2

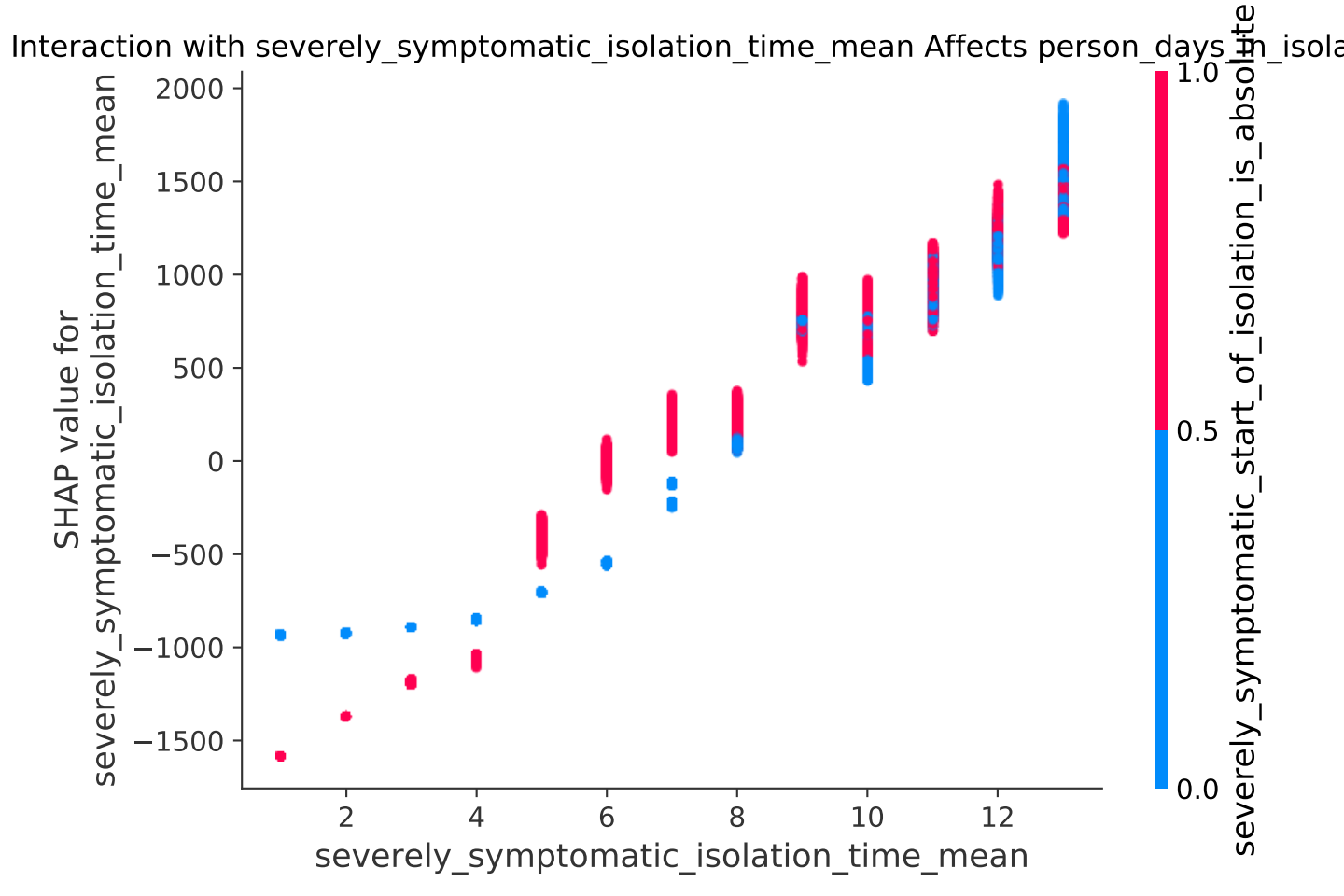

How Interaction with random_infection_rate Affects person_days_in_isolation
SHAP value for random_infection_rate
1000
500
0
−500
−1000
0.00
0.05
0.10
0.15
0.20
0.25
random_infection_rate
requested_test_start_of_isolation_is_absolute
1.0
0.5
0.0

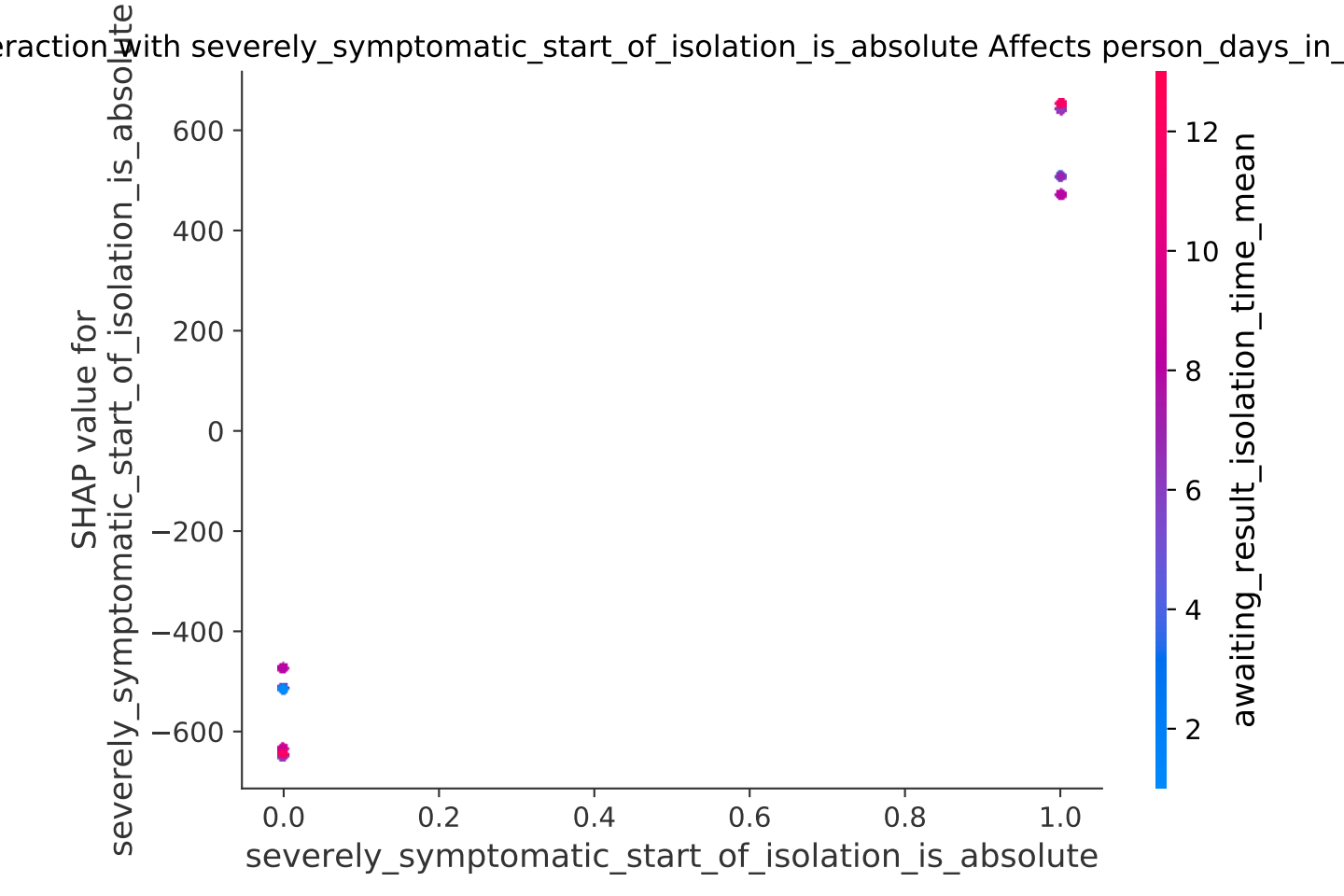

How Interaction with alert_policy_prioritised Affects person_days_in_isolation
SHAP value for alert_policy_prioritised
1500
1000
500
0
−500
−1000
−1500
0.0
0.2
0.4
0.6
0.8
1.0
alert_policy_prioritised
12
10
8
6
4
2
severely_symptomatic_isolation_time_mean

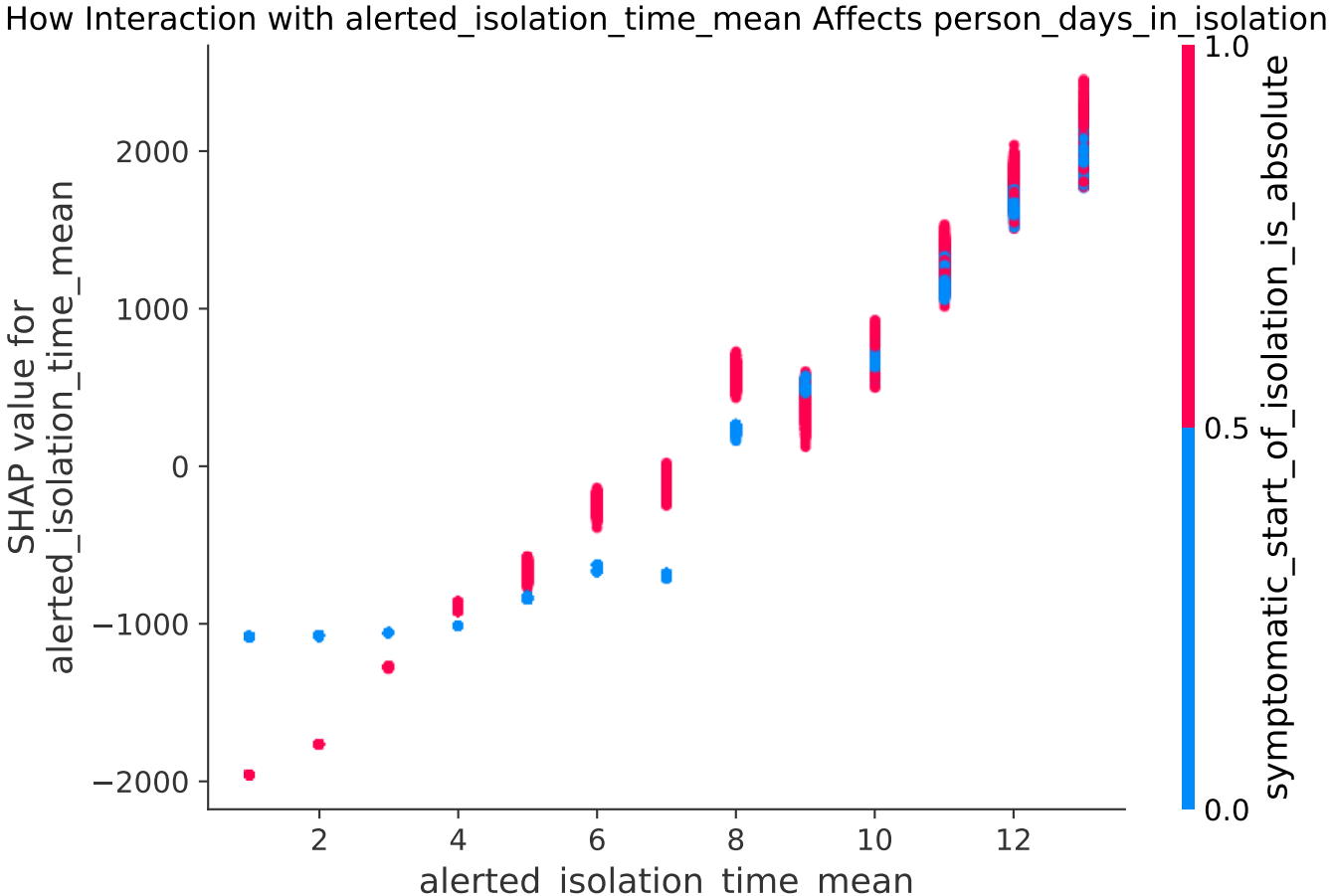

How Interaction with no_isolation_tested_negative Affects person_days_in_isolation
SHAP value for no_isolation_tested_negative
1500
1000
500
0
−500
−1000
−1500
0.0
0.2
0.4
0.6
0.8
1.0
no_isolation_tested_negative
12
10
8
6
4
2
severely_symptomatic_isolation_time_mean

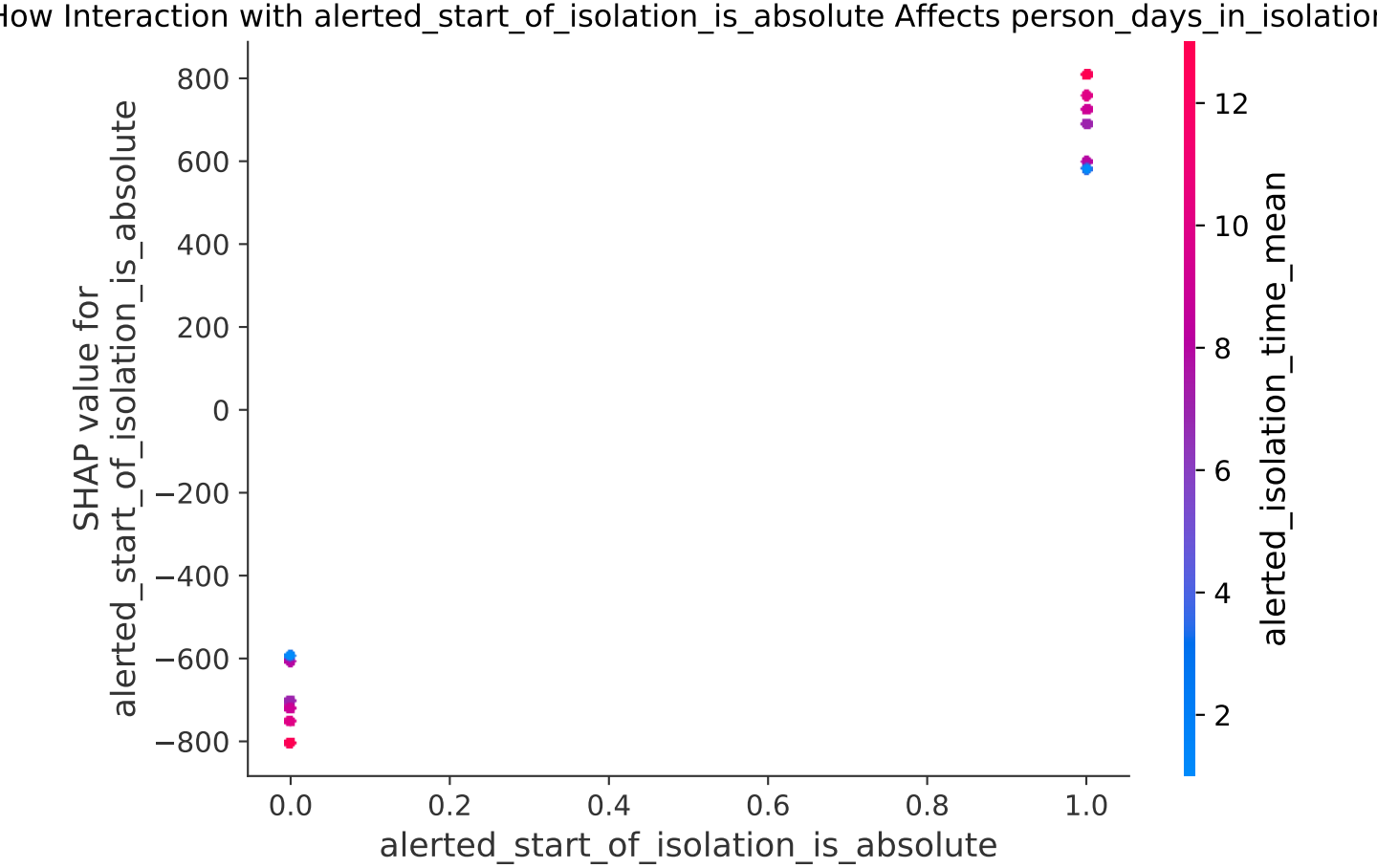

How Interaction with symptomatic_isolation_time_mean Affects person_days_in_isolation
SHAP value for symptomatic_isolation_time_mean
2000
1500
1000
500
0
−500
−1000
−1500
2
4
6
8
10
12
symptomatic_isolation_time_mean
1.0
0.5
0.0
requested_test_start_of_isolation_is_absolute

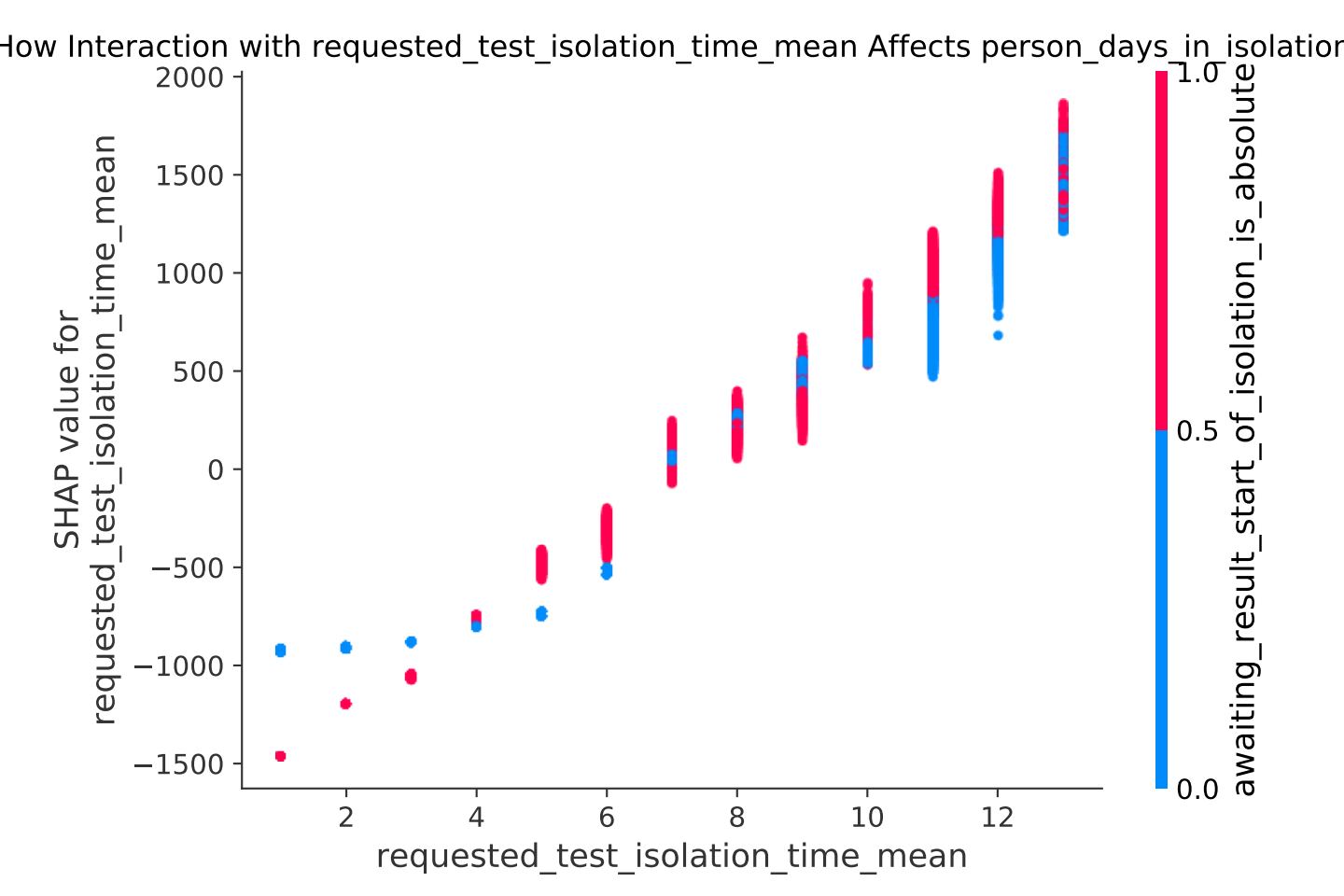

w Interaction with symptomatic_start_of_isolation_is_absolute Affects person_days_in_isola
SHAP value for symptomatic_start_of_isolation_is_absolute
1000
500
0
−500
−1000
0.0
0.2
0.4
0.6
0.8
1.0
symptomatic_start_of_isolation_is_absolute
12
10
8
6
4
2
severely_symptomatic_isolation_time_mean

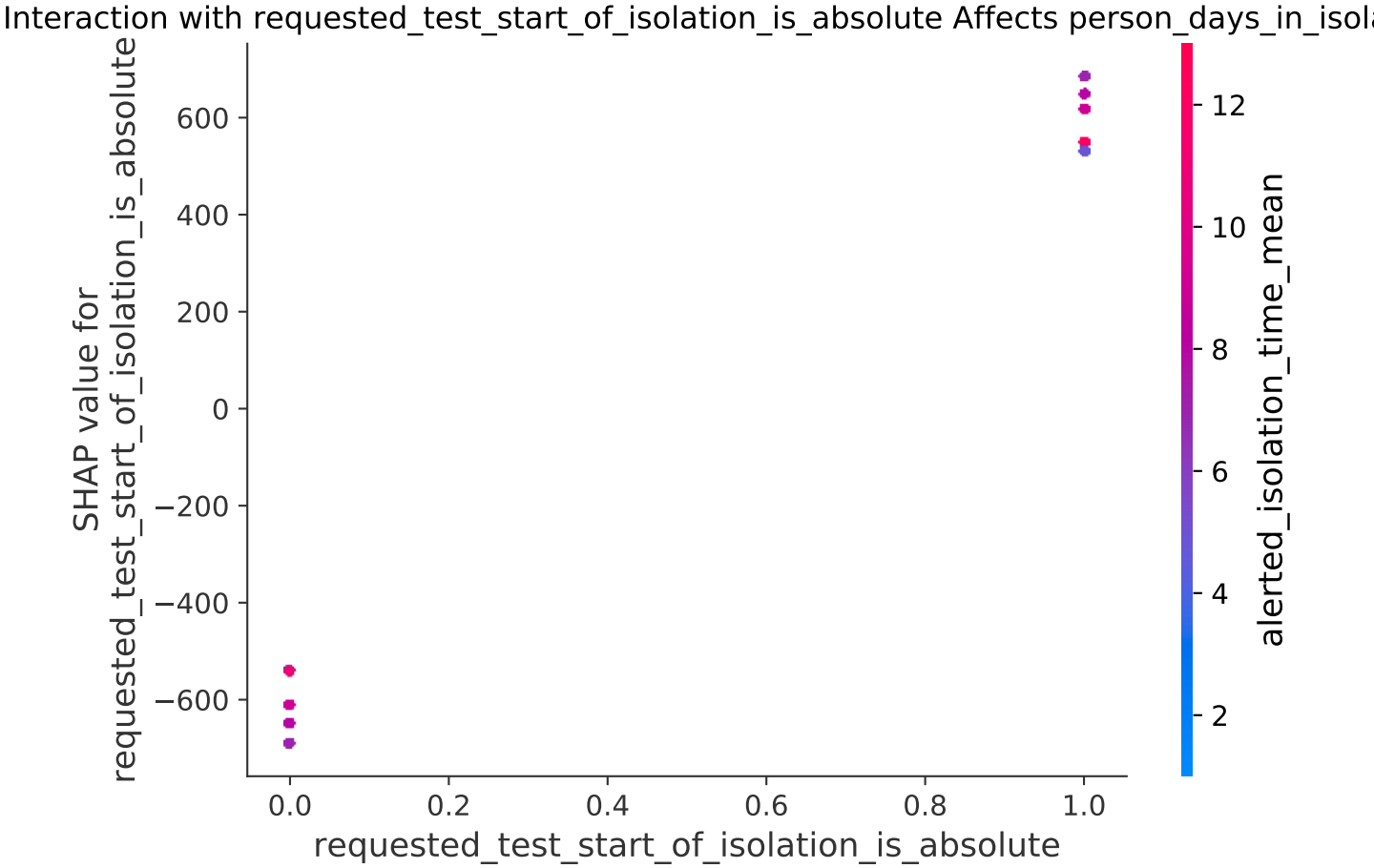

Interaction with severely_symptomatic_isolation_time_mean Affects person_days_in_isola
SHAP value for severely_symptomatic_isolation_time_mean
2000
1500
1000
500
0
−500
−1000
−1500
2
4
6
8
10
12
severely_symptomatic_isolation_time_mean
1.0
0.5
0.0
severely_symptomatic_start_of_isolation_is_absolute

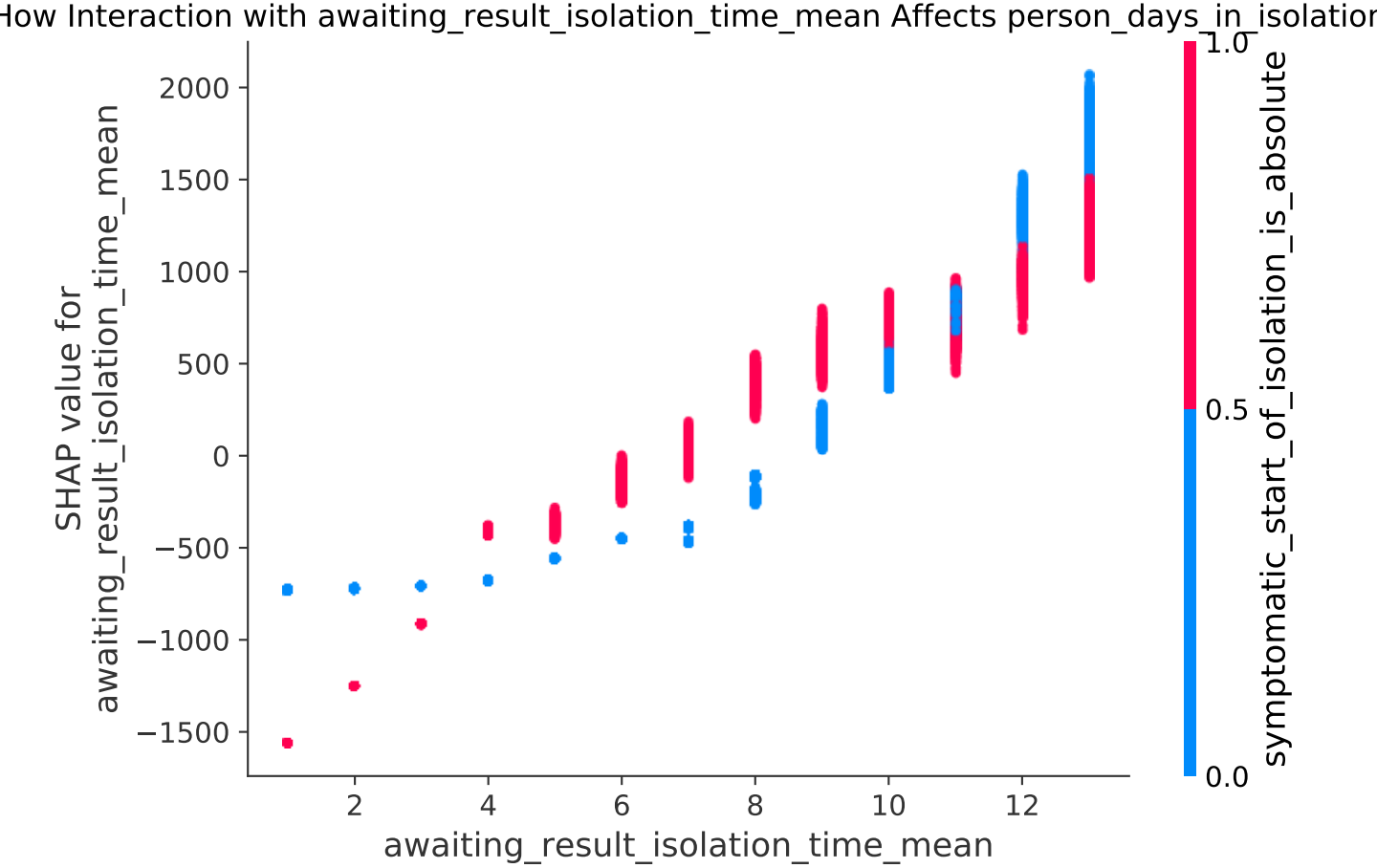

eraction with severely_symptomatic_start_of_isolation_is_absolute Affects person_days_in_
SHAP value for severely_symptomatic_start_of_isolation_is_absolute
600
400
200
0
−200
−400
−600
0.0
0.2
0.4
0.6
0.8
1.0
severely_symptomatic_start_of_isolation_is_absolute
awaiting_result_isolation_time_mean
12
10
8
6
4
2

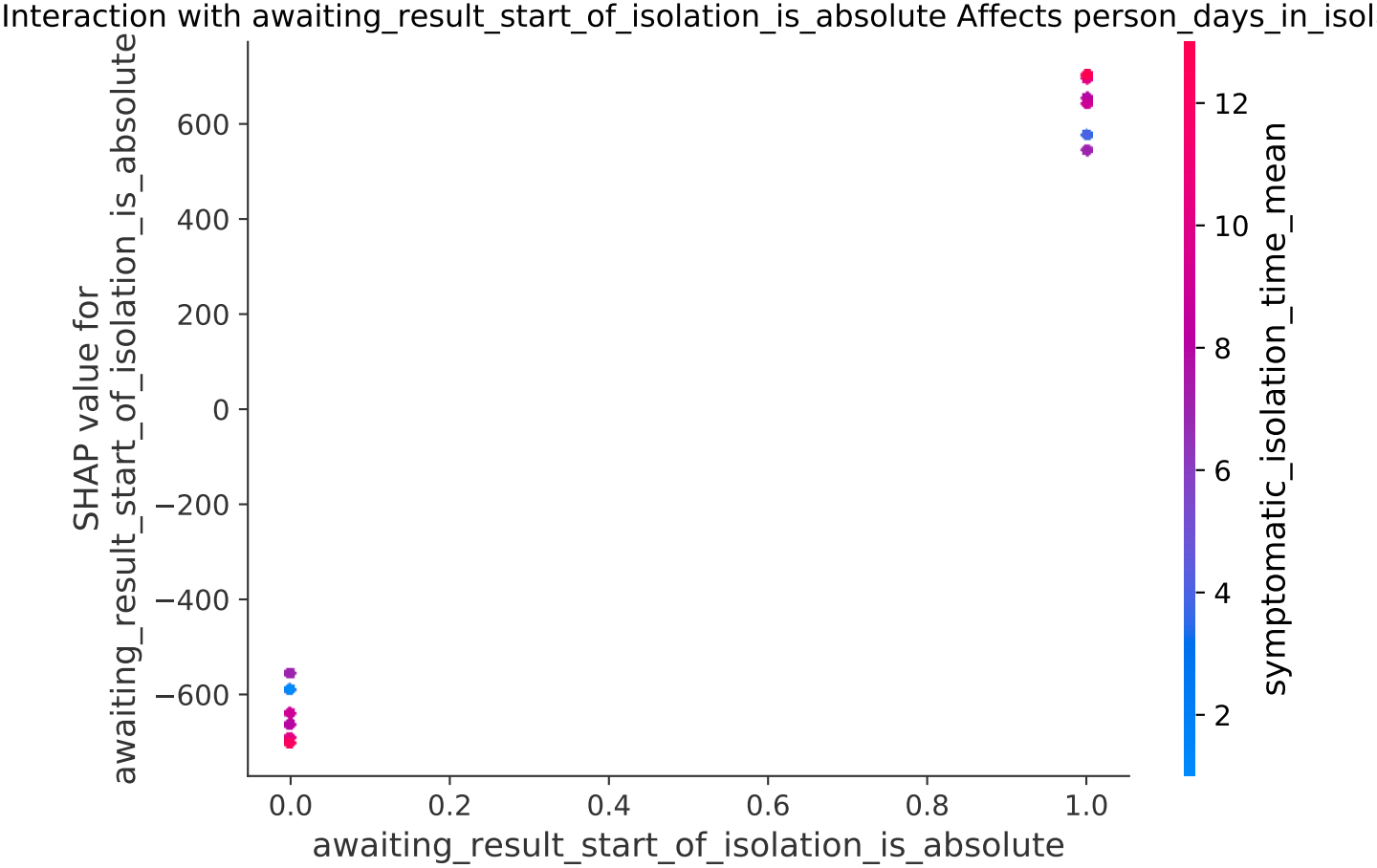

How Interaction with alerted_isolation_time_mean Affects person_days_in_isolation
SHAP value for alerted_isolation_time_mean
2000
1000
0
−1000
−2000
2
4
6
8
10
12
alerted_isolation_time_mean
1.0
0.5
0.0
symptomatic_start_of_isolation_is_absolute

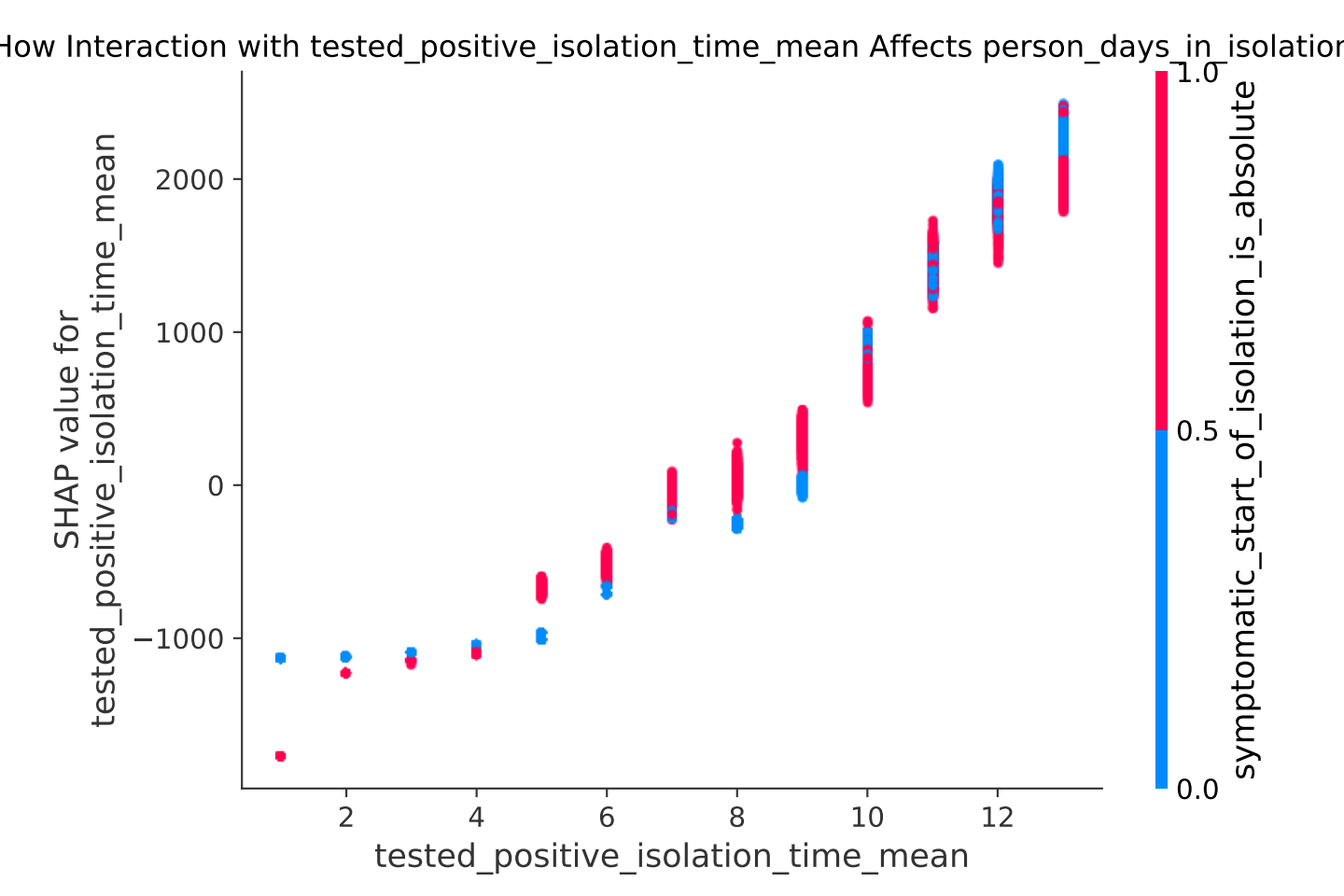

How Interaction with alerted_start_of_isolation_is_absolute Affects person_days_in_isolation
SHAP value for alerted_start_of_isolation_is_absolute
800
600
400
200
0
−200
−400
−600
−800
0.0
0.2
0.4
0.6
0.8
1.0
alerted_start_of_isolation_is_absolute
alerted_isolation_time_mean
12
10
8
6
4
2

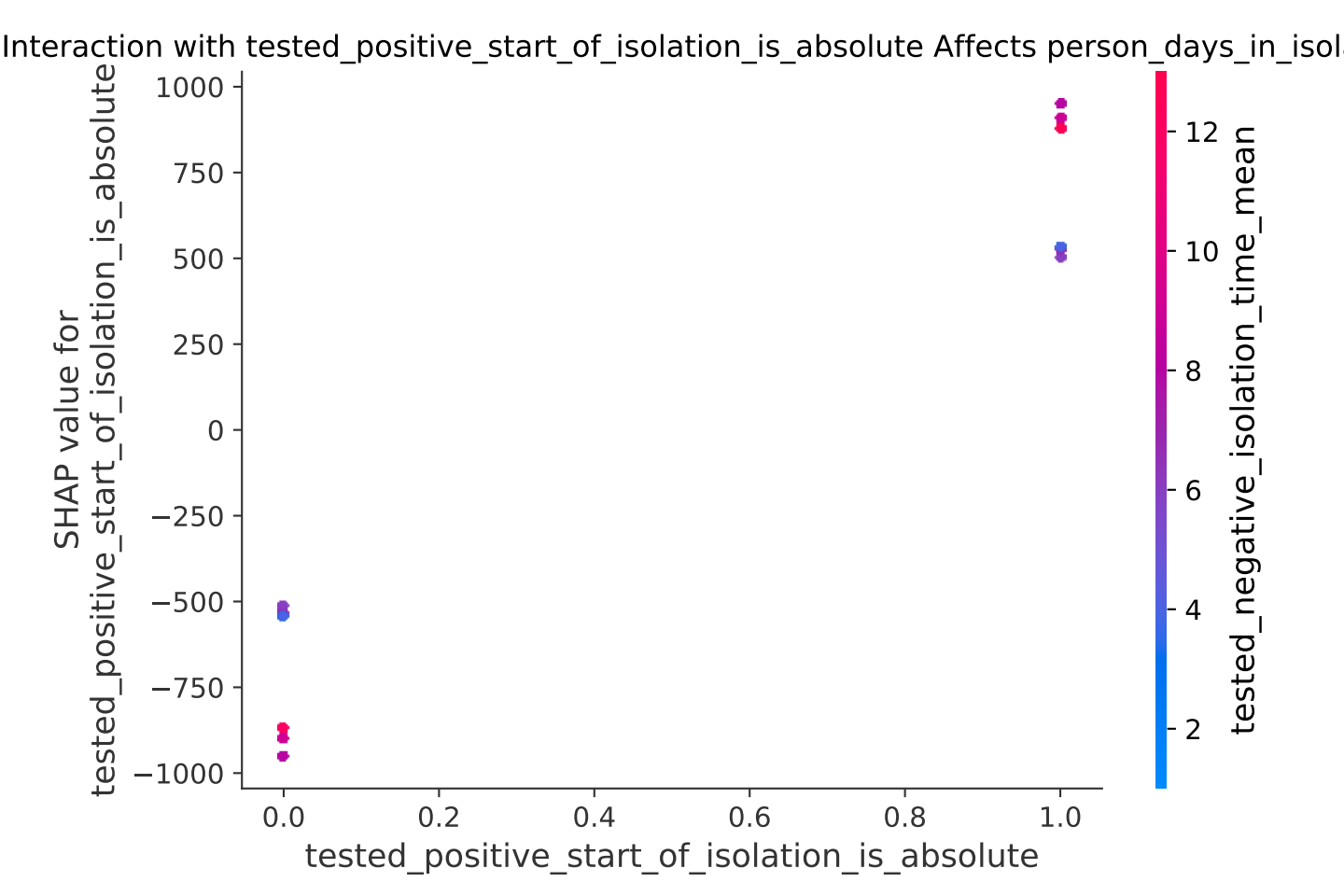

How Interaction with requested_test_isolation_time_mean Affects person_days_in_isolation
SHAP value for
requested_test_isolation_time_mean
2000
1500
1000
500
0
−500
−1000
−1500
2
4
6
8
10
12
requested_test_isolation_time_mean
1.0
0.5
0.0
awaiting_result_start_of_isolation_is_absolute

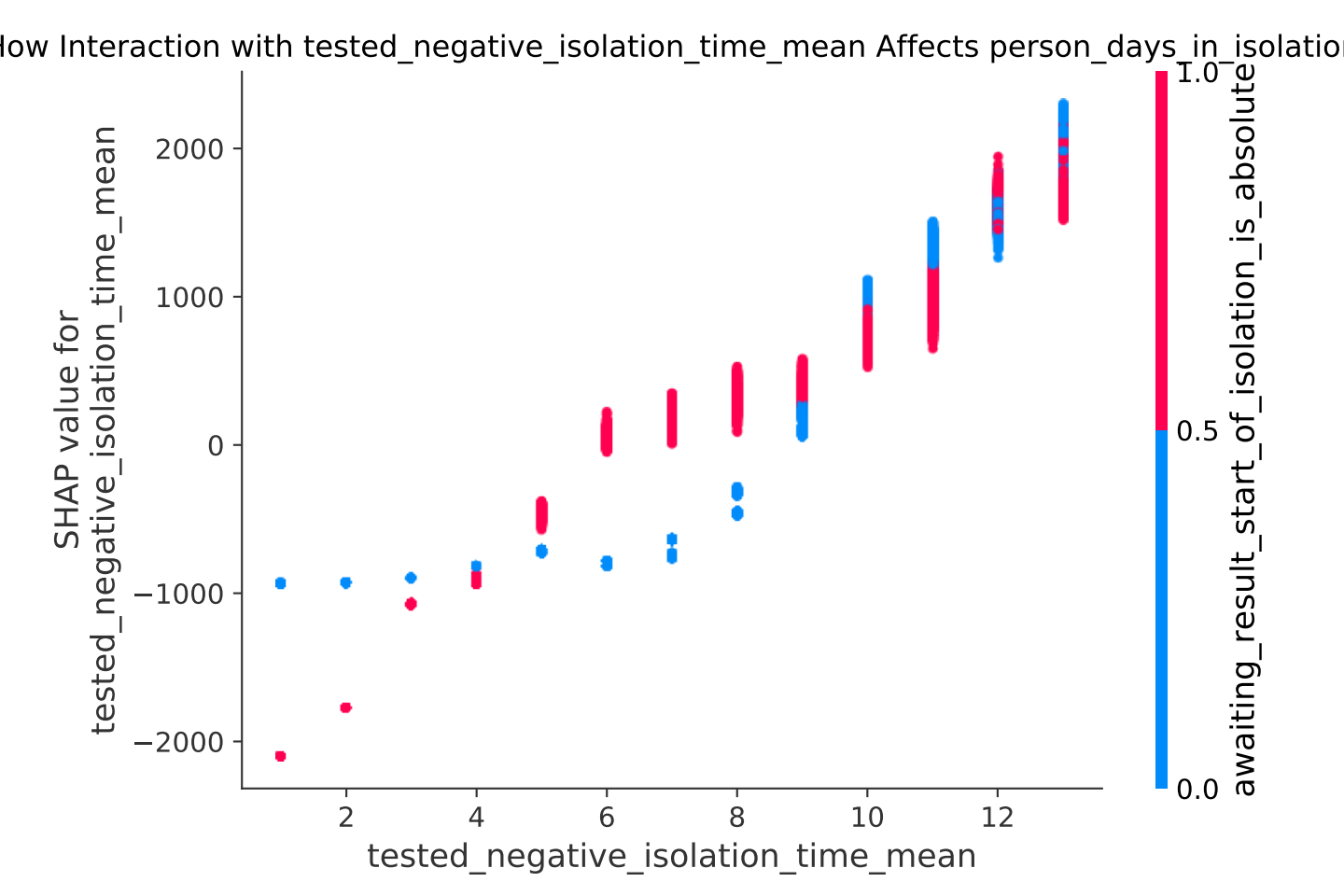

Interaction with requested_test_start_of_isolation_is_absolute Affects person_days_in_isola
SHAP value for
requested_test_start_of_isolation_is_absolute
600
400
200
0
−200
−400
−600
0.0
0.2
0.4
0.6
0.8
1.0
requested_test_start_of_isolation_is_absolute
alerted_isolation_time_mean
12
10
8
6
4
2

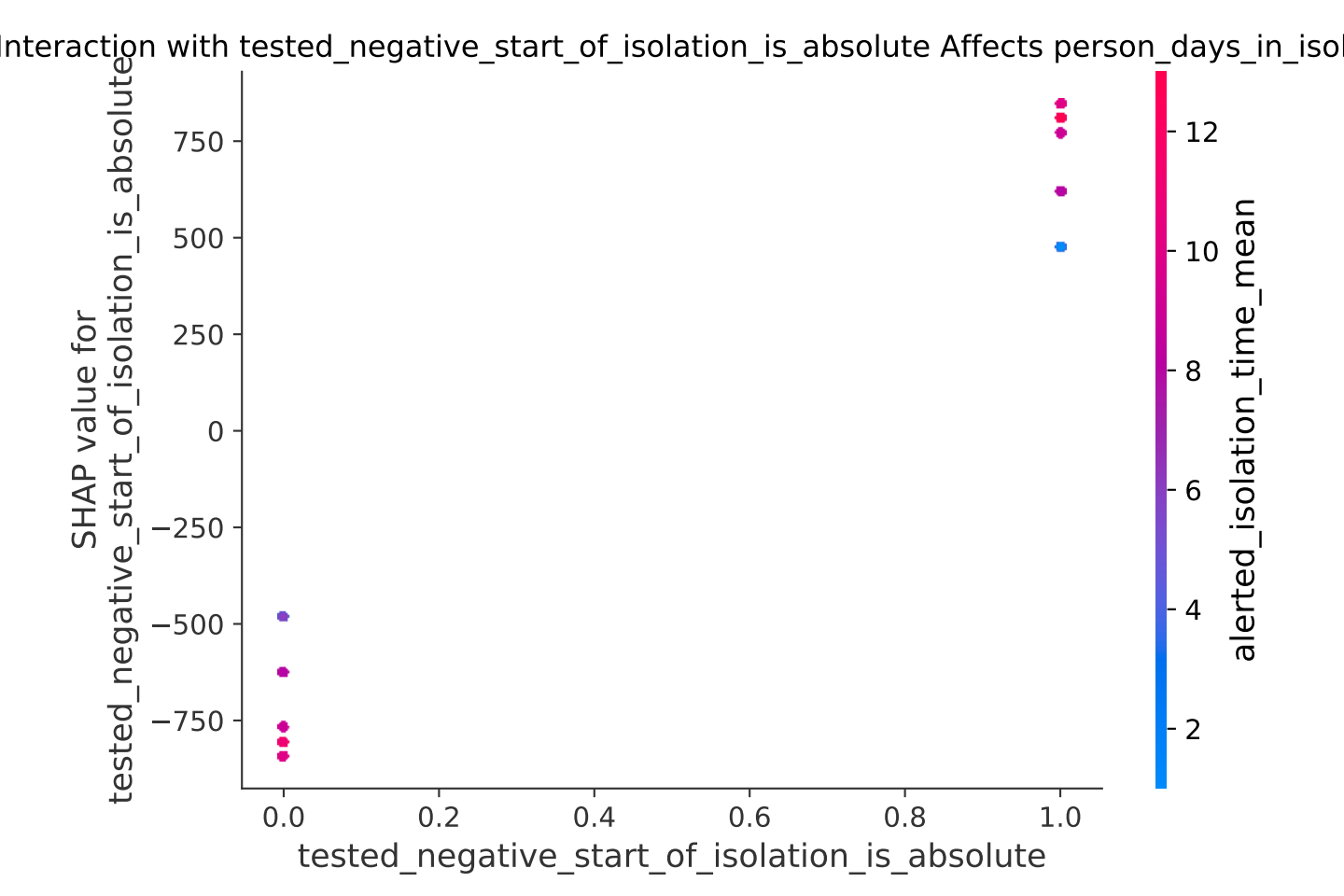

How Interaction with awaiting_result_isolation_time_mean Affects person_days_in_isolation
SHAP value for awaiting_result_isolation_time_mean
2000
1500
1000
500
0
−500
−1000
−1500
2
4
6
8
10
12
awaiting_result_isolation_time_mean
1.0
0.5
0.0
symptomatic_start_of_isolation_is_absolute

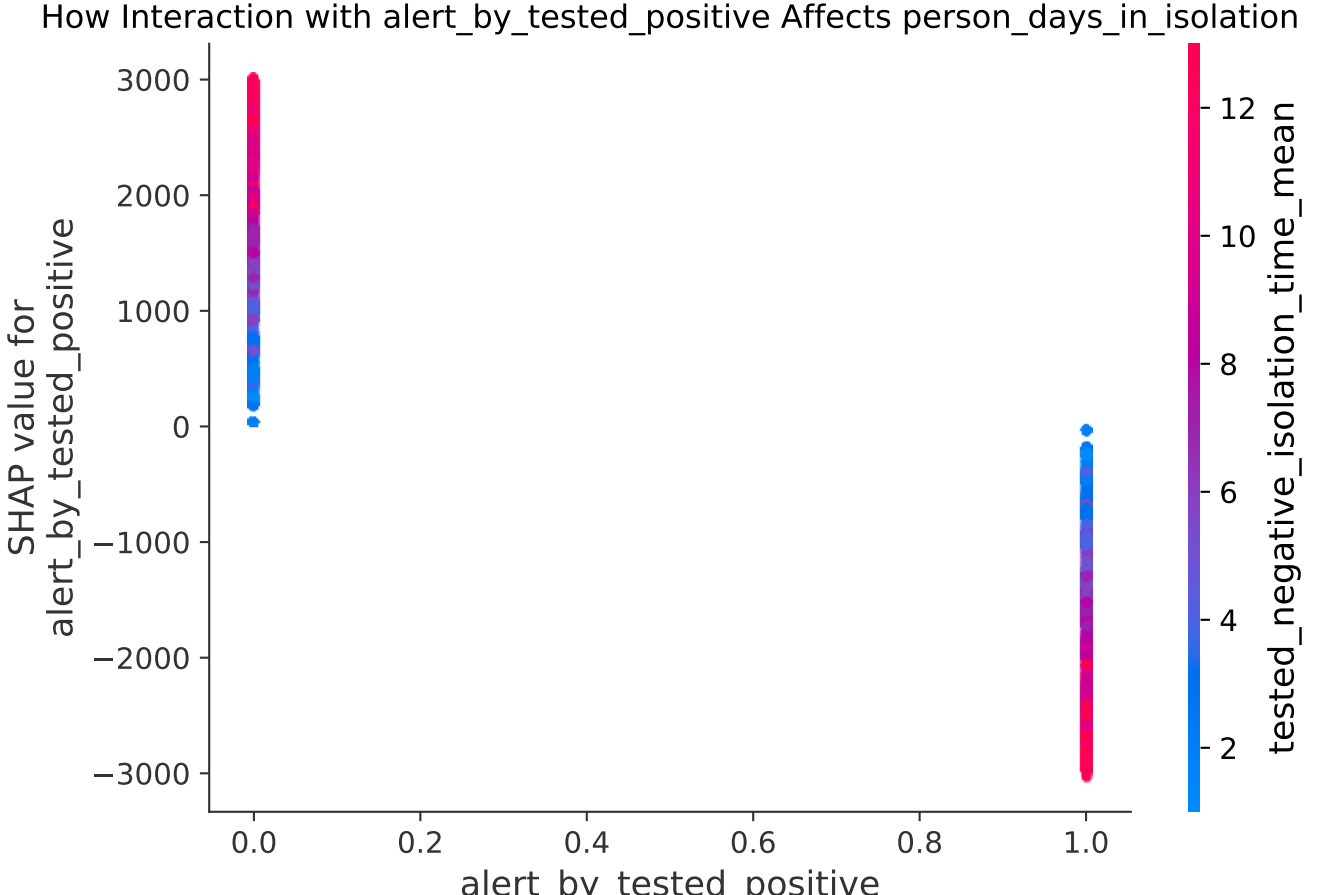

Interaction with awaiting_result_start_of_isolation_is_absolute Affects person_days_in_isol
SHAP value for
awaiting_result_start_of_isolation_is_absolute
600
400
200
0
−200
−400
−600
0.0
0.2
0.4
0.6
0.8
1.0
awaiting_result_start_of_isolation_is_absolute
symptomatic_isolation_time_mean
12
10
8
6
4
2

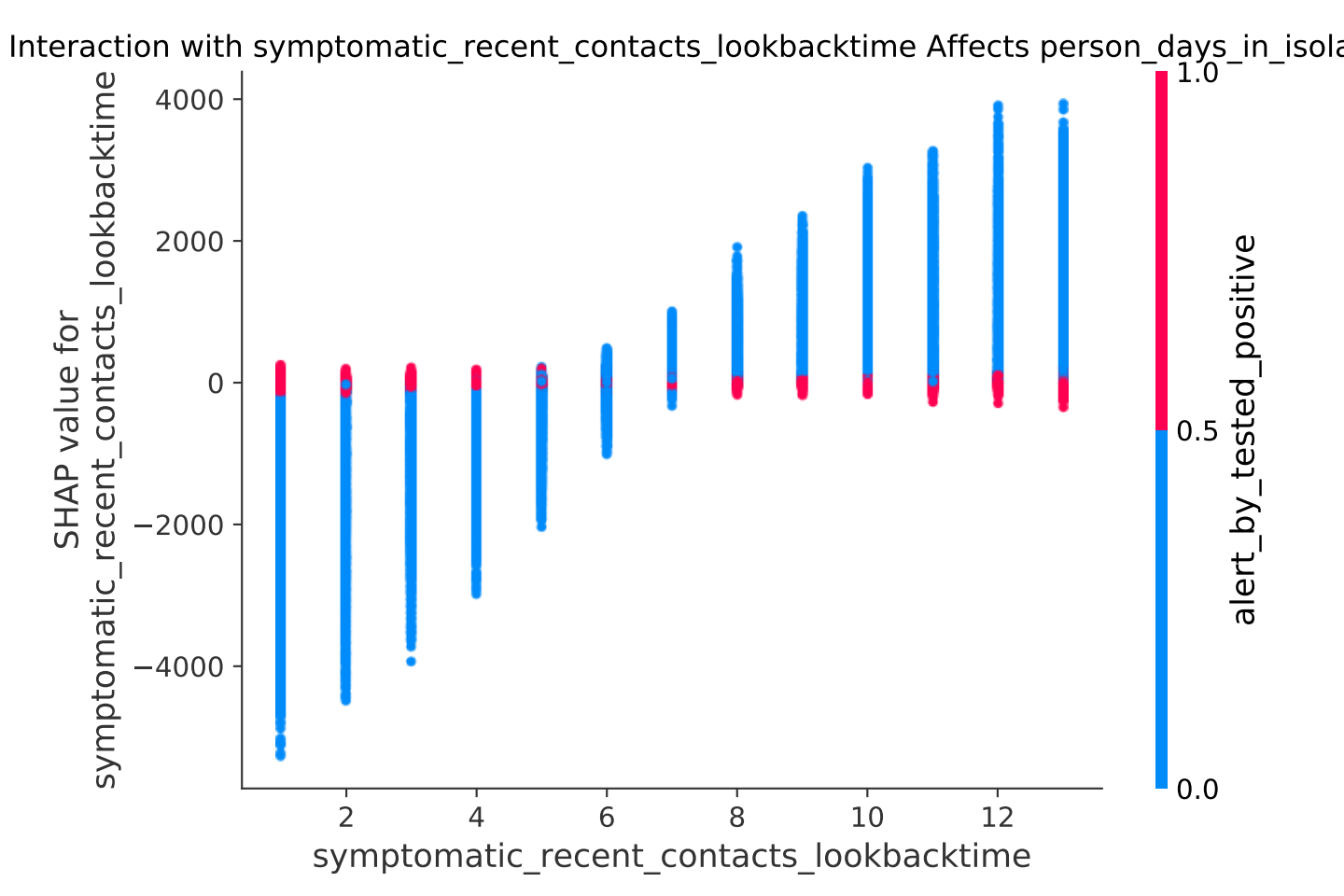

How Interaction with tested_positive_isolation_time_mean Affects person_days_in_isolation
SHAP value for
tested_positive_isolation_time_mean
2000
1000
0
−1000
2
4
6
8
10
12
tested_positive_isolation_time_mean
1.0
0.5
0.0
symptomatic_start_of_isolation_is_absolute

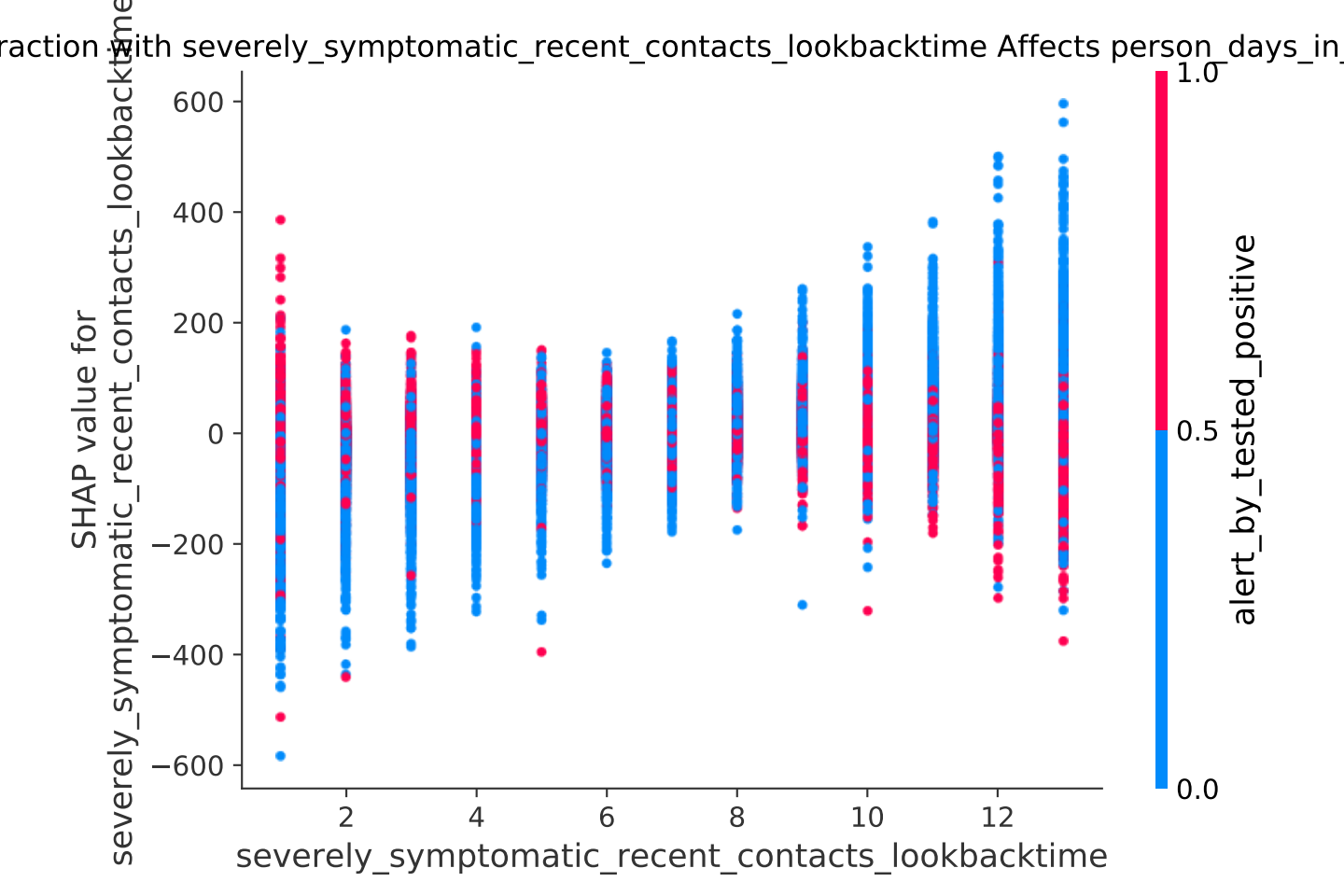

Interaction with tested_positive_start_of_isolation_is_absolute Affects person_days_in_isol
SHAP value for
tested_positive_start_of_isolation_is_absolute
1000
750
500
250
0
−250
−500
−750
−1000
0.0
0.2
0.4
0.6
0.8
1.0
tested_positive_start_of_isolation_is_absolute
12
10
8
6
4
2
tested_negative_isolation_time_mean


How Interaction with tested_negative_isolation_time_mean Affects person_days_in_isolatio
SHAP value for
tested_negative_isolation_time_mean
2000
1000
0
−1000
−2000
2
4
6
8
10
12
tested_negative_isolation_time_mean
1.0
0.5
0.0
awaiting_result_start_of_isolation_is_absolute


Interaction with tested_negative_start_of_isolation_is_absolute Affects person_days_in_isol
SHAP value for
tested_negative_start_of_isolation_is_absolute
750
500
250
0
−250
−500
−750
0.0
0.2
0.4
0.6
0.8
1.0
tested_negative_start_of_isolation_is_absolute
alerted_isolation_time_mean
12
10
8
6
4
2


How Interaction with alert_by_tested_positive Affects person_days_in_isolation
SHAP value for alert_by_tested_positive
3000
2000
1000
0
−1000
−2000
−3000
0.0
0.2
0.4
0.6
0.8
1.0
alert_by_tested_positive
tested_negative_isolation_time_mean
12
10
8
6
4
2


Interaction with symptomatic_recent_contacts_lookbacktime Affects person_days_in_isola
SHAP value for symptomatic_recent_contacts_lookbacktime
4000
2000
0
−2000
−4000
2
4
6
8
10
12
symptomatic_recent_contacts_lookbacktime
alert_by_tested_positive
1.0
0.5
0.0


raction with severely_symptomatic_recent_contacts_lookbacktime Affects person_days_in_
SHAP value for severely_symptomatic_recent_contacts_lookbacktime
600
400
200
0
−200
−400
−600
2
4
6
8
10
12
severely_symptomatic_recent_contacts_lookbacktime
1.0
0.5
0.0
alert_by_tested_positive