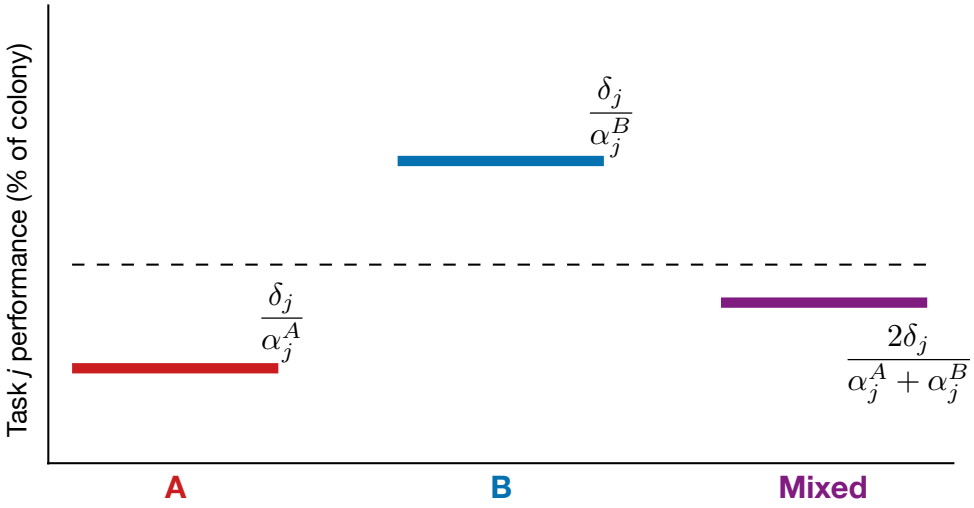
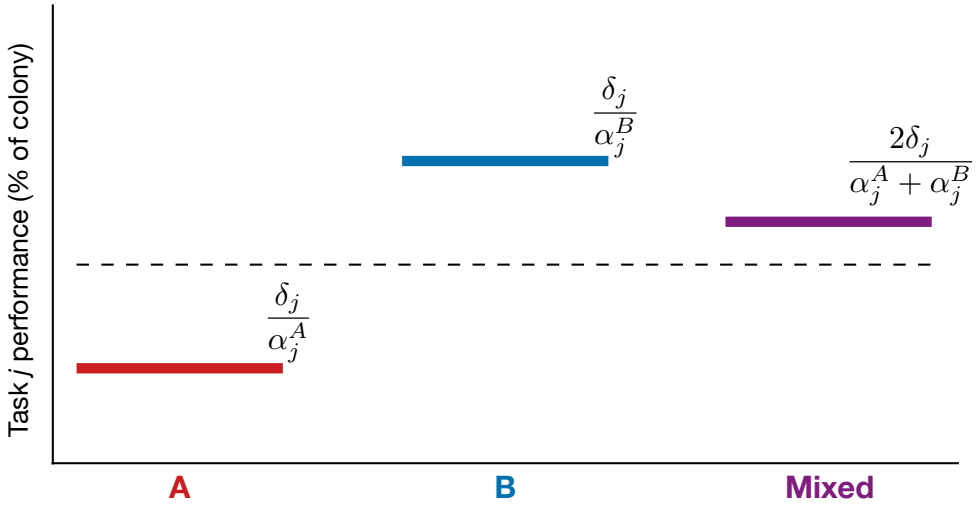
Miscellaneous Figures

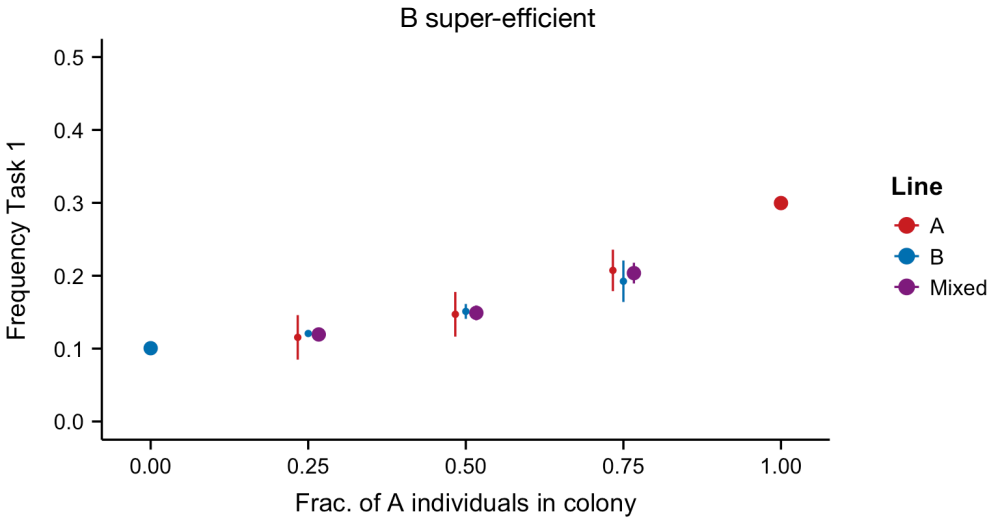
Downward Contagion

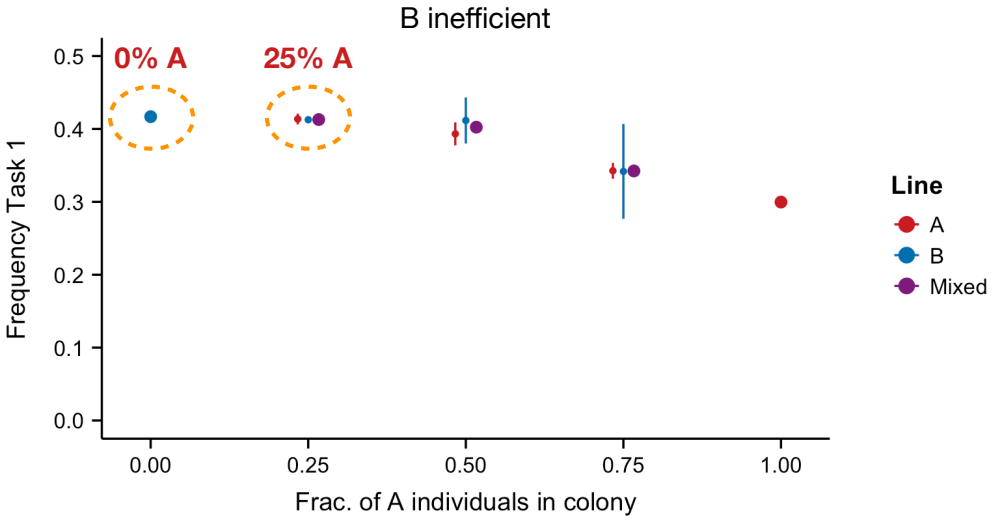


Upward Contagion

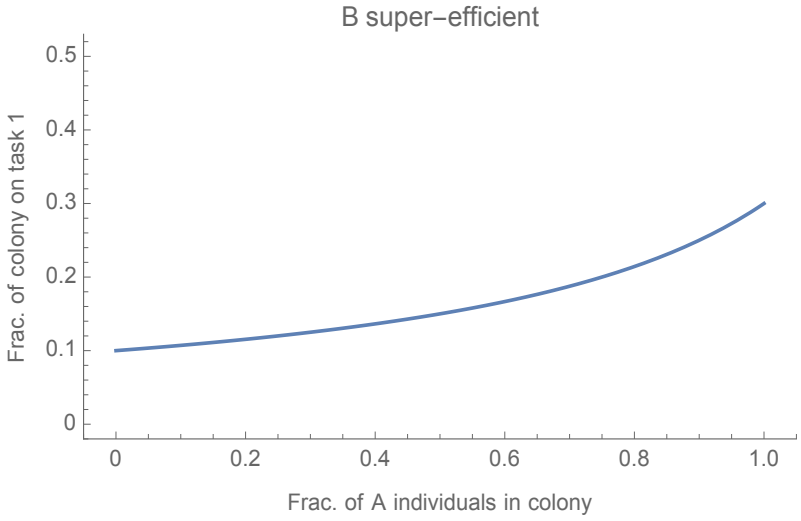


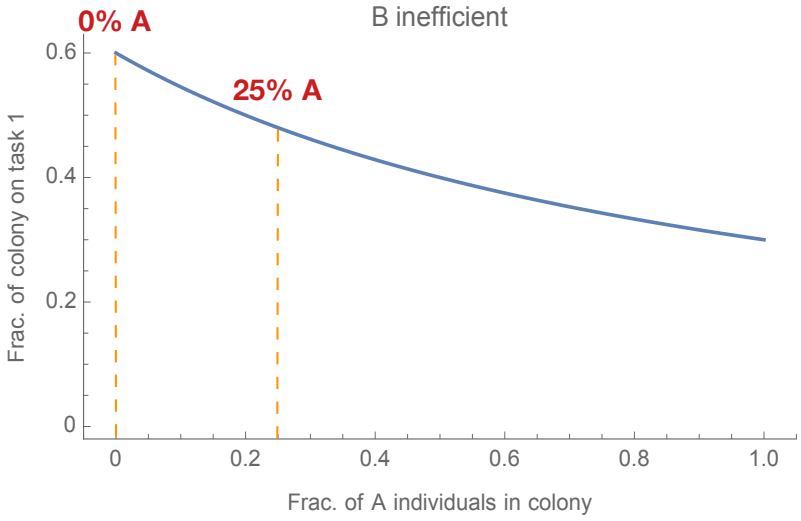
Simulation results



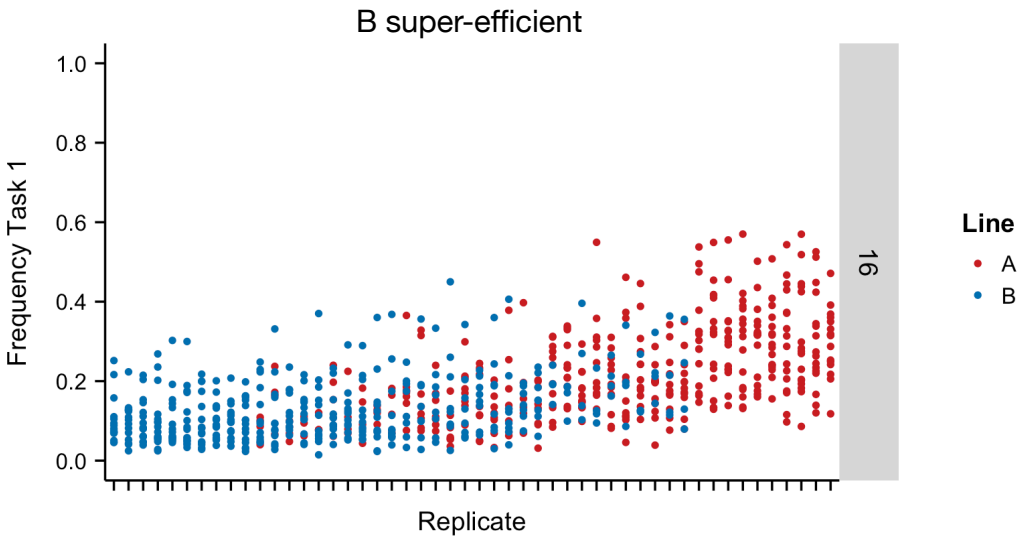


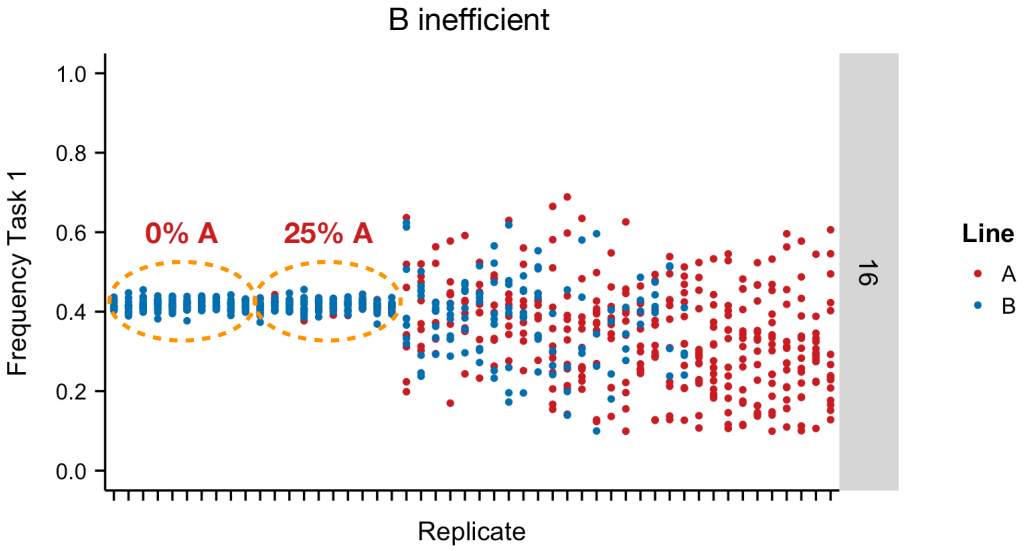
Predictions



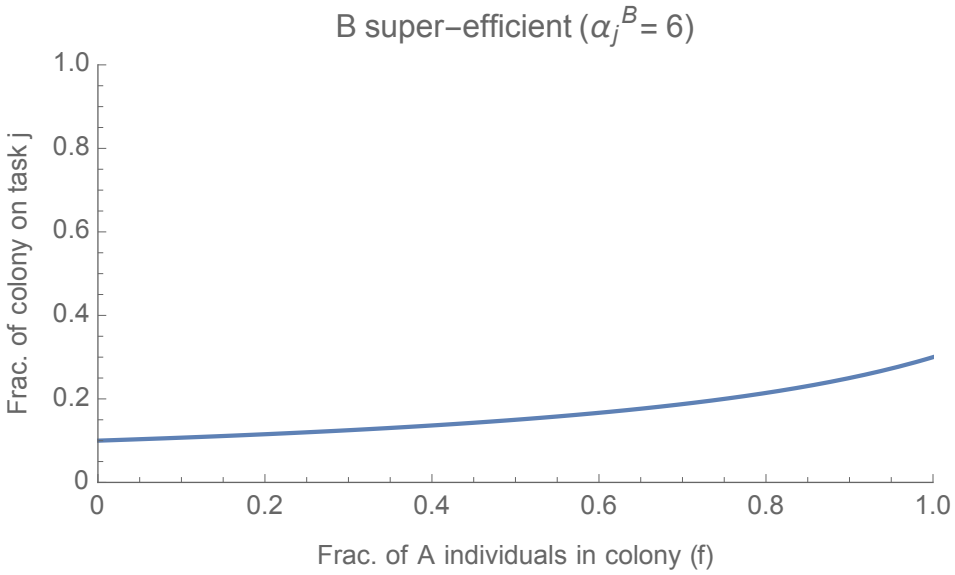


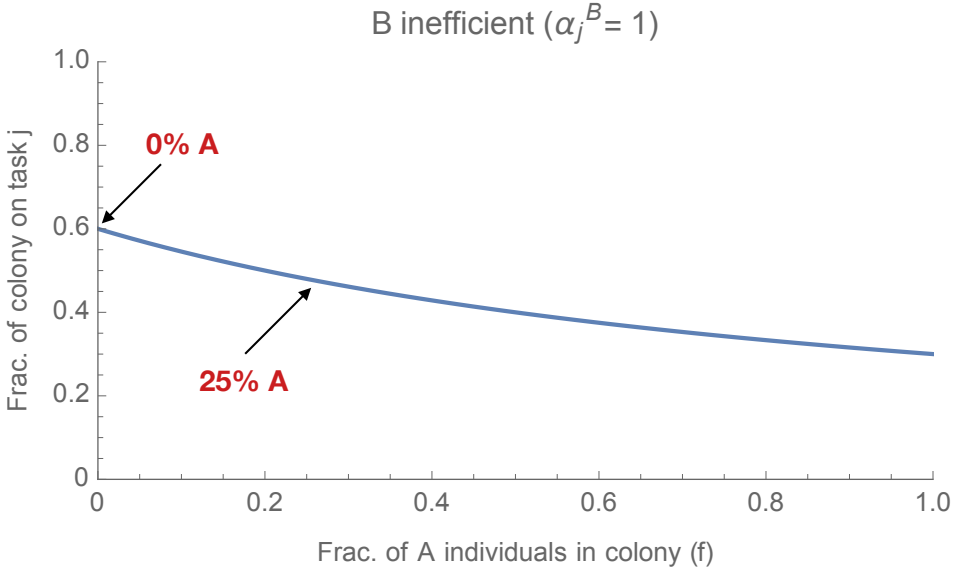
Simulation results (credit to Chris)



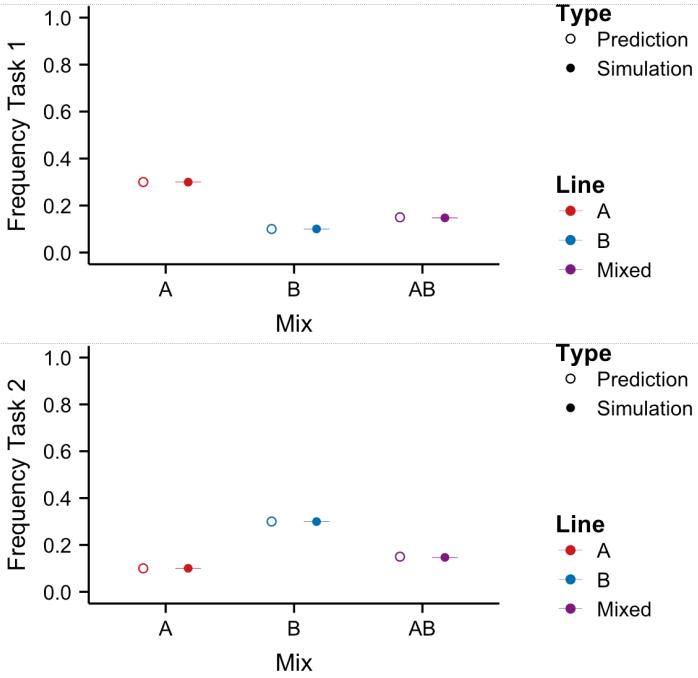


Predictions

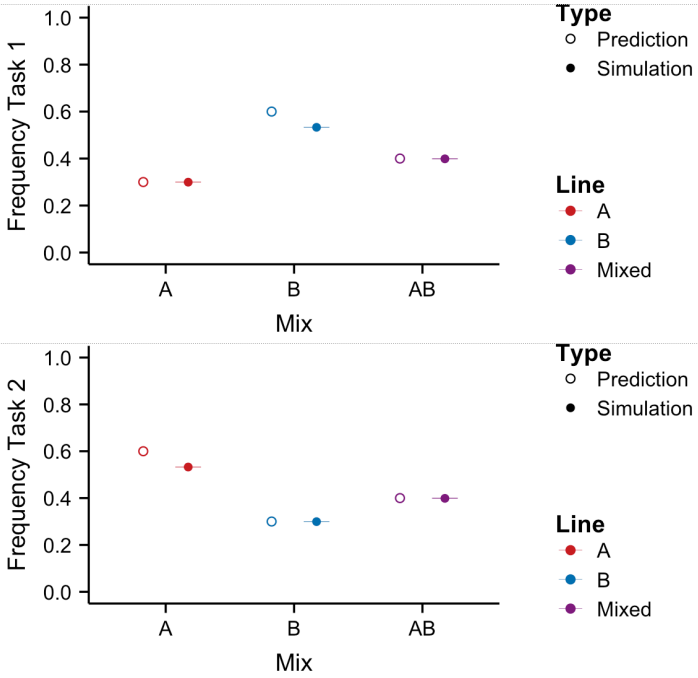




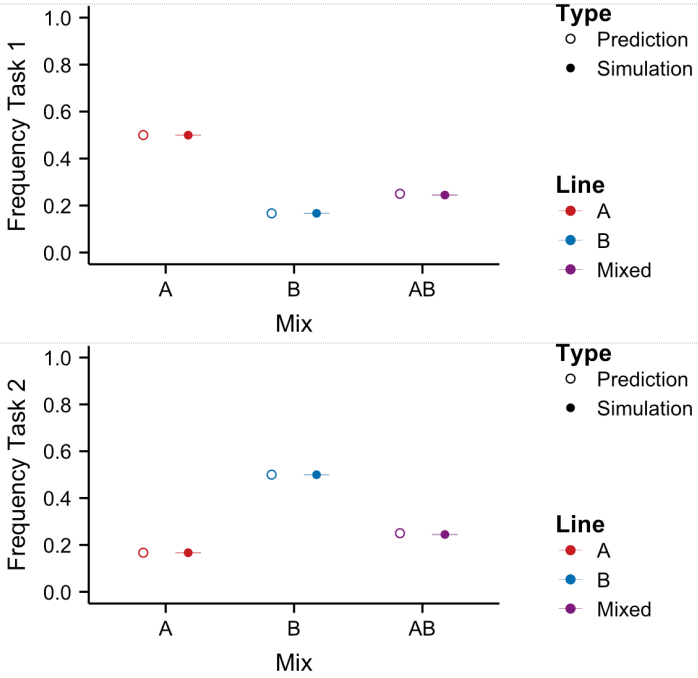
A. $a_1^A = a_2^B = 2$, $a_2^A = a_1^B = 6$, $\delta_1 = \delta_2 = 0.6$
(Agreement between model + simulations)



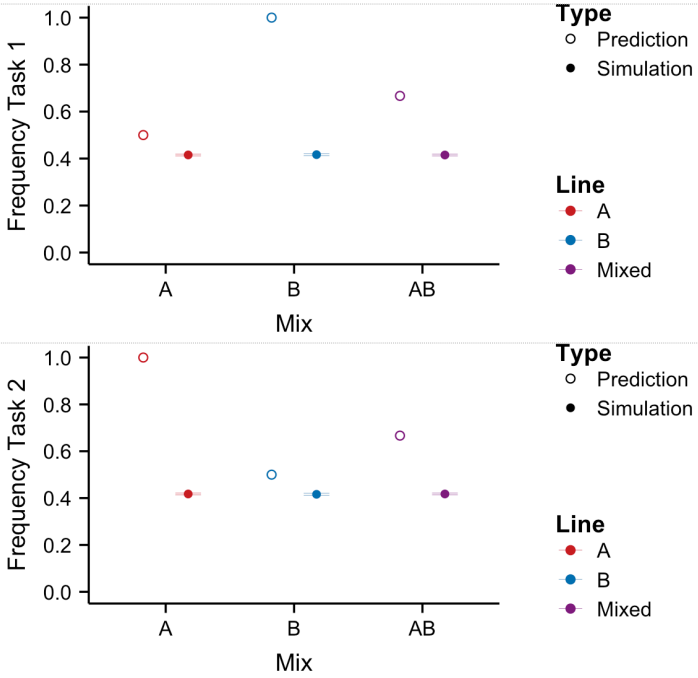
B. $a_1^A = a_2^B = 2$, $a_2^A = a_1^B = 1$, $\delta_1 = \delta_2 = 0.6$
(Unexpected discrepancy)



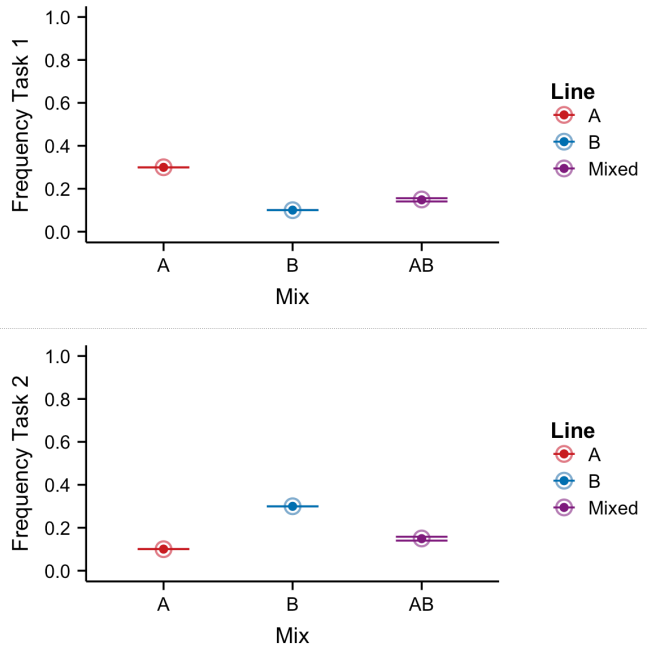
C. $a_1^A = a_2^B = 2$, $a_2^A = a_1^B = 6$, $\delta_1 = \delta_2 = 1.0$
(Agreement between model + simulations)



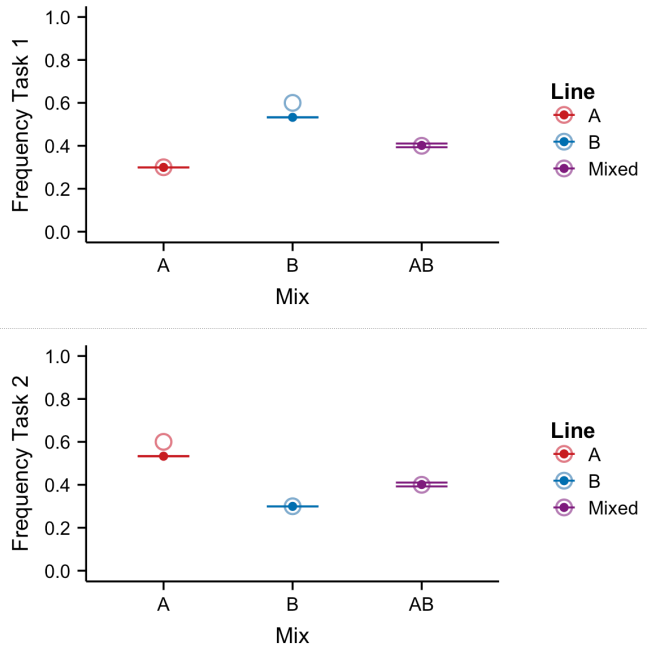
D. $a_1^A = a_2^B = 2$, $a_2^A = a_1^B = 1$, $\delta_1 = \delta_2 = 1.0$
(Expected discrepancy)



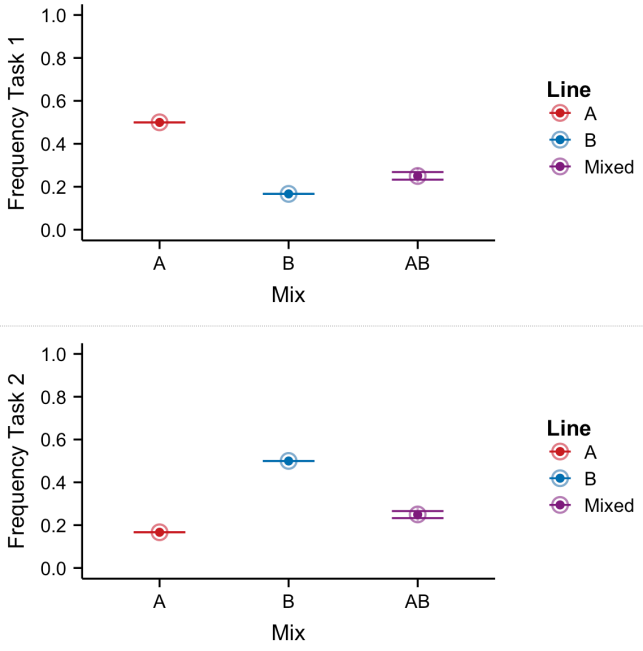
A. $\alpha_1^A = \alpha_2^B = 2$, $\alpha_2^A = \alpha_1^B = 6$, $\delta_1 = \delta_2 = 0.6$
(Agreement b/w model + simulations)



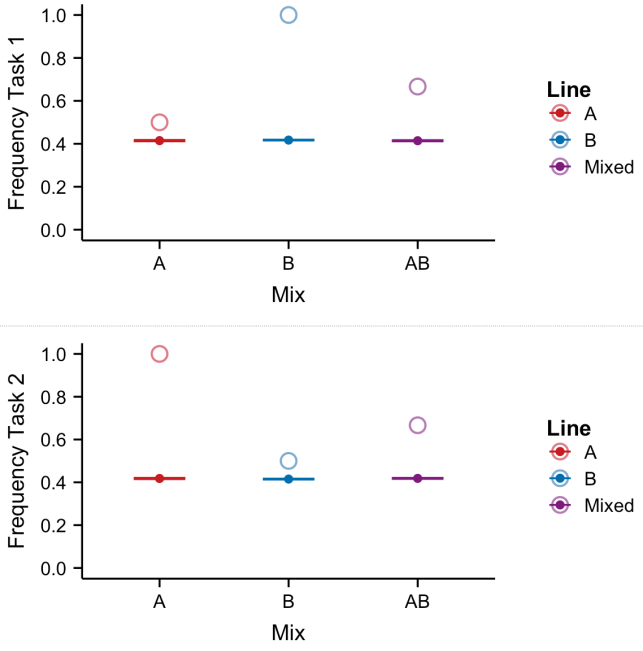
B. $\alpha_1^A = \alpha_2^B = 2$, $\alpha_2^A = \alpha_1^B = 1$, $\delta_1 = \delta_2 = 0.6$
(Unexpected discrepancy)



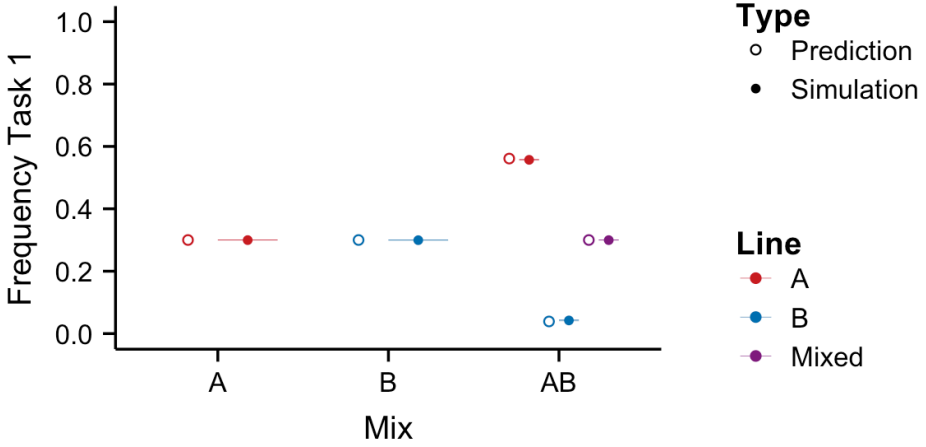
C. $\alpha_1^A = \alpha_2^B = 2$, $\alpha_2^A = \alpha_1^B = 6$, $\delta_1 = \delta_2 = 1.0$
(Agreement b/w model + simulations)

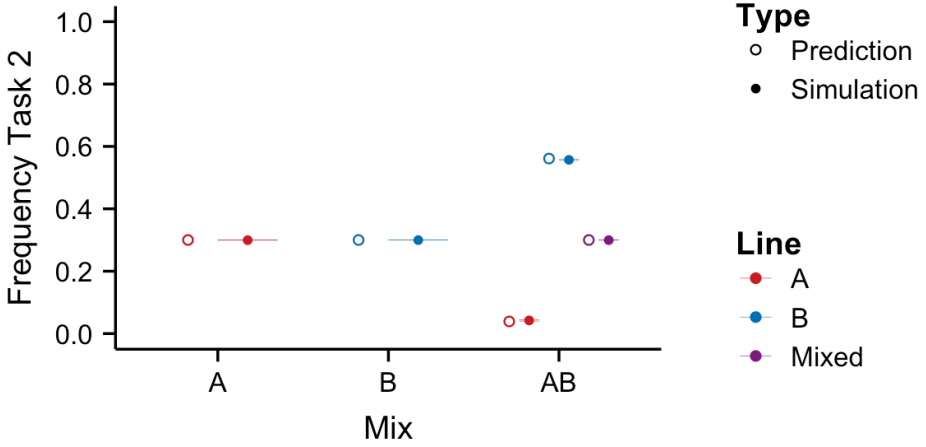


D. $\alpha_1^A = \alpha_2^B = 2$, $\alpha_2^A = \alpha_1^B = 1$, $\delta_1 = \delta_2 = 1.0$
(Expected discrepancy)

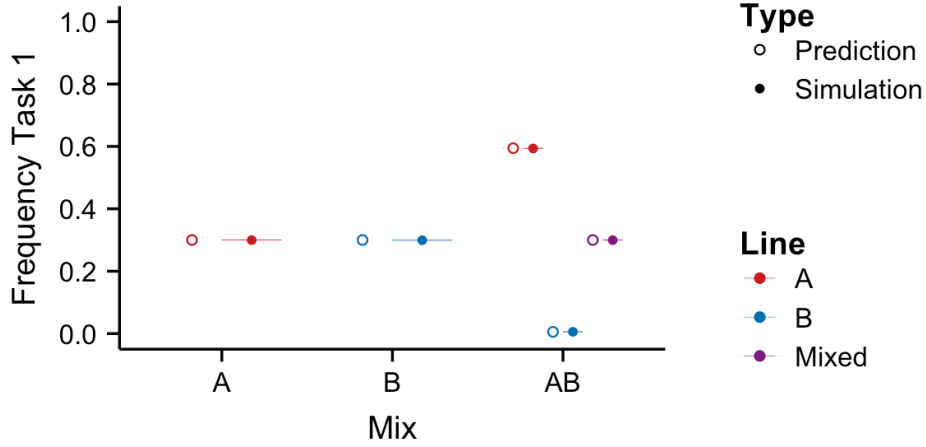


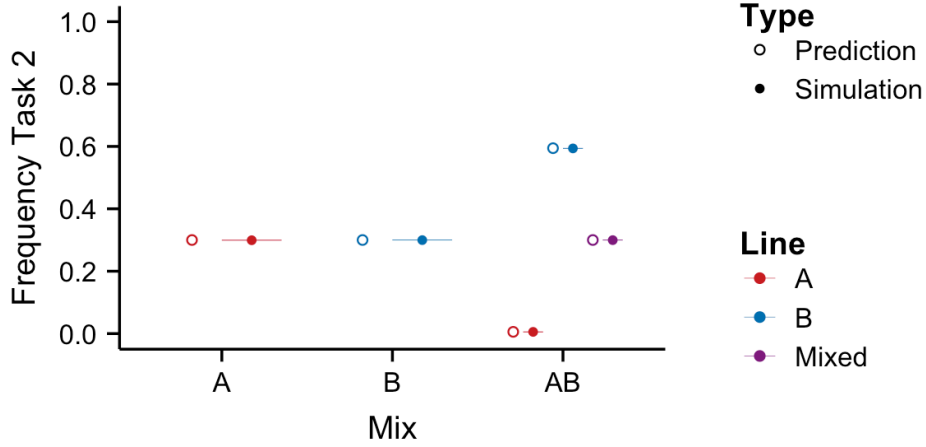
A. $\mu_1^A = \mu_2^B = 10$, $\mu_2^A = \mu_1^B = 15$





B. $\mu_1^A = \mu_2^B = 10$, $\mu_2^A = \mu_1^B = 20$



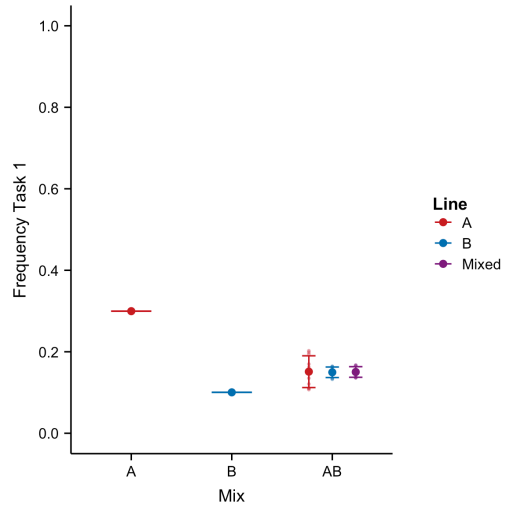


Tasks are less demanding: $\delta_1 = \delta_2 = 0.6$

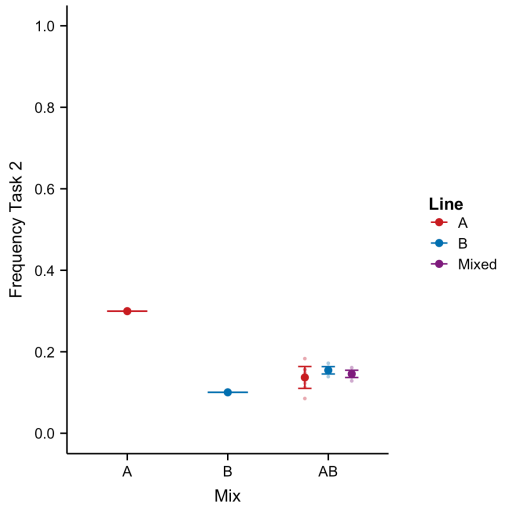
One type is better at both tasks

$a_1^A = a_2^A = 2,\ a_1^B = a_2^B = 6$

Task 1

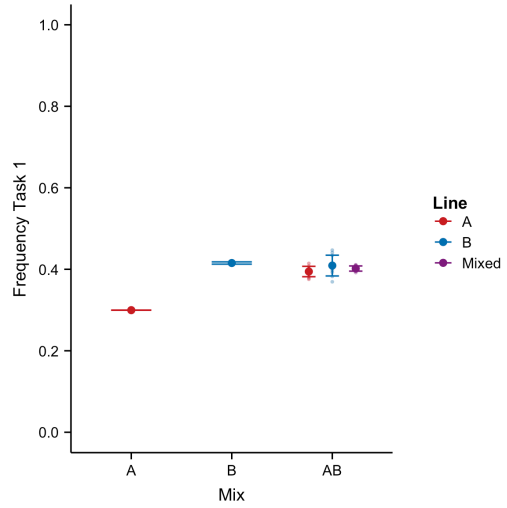


Task 2

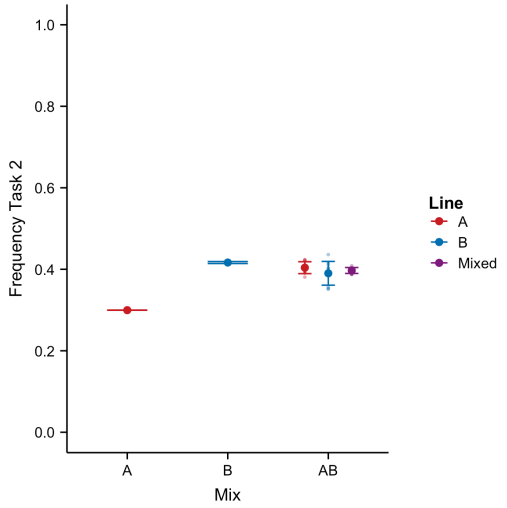


$a_1^A = a_2^A = 2,\ a_1^B = a_2^B = 1$

Task 1



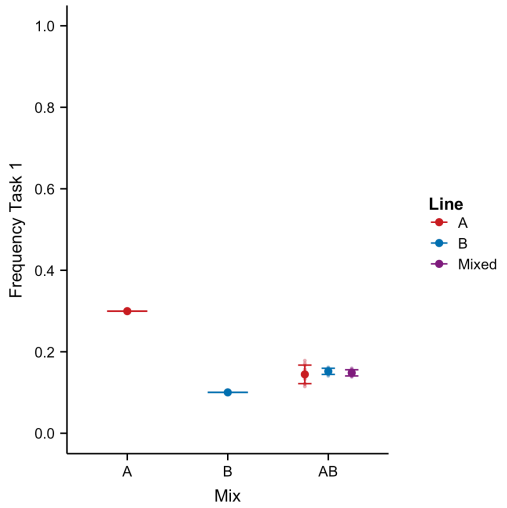
Task 2



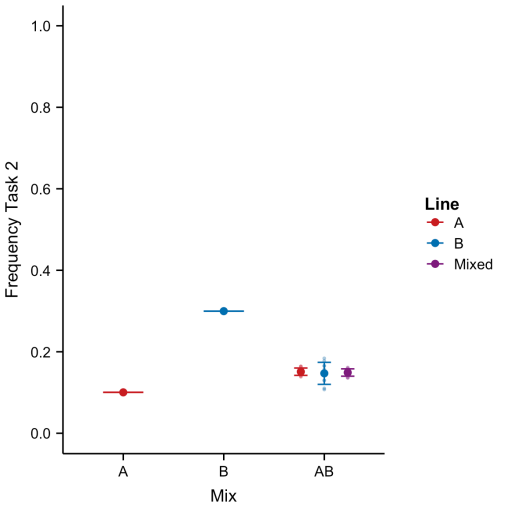
Each type is better at one task

$a_1^A = a_2^B = 2,\ a_2^A = a_2^B = 6$

Task 1

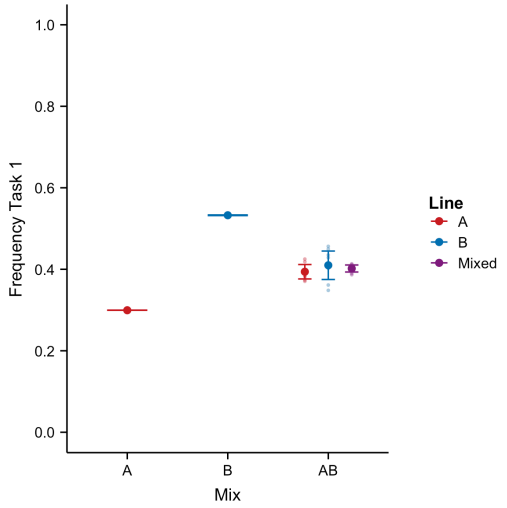


Task 2

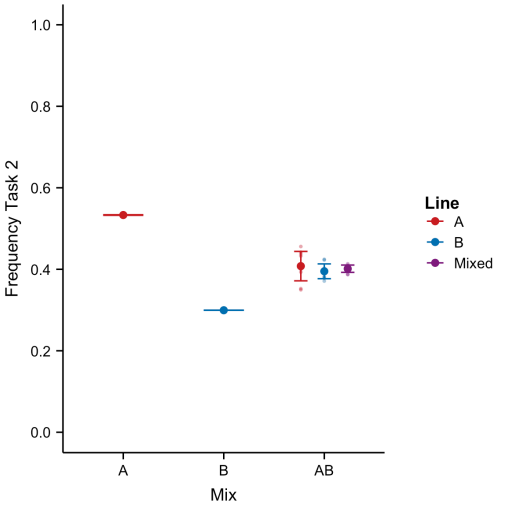


$a_1^A = a_2^B = 2,\ a_2^A = a_2^B = 1$

Task 1



Task 2

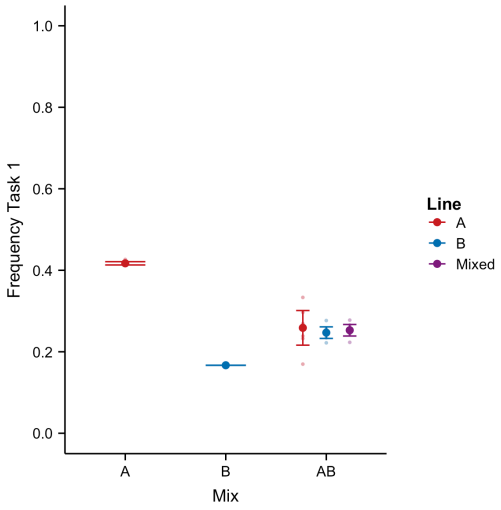


Tasks are more demanding: $\delta_1 = \delta_2 = 1.0$

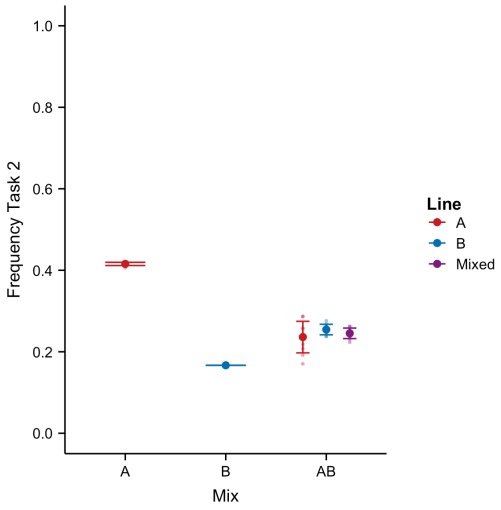
One type is better at both tasks

$a_1^A = a_2^A = 2,\ a_1^B = a_2^B = 6$

Task 1

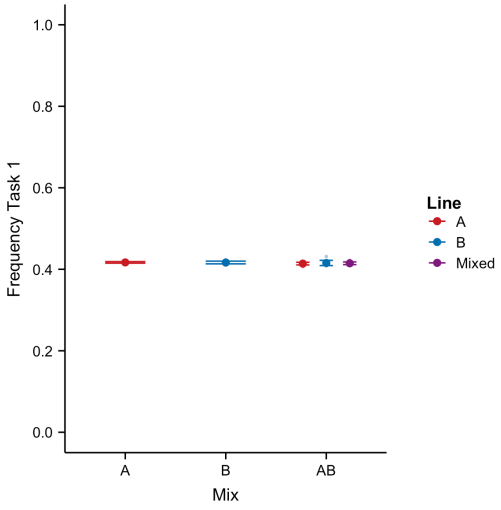


Task 2

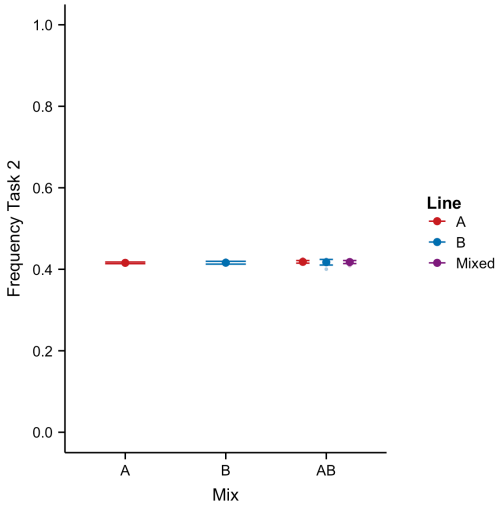


$a_1^A = a_2^A = 2,\ a_1^B = a_2^B = 1$

Task 1



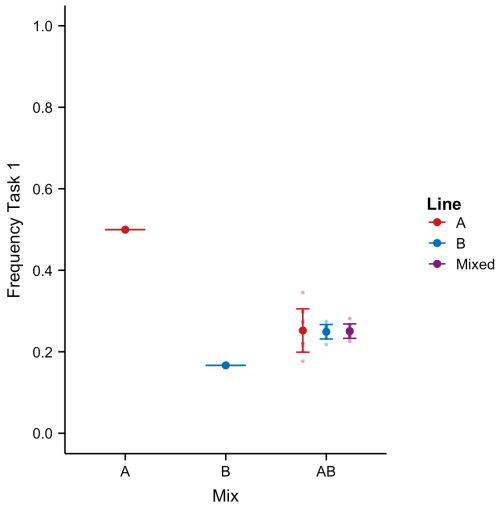
Task 2



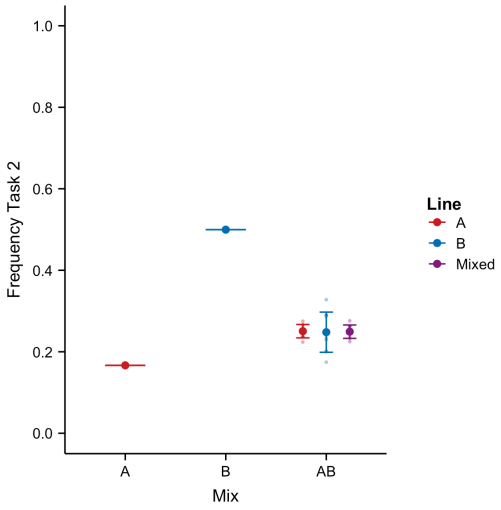
Each type is better at one task

$a_1^A = a_2^B = 2,\ a_2^A = a_2^B = 6$

Task 1

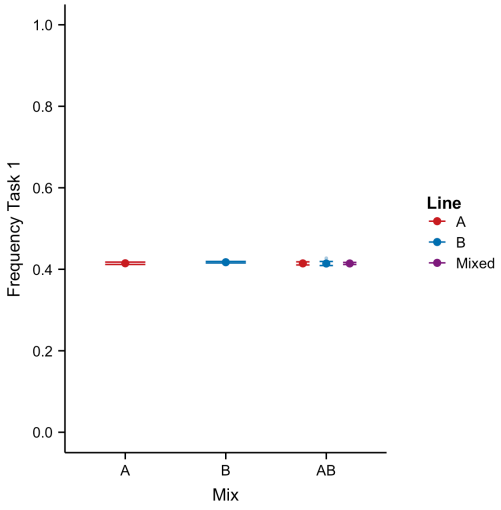


Task 2

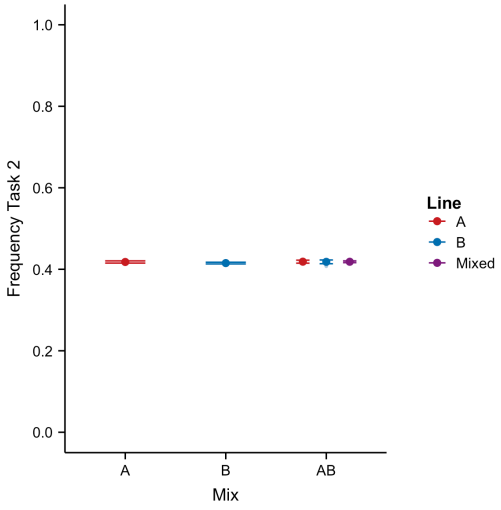


$a_1^A = a_2^B = 2,\ a_2^A = a_2^B = 1$

Task 1



Task 2

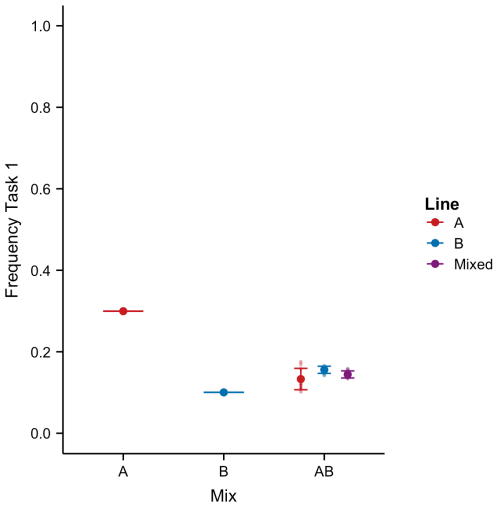


Tasks differ in demand: $\delta_1 = 0.6$, $\delta_2 = 1.0$

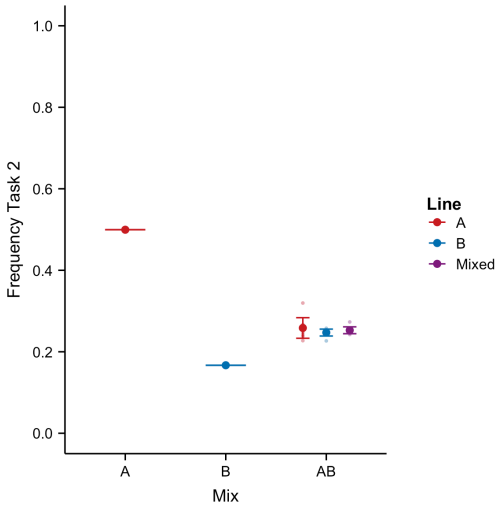
One type is better at both tasks

$a_1^A = a_2^A = 2$, $a_1^B = a_2^B = 6$

Task 1

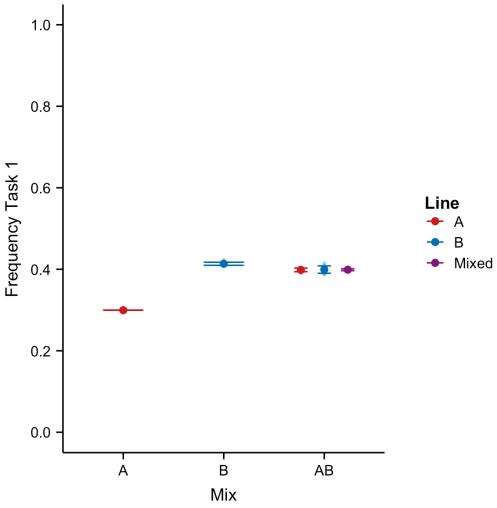


Task 2

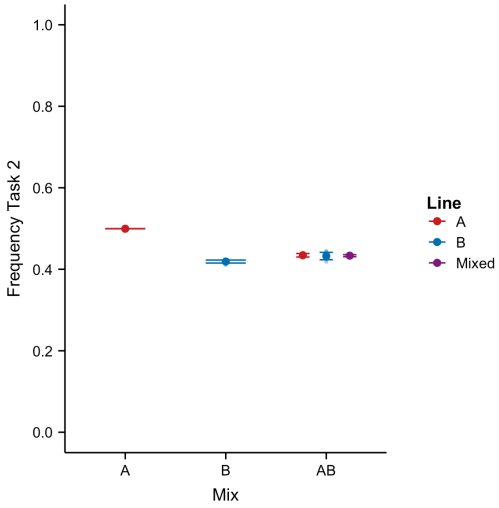


$a_1^A = a_2^A = 2$, $a_1^B = a_2^B = 1$

Task 1



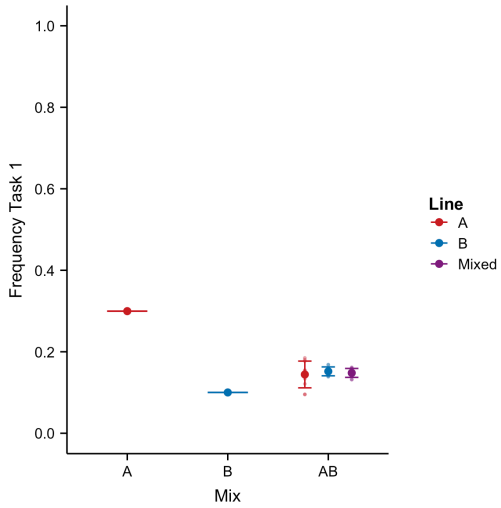
Task 2



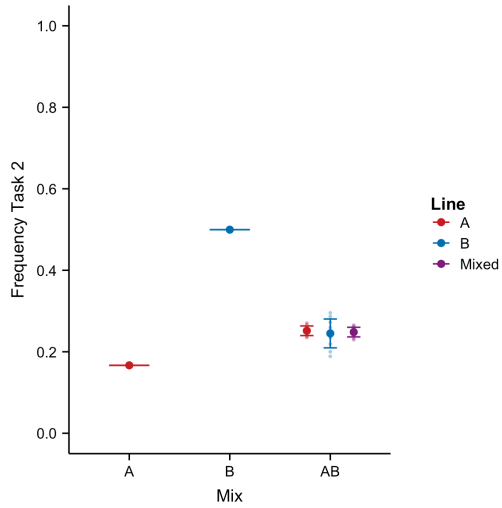
Each type is better at one task

$a_1^A = a_2^B = 2$, $a_2^A = a_2^B = 6$

Task 1

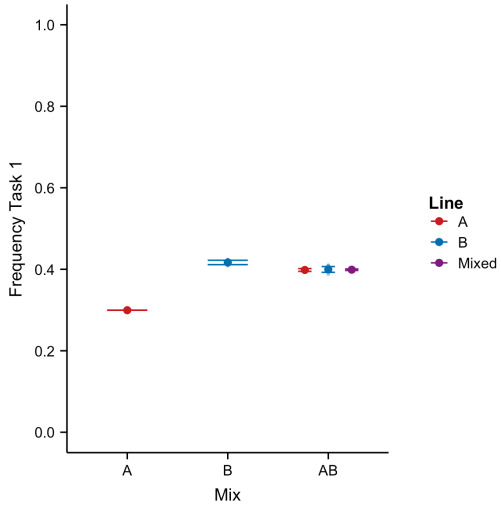


Task 2

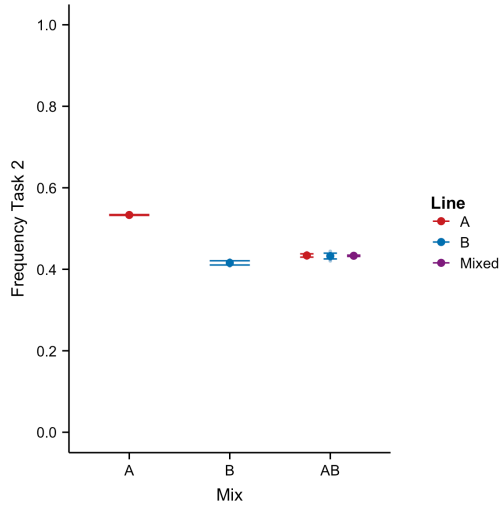


$a_1^A = a_2^B = 2$, $a_2^A = a_2^B = 1$

Task 1

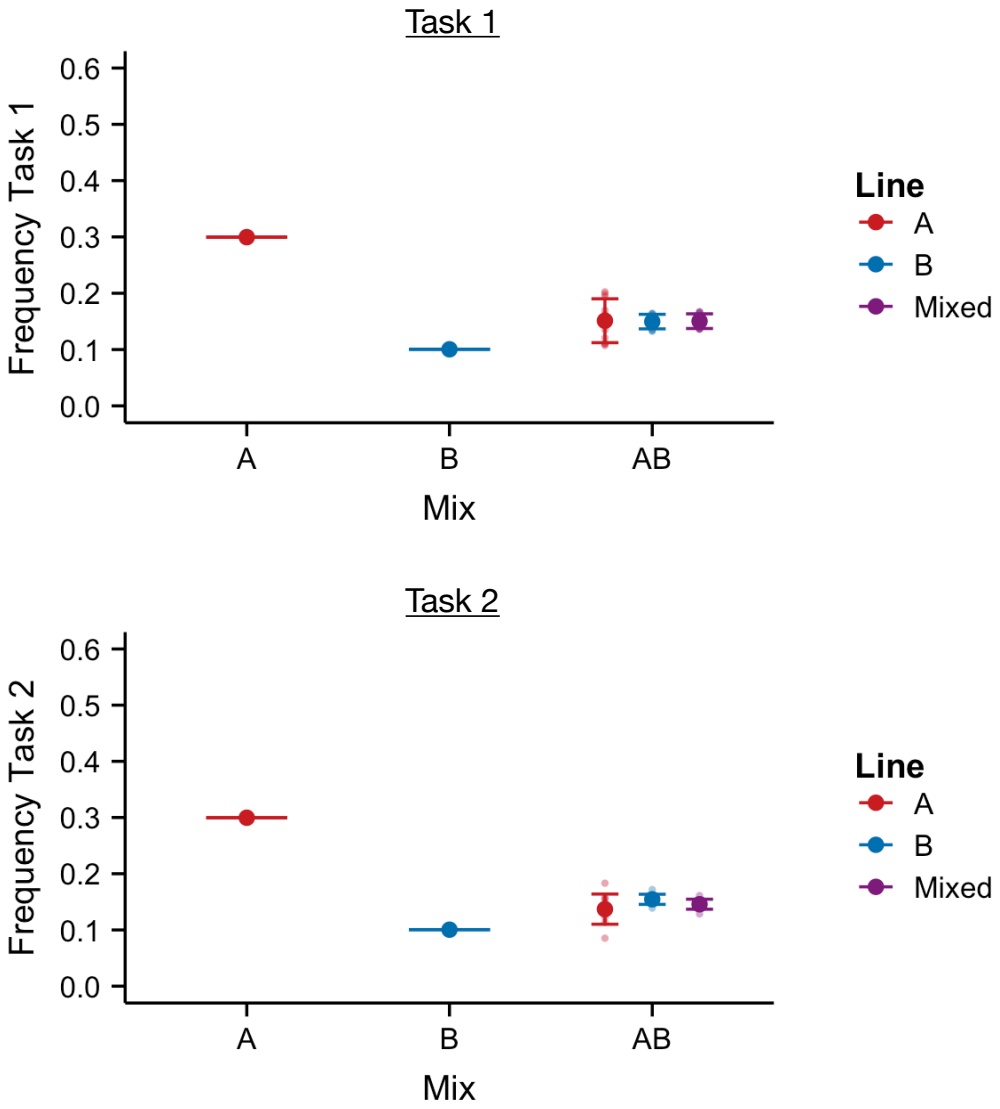


Task 2

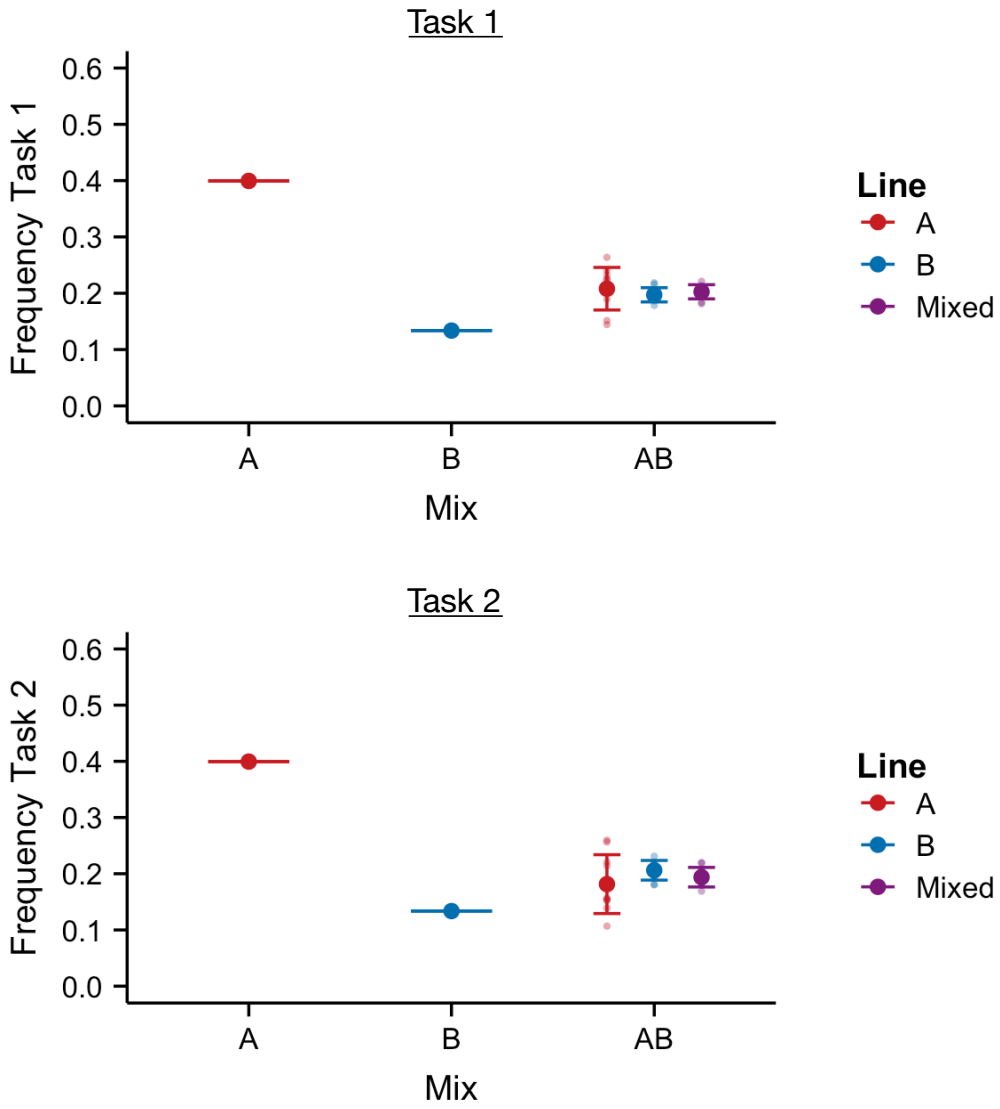


For the doc

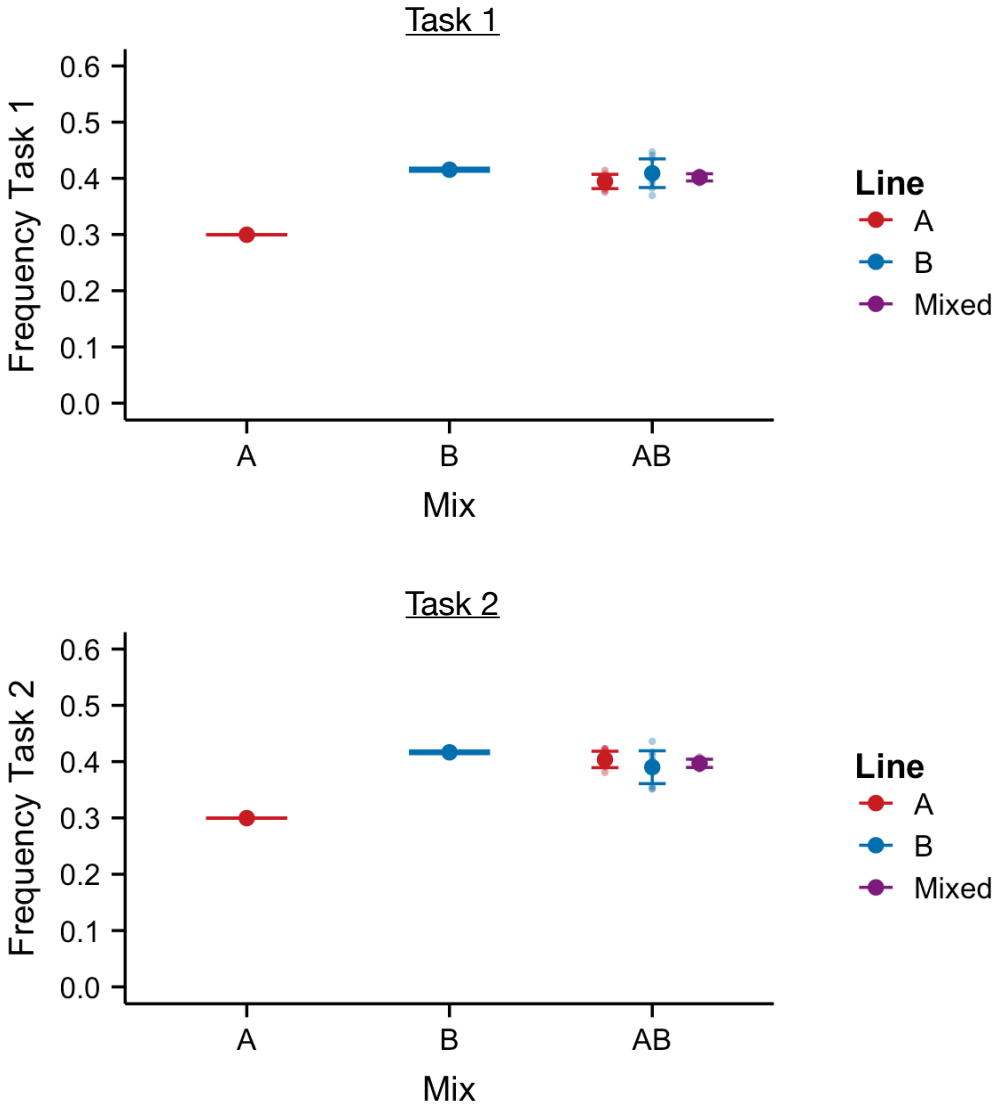
a. Larvae are less demanding: $\delta = 0.6$



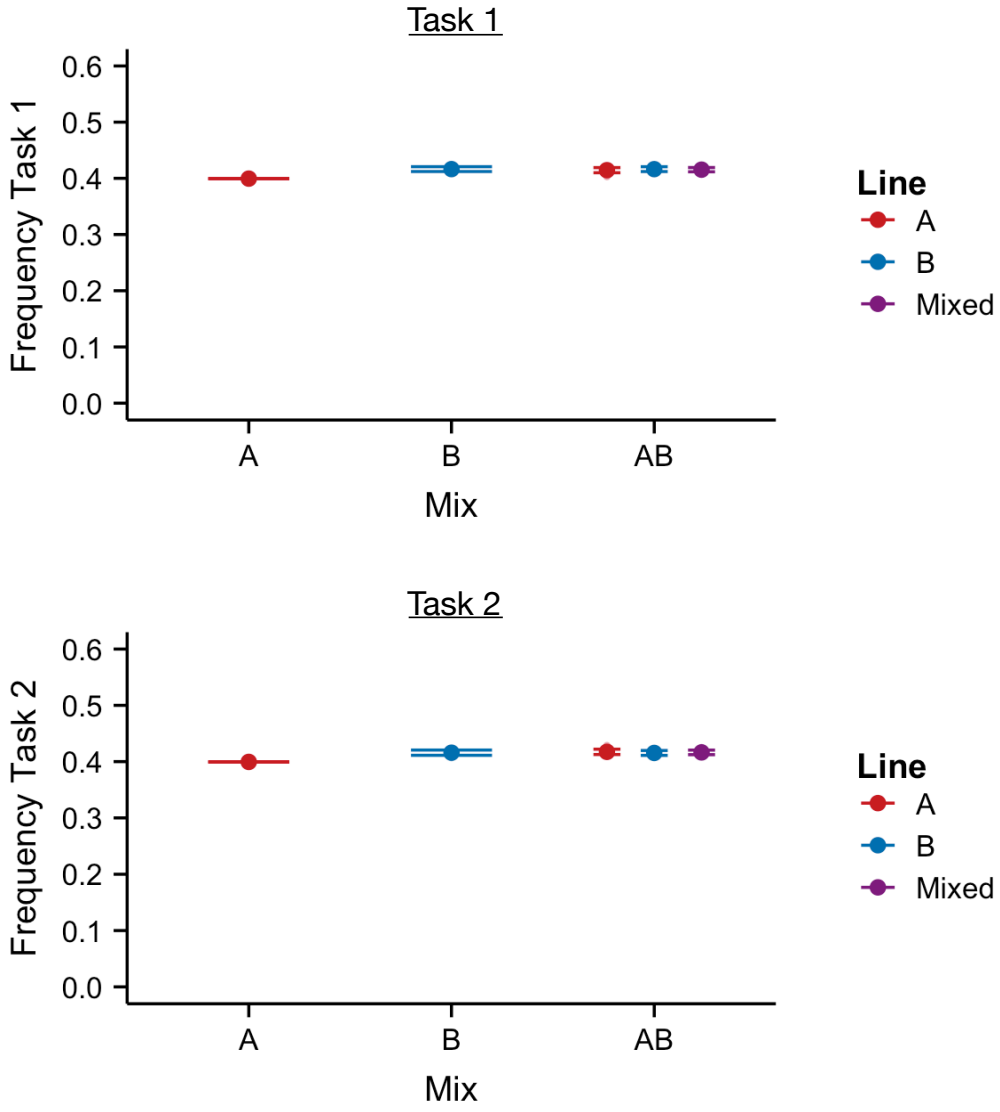
b. Larvae are more demanding: $\delta = 0.8$

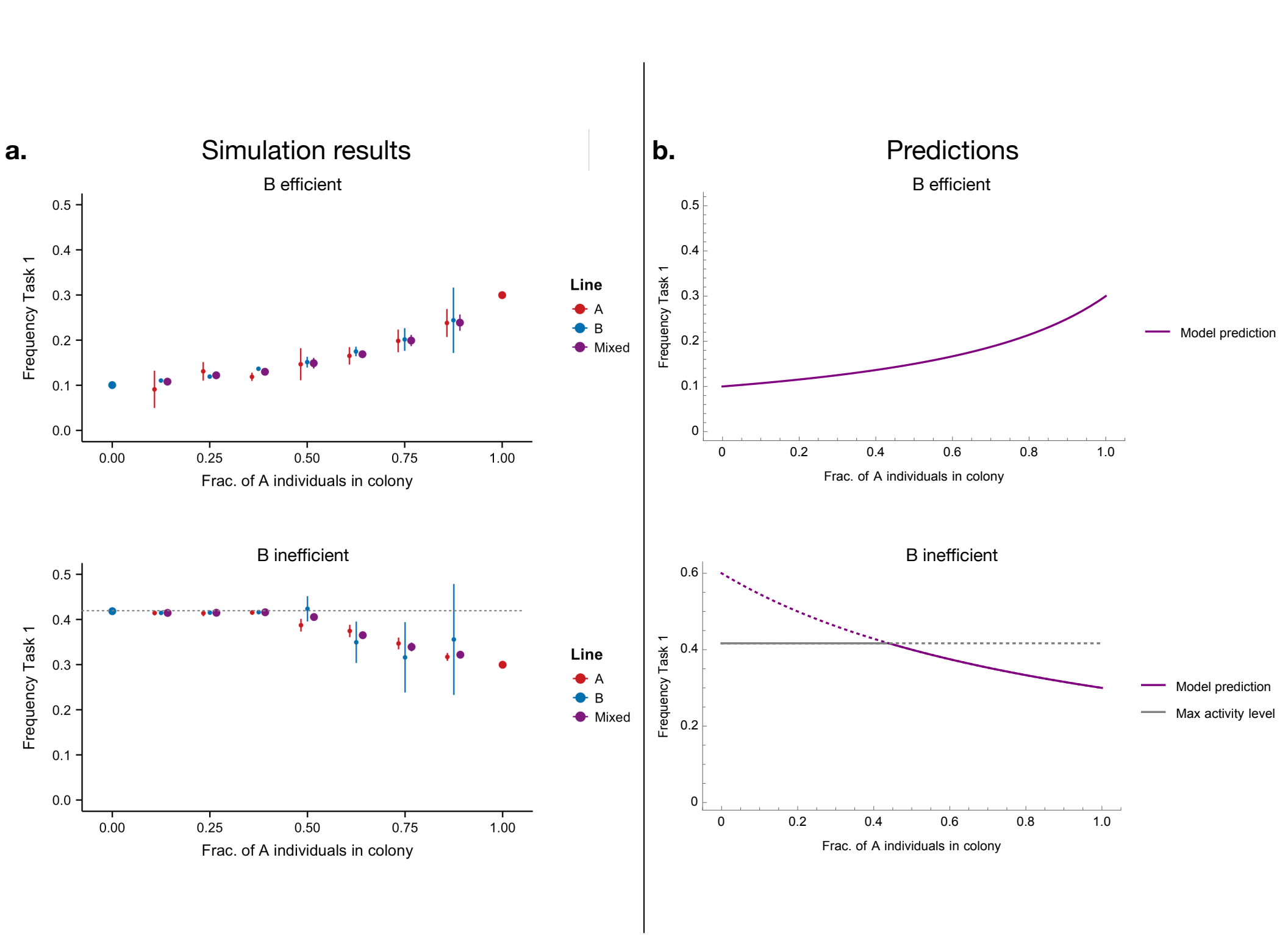


a. Larvae are less demanding: $\delta = 0.6$

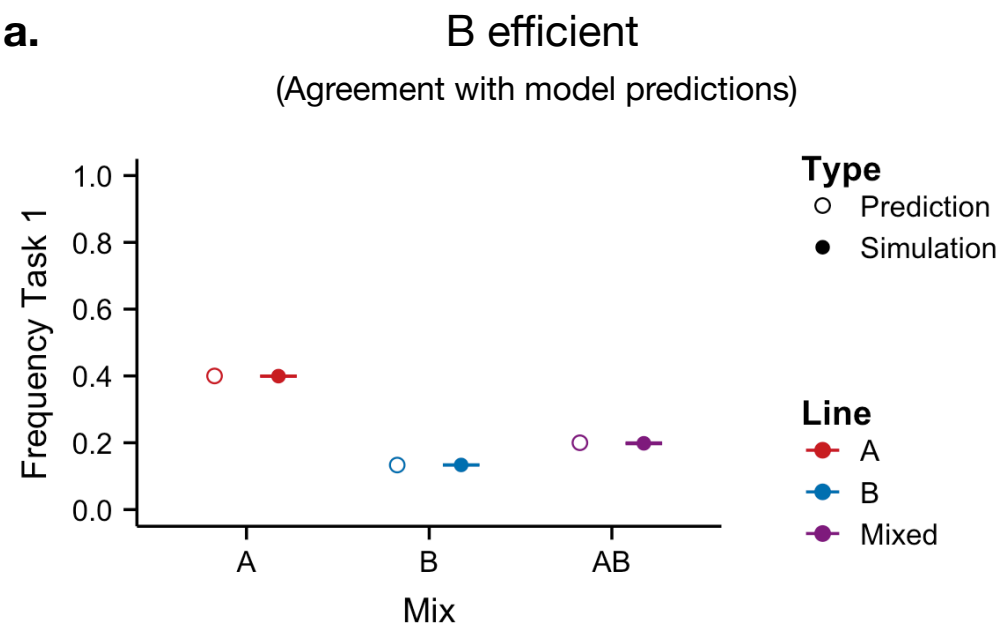


b. Larvae are more demanding: $\delta = 0.8$

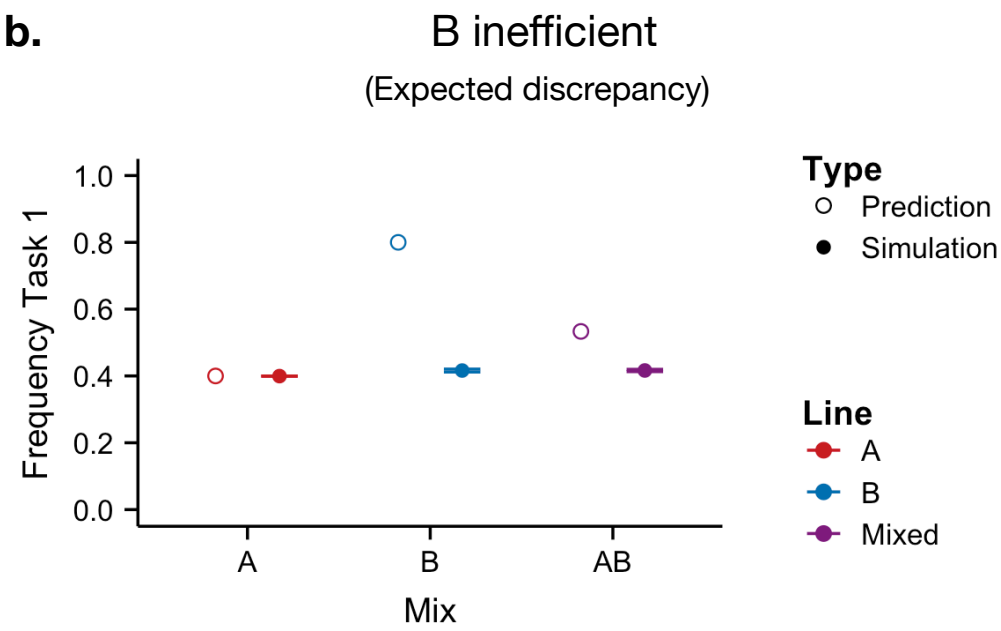



a.
Simulation results
B efficient
Frequency Task 1
0.5
0.4
0.3
0.2
0.1
0.0
0.00
0.25
0.50
0.75
1.00
Frac. of A individuals in colony
Line
A
B
Mixed
B inefficient
Frequency Task 1
0.5
0.4
0.3
0.2
0.1
0.0
0.00
0.25
0.50
0.75
1.00
Frac. of A individuals in colony
Line
A
B
Mixed
b.
Predictions
B efficient
Frequency Task 1
0.5
0.4
0.3
0.2
0.1
0
0
0.2
0.4
0.6
0.8
1.0
Frac. of A individuals in colony
Model prediction
B inefficient
Frequency Task 1
0.6
0.4
0.2
0
0
0.2
0.4
0.6
0.8
1.0
Frac. of A individuals in colony
Model prediction
Max activity level

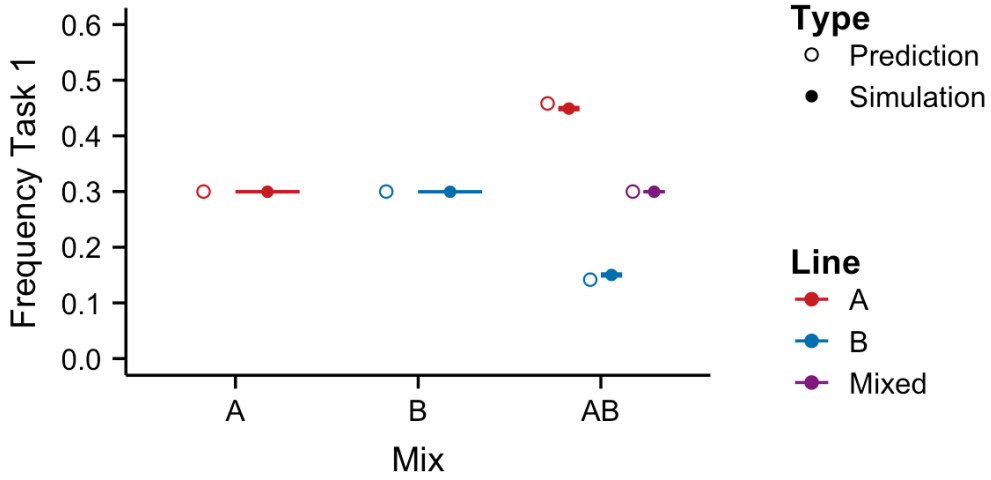
a.


B efficient
(Agreement with model predictions)
Frequency Task 1
1.0
0.8
0.6
0.4
0.2
0.0
A
B
AB
Mix
Type
Prediction
Simulation
Line
A
B
Mixed

b.


B inefficient
(Expected discrepancy)
Frequency Task 1
1.0
0.8
0.6
0.4
0.2
0.0
A
B
AB
Mix
Type
Prediction
Simulation
Line
A
B
Mixed

a. $\mu_1^A = \mu_2^B = 10$, $\mu_2^A = \mu_1^B = 12$



b. $\mu_1^A = \mu_2^B = 10$, $\mu_2^A = \mu_1^B = 20$