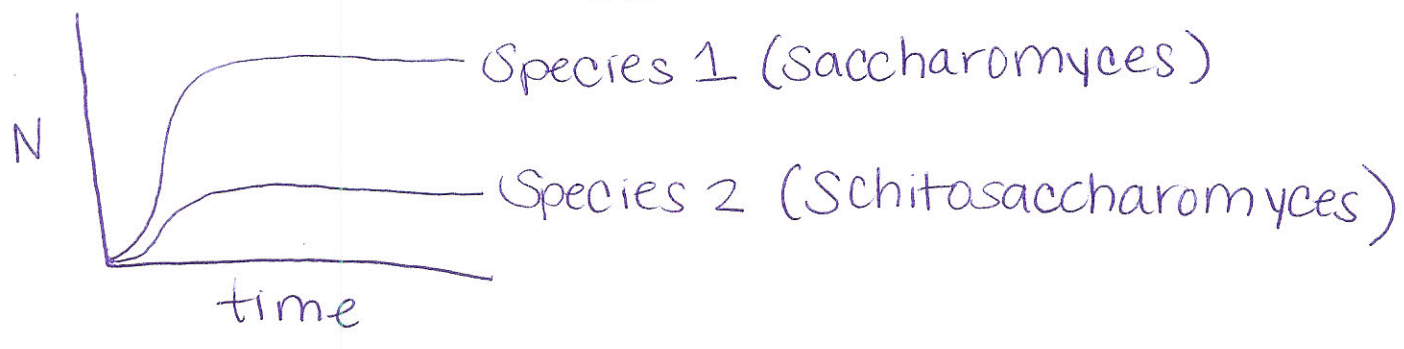


Figure 1

When Alone / Allopatry



When Together / Sympatry

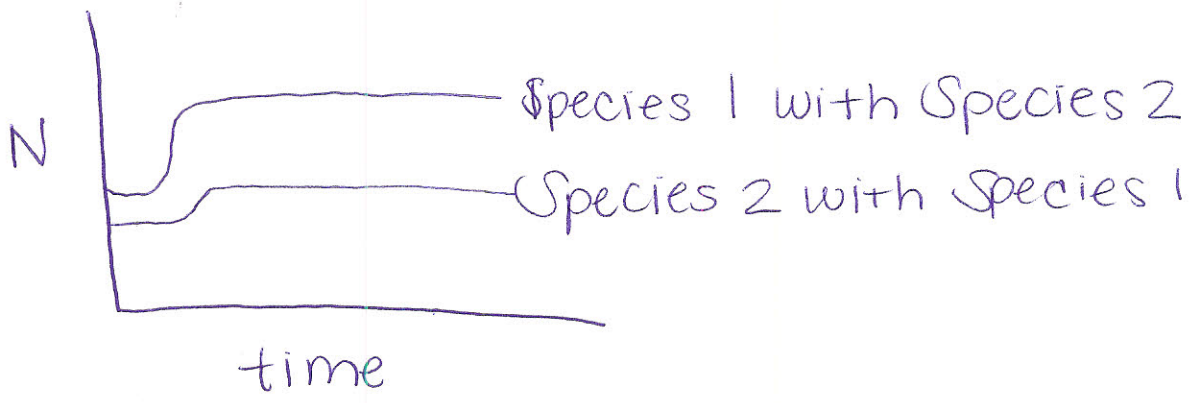


Figure 2

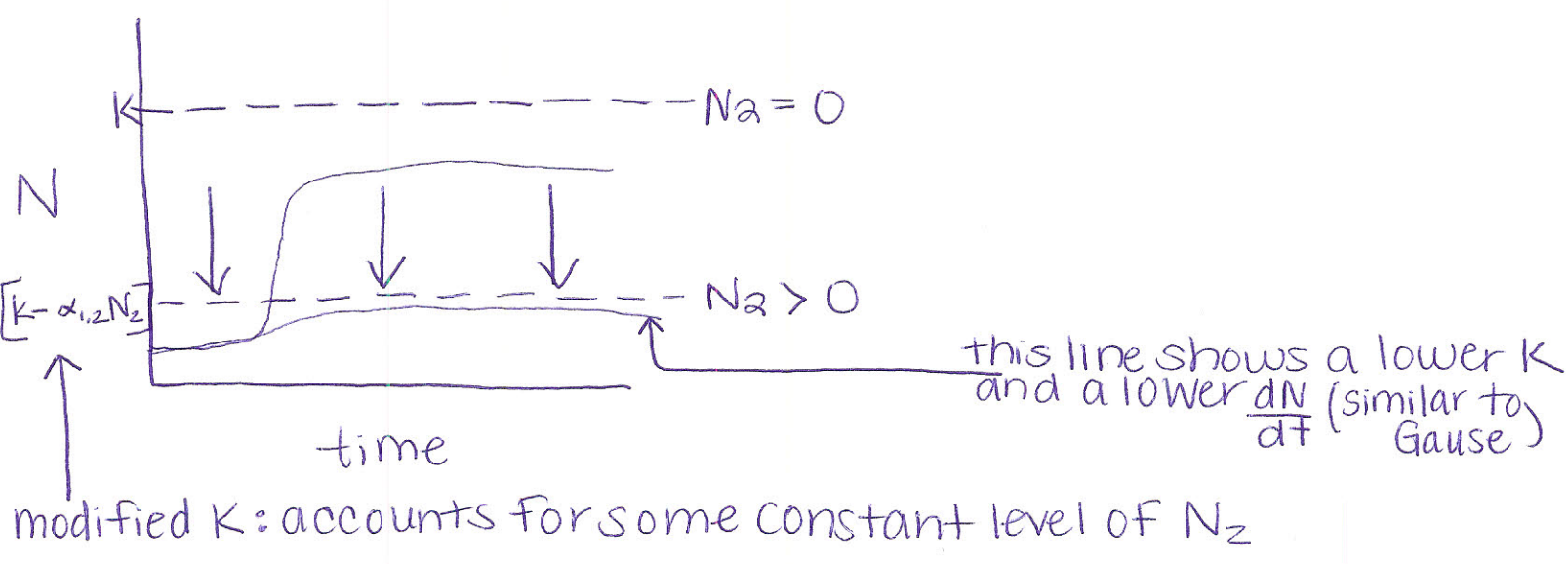
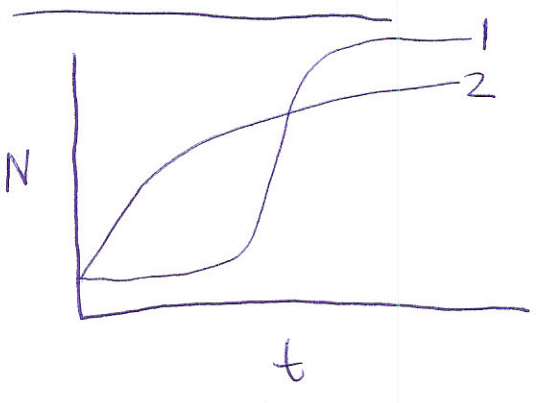


Figure 3

When alone



When Together

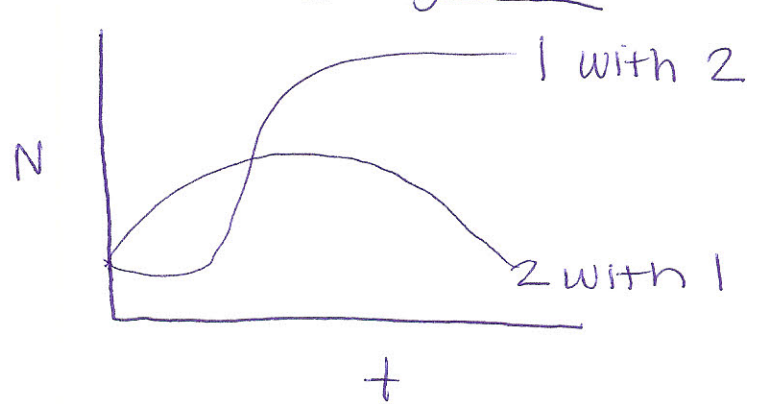


Figure 4

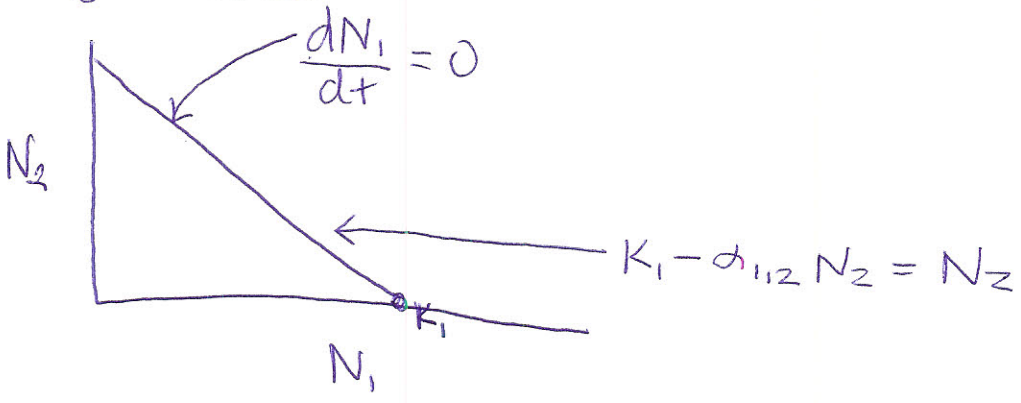


Figure 5

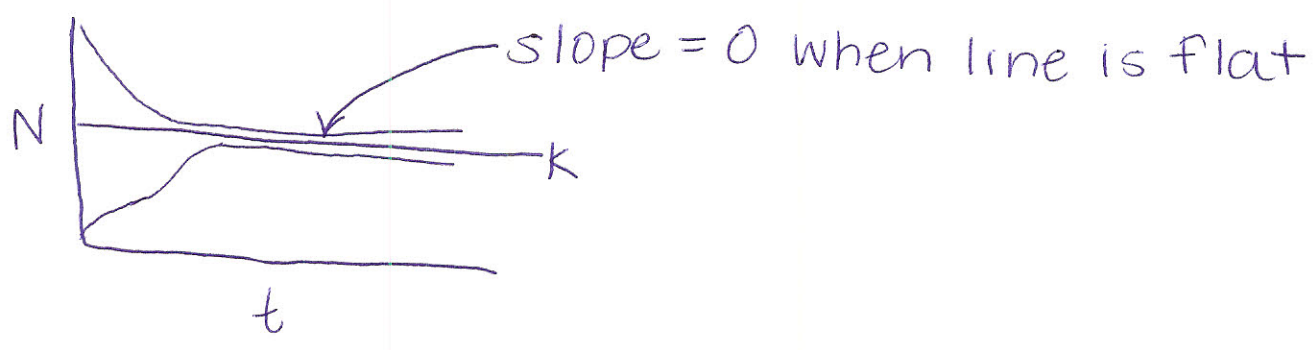


Figure 5 continued

$$\frac{dN_1}{dt} = r_1 N_1 \left[\frac{K_1 - N_1 - \alpha_{1,2} N_2}{K_1} \right] = 0$$

move K_1

$$\left(\frac{K_1}{r_1 N_1} \right) \frac{r_1 N_1}{K_1} \left[K_1 - N_1 - \alpha_{1,2} N_2 \right] = 0 \left(\frac{K_1}{r_1 N_1} \right)$$

ignore

multiply both sides by the inverse to cancel term out

$$K_1 - N_1 - \alpha_{1,2} N_2 = 0$$

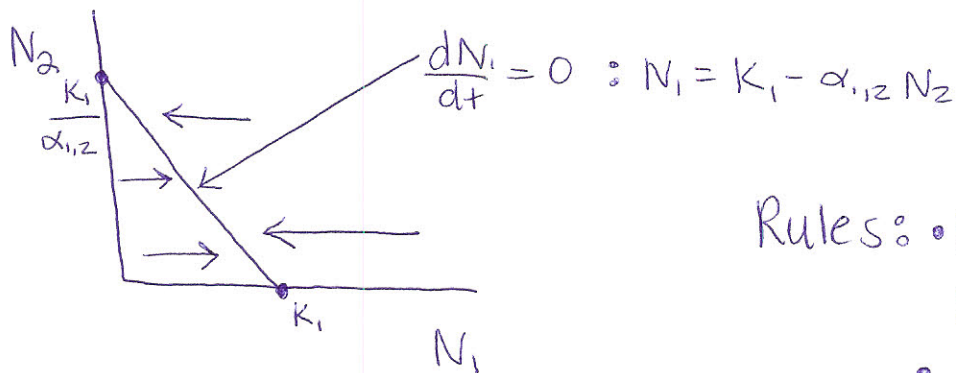
↓

$$K_1 - \alpha_{1,2} N_2 = N_1$$

effective K for the constant N_2

Figure 6

Species 1



- Rules:
- $N_1 \uparrow$ to the right, then $N_2 \downarrow$ to the left
 - If $N_1 < K$ then $N_1 \uparrow$
 - If $N_1 > K$ then $N_1 \downarrow$

Species 2

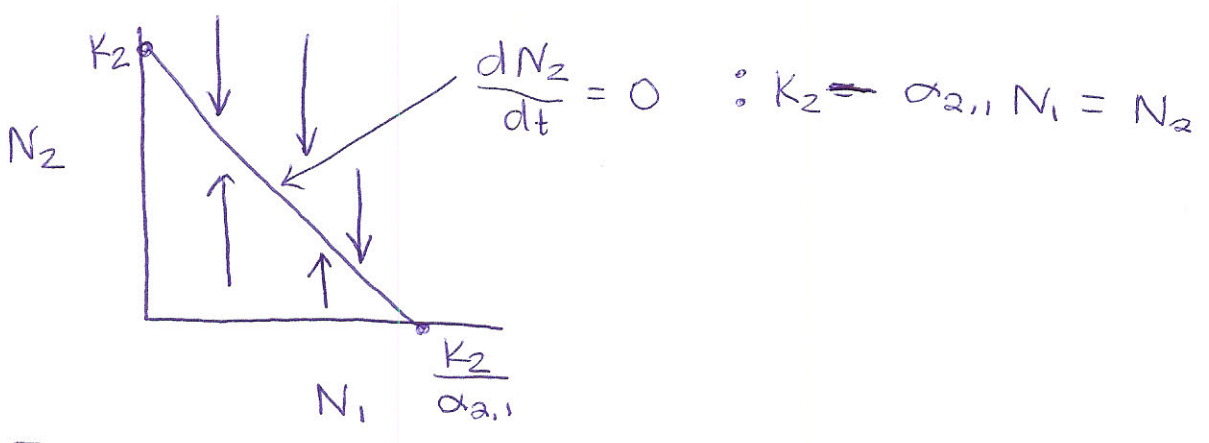
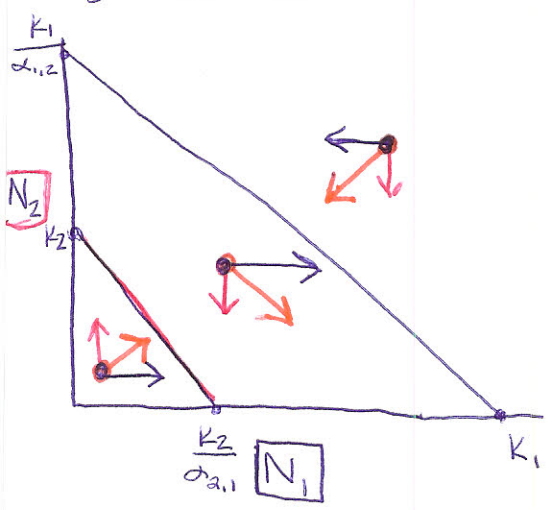


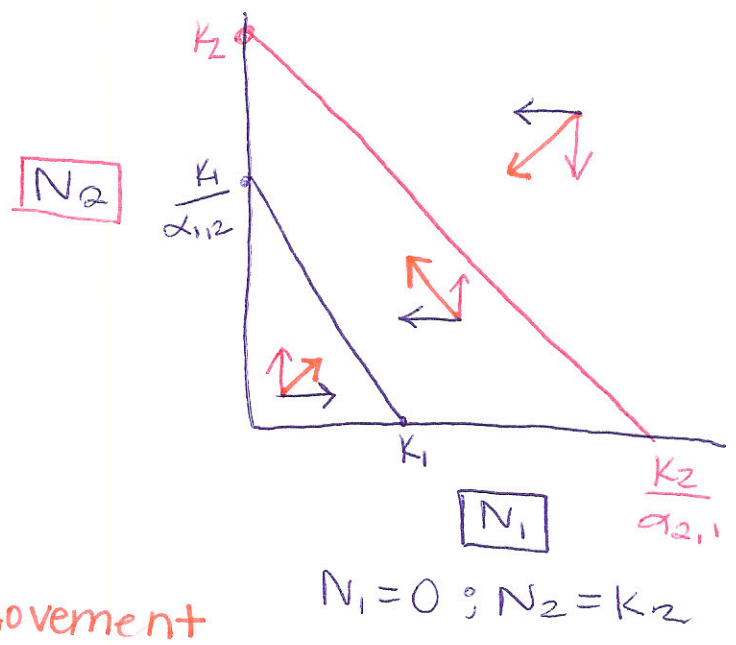
Figure 7



$N_1 \rightarrow K_1 ; N_2 \rightarrow 0$

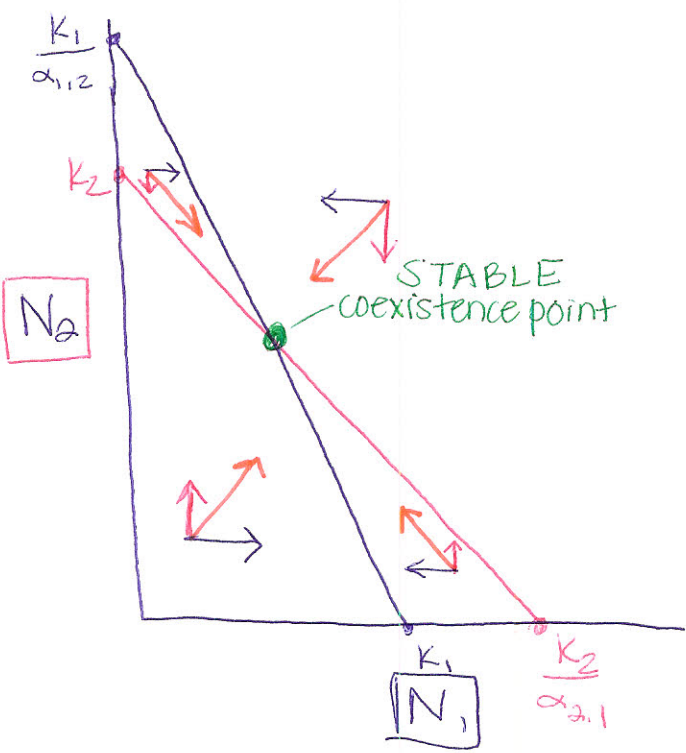
$N_1 = K_1 ; N_2 = 0$ Orange = Net movement

~~Equilibrium~~ stable equilibrium point

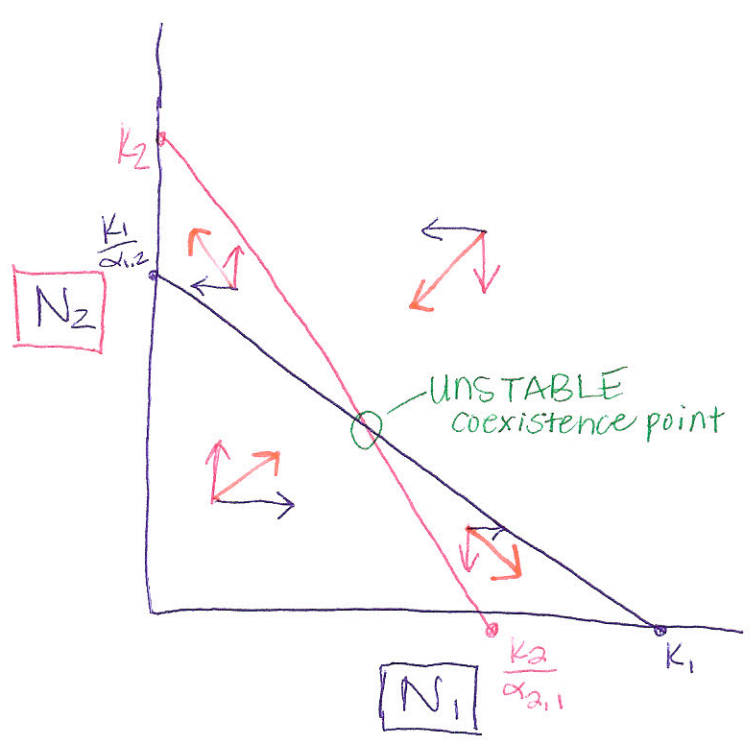


$N_1 = 0 ; N_2 = K_2$

Figure 8



Vectors allign



Vectors don't allign