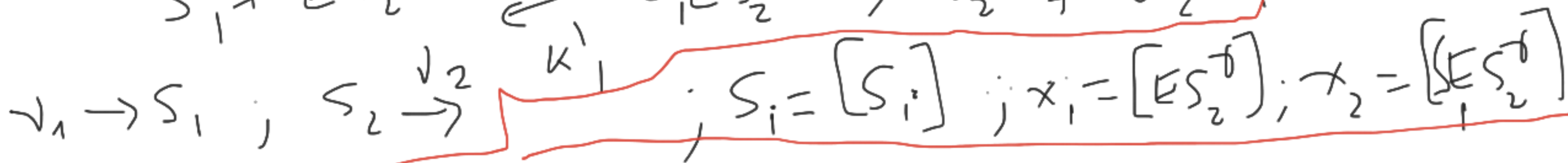
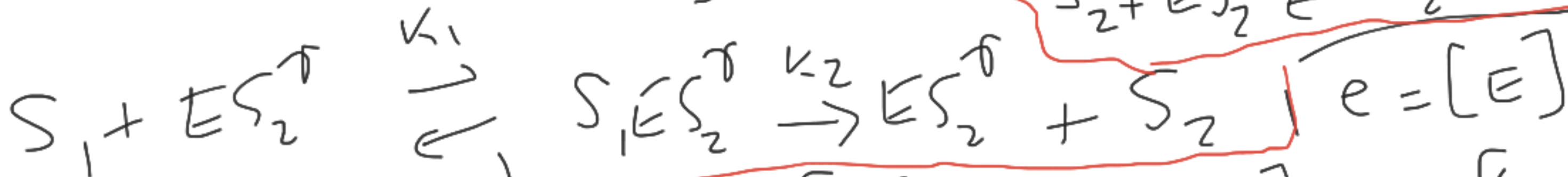
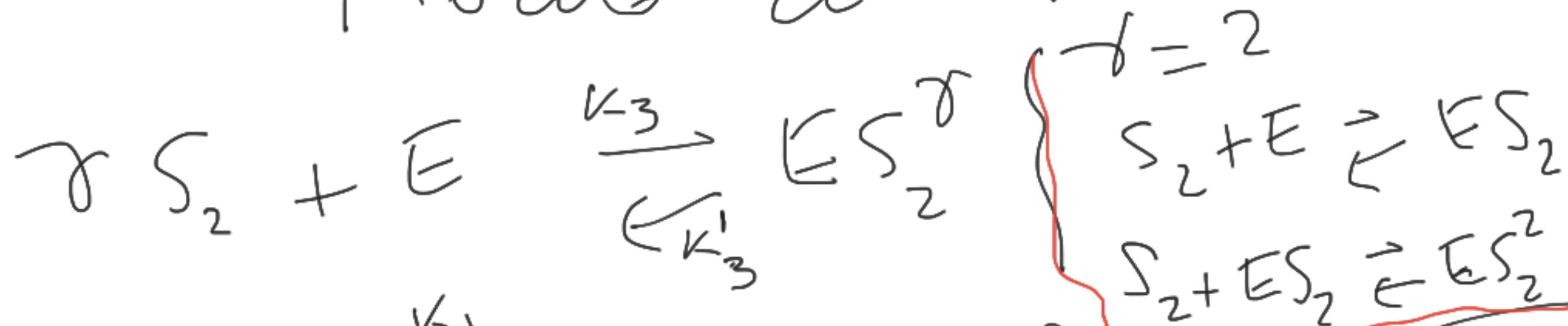


# Modelo de Selkov



$$\frac{dS_1}{dt} = -k_1 S_1 x_1 + k_1' x_2 + v_1$$

$$\frac{dS_2}{dt} = k_3 S_2 e + \gamma k_3' x_1 + k_2 x_2 - v_2 S_2$$

Ecuaciones para  $e, x_1, x_2$



$$\frac{de}{dt} = -k_3 S_2 e + k_3 x_1$$

$\left(\frac{de}{dt}\right) = \frac{\text{conc}}{\text{tiempo}} = [k_3 S_2 e]$

$$\frac{dx_1}{dt} = k_3 e S_2 - k_3 x_1 - k_1 S_1 x_1 + k_1 x_2 + k_2 x_2$$

$$\frac{dx_2}{dt} = k_1 S_1 x_1 - k_1 x_2 - k_2 x_2$$

$$\frac{d}{dt}(e + x_1 + x_2) = 0 \Rightarrow e + x_1 + x_2 = e_0 = \text{const}$$

$$\Rightarrow e = e_0 - x_1 - x_2$$

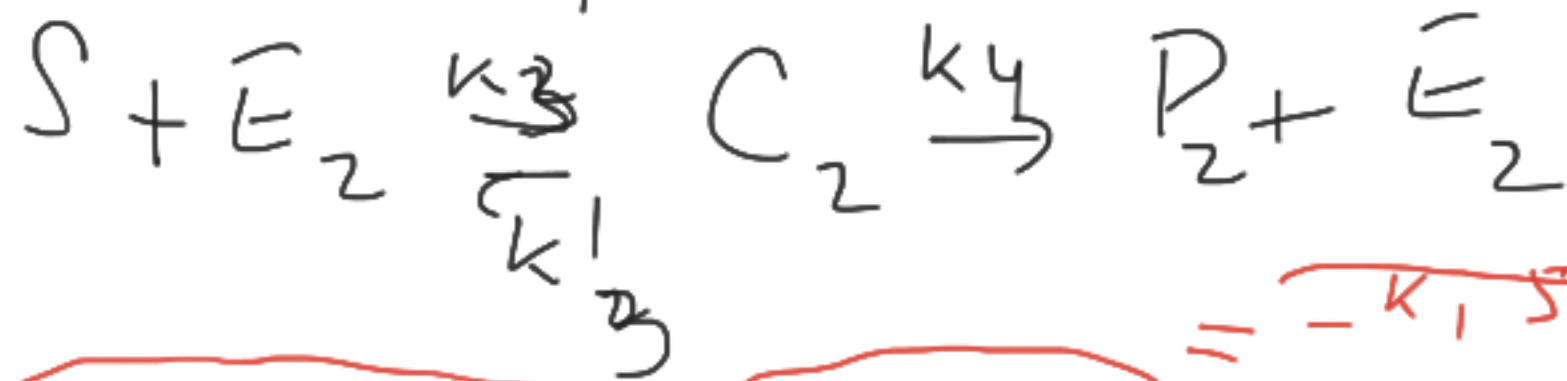
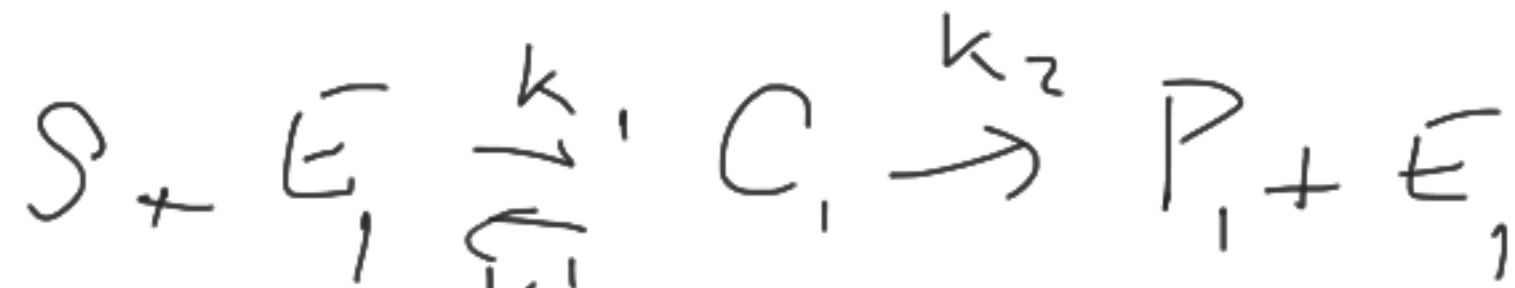
$\Rightarrow [k_3] \frac{1}{\text{tiempo}}$

$$[k_3 S_2 e] = [k_3] [S_2] e = [k_3] \cdot \text{conc} = \frac{\text{conc}}{\text{tiempo}}$$

$[k_3] = 1/\text{tiempo}$

$$\left[ \frac{k_3'}{k_3} \right] = \frac{1/\text{time}}{1/(\text{conc}^\alpha \cdot \text{time})} = \frac{1}{\text{conc}^\alpha}$$

$$\Rightarrow \left( \frac{k_3'}{k_3} \right)^{1/\alpha} = [\text{conc}] = \text{conc}^\alpha$$



$$-v(1-x_1) + vx_1$$

$$= -k_1 s_0 v \frac{e_{01}(1-x_1) + k_{-1}' x_1}{k_1 s_0 v + k_{-1}' x_1}$$

$$\frac{d[S]}{dt} = -k_1 [S][E_1] + k_{-1}' [C_1] - k_3 [S][E_2] + k_{-3}' [C_2]$$

$$\frac{d[E_1]}{dt} = -k_1 [S][E_1] + k_{-1}' [C_1] + k_2 [C_1]$$

$$\frac{d[C_1]}{dt} = k_1 [S][E_1] - k_{-1}' [C_1] - k_2 [C_1]$$

$$e_{01} = \text{const} = [E_1] + [C_1] \rightarrow [E_1] = e_{01} - [C_1]$$

$$e_{02} = \text{const} = [E_2] + [C_2] \rightarrow [E_2] = e_{02} - [C_2]$$

$$v = [S]/s_0$$

$$x_1 = [C_1]/e_{01}$$

$$x_2 = \frac{[C_2]}{e_{02}}$$