$$\frac{\mathrm{d}}{\mathrm{d}t}[\mathtt{pp1\_mrna}] = \mathtt{pro1\_strength} - \mathtt{pp1\_mrna\_degradation\_rate} \cdot [\mathtt{pp1\_mrna}]$$
$$\frac{\mathrm{d}}{\mathrm{d}t}[\mathtt{p1}] = \mathtt{rbs1\_strength} \cdot [\mathtt{pp1\_mrna}] - \mathtt{p1\_degradation\_rate} \cdot [\mathtt{p1}]$$

$$\frac{\mathrm{d}}{\mathrm{d}t}[\mathtt{pp2\_mrna}] = \mathtt{pro2\_strength} \cdot \frac{1 + \left(\frac{[\mathtt{p1}]}{\mathtt{v2\_Kd}}\right)^{\mathtt{v2\_h}} - 1}{1 + \left(\frac{[\mathtt{p1}]}{\mathtt{v2\_Kd}}\right)^{\mathtt{v2\_h}}} \cdot \frac{1}{1 + \left(\frac{[\mathtt{p6}]}{\mathtt{v5\_Kd}}\right)^{\mathtt{v5\_h}}}$$
$$- \mathtt{pp2\_mrna\_degradation\_rate} \cdot [\mathtt{pp2\_mrna}]$$
$$\frac{\mathrm{d}}{\mathrm{d}t}[\mathtt{p2}] = \mathtt{rbs2\_strength} \cdot [\mathtt{pp2\_mrna}] - \mathtt{p2\_degradation\_rate} \cdot [\mathtt{p2}]$$

$$\frac{\mathrm{d}}{\mathrm{d}t}[\mathtt{pp3\_mrna}] = \mathtt{pro3\_strength} \cdot \frac{1 + \left(\frac{[\mathtt{p1}]}{\mathtt{v3\_Kd}}\right)^{\mathtt{v3\_h}} - 1}{1 + \left(\frac{[\mathtt{p1}]}{\mathtt{v3\_Kd}}\right)^{\mathtt{v3\_h}}} \cdot \frac{1}{1 + \left(\frac{[\mathtt{p2}]}{\mathtt{v4\_Kd}}\right)^{\mathtt{v4\_h}}}$$
$$- \mathtt{pp3\_mrna\_degradation\_rate} \cdot [\mathtt{pp3\_mrna}]$$
$$\frac{\mathrm{d}}{\mathrm{d}t}[\mathtt{p3}] = \mathtt{rbs3\_strength} \cdot [\mathtt{pp3\_mrna}] - \mathtt{p3\_degradation\_rate} \cdot [\mathtt{p3}]$$

$$\frac{\mathrm{d}}{\mathrm{d}t}[\mathtt{pp4\_mrna}] = \mathtt{pro4\_strength} \cdot \frac{1 + \left(\frac{[\mathtt{p1}]}{\mathtt{v1\_Kd}}\right)^{\mathtt{v1\_h}} - 1}{1 + \left(\frac{[\mathtt{p1}]}{\mathtt{v1\_Kd}}\right)^{\mathtt{v1\_h}}} \cdot \frac{1}{1 + \left(\frac{[\mathtt{p5}]}{\mathtt{v8\_Kd}}\right)^{\mathtt{v8\_h}}}$$
$$- \mathtt{pp4\_mrna\_degradation\_rate} \cdot [\mathtt{pp4\_mrna}]$$
$$\frac{\mathrm{d}}{\mathrm{d}t}[\mathtt{p4}] = \mathtt{rbs4\_strength} \cdot [\mathtt{pp4\_mrna}] - \mathtt{p4\_degradation\_rate} \cdot [\mathtt{p4}]$$

$$\frac{\mathrm{d}}{\mathrm{d}t}[\mathtt{pp5\_mrna}] = \mathtt{pro5\_strength} \cdot \frac{1}{1 + \left(\frac{[\mathtt{p4}]}{\mathtt{v6\_Kd}}\right)^{\mathtt{v6\_h}}}$$
$$- \mathtt{pp5\_mrna\_degradation\_rate} \cdot [\mathtt{pp5\_mrna}]$$
$$\frac{\mathrm{d}}{\mathrm{d}t}[\mathtt{p5}] = \mathtt{rbs5\_strength} \cdot [\mathtt{pp5\_mrna}] - \mathtt{p5\_degradation\_rate} \cdot [\mathtt{p5}]$$

$$\frac{\mathrm{d}}{\mathrm{d}t}[\mathtt{pp6\_mrna}] = \mathtt{pro6\_strength} \cdot \frac{1}{1 + \left(\frac{[\mathtt{p4}]}{\mathtt{v7\_Kd}}\right)^{\mathtt{v7\_h}}}$$
$$- \mathtt{pp6\_mrna\_degradation\_rate} \cdot [\mathtt{pp6\_mrna}]$$
$$\frac{\mathrm{d}}{\mathrm{d}t}[\mathtt{p6}] = \mathtt{rbs6\_strength} \cdot [\mathtt{pp6\_mrna}] - \mathtt{p6\_degradation\_rate} \cdot [\mathtt{p6}]$$

$$\frac{\mathrm{d}}{\mathrm{d}t}[\mathtt{pp1\_mrna}] = v_1 - v_2$$
$$\frac{\mathrm{d}}{\mathrm{d}t}[\mathtt{p1}] = v_3 - v_4$$

$$\frac{\mathrm{d}}{\mathrm{d}t}[\mathtt{pp2\_mrna}] = v_9 - v_{10}$$
$$\frac{\mathrm{d}}{\mathrm{d}t}[\mathtt{p2}] = v_{11} - v_{12}$$

$$\frac{\mathrm{d}}{\mathrm{d}t}[\mathtt{pp3\_mrna}] = v_{17} - v_{18}$$
$$\frac{\mathrm{d}}{\mathrm{d}t}[\mathtt{p3}] = v_{19} - v_{20}$$

$$\frac{\mathrm{d}}{\mathrm{d}t}[\mathtt{pp4\_mrna}] = v_{21} - v_{22}$$
$$\frac{\mathrm{d}}{\mathrm{d}t}[\mathtt{p4}] = v_{23} - v_{24}$$

$$\frac{\mathrm{d}}{\mathrm{d}t}[\mathtt{pp5\_mrna}] = v_5 - v_6$$
$$\frac{\mathrm{d}}{\mathrm{d}t}[\mathtt{p5}] = v_7 - v_8$$

$$\frac{\mathrm{d}}{\mathrm{d}t}[\mathtt{pp6\_mrna}] = v_{13} - v_{14}$$
$$\frac{\mathrm{d}}{\mathrm{d}t}[\mathtt{p6}] = v_{15} - v_{16}$$

$$
\begin{aligned}
v_{1} &= \texttt{cod1} \\
v_{2} &= \texttt{pp1\_mrna\_degradation\_rate} \cdot [\texttt{pp1\_mrna}] \\
v_{3} &= \texttt{rbs1\_strength} \cdot [\texttt{pp1\_mrna}] \\
v_{4} &= \texttt{p1\_degradation\_rate} \cdot [\texttt{p1}] \\
v_{5} &= \texttt{cod5} \\
v_{6} &= \texttt{pp5\_mrna\_degradation\_rate} \cdot [\texttt{pp5\_mrna}] \\
v_{7} &= \texttt{rbs5\_strength} \cdot [\texttt{pp5\_mrna}] \\
v_{8} &= \texttt{p5\_degradation\_rate} \cdot [\texttt{p5}] \\
v_{9} &= \texttt{cod2} \\
v_{10} &= \texttt{pp2\_mrna\_degradation\_rate} \cdot [\texttt{pp2\_mrna}] \\
v_{11} &= \texttt{rbs2\_strength} \cdot [\texttt{pp2\_mrna}] \\
v_{12} &= \texttt{p2\_degradation\_rate} \cdot [\texttt{p2}] \\
v_{13} &= \texttt{cod6} \\
v_{14} &= \texttt{pp6\_mrna\_degradation\_rate} \cdot [\texttt{pp6\_mrna}] \\
v_{15} &= \texttt{rbs6\_strength} \cdot [\texttt{pp6\_mrna}] \\
v_{16} &= \texttt{p6\_degradation\_rate} \cdot [\texttt{p6}] \\
v_{17} &= \texttt{cod3} \\
v_{18} &= \texttt{pp3\_mrna\_degradation\_rate} \cdot [\texttt{pp3\_mrna}] \\
v_{19} &= \texttt{rbs3\_strength} \cdot [\texttt{pp3\_mrna}] \\
v_{20} &= \texttt{p3\_degradation\_rate} \cdot [\texttt{p3}] \\
v_{21} &= \texttt{cod4} \\
v_{22} &= \texttt{pp4\_mrna\_degradation\_rate} \cdot [\texttt{pp4\_mrna}] \\
v_{23} &= \texttt{rbs4\_strength} \cdot [\texttt{pp4\_mrna}] \\
v_{24} &= \texttt{p4\_degradation\_rate} \cdot [\texttt{p4}]
\end{aligned}
$$

$$
\begin{aligned}
\mathtt{cod1} &= \mathtt{pro1\_strength} \\
\mathtt{cod2} &= \mathtt{pro2\_strength} \cdot \mathtt{as1} \cdot \mathtt{rs1} \\
\mathtt{cod3} &= \mathtt{pro3\_strength} \cdot \mathtt{as3} \cdot \mathtt{rs4} \\
\mathtt{cod4} &= \mathtt{pro4\_strength} \cdot \mathtt{as2} \cdot \mathtt{rs2} \\
\mathtt{cod5} &= \mathtt{pro5\_strength} \cdot \mathtt{rs3} \\
\mathtt{cod6} &= \mathtt{pro6\_strength} \cdot \mathtt{rs5}
\end{aligned}
$$

$$
\begin{aligned}
\mathtt{as1} &= \frac{1 + \left(\frac{[\mathtt{p1}]}{\mathtt{v2\_Kd}}\right)^{\mathtt{v2\_h}} - 1}{1 + \left(\frac{[\mathtt{p1}]}{\mathtt{v2\_Kd}}\right)^{\mathtt{v2\_h}}} \\
\mathtt{as2} &= \frac{1 + \left(\frac{[\mathtt{p1}]}{\mathtt{v1\_Kd}}\right)^{\mathtt{v1\_h}} - 1}{1 + \left(\frac{[\mathtt{p1}]}{\mathtt{v1\_Kd}}\right)^{\mathtt{v1\_h}}} \\
\mathtt{as3} &= \frac{1 + \left(\frac{[\mathtt{p1}]}{\mathtt{v3\_Kd}}\right)^{\mathtt{v3\_h}} - 1}{1 + \left(\frac{[\mathtt{p1}]}{\mathtt{v3\_Kd}}\right)^{\mathtt{v3\_h}}}
\end{aligned}
$$

$$
\begin{aligned}
\mathtt{rs1} &= \frac{1}{1 + \left(\frac{[\mathtt{p6}]}{\mathtt{v5\_Kd}}\right)^{\mathtt{v5\_h}}} \\
\mathtt{rs2} &= \frac{1}{1 + \left(\frac{[\mathtt{p5}]}{\mathtt{v8\_Kd}}\right)^{\mathtt{v8\_h}}} \\
\mathtt{rs3} &= \frac{1}{1 + \left(\frac{[\mathtt{p4}]}{\mathtt{v6\_Kd}}\right)^{\mathtt{v6\_h}}} \\
\mathtt{rs4} &= \frac{1}{1 + \left(\frac{[\mathtt{p2}]}{\mathtt{v4\_Kd}}\right)^{\mathtt{v4\_h}}} \\
\mathtt{rs5} &= \frac{1}{1 + \left(\frac{[\mathtt{p4}]}{\mathtt{v7\_Kd}}\right)^{\mathtt{v7\_h}}}
\end{aligned}
$$