

### Reactions 1 and 2:

$$\begin{aligned}
k_{fb1}k_{f1}k_{r2}k_{rb2} &= k_{fb2}k_{f2}k_{r1}k_{rb1} \\
K_{D2}k_{f1}k_{r2} &= K_{D1}k_{f2}k_{r1} \\
k_{r2} &= \frac{K_{D1}k_{f2}k_{r1}}{K_{D2}k_{f1}} \\
\text{Assuming forward dimerization is constant:} \\
k_{r2} &= \frac{K_{D1}k_{r1}}{K_{D2}}
\end{aligned}$$

### Reactions 5 and 4:

$$\begin{aligned}
k_{fb1}^2k_{f4}k_{r5}k_{rb2}^2 &= k_{fb2}^2k_{f5}k_{r4}k_{rb1}^2 \\
k_{f4}k_{r5}K_{D2}^2 &= k_{f5}k_{r4}K_{D1}^2 \\
k_{r5} &= \frac{k_{f5}k_{r4}K_{D1}^2}{K_{D2}^2k_{f4}} \\
\text{Assuming forward dimerization is constant:} \\
k_{r5} &= \frac{k_{r4}K_{D1}^2}{K_{D2}^2}
\end{aligned}$$

### Reactions 3 and 4:

$$\begin{aligned}
k_{fb2}k_{rb1}k_{f3}k_{r4} &= k_{f4}k_{r3}k_{rb2}k_{fb1} \\
K_{D1}k_{f3}k_{r4} &= k_{f4}k_{r3}K_{D2} \\
\frac{K_{D1}k_{f3}k_{r4}}{k_{f4}K_{D2}} &= k_{r3} \\
\text{Assuming forward dimerization is constant:} \\
\frac{K_{D1}k_{r4}}{K_{D2}} &= k_{r3}
\end{aligned}$$

### Reactions 1 and 4:

$$\begin{aligned}
k_{f1}k_{f6}k_{r4}k_{rb1} &= k_{fb1}k_{f4}k_{r6}k_{r1} \\
k_{f1}k_{f6}k_{r4}K_{D1} &= k_{f4}k_{r6}k_{r1} \\
k_{r4} &= \frac{k_{f4}k_{r6}k_{r1}}{K_{D1}k_{f1}k_{f6}} \\
\text{Assuming forward dimerization is constant:} \\
k_{r4} &= \frac{k_{r6}k_{r1}}{K_{D1}k_{f6}} \\
k_{f6} &= \frac{k_{r6}k_{r1}}{K_{D1}k_{r4}} \\
\frac{k_{f6}K_{D1}k_{r4}}{k_{r1}} &= k_{r6}
\end{aligned}$$

### Reactions 15 and 16:

$$k_{f13}k_{f15}k_{r10}k_{rb2,0} = k_{fb2,0}k_{f10}k_{r15}k_{r13}$$

$$k_{r15} = \frac{k_{f13}k_{f15}k_{r10}k_{rb2,0}}{k_{fb2,0}k_{f10}k_{r13}}$$