

$$\text{system} + \text{R}_1 + \cdots \overset{r_f}{\underset{r_b}{\rightleftharpoons}} \text{changed system} + \text{P}_1 + \cdots$$

$$\frac{r_f}{r_b} = \exp(\beta(\Delta\epsilon + \mu_{R_1} + \cdots - \mu_{P_1} - \cdots))$$