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$$\frac{r_1}{r_2} = \frac{k_1}{k_2} = \frac{k_{10} \exp(-E_1/RT)}{k_{20} \exp(-E_2/RT)} = \frac{k_{10}}{k_{20}} \exp((E_2 - E_1)/RT)$$

가

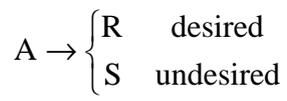
(i) $E_1 > E_2$

r_1/r_2

가

(ii) $E_1 < E_2$

r_1/r_2

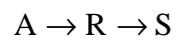


R

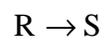
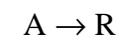
r_R/r_S

(i) $E_1 > E_2$

(ii) $E_1 < E_2$



R



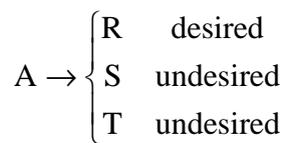
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r_R/r_S

(i)

$E_1 > E_2$

(ii) $E_1 < E_2$



$E_1 > E_2, E_3$

$E_1 < E_2, E_3$

E_1 E_2, E_3

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$\max(k_1/k_2)$ and $\max(k_1/k_3)$

$$\frac{d}{dT} \left(\frac{k_1}{k_2} \right) = -\frac{k_{10}}{k_{20}} \frac{E_2 - E_1}{T^2} \exp((E_2 - E_1)/RT) = 0$$

and

$$\frac{d}{dT} \left(\frac{k_1}{k_3} \right) = -\frac{k_{10}}{k_{30}} \frac{E_3 - E_1}{T^2} \exp((E_3 - E_1)/RT) = 0$$

$$E_2 < E_1 < E_3$$

$$-\frac{k_{10}}{k_{20}} \frac{E_2 - E_1}{T^2} \exp((E_2 - E_1)/RT) = \frac{k_{10}}{k_{30}} \frac{E_3 - E_1}{T^2} \exp((E_3 - E_1)/RT) \quad :$$

$$-\frac{k_{30}}{k_{20}} \frac{E_2 - E_1}{E_3 - E_1} = \exp\left(\frac{(E_3 - E_2)}{RT}\right)$$

$$\ln\left(\frac{k_{30}}{k_{20}} \frac{E_1 - E_2}{E_3 - E_1}\right) = \frac{(E_3 - E_2)}{RT}$$