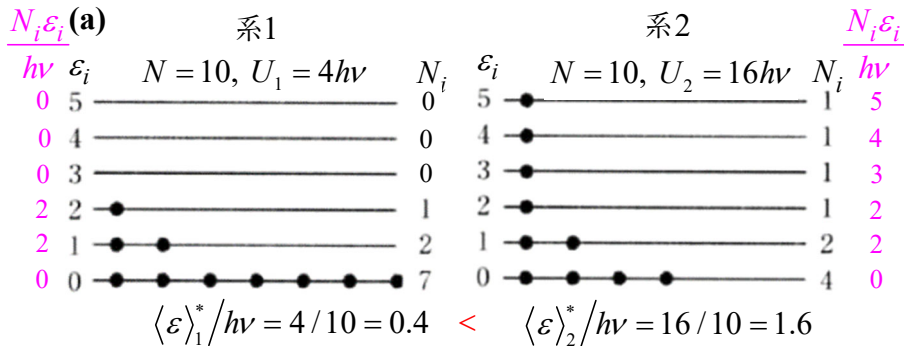


## § 微視的状态の変化

$\varepsilon_i = ih\nu$ ,  $i = 0, 1, 2, 3, 4, 5$  として, 平均エネルギー  $\langle \varepsilon \rangle_1^*$  の系1と  $\langle \varepsilon \rangle_2^*$  の系2を接触させた非平衡状态から, 最大の  $W = \frac{N!}{\sum_j N_j!} = \frac{N!}{N_0! N_1! \dots}$  の平衡状态へ変化するときの状态数  $W$  と  $\ln W$  の変化を数えてみよう.



$$W_1^a = \frac{10!}{7! \cdot 2! \cdot 1!} = 360$$

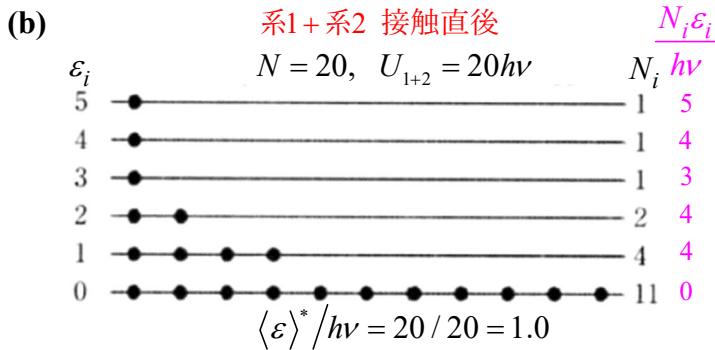
$$W_2^a = \frac{10!}{4! \cdot 2! \cdot 1! \cdot 1! \cdot 1! \cdot 1!} = 75,600$$

$$W_1^a \times W_2^a = 27,216,000 \quad 2.7\text{千万}$$

$$\ln W_1^a = 5.89$$

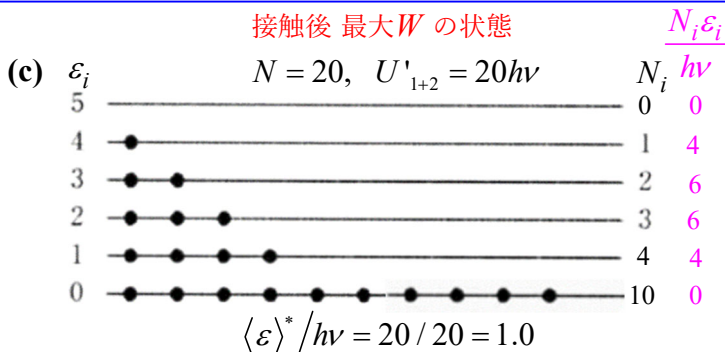
$$\ln W_2^a = 11.23$$

$$\ln W_1^a + \ln W_2^a = 17.12$$



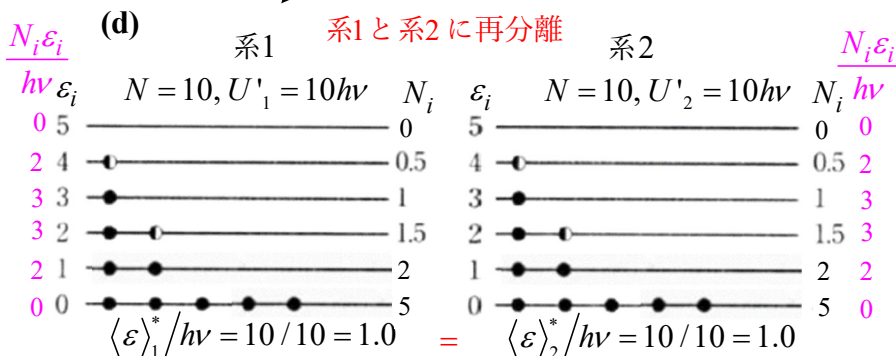
$$W_{1+2}^b = \frac{20!}{11! \cdot 4! \cdot 2!} = 1,269,777,600 \quad 12\text{億}$$

$$\ln W_{1+2}^b = 20.96$$



$$W'_{1+2}^c = \frac{20!}{10! \cdot 4! \cdot 3! \cdot 2!} = 2,327,925,600 \quad 23\text{億}$$

$$\ln W'_{1+2}^c = 21.57$$



$$W_1'^d = \frac{10!}{5! \cdot 2! \cdot 1.5! \cdot 1! \cdot 0.5!} \approx 25,668.51$$

$$\downarrow \leftarrow W_2'^d = W_1'^d \quad 6.6\text{億}$$

$$W_1'^d \times W_2'^d \approx 658,872,365.7$$

$$\ln W_1'^d \approx 10.15$$

$$\ln W_1'^d + \ln W_2'^d \approx 20.31$$