Vet:

$$\sum_k \chi^{(i)}(\mathcal{C}_k)^* \chi^{(j)}(\mathcal{C}_k)\, N_k = g\, \delta_{ij}$$

Vet:

$$\chi(R) = \sum_i a_i \chi^{(i)}(R) \quad \text{alla } R$$

(a_i blir antalet gånger en irreducibel representation $\Gamma^i(R)$ dyker upp som block i den blockdiagonala/blockdiagonaliserbara reducibla representationen $\Gamma(R)$.)

Studerar:

$$\frac{1}{g} \sum_k N_k\, \chi^{(i)}(\mathcal{C}_k)^*\, \chi(\mathcal{C}_k) =$$

$$= \frac{1}{g} \sum_k N_k\, \chi^{(i)}(\mathcal{C}_k)^* \left(\sum_j a_j \chi^{(j)}(\mathcal{C}_k) \right) =$$

$$= \frac{1}{g} \sum_j a_j \left(\sum_k N_k \chi^{(i)}(\mathcal{C}_k)^* \chi^{(j)}(\mathcal{C}_k) \right) =$$

$$= \frac{1}{g} \sum_j a_j\, (g\, \delta_{ij}) = \frac{1}{g}\, (a_i\, g) = a_i$$