

$$\sum_p C_{ij}^p C_{lm}^p = \sum_q C_{im}^q C_{jl}^q$$

Diagrammatic representation of the equation:

- Left side:** A vertex labeled p is connected to inputs i and j on the left, and outputs l and m on the right. This is associated with the term $C_{ij}^p C_{lm}^p$.
- Right side:** A vertex labeled q is connected to inputs i and m on the left, and outputs j and l on the right. This is associated with the term $C_{im}^q C_{jl}^q$.