

Diagrammatic equation showing the decomposition of a vertex  $J$  with  $n$  external lines into two terms involving vertices  $V_3$  and  $V_4$ .

The left side shows a vertex  $J$  with  $n$  external lines (labeled  $1, \dots, n$ ).

The right side is the sum of two terms, followed by "+ permutations".

The first term is:

$$\sum_i \text{Diagram with } V_3 \text{ and two } J \text{ vertices}$$

The second term is:

$$\sum_{i,j} \text{Diagram with } V_4 \text{ and three } J \text{ vertices}$$

The diagrams on the right show internal lines connecting the vertices  $V_3$  and  $V_4$  to the vertices  $J$ , with external lines labeled with indices and their permutations.