

$$\text{tr} \left(\begin{array}{c} \text{Diagram 1} \end{array} \right) = \text{tr} \left(\begin{array}{c} \text{Diagram 2} \end{array} \right) = \text{tr} \left(\begin{array}{c} \text{Diagram 3} \end{array} \right) = \text{tr} \left(\begin{array}{c} \text{Diagram 4} \end{array} \right)$$

The image shows a sequence of four diagrams, each enclosed in large parentheses and preceded by a trace symbol tr . The diagrams are connected by equals signs, indicating they represent the same trace value.

- Diagram 1:** Three strands (red, green, yellow) enter from the top and exit from the bottom. The red strand starts at i and ends at i . The green strand starts at j and ends at j . The yellow strand starts at k and ends at k .
- Diagram 2:** Similar to Diagram 1, but with a different internal crossing configuration. The red strand starts at i and ends at i . The green strand starts at j and ends at j . The yellow strand starts at k and ends at k .
- Diagram 3:** Similar to Diagram 1, but with a different internal crossing configuration. The red strand starts at i and ends at i . The green strand starts at j and ends at j . The yellow strand starts at k and ends at k .
- Diagram 4:** Similar to Diagram 1, but with a different internal crossing configuration. The red strand starts at i and ends at i . The green strand starts at j and ends at j . The yellow strand starts at k^* and ends at k^* .