

Diagram illustrating a contraction of a fermion loop with an external index μ . The left side shows a vertex connected to four external lines: a (top-left), \bar{b} (top-right), \bar{c} (bottom-left), and a line labeled μ (bottom-right). The right side shows the same vertex connected to four external lines: \bar{c} (top-left), a (top-right), \bar{b} (bottom-left), and a line labeled ν (bottom-right). The two diagrams are equated by a summation over ν of the matrix element $[P_c^{ab}]_{\mu\nu}$.

$$\begin{array}{c}
 a \\
 \diagdown \\
 \text{---} \mu \\
 \diagup \\
 \bar{c}
 \end{array}
 \begin{array}{c}
 \bar{b} \\
 \diagup \\
 \text{---} \mu \\
 \diagdown \\
 \bar{c}
 \end{array}
 = \sum_{\nu} [P_c^{ab}]_{\mu\nu}
 \begin{array}{c}
 \bar{c} \\
 \diagdown \\
 \text{---} \nu \\
 \diagup \\
 \bar{b}
 \end{array}
 \begin{array}{c}
 a \\
 \diagup \\
 \text{---} \nu \\
 \diagdown \\
 \bar{b}
 \end{array}$$