

$$(|0\rangle_c + |1\rangle_c) | \text{ellipsoid} \rangle \rightarrow$$

$$|0\rangle_c \left| \begin{array}{c} \text{Cylinder with two red paths labeled } a \text{ and a dashed blue loop labeled } 0 \oplus 0 \end{array} \right\rangle + |1\rangle_c \left| \begin{array}{c} \text{Cylinder with two red paths labeled } a \text{ and a solid blue loop labeled } \Psi_m \end{array} \right\rangle =$$

$$(|0\rangle_c + \tilde{S}(a, \Psi_m) |1\rangle_c) | \text{ellipsoid with two red dots} \rangle$$