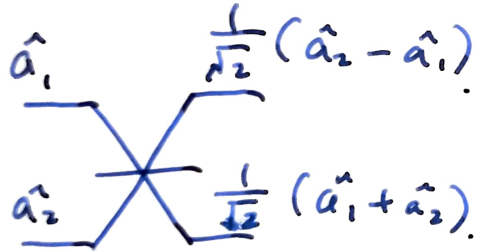
$|1_L\rangle = |1,0\rangle$

$|0_L\rangle = |0,1\rangle$



$|1_L\rangle \rightarrow \frac{1}{\sqrt{2}}(|0,1\rangle - |1,0\rangle)$

$= \frac{1}{\sqrt{2}}(|0_L\rangle - |1_L\rangle)$

$|0_L\rangle \rightarrow \frac{1}{\sqrt{2}}(|0,1\rangle + |1,0\rangle)$

$= \frac{1}{\sqrt{2}}(|0_L\rangle + |1_L\rangle)$