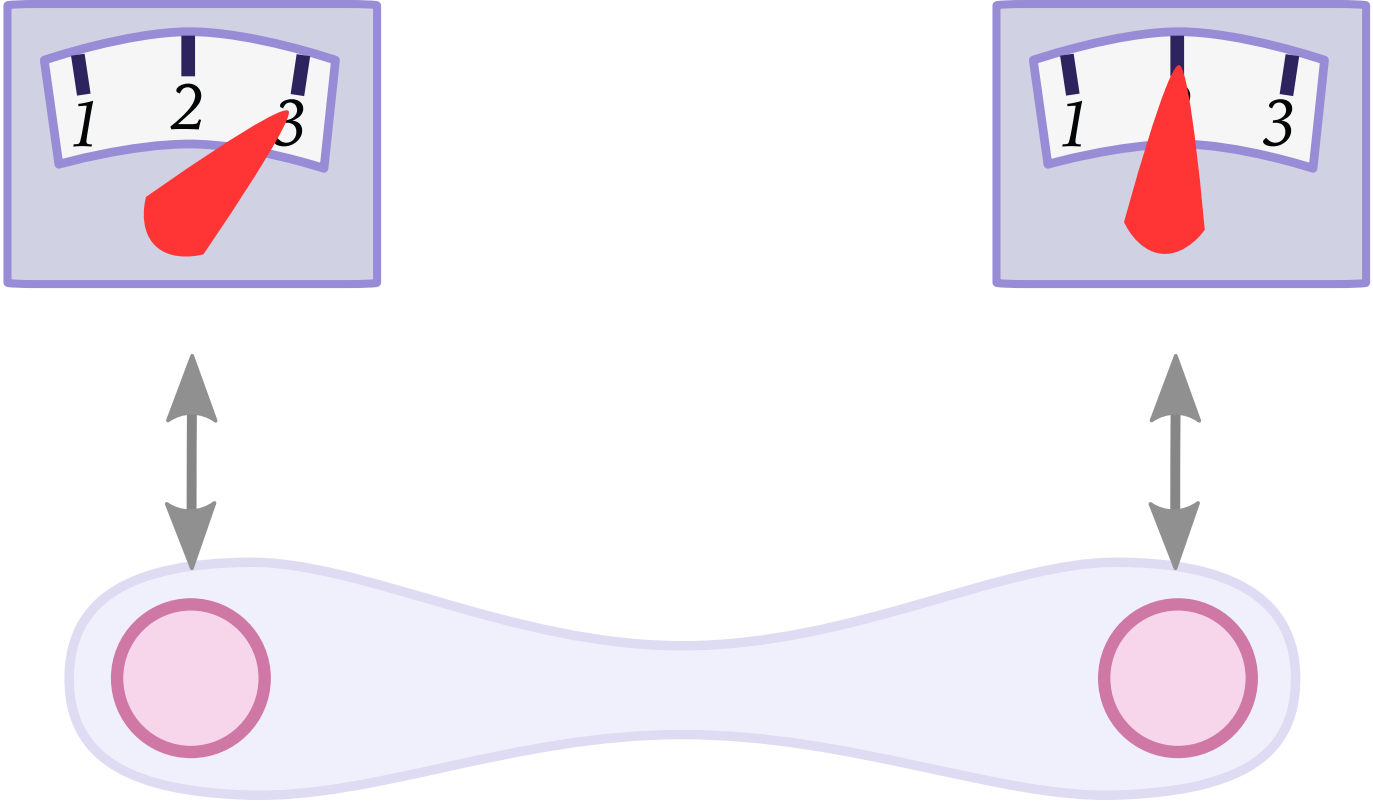

$$|a\rangle = a_1|1\rangle + a_2|2\rangle + a_3|3\rangle$$

$$|b\rangle = b_1|1\rangle + b_2|2\rangle + b_3|3\rangle$$