

**Lemma.** Let  $\langle \mathbf{C}, \otimes, \mathbf{1}_{\mathbf{C}}, \mathbf{br}, \text{Tr} \rangle$  be a traced monoidal category. Then a more general version of the superposing law holds: for any morphisms  $f : X \otimes Z \rightarrow Y \otimes Z$  and  $g : U \rightarrow V$ ,

$$\text{Tr}_{U \otimes X, V \otimes Y}^Z(g \otimes f) = g \otimes \text{Tr}_{X, Y}^Z(f).$$