

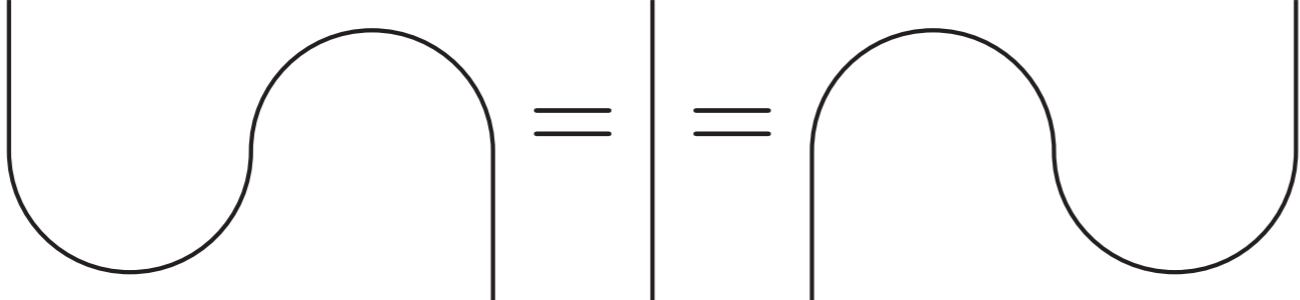
‘With duals’ means

- There’s a functor $*$: $\mathcal{C} \rightarrow \mathcal{C}$ that reverses tensor products, and $** = \mathbf{1}_{\mathcal{C}}$.
- There are maps

$$\text{cap} : V^* \otimes V \rightarrow \mathbf{1} \quad \text{(pairing)}$$

$$\text{cup} : \mathbf{1} \rightarrow V \otimes V^* \quad \text{(copairing)}$$

for each object V , such that

-  , and

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