

Lemma. For any $\mathbf{A}, \mathbf{B} \in \text{Ob}_{\mathbf{DP}}$, the design problem $\text{br}_{\mathbf{A}, \mathbf{B}} : \mathbf{A} \times \mathbf{B} \dashrightarrow \mathbf{B} \times \mathbf{A}$ given by

$$\text{br}_{\mathbf{A}, \mathbf{B}}(\langle a_1, b_1 \rangle^*, \langle b_2, a_2 \rangle) := (a_1 \leq_{\mathbf{A}} a_2) \wedge (b_1 \leq_{\mathbf{B}} b_2)$$

constitutes the braiding operation for a symmetric monoidal structure on $\langle \mathbf{DP}, \otimes, \{\bullet\} \rangle$. In other words, $\langle \mathbf{DP}, \otimes, \{\bullet\}, \text{br} \rangle$ is a symmetric monoidal category.