

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

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

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.