

$$\begin{aligned}
(\mathbf{f}_1 \otimes \mathbf{g}_1)(\langle a, c \rangle^*, \langle b, d \rangle) &= \mathbf{f}_1(a^*, b) \wedge \mathbf{g}_1(c^*, d) \\
&\leq_{\mathbf{DP}} \mathbf{f}_2(a^*, b) \wedge \mathbf{g}_2(c^*, d) \\
&= (\mathbf{f}_2 \otimes \mathbf{g}_2)(\langle a, c \rangle^*, \langle b, d \rangle)
\end{aligned}$$