

Lemma. Given $f_1, f_2 \in \text{Hom}_{\mathbf{DP}} (A; B)$ and $g_1, g_2 \in \text{Hom}_{\mathbf{DP}} (C; D)$, one has:

$$\frac{f_1 \leq_{\mathbf{DP}} f_2 \quad g_1 \leq_{\mathbf{DP}} g_2}{f_1 \otimes g_1 \leq_{\mathbf{DP}} f_2 \otimes g_2}$$

In other words, the monoidal product preserves order on \mathbf{DP} .