Definition (Companion and conjoint) Let **P** and **Q** be posets, and suppose that $f: \mathbf{P} \to_{\mathbf{Pos}} \mathbf{Q}$ is a monotone map.

We define its companion in **DP**, denoted $\hat{f}: \mathbf{P} \to \mathbf{Q}$, and its conjoint, de-

$$\check{f}: \mathbf{Q} \longrightarrow \mathbf{P} \text{ as}$$

noted $\check{f}: \mathbf{Q} \longrightarrow \mathbf{P}$ as and $\check{f}(q^*, p) := q \leq_{\mathbf{P}} f(p)$. $\widehat{f}(p^*, q) := f(p) \leq_{\mathbf{Q}} q$