Definition (Uncertainty endofunctor). The *uncertainty endofunctor* $\mathrm{Unc} : \mathbf{DP} \to \mathbf{DP}$ is defined as follows:

1. It maps an object $\mathbf{P}$ in $\mathbf{DP}$ (poset) to its poset of intervals $\mathbf{Int}(\mathbf{P})$.
2. It maps a morphism in $\mathbf{DP}$ $\mathbf{d} : \mathbf{F} \nrightarrow \mathbf{R}$ to $\mathrm{Unc}(\mathbf{d})$, where:

$$\mathrm{Unc}(\mathbf{d}) : \mathbf{Int}(\mathbf{F})^{\mathrm{op}} \times \mathbf{Int}(\mathbf{R}) \to_{\mathbf{Pos}} \mathbf{Bool}$$

$$\langle [f_\mathsf{L}, f_\mathsf{U}]^*, [r_\mathsf{L}, r_\mathsf{U}] \rangle \mapsto \mathbf{d}(f_\mathsf{L}^*, r_\mathsf{L}) \wedge \mathbf{d}(f_\mathsf{U}^*, r_\mathsf{U}).$$