

Lemma. There is a functor $\text{FixResMaxFunBack} : \mathbf{Pos}_{\mathcal{L}} \rightarrow \mathbf{DP}$ which maps:

1. An object (poset) in $\mathbf{Pos}_{\mathcal{U}}$ to the same object (poset) in \mathbf{DP} .
2. A morphism $g \in \text{Hom}_{\mathbf{Pos}_{\mathcal{L}}}(\mathbf{F}; \mathbf{R})$ to the morphism $\mathbf{d}_g \in \text{Hom}_{\mathbf{DP}}(\mathbf{F}; \mathbf{R})$,
where:

$$\mathbf{d}_g : \mathbf{F}^{\text{op}} \times \mathbf{R} \rightarrow_{\mathbf{Pos}} \mathbf{Bool}$$

$$\langle f^*, r \rangle \mapsto f \in g^{\star}(r).$$