

$$[\textcolor{orange}{L}\mathcal{U}_a, \textcolor{violet}{U}\mathcal{U}_a] \leq? [\textcolor{orange}{L}\mathcal{U}_b, \textcolor{violet}{U}\mathcal{U}_b]$$

$$\textcolor{orange}{L}\mathcal{U}_b \leq_{\text{DP}} \textcolor{orange}{L}\mathcal{U}_a \leq_{\text{DP}} \textcolor{violet}{U}\mathcal{U}_a \leq_{\text{DP}} \textcolor{violet}{U}\mathcal{U}_b$$