

Lemma. Let $f : \mathbf{P} \times \mathbf{Q} \rightarrow \mathbf{Q}$ be Scott continuous. For each $x \in \mathbf{P}$, define

$$f_x : y \mapsto f(x, y).$$

Then $f^\dagger : x \mapsto \text{lfp}(f_x)$ is Scott continuous.