$f : D_1 \to D_2$ is *monotonic* iff $f(d) \sqsubseteq_{D_2} f(d')$ for all $d \sqsubseteq_{D_1} d'$

$\{d_1, d_2, \ldots\}$ is a *chain* iff $d_1 \sqsubseteq d_2 \sqsubseteq d_3 \sqsubseteq \ldots$

$\{\mathsf{fact}_0, \mathsf{fact}_1, \ldots\}$ is a chain where

$$\mathsf{fact}_0(x) = \bot \text{ for all } x \in \mathbb{Z}_\bot$$

$$\mathsf{fact}_1(x) = \begin{cases} x!, & \text{for } 0 \le x < 1 \\ 1, & \text{for } x < 0 \\ \bot, & \text{for } x = \bot \text{ or } 1 \le x \end{cases}$$

$$\mathsf{fact}_2(x) = \begin{cases} x!, & \text{for } 0 \le x < 2 \\ 1, & \text{for } x < 0 \\ \bot, & \text{for } x = \bot \text{ or } 2 \le x \end{cases}$$

$$\vdots$$

Least upper bound: $\bigsqcup\{\mathsf{fact}_0, \mathsf{fact}_1, \mathsf{fact}_2, \ldots\} = \mathsf{fact}$ with

$$\mathsf{fact}(x) = \begin{cases} x!, & \text{for } 0 \le x \\ 1, & \text{for } x < 0 \\ \bot, & \text{for } x = \bot \end{cases}$$