$$\hbar{:}P \text{ loc fin}$$

$$\underset{\sim}{P} = \frac{x{:}y \in P \llcorner I}{\text{int } x|y = \varnothing} = \frac{x{:}y \in \hbar^{<}\hbar}{x \dagger y = \varnothing}$$

$$= \frac{x{:}y \in \hbar \times \hbar{:} \quad x < y}{x \leqslant z \leqslant y \Rightarrow x = z \vee z = y} \text{ Hasse oriented graph}$$

$$\underset{\sim}{P} \text{ oriented tree}$$

$$\lightning \bigvee_{\ell \text{ cycle } \in \underset{\sim}{P}}^{\ell > 1} x = x_0 | x_1 | \cdots | x_\ell = x$$

$$\Rightarrow x_0 : x_1 \in \underset{\sim}{P} \cdots x_{\ell\text{-}1} : x_\ell \in \underset{\sim}{P} \Rightarrow x = x_0 < x_1 < \cdots < x_{\ell\text{-}1} < x_\ell = x \underset{\text{trans}}{\Rightarrow} x < x \lightning$$

$$\underset{\sim}{P}^{\sim} = P$$

$$\subset : \quad x{:}y \in \underset{\sim}{P}^{\sim} \underset{x \neq y}{\Rightarrow} \bigvee_{\ell > 1} x = x_0 : x_1 \in \underset{\sim}{P} \cdots x_{\ell\text{-}1} : x_\ell = y \in \underset{\sim}{P} \Rightarrow x = x_0 < x_1 < \cdots < x_{\ell\text{-}1} < x_\ell = y$$

$$\overset{\ell > 1}{\underset{\text{trans}}{\Rightarrow}} x < y \Rightarrow x{:}y \in P$$

$$\underset{\sim}{P} \subset P \text{ trans } \Rightarrow \underset{\sim}{P}^{\sim} \subset P$$

$$\supset : \quad x{:}y \in P{:} \quad \text{OE } x \neq y{:} \quad n = \sharp x \dagger y \geqslant 0$$

$$0 = n{:} \quad x{:}y \in \underset{\sim}{P} \subset \underset{\sim}{P}^{\sim}$$

$$0 \leqslant n \curvearrowright n{+}1{:} \quad \sharp x < y = n + 1 > 0 \Rightarrow \bigvee_{x < z < y} \Rightarrow \begin{cases} \sharp x \dagger z \\ \sharp z \dagger y \end{cases} \leqslant n \underset{\text{ind}}{\Rightarrow} x{:}z \in \widetilde{\underset{\sim}{P}} \ni z{:}y \underset{\underset{\sim}{P}^{\sim} \text{ trans}}{\Rightarrow} x{:}y \in \underset{\sim}{P}^{\sim}$$

$$\overset{-1}{P}_{\sim} = \underset{\sim}{P}^{-1}$$

$$\mathsf{\bar{h}}\ \text{o-zush} \iff \underset{\sim}{P} \cup \overset{-1}{\underset{\sim}{P}}\ \text{zush}$$